



TROY
OHIO®



CITY OF TROY

COMPREHENSIVE PLAN



Adopted February 1, 2005

Updated in 2010, 2016,

2019



CITY OF TROY

COMPREHENSIVE PLAN

Adopted February 1, 2005 by Troy City Planning Commission

Major General Jack Waters, Chairman
Charles J. Doyle, Vice-Chairman
Michael L. Beamish, Mayor

David E. Anderson, Director of Public Service and Safety
Alan Kappers, President, Board of Park Commissioners

Thomas E. Force
Anthony B. Char, AICP

Sue G. Knight, Secretary

Troy City Council

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Alan R. Clark
Mark A. Douglas
Frank L. Hutchinson
Ted S. Mercer
Shirley M. Saxton
Craig E. Wise

Michael L. Beamish, Mayor
William F. Lohrer, President
Sue G. Knight, Clerk of Council

Troy City Staff

David E. Anderson, Director of Public Service and Safety
James Dando, AICP, Planning & Economic Development Director
Gregg Harris, AICP, Assistant Development Director
Mark Cundiff, Administrative Services Director
Steve Leffel, PE, PS, Public Works Director
Debbie Swan, PE, City Engineer
Doug Wenning, GIS Technician

**Prepared by Troy City Staff with assistance from Miami Valley
Regional Planning Commission & Poggemeyer Design Group**

Recent Update in 2016 by Troy City Planning Commission

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Thomas E. Force, Vice-Chairman
Michael L. Beamish, Mayor

Patrick E.J. Titterington, Director of Public Service and Safety

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John W. Schweser, Third Ward
Bobby W. Phillips, Fourth Ward
William C. Twiss, Fifth Ward

Brock A. Heath, Sixth Ward
John L. Terwilliger, Councilman-at-Large
Lynne B. Snee, Councilwoman-at-Large
Robin I. Oda, Councilwoman-at-Large
Sue G. Knight, Clerk of Council

**Prepared by Troy City Staff with assistance from
Miami Valley Regional Planning Commission**

City of Troy, Ohio



January 31, 2005

A Public Hearing by the Troy Planning in conjunction with the Troy City Council at 7:00 p.m. on Monday, January 31, 2005, in Council Chambers. Presiding Officer – Planning Commission Chair Jack Waters.

Attending: Planning Commission – Waters, Doyle, Kappers, Force, Anderson, Beamish
Council: Council President Lohrer; Council members – Baker, Douglas, Mercer, Clark, Wise, Hutchinson and Saxton.

Other elected officials: Greg Dixon, Director of Law.

Staff attending: Gregg Harris, Assistant Development Director; Development Director James Dando; Planning Director Mark Cundiff; Public Works Director Steve Leffel.

Citizens attending – approximately 20.

APPROVAL OF THE COMPREHENSIVE PLAN. A motion was made by Mr. Force, seconded by Mr. Kappers, that the Comprehensive Plan document be adopted as of February 1, 2005.
MOTION PASSED BY UNANIMOUS VOTE.

I, Sue G. Knight, Secretary to the Troy Planning Commission, do hereby certify that the Comprehensive Plan of the City of Troy, Ohio, was unanimously adopted by the Troy Planning Commission at a public hearing meeting held on January 31, 2005, with the Comprehensive Plan having an effective date of February 1, 2005.

I further certify that the above is a true and exact copy of the portion of the minute of the January 31, 2005 public hearing meeting of the Troy Planning Commission, at which meeting the Comprehensive Plan was adopted.


Sue G. Knight



City of Troy Comprehensive Plan

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GLOSSARY OF TERMS**

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A. INTRODUCTION

The Troy Comprehensive Plan is a central organizing document used for planning and managing growth in the City. It consists of set of official city policies regarding long term development, and land use maps that indicate the types and densities of uses allowed in a given area. The City requires development regulations and other city standards to follow the general policy direction set by the Comprehensive Plan. The Plan serves as a flexible blueprint to guide future decision making by the City, community organizations, private entities and citizens.

The 2005 Comprehensive Plan is a 20-year plan which is to be updated every five years. The previous plan was updated in 1989. More information about previous comprehensive planning efforts can be found in the Introduction Chapter.

B. PLANNING PROCESS

The process followed to develop this Comprehensive Plan began with a substantial effort to gather relevant information about the City from a purely analytical standpoint. Throughout this Plan, Troy has been described and analyzed in great detail, thus providing an excellent description of many dimensions of the City. After compilation of a rough draft of the Comprehensive Plan, work turned toward a more creative and engaging process with public visioning sessions and Planning Commission workshops. In this later phase, emphasis was directed toward creative thinking about the most pressing community issues, goals, and required actions to meet expected challenges. The goals, issues, and actions were defined into the following categories:

Goals: Aim and purpose;

Strategies/Policies: A method for achieving an end. A method of action selected to guide and determine present and future decisions;

Related Initiative: An introductory step; and

Output Measures: A suitable limit; to determine the extent or amount; capacity of something ascertained by measuring; to bring into comparison or competition; the amount produced.

C. VISION PROCESS

The Visioning Process included several early visioning sessions held at the Troy High School in Fall of 2003 (See Visioning Report Appendix I). The process uncovered many questions that were addressed in response to the issues raised by the community. As a result of the vision process, the following general themes emerged:

General Themes

- ◆ Troy has a **strong tradition and exceptional track record with respect to economic development**; providing the City with quality jobs, a strong economic base and the resources necessary to provide a high level of services and civic amenities. This success is the product of strong leadership and sustained commitment that will certainly continue in the future.
- ◆ The City is **generally supportive of physical growth** so long as such growth represents a measured, steady, and comprehensive planned expansion of the City.
- ◆ It has been recognized that there is a need for **ongoing monitoring of housing choices in the City and the balance between the demand and supply of commercial space**. The City will use its planning and zoning authority to carefully expand the supply of various kinds of residential and commercial zoning to balance community-wide needs.
- ◆ While growth is important, the City is also interested in defining and carrying out focused and deliberate actions to **help redevelop and maintain older areas** of town.
- ◆ City leaders recognize the **potential of the City to become better known as a unique destination**. The Downtown Troy area, with its unique shops and restaurants, is the heart of this draw, and further development of this special place is a definite City priority.
- ◆ The City recognizes the **importance of open spaces, parks, and recreation to overall community livability** and will continue to emphasize the development of these outstanding community assets.

The above general themes provided the basis in which to create 14 elements representative of the City's purpose and function. The Comprehensive Plan is therefore divided into the following 14 Chapters:

1. Introduction
2. Community Profile
3. Population and Demographic Trends
4. Housing
5. Economic Trends
6. Physical Characteristics and Natural Resources
7. Utilities
8. Transportation and Mobility
9. Land Use Trends
10. The Downtown Troy Historic District
11. Community Facilities and Services
12. Parks, Recreation, and Open Space
13. Visioning
14. Future Land Use and Thoroughfare Plan.

A Glossary of Terms and Appendices with supporting documents follow.

Each of the 14 elements or chapters of the Plan serve as a foundation for future policies. This Plan has been organized with the first 12 chapters consisting of quantitative data illustrating where the City has been and where it is today. Historical trends using statistics and other critical data provide a picture of where the City is heading in the future. Chapter 13 consists of goals and strategies to achieve the City's vision. Chapter 14 consists of the Future Land Use and Thoroughfare Plan.

As a product of all the public visioning meetings, surveys and work sessions; a number of goals, strategies, initiatives, and output measures were created as part of Chapter 13. The data and processed information from both Chapter 13 and 14 were further distilled into the Implementation Plan of this Executive Summary.

D. IMPLEMENTATION PLAN

Specific goals and action items were provided from Chapters 13 and 14, which were grouped from the following seven topic areas:

1. Neighborhoods and Housing;
2. Economic Development;
3. Downtown Development;
4. Land Use and Thoroughfare;
5. Urban Design;
6. Community Facilities and Services; and
7. Parks and Open Space.

The Implementation Plan consists of the above seven topic areas with a list of goals and action items following. The numbered goals and sequence of "bullet" action items are not prioritized in any fashion. Goals and action items are assigned time frames and a lead agency. The time frames range from "ongoing" to "long range". See the below key for abbreviations and time periods.

KEY:

- O = Ongoing
 I = Immediate (within 2 Years)
 S = Short-Term (within 5 Years)
 M = Mid-Term (5-15 Years)
 L = Long-Term (beyond 15 Years)
Lead agency or agencies shown in italics



NEIGHBORHOODS AND HOUSING

#1 Goal: The City of Troy will offer residents a wide range of housing choices, providing many options for all types of people as they move through various stages of life.

- ◆ Perform a Zoning Code update.
(I; Planning & Development)
- ◆ Perform a City wide condominium study.
(I; Planning & Development)
- ◆ Implement conservation design standards.
(I; Planning & Development)

#2 Goal: To have a ratio of owner-occupied housing and rental housing that is equal to or better than the state and national statistics.

- ◆ Seek grants to fund down payment assistance and housing rehabilitation.
(O; Planning & Development)

#3 Goal: To avoid a concentration of low-to-moderate-income (LMI) housing anywhere in the City.

- ◆ Stricter enforcement of local building, housing, and health codes.
(O; Planning & Development)
- ◆ Promote the existing Community Reinvestment Area.
(O; Planning & Development)
- ◆ Investigate the rezoning of older areas from industrial and multi-family residential to single-family residential use.
(O; Planning & Development)
- ◆ Initiate housing programs for first time homeowners and rehabilitation hobbyists.
(I; Planning & Development)
- ◆ Investigate and recommend strategies to decrease LMI housing concentrations.
(I; Planning & Development)
- ◆ Provide a community comparison report on other housing programs.
(I; Planning & Development)

#4 Goal: To protect and restore historically significant residential properties and individual units.

- ◆ Perform surveys and studies of public attitudes towards historic preservation.
(O; Troy Historical Society)
- ◆ Encourage grass root efforts with housing improvement programs; incentives; architectural consultation; information awareness programs; workshops; literature to homeowners; assistance with identification of historic neighborhoods (signs, entry areas, landscaping, bronze markers); historic merit awards; and a list of reliable contractors with skills to perform historic work.
(O; Planning & Development, Troy Main Street, Troy Historical Society, SW Historic District)
- ◆ Investigate amending Ordinances to provide "ad-hoc" representation to the Planning Commission for historic reviews, and more regulation on window replacements.
(I; Planning & Development)
- ◆ Research the feasibility of raising grass root efforts in spreading the concept of volunteer neighborhood associations to other areas in Troy.
(S; Planning & Development, Troy Historical Society)
- ◆ Assist interest groups in the possibility of a volunteer initiated deed restriction for a historic neighborhood district.
(S; Planning & Development, Troy Historical Society, SW Historic District)



#5 Goal: To eliminate poor housing conditions from further property decline and encourage infill, rehabilitation and restoration.

- ◆ Investigate the use of land banks, land re-utilization programs for tax delinquent properties, gift of deeds in lieu of foreclosure and property receivership programs.
(S; Planning & Development, Troy Historical Society, SW Historic District)
- ◆ Stimulate single-family residential in-fill development by utilizing development incentives such as Community Reinvestment Area's, below market rate interest loans, housing trust funds, available tax credit programs, rezoning of non-conforming lots and grants.
(O; Planning & Development)
- ◆ Review zoning classifications in some central City areas to encourage adaptive reuse of buildings and property.
(O; Planning & Development)

#6 Goal: To carefully expand residential areas commensurate with community facilities such as schools, parks and utilities.

- ◆ Review and perform a Subdivision Regulations update.
(I; Engineering, Planning & Development, Parks)
- ◆ Perform a Cost of Services Study (CSS), Level of Service (LOS) Study, Fiscal Impact Analysis, Impact Fee Study, and/or a Land Evaluation Site Assessment (LESA) to use as standards for measuring public financial and service sustainability of the community.
(S; Planning & Development, Engineering, Safety/Service Director)
- ◆ Review and amend City ordinances concerning permit fees accordingly.
(S; Planning & Development, Engineering, Safety/Service Director)



ECONOMIC DEVELOPMENT

#1 Goal: Retain and expand employment base

- ◆ Perform company surveys to evaluate and assess business trends and needs, and provide direct point to point contact with CEO's utilizing resource partners.
(O; Planning & Development, Troy Development Council)
- ◆ Create retention and expansion strategies to specifically target the needs and interests of local companies.
(O; Planning & Development, Troy Development Council)
- ◆ Encourage further partnership efforts with the Troy Development Council and the Business First Program.
(O; Planning & Development, Troy Development Council)

#2 Goal: Plan for and develop a Regional Employment Center

- ◆ Develop a large employment center that is generally west of I-75 and north of the current corporation limits.
(M; Safety/Service Director)
- ◆ Pursue economic cooperative agreements with adjacent townships to promote industrial development.
(O; Planning & Development, Troy Development Council)
- ◆ Recruit new business and industry that will provide long term, quality employment opportunities.
(O; Planning & Development, Troy Development Council)
- ◆ Continue workforce development efforts so that workforce skills match future jobs.
(O; Planning & Development, Troy Development Council)
- ◆ Create a Growth Development Policy.
(O; Planning & Development, Safety/Service Director)

#3 Goal: Capture economic development opportunities from local business expansions and spin offs.

- ◆ Create an inventory of large, medium and small size businesses and industries.
(O; Troy Development Council, Planning & Development)
- ◆ Continue to strategize for opportunities in soliciting industry suppliers and company expansions.
(O; Troy Development Council, Planning & Development)
- ◆ Conduct trade missions with European and Asian industries and participate with local and regional economic development organizations.
(O; Planning & Development, Troy Development Council)

#4 Goal: Use or reuse vacant or underutilized commercial and industrial structures.

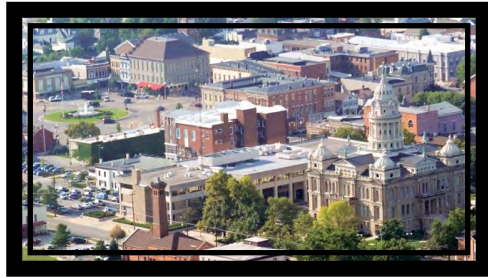
- ◆ Update Zoning Code.
(I; Planning & Development)
- ◆ Pursue Clean Ohio funds for clean up of sites with environmental issues.
(O; Planning & Development)
- ◆ Perform an Inventory of the total number of functional obsolete buildings.
(I; Planning & Development)
- ◆ Investigate feasibility of a business incubator leveraging local and federal funds.
(S; Safety/Service Director)

#5 Goal: Ensure an adequate supply of viable industrial land for both small and large companies.

- ◆ Following the Future Land Use and Thoroughfare Plan, ascertain costs and procedures necessary to secure land for future industrial development.
(I; Planning & Development, Troy Development Council, Safety/Service Director)
- ◆ Compile cost of public services, pricing from utility companies and for design-build-to-suite applications.
(M; Engineering, Planning & Development)
- ◆ Seek options, costs, and the legal steps necessary for future industrial growth.
(O; Troy Development Council, Planning & Development)
- ◆ Create a growth management plan reflective of future developable areas of the City.
(S; Safety/Service Director)

#6 Goal: Include provisions for high-speed telecommunications infrastructure for future industrial development.

- ◆ Subdivision Regulations update.
(I; Engineering, Planning & Development)
- ◆ Perform a feasibility study for the type of broad band technology needed for area companies.
(I; Safety/Service Director, Planning & Development)
- ◆ Survey needs of existing industries and potential high technology users.
(I; Safety/Service Director, Planning & Development)



DOWNTOWN DEVELOPMENT

#1 Goal: Promote the use of the vacant second and third story floors, with the installation of elevators, walkways and off-street parking areas, and maintain first floor levels with retail and other compatible uses.

- ◆ Zoning Code update.
(I; Planning & Development)
- ◆ Create a special study which investigates the opportunities for shared elevators.
(S; Troy Main Street, Downtown Business Association, Planning & Development)
- ◆ Conduct research to determine building code variances with the state to allow occupancy for the 2nd and 3rd floor.
(O; Planning & Development)
- ◆ Examine creative financial methods such as a special improvement district, shared tax district or tax increment financing.
(I; Planning & Development)
- ◆ Perform a detailed inventory of all the floors of the Downtown buildings, including the vacancies, conditions, uses, and lease rates.
(O; Troy Main Street, Planning & Development)

#2 Goal: Encourage Downtown property owners to reinvest in their properties through economic incentives.

- ◆ Promote the Community Reinvestment Area Program to property owners in the Downtown.
(O; Planning & Development)
- ◆ Continue to administrate and promote the Downtown Building Repair Program.
(O; Planning & Development)

#3 Goal: Support a “theme” for Downtown and market/destination niches.

- ◆ Complete a preliminary assessment by identifying properties, kinds of uses, and infrastructure improvements needed.
(I; Troy Main Street, Engineering)
- ◆ Following the Walkable Community Workshop of 2004, designate an arts district and concert park Downtown seeking funding from a Downtown Revitalization Grant.
(I; Troy Main Street, Engineering, Planning & Development)

#4 Goal: Continued safeguarding of the downtown’s historic and architecturally significant buildings.

- ◆ Develop an illustrated design and renovation guideline book.
(I; Planning & Development)
- ◆ Allow for ad hoc representation to the Planning Commission from historic home owners or historic neighborhood association.
(O; Planning & Development)
- ◆ Examine the possibility of adding bronze plaques for referencing historically significant buildings.
(I; Troy Main Street, Planning & Development)
- ◆ Compare and evaluate property improvement changes with the Ohio Historic Inventory forms.
(O; Planning & Development)
- ◆ Create a historic district map for pedestrian use Downtown.
(O; Troy Main Street)



LAND USE AND THOROUGHFARE

#1 Goal: To develop a new, world class, regional employment center that will provide area residents with ample employment opportunities.

- ◆ Create strategic plans in developing a regional employment center, focusing on compatible land use and needed infrastructure.
(M; Safety/Service Director)

#2 Goal: To provide adequate easy, safe and convenient interstate access to this regional employment center.

- ◆ Conduct Engineering study to determine if a new I-75 interchange at Eldean Road is feasible.
(I; Engineering)
- ◆ Investigate the creation of a central organization such as a Transportation Improvement District (TID) or a Port Authority.
(I; Troy Development Council, Safety/Service Director)

#3 Goal: Maintenance of open roadway corridors to allow for future road construction and widening in association with private development.

- ◆ Create an inventory list and map of specific locations of future interchanges and widening that impacts Major and Minor Collectors.
(O; Engineering)

#4 Goal: To protect existing roadway capacity with access management guidelines.

- ◆ Amend Subdivision and Construction Management Codes that addresses access management in a clear and complete manner.
(I; Engineering)

#5 Goal: To maintain a marketable balance between the supply and demand for retail space.

- ◆ Maintain inventory of vacant retail space.
(O; Development)

#6 Goal: To eliminate existing intersection capacity and safety problems (See also Figure 14-6 for a list and location of identified intersection problem areas).

- ◆ Pursue available funding sources to address identified intersection problems.
(I; Engineering)
- ◆ Improve Nashville Road/SR 55 intersection.
(I; Engineering)
- ◆ Improve Wilson Road/SR 55 intersection.
(M; Engineering)
- ◆ Extension of Swailes Road to Wilson Road at SR 55.
(L; Engineering)
- ◆ Improve Swailes Road curves between Peters Road and CR 25A.
(L; Engineering)
- ◆ Improve Washington Road/SR 718 intersection, realign to Wilson Road.
(I; Engineering)
- ◆ Improve McKaig Road.
(I-S; Engineering)
- ◆ Improve Wilson Road curve south of SR 718.
(S; Engineering)
- ◆ Realign Washington Road and improve intersection at SR 41.
(I; Engineering)
- ◆ Realign Eldean Road to Forest Hill Road at SR 41.
(L; Engineering)
- ◆ Construct roadway connection between South Stanfield Road and Barnhart Road between McKaig Road and SR 718.
(M; Engineering)
- ◆ Extension of Dorset Road north to Eldean Road with driveway connection to UVMC.
(S-M; Engineering)
- ◆ Construct new Interstate 75 interchange at Eldean Road.
(M-L; Engineering)
- ◆ Improve Eldean Road/Experiment Farm Road intersection.
(S; Engineering)
- ◆ Construct Northeast Connector from North CR 25A east to Troy-Sidney Road with bridge over Great Miami River.
(M-L; Engineering)
- ◆ Construct Northeast Connector from Troy-Sidney Road east to Troy-Urbana Road with bridge over RR tracks.
(M; Engineering)
- ◆ Construct Northeast Connector from Troy-Urbana Road south to Old Staunton Road.
(L; Engineering)
- ◆ Realign Troy-Urbana Road/Troy-Piqua Road intersection.
(S; Engineering)
- ◆ Improve Dye Mill Road.
(S; Engineering)
- ◆ Extension of Dye Mill Road west to Swailes Road.
(L; Engineering)
- ◆ Extension of Williams Street to Jeep and Patton Streets.
(L; Engineering)
- ◆ Improve Sayers Road.
(L; Engineering)

- ◆ Realign Ridge Avenue/McKaig Road intersection.
(I; Engineering)
- ◆ Extension of West Street from Garfield Street to Grant Street.
(S; Engineering)
- ◆ Improve Water Street/Elm Street intersection.
(I; Engineering)
- ◆ Improve railroad crossings (6).
(O; Engineering)
- ◆ Construct new roadway from Washington Road east to Carriage Crossing Subdivision.
(O; Engineering)
- ◆ Extension of Forest Hill Road south to SR 55.
(L; Engineering)
- ◆ Improve Horseshoe Bend Road/SR 55 intersection.
(L; Engineering)
- ◆ Improve Peters Road curve near Troy Country Club.
(S-M; Engineering)
- ◆ Improve Peebles Road/SR 718 Intersection.
(M; Engineering)
- ◆ Improve Troy-Urbana Road/Polecat Road intersection.
(L; Engineering)
- ◆ Improve Troy-Urbana Road/Cathcart Road intersection.
(L; Engineering)
- ◆ Relocate Eldean Road north to intersection with Troy- Sidney Road with bridge over RR tracks.
(L; Engineering)
- ◆ Construct new roadway from Eldean Road south to Troy-Sidney Road.
(M; Engineering)
- ◆ Extend Lee Road east to Northeast Connector.
(O; Engineering)
- ◆ Construct new roadway from Dye Mill Road east to SR 202 with bridge over the Great Miami River (Recreation Trail).
(L; Engineering)
- ◆ Extension of Southview Drive to Pleasantview Drive with bridge over waterway.
(O; Engineering)
- ◆ Extension of Fox Harbor Drive to “Old” Washington Road.
(S-M; Engineering)
- ◆ Improve Barnhart Road curves between SR 55 and Swailes Road.
(S; Engineering)
- ◆ Construct Northeast Connector from SR 202 to SR 55.
(L; Engineering)
- ◆ Replace Adams Street Bridge over Great Miami River.
(M; Engineering)
- ◆ Extension of Barnhart Road south from Swailes Road to Monroe-Concord Road.
(L; Engineering)
- ◆ Construct new roadway from Floral Avenue east to Dye Mill Road.
(L; Engineering)

#7 Goal: To encourage conservation design in developing areas.

- ◆ Amend the Subdivision and Zoning Ordinances to reflect conservation design (See Glossary of Terms) principals and guidelines.
(I; Engineering, Planning & Development)



URBAN DESIGN

#1 Goal: To encourage New Urbanism principles in new development and redevelopment areas.

- ◆ Provide Zoning and Subdivision Code revisions to reflect New Urbanism (See Glossary of Terms) principles.
(I; Engineering, Planning & Development)
- ◆ Encourage New Urbanism concepts for infill development, especially in historic areas.
(S; Planning & Development)
- ◆ Incorporate design standards for commercial development to require consistency in design in items such as decorative lighting, pavers or concrete paint for walk ways, benches, gable roofs, projections on front building walls, no neon signs, etc.
(S; Planning & Development)
- ◆ Investigate legislative changes that would allow the Planning Commission (or possible new sub-committee) to conduct site plan review for non-residential development which would require both conventional code requirements and urban design standards.
(I; Planning & Development)

#2 Goal: To create attractive and dramatic gateways into Troy that provides a sense of arrival and positive first impression.

- ◆ Plan for gateway development projects for both the primary roads and the secondary roads.
(S; Safety/Service Director)
- ◆ Seek funding sources such as the Transportation Enhancement Program (See Glossary of Terms) with MVRPC.
(S; Safety/Service Director, Engineering)

#3 Goal: Create an inviting and well landscaped community with high development standards.

- ◆ Relocation of utilities underground should be looked at for the main thoroughfares (See Figure 8-1) throughout Troy.
(O; Engineering)
- ◆ Study options for improved urban design standards (including building design) with the parallel issue of determining what levels of plan review are needed to implement such requirements.
(I; Engineering, Planning & Development)

#4 Goal: To continue to find ways to include public art as an important community element.

- ◆ Create a strategy to fund public art through development and redevelopment fees.
(S; Service Safety Director, Mayor)



COMMUNITY FACILITIES AND SERVICES

#1 Goal: To provide a growing community with appropriately expanding public infrastructure.

- ◆ Define specifically how larger development areas will be served economically with collection and distribution lines, and how to finance such improvements.
(S; Utilities)
- ◆ Explore the feasibility of a Storm Water Utility (See Glossary of Terms).
(S; Engineering, Utilities)

#2 Goal: Maintain high quality public safety services

- ◆ Implement the assorted recommendations contained in the 2003 Fire Study (See Appendix C).
(O; Fire Department, Engineering)

#3 Goal: To facilitate broadband and state-of-the-art telecommunications infrastructure to local businesses and residents.

- ◆ Implementation of recommendations from the Troy Technology Team, a volunteer Information Technology group.
(O; Safety/Service Director)



PARKS AND OPEN SPACE

#1 Goal: To expand the park system and open space requirements commensurate with population growth.

- ◆ Update the Subdivision Regulations after re-examining the parkland dedication requirements and requirements for connections to parkland.
(I; Engineering, Planning & Development)
- ◆ Create standards or guidelines for future development taking in consideration both community parks and neighborhood parks.
(O; Engineering, Parks)
- ◆ Continue to implement and update the 1990 Parks and Recreational Master Plan indicating connected parkland, bikeways, and recreational passive and active areas.
(O; Engineering, Parks)
- ◆ Create standards and criteria for recommending neighborhood parks.
(I; Engineering, Parks)

#2 Goal: Create a comprehensive strategic River Corridor Plan to fully utilize the adjacent parks, lands, river, views and neighborhoods.

- ◆ Create a comprehensive strategic Great Miami River Corridor Plan from Eldean Road to SR 202.
(I; Planning & Development, Troy Main Street, Parks, Engineering, Safety/Service Director)



INTRODUCTION

CHAPTER 1



In 1961, a Master Plan was completed by Harland Bartholomew and Associates. This plan offered general recommendations on utility services, community facilities, thoroughfare networks, and land use development patterns. A second planning effort was the 1972 Comprehensive Plan, prepared by Dalton, Dalton, Little, and Newport, which also focused on thoroughfares, community facilities, and the central business district. The most recent and complete update was done in 1989 by the Miami Valley Regional Planning Commission. This plan was a little different from the others in that it focused on geophysical conditions, population, economic bases, and housing.

WHY PLAN?

For a city to retain its long term economic health, population and employment bases, it must look to what the future holds and plan appropriately. Planning efforts are undertaken to allow a community and its leaders the chance to look at their surroundings and evaluate and formulate ideas and/or recommendations on how to add to or improve the city in the future.

Planning also allows city officials to address current problems and conflicts within the community. An example of a problem or conflict would be continued traffic congestion within certain areas of the city. With the completion of an effective thoroughfare plan, city officials can help solve or relieve such problems in the future.

Many different considerations are taken into account when a community goes through the planning process. Some of these considerations include looking at community demographics, economic trends, utility structures, and transportation. Each of these considerations is looked at individually and then together as a whole to review how they affect one another. This planning process often comes together in written form with a document called the Comprehensive Plan. The Comprehensive Plan (which can also be referred to as The General Plan and Master Plan) can be defined as a working document compiled of guidelines, policy statements, goals and objectives, maps and statistical data for social, cultural, environmental and economic areas of the community.

PREVIOUS COMPREHNSIVE PLANNING EFFORTS

The City of Troy has been very proactive in planning for its community in the past several decades. In addition to this particular Comprehensive Plan, several Master Plans, Comprehensive Plans and Updates, strategic plans, and studies have been conducted and compiled throughout the years.

CURRENT PLANNING EFFORTS

Additional planning efforts in the past have included Master Plans for Parks and Recreation in 1980 and 1990, and a 1987 Source Protection Program for the City's water supply. More recent studies and plans have included the 2000 Downtown Development Plan, the 2001 Troy Development Council Strategy, the Troy City Schools Five-Year Strategic Study Plan, and the Troy Fire Department Strategic Study and Proposed Master Plan.

Beyond the considerations that were described above, the City of Troy also looks to various other sources for planning information. The primary demographic source is the United States Decennial Census. Conducted every 10 years, the Census shows population demographics in a variety of areas including age, sex, housing, race, income, educational attainment, etc. Information within this particular Comprehensive Plan can be dated back to the 1910 Census.

In addition to the Census, community groups, individual departments within the City government, and the public play a role in the planning process. Certain community groups and City departments have conducted individual studies and have created strategic plans to guide their causes. These studies and plans have been seen as informational tools for the Planning Department. The public also has been involved by participating in visioning sessions and opinion surveys.



COMMUNITY GROUPS' PLANNING EFFORTS

There are several community groups within the City of Troy that share a close relationship with City officials in regards to planning. Two groups in particular have put together strategic plans, which the City uses as a part of their planning process. These groups include the Troy Development Council and the Troy City School District.

The 2001 Troy Development Council

In March 2001, the Troy Development Council (TDC), whose structure and role in the community will be explained later in this Plan, researched and developed a strategy for future community and economic development in the Troy area. The strategy was developed with the assistance of groups such as the Miami Valley Economic Development Coalition, Dayton Power & Light, and the Ohio Department of Development.

The foundation for the strategy was to look at ways to foster retention, expansion, and competitiveness of Troy-area businesses. The TDC stated that by continuing to attract and retain high quality businesses to Troy, this would drive long-term economic health.

The strategy examined several different aspects including Troy's economic environment, citizen goals, business retention, expansion and support, community marketing, and product development.

The TDC conducted 372 randomly selected household telephone interviews across the City of Troy. After this statistically rigorous survey was conducted, it was found that citizens, like their community, are optimistic about its future and they very strongly support economic development.

A copy of the Troy Development Council Strategy and Survey Results can be viewed in Appendix A.

The Troy City Schools Five Year Strategic Plan

The Troy City Schools share a close relationship with the City of Troy. Community planning on the City's part plays a big role in the success of the district and enrollment rates. Strategic planning on the school's part ensures that the school system will be attractive to citizens with children in outside communities who are thinking of relocating to Troy. A copy of the Strategic Plan can be found in Appendix E.

The Troy City Schools 2002-2003 Academic, Financial, And Facilities Report

Reports such as the Troy City Schools 2002-2003 Academic, Financial and Facilities Report are crucial to economic development for any city. Many times businesses and individuals will look at a school district and its standing before making a decision to locate within the city. If a city has poor schools, then locating there would be unlikely. On the other hand, if the city has a strong school system, locating there would be more likely.

This school report shows both the positives and negatives of the Troy School District. First, academic growth is discussed. Troy's schools have steadily increased their academic achievements over the past several years. This has led to a "Continuous Improvement" rating on the 2002-2003 State Report Card.

The report also discusses the district's financial standing. When a district is in good financial condition, it is more likely to be successful because it will have the ability to purchase the resources needed for success. Currently, the Troy City School District is in good fiscal standing. Fiscal year 2003 marked the fifth consecutive year the District's revenues exceeded expenses.

The last part of the report discusses the District's facilities. Because of the excellent upkeep of the buildings, these facilities are becoming some of the oldest in the region. In order to continue attracting families to the community, the schools must maintain standards equal to or better than other schools in the area. The District is very well aware of this fact and is currently in the process of completing a Facilities Study to determine the future of its buildings.

A copy of the 2002-2003 Academic, Financial, and Facilities Report can be found in Appendix D.

The Troy City Schools are currently working on updating the Academic, Financial, and Facilities Report, and it is expected to be completed within the 2017 to 2018 academic year.

CITY OF TROY DEPARTMENTAL STUDIES AND PLANS

Individual departments within the City of Troy have researched and compiled individual studies and strategic plans in regards to issues that affect their areas. These plans are yet another valuable tool for City officials to utilize when in the planning process.

Edsall Master Plan For Troy Recreation And School Facilities

In 1980 and 1990, the City hired Edsall & Associates of Columbus, Ohio to research and compile a Master Plan for Parks, Recreation, and school facilities within the City of Troy. The plan looked at community needs, goals, and objectives as well as existing park and school facility structures.

Additional information on the Master Plan is included in Chapter 12 "Parks, Recreation and Open Spaces" in the Comprehensive Plan.

Troy Fire Department Strategic Study and Proposed Master Plan

In March 2003, the Troy Fire Department hired Architectural Resources Corporation to conduct a study that reviewed the City's long term needs and trends. High risk areas of the community were studied as well as the Department's ability to respond to emergency calls effectively. Out of this study came a Master Plan which gives recommendations for the Fire Department to plan the future improvement of fire services offered in the City of Troy and its contracted service area. Further information can be found later in this Comprehensive Plan or excerpts of the Study and Proposed Master Plan can be found in Appendix C. The Fire Department is looking to conduct a new study in 2017.

2000 Downtown Development Plan

In 2000, the Troy Planning and Development Department prepared a Development Plan that focused on the past, present, and future of the Downtown Troy area. This area is seen as a focal point in the City, rich in history and architecture. The plan starts with a history and early planning efforts section which outline the progression of where the Downtown Troy was and where it is headed. The next section focuses on the last quarter-century. In this section it was pointed out that economic decline was starting to occur in the Downtown Troy area. Businesses were moving or closing, and properties were not being maintained. A need for revitalization was seen for improvement and to attract new owners to the area.

In the 1990's, Troy Main Street, Inc. was formed to help promote Downtown Troy. Also during this time, remodeling and expansion of the Downtown area was initiated. Some major efforts during this time included the renovation of City Hall, Downtown Streetscape Program Phases I and II, amended zoning codes and the initiation of the Downtown Building Repair Loan Program. The goal of these efforts was to extend the life of the Historic District and increase economic viability of the commercial enterprises in Downtown Troy.

The Downtown Development Plan also looked at highlights in regards to the Downtown area from the previous Comprehensive Plan Update in 1989. These highlights included housing, public facilities, land use plan, and thoroughfare and traffic plans. The effect of the 1996 Downtown Parking Plan and the Signage Plan were also discussed. The City is conducting a study to address Downtown Parking and Signage Plan with implementation on proposed changes in 2017.

A copy of the 2000 Downtown Development Plan is located in Appendix F.

2003 Downtown Business Opinion Survey

In February 2003, the Troy Planning and Development Department and the Downtown Business Association conducted a survey of all Downtown Troy business owners. This survey looked at a variety of subjects and is still used as a tool for the Planning Department in regards to future Downtown Troy development.

Business owners were asked questions about what they liked best about Downtown Troy, what do their customers like best, what does Downtown need more of, what does Downtown need less of, did the Streetscape improvements help Downtown, parking, Troy Main Street promotions, and promotions in general.

Questions were open-ended, allowing owners to answer with a variety of responses instead of limited responses. When asked what do you like best about Downtown Troy there were various types of responses, some were the same but most were different. They included:

- ◆ Very nice and beautiful;
- ◆ Small town feeling with large atmosphere;
- ◆ Appearance;
- ◆ Atmosphere and safety;
- ◆ Wide streets and accessibility;
- ◆ Small – convenient to get to places;
- ◆ Historical aspect;
- ◆ Specialty shops;
- ◆ Personal & friendly; and
- ◆ The square and fountain area.

When asked what the Downtown needs more of, respondents identified the following responses:

- ◆ Parking;
- ◆ Outside dining;
- ◆ Variety of retail (i.e., drug store, shoe store, quality retail, etc.)
- ◆ Community involvement;
- ◆ Establishments open past 9:00 p.m.; and
- ◆ Ground floor info centers.

For the results of the Downtown Business Opinion Survey, see Appendix G.

GEM Real Estate Group Market Study Of Troy

In August 2003, the Troy Planning and Development Department hired GEM Real Estate Group to conduct a market study of the Troy area. The study area included all land inside the municipal boundaries as well as comparisons with Concord Township, the Dayton Metropolitan Statistical Area, Miami County, Piqua, and Tipp City.

The purpose of conducting the study was to determine the current range of potential land uses throughout the City of Troy and future land uses. The study also gave answers to the following questions:

- 1) What is the current status of the City and how competitive are existing residential developments;
- 2) What are the consumer needs in the community;
- 3) What business opportunities could be developed on the basis of market demand; and
- 4) How will trends for the future influence land use needs in the City?

Various findings of the Market Study will be discussed in various sections of the Comprehensive Plan. To see a copy of the Executive Summary of the Market Study findings, please see Appendix B.

PUBLIC PARTICIPATION

The goal of public participation in the comprehensive planning process was to allow the citizens of Troy to voice their concerns and opinions about the current situations within Troy. The participation also allowed the citizens to express ideas of how the City of Troy should develop. In addition to numerous staff presentations to community groups and organizations, citizen participation was done in two organized processes; visioning and a community survey.

Visioning

After the City of Troy compiled all of the previously mentioned information and statistics, the next step was to involve the citizens in the planning process. This included holding two public meetings in which citizens were able to define and shape their vision for the City of Troy. The meetings were held to receive public input on the future vision of Troy and to lay the groundwork for the establishment of future goals, strategies, and objectives for this Comprehensive Plan.

A copy of the visioning report published in November 2003 can be found in Appendix I of the Plan. Within this report you will find the results of the two public meetings.

Community Quality Of Life Survey

In the fall of 2003, the City of Troy organized and placed a Quality of Life Survey on its Internet homepage. The Internet survey allowed citizens of Troy to voice their opinions on a variety of topics. Citizens were asked to respond to 23 different questions and could respond with one of the following: very satisfied, satisfied, dissatisfied, or no opinion. The survey results, which are shown in Appendix H, show that 95.2% of the respondents were satisfied or very satisfied with the overall quality of life in Troy while only 3.2% were dissatisfied.

In 2015, the Troy Chamber of Commerce, through the Leadership Program, conducted a survey to gauge citizens input on the America's Best Community's initiative. The survey results are in Appendix H.

STUDY AREA

The Troy Comprehensive Plan study area includes all areas within the Troy city limits and all of the rural areas of both Concord and Staunton Townships. These area are often thought of as the Troy community. Comparisons were made to the Miami Valley region as a whole, and Miami County. For purposes of this Comprehensive Plan, the Miami Valley region is considered to be all jurisdictions within Greene, Miami and Montgomery Counties. Piqua, Sidney and Tipp City were also used as comparisons because of their close proximity, and some similarities to Troy.

ORGANIZATION OF THE PLAN

The City of Troy Comprehensive Plan is a guide for the Planning and Development Department and City officials to use when planning future community and economic development. This plan is divided into fourteen (14) chapters, which individually address different areas of planning concern.



COMMUNITY PROFILE

CHAPTER 2



INTRODUCTION

The Troy area is home to approximately 30,000 people, with approximately 25,000 living inside the city limits. Troy has a reputation for community pride, friendliness, and hospitality, along with a respect for its past and great hopes for its future. The community offers a diverse mix of people, places, and activities to enjoy. The sights of urban life are accessible without congestion and inconvenience. Modern services are available throughout the city, yet Downtown Troy continues to thrive and maintain its old-fashioned charm.

The City of Troy, Ohio has come a long way from its frontier beginnings in 1807 when the Overfield Tavern, one of Troy's oldest existing buildings, first opened its doors. Visitors quickly realize just how the community has prospered. This once small town on the Great Miami River has grown over the years from the activity that comes with being the county seat of Miami County and because of the construction of the Miami-Erie Canal, along with the railroads, highways and eventually the freeway, I-75.

The prosperity of the region's farming first brought settlers into the area. Soon, local industry, made up of distilleries, carriage works, and farming equipment manufacturers, began to give Troy a reputation as a place of business. Industrialization propelled Troy into the 20th Century. Led by local companies such as Hobart Brothers Co. and Hobart Corporation, Troy became known for its innovations in welding and food processing equipment. The Hayner Distillery also was a large employer, shipping products all over the country.

Ohio is known as the home of aviation, and Troy played an important role in its beginnings. WACO Aircraft Company produced popular models of biplanes from the 1920s through the 1940s, and was for a time, the largest producer of civilian aircraft in the world. This tradition continues with UTC Aerospace producing modern aircraft parts, including braking systems for the space shuttle. An American astronaut, Nancy Decker Currie also claims Troy as her home.

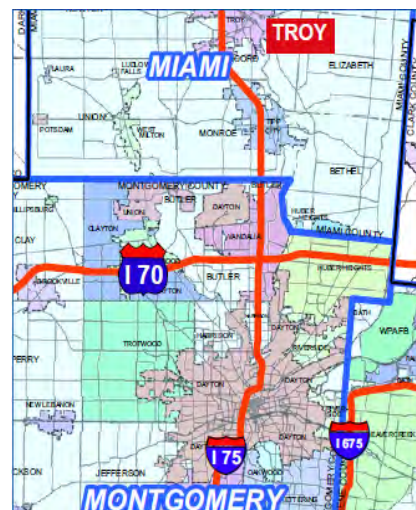
Today, many of these companies are still in business, although there have been changes. As Troy has expanded, new employers have located here, including American Honda, Clopay Building Products, 3 Sigma LLC, F & P America, and Stillwater Technologies, among others.

Troy is well known throughout the entire Miami Valley as the home of the Troy Strawberry Festival, which is held every year in June. Other celebrations include the Festival of Nations and the Downtown Concert Series. The Miami County Fair also takes place near Troy and brings in farmers and spectators from all of the surrounding communities.

Despite tremendous commercial and industrial growth, homes, farms, and the factories exist together and complement each other to provide Troy's residents with rich and diverse opportunities.

TROY - CROSSROADS OF AMERICA

Troy is just 10 miles north of one of the nation's busiest crossroads, I-70 and I-75. Dayton International Airport is just 15 minutes away and is at the center of America's largest 90-minute air travel market, reaching over two-thirds of the nation's population and businesses. From Troy, the same 90-minute air travel market can be reached by car or truck in a day and a half. This makes Troy a good location for business and industry for anyone who delivers goods or services. This combination of land and air accessibility has been a major factor in stimulating growth and development on both a national and international level.



BRIEF HISTORY

Aaron Tullis and his family, from Kentucky, were the first recorded white settlers in the Troy area in 1805. Troy was laid out with its first 87 lots and the Public Square in December 1807 by Andrew Wallace. The first tavern and courthouse in Troy, then known as the Overfield Tavern, still exists today. Located at the corner of Water and Mulberry Streets, this log structure still serves the city as a historical museum.

Also in December of 1807, Robert Crawford was appointed Town Director, and gave bonds to the County Commissioners to purchase the land for the seat of justice and lay it off into streets and lots. The original lands selected for the Town of Troy were then a dense forest, bought for three dollars an acre.

Other Important Events in Troy's History

- ◆ The first church, erected by Methodists in 1812, was located near Main and Clay Streets;
- ◆ The first school was built in 1813;
- ◆ Town became City in 1814;
- ◆ The first successful newspaper, the Miami Reporter, was first issued on May 18, 1827;
- ◆ The Miami Canal was connected to Troy in 1837;
- ◆ The first foundry was built in 1838;
- ◆ The first railroad entered Troy (from Dayton) in 1850;
- ◆ The First National Bank of Troy opened in 1863;
- ◆ Troy City Hall was erected in 1876;
- ◆ Troy Wagon Works was created in 1884;
- ◆ The cornerstone of the Miami County Courthouse was laid out in June 1885;
- ◆ The first public library was opened in December 1896;
- ◆ The Hobart (Food Preparation Machine) Manufacturing company was organized in 1912;
- ◆ The Great Flood of 1913 devastated both Dayton and Troy;
- ◆ The Hobart Brothers furniture and appliance company formed in 1917;
- ◆ In 1923 the Advance Aircraft Company moved to Troy, Ohio where the WACO 6 became the first of the successful WACO series aircraft produced in Troy;
- ◆ The CG-4A Glider was produced at WACO Aircraft Company in the early 1940s;
- ◆ Miami Shores Golf Course opened in 1949;
- ◆ Hobart Sports Arena opened in 1950 ;
- ◆ The first grocery product with a bar code, a 10 pack of Wrigley's gum, was scanned at Marsh's supermarket in 1974;
- ◆ The first Troy Strawberry Festival was held in 1977;
- ◆ The Troy Development Council was founded in 1984;
- ◆ Troy's Main Street program was formed in 1990;
- ◆ Astronaut Nancy Decker Currie became the first Trojan to fly into space when she served as a Mission Specialist on the space shuttle Endeavor in 1993;
- ◆ The Upper Valley Medical Center opened in 1998, just north of Troy.

MUNICIPAL GOVERNMENT AND SERVICES

Form of Government

Troy operates under a statutory (non-charter) form of local government, unlike most other cities in Ohio, which typically operate under a charter with some type of council-manager form of government.

Key departments and bodies within the City of Troy include:

- ◆ The Mayor, who is the Chief Executive Officer of the City, is elected by the voters at the general election every fourth year.

- ◆ City Council is the legislative authority of the City, consisting of nine voting members with a separately elected, non-voting President. The Council members hold two-year terms. An affirmative vote of a majority of the members of Council is necessary to adopt most motions, ordinances, or resolutions, and on the passage of most ordinances. There are some actions that require supermajorities.
- ◆ The Treasurer is the custodian of all money for the City and shall keep the money in such a manner and in such a place as is determined by the legislative authority thereof. The Treasurer pays out money only on warrants issued by the Auditor. The Treasurer is elected for a four-year term.
- ◆ The Auditor serves as the Chief Financial Officer of the City, and is elected for a four-year term. The Auditor is responsible for maintaining a detailed, accurate and systematic record of the receipts, disbursements, assets, and liabilities of the City. The Auditor is also responsible for establishing and maintaining an internal control structure designed to ensure that the assets of the government are protected from loss, theft, or misuse.
- ◆ The Director of Law prosecutes and defends for and on the behalf of the City, all complaints, suits, and controversies in which the City is a party, and which relate to any property, funds, trust, claims, estate, or affairs under the control or direction of the City. The Director of Law is elected for a four-year term.
- ◆ The Director of Public Service & Safety is the Chief Administrative Officer of the City of Troy. Except for autonomous departments governed by independent boards, or those headed by elected officials, the Director of Public Service & Safety supervises the day to day affairs of the City based on the laws and policies established by the Mayor and Council.
- ◆ The Board of Park Commissioners and the Recreation Board, under statutory law, are boards that operate Independently from all other city offices.

COMMUNITY PARTNERSHIPS

Troy Area Chamber of Commerce

The Troy Area Chamber of Commerce is a non-profit organization of businesses, professionals, and involved citizens with a volunteer, eighteen-member governing Board of Directors. The Board oversees all of the Chamber activities, programs, council, task forces, and professional staff. As an advocate for businesses, the Troy Area Chamber works to protect the community's economic base and improve the quality of life through the monitoring, action, and communication of issues affecting businesses.

The mission of the Troy Area Chamber of Commerce is to enhance the quality of life in the area through the promotion of economic vitality and growth; the stimulation of a favorable business environment; the advancement of the free enterprise system; and to serve as a forum for contemporary issues affecting the region.

Although an independent organization, the Chamber is affiliated with the Ohio Chamber of Commerce and the United States Chamber of Commerce, who are recognized speakers for businesses at the state and national levels respectively.



Troy Development Council

The Troy Development Council (TDC) is a public/private partnership dedicated to the retention and expansion of existing businesses and the attraction of new businesses and industries to the City of Troy. The TDC operates as a private IRS 501 (c) 3 corporation, with a large Board of Directors comprised of community and business leaders, and with a full-time President, who also serves as President of the Troy Area Chamber of Commerce.

Established in 1984, the Troy Development Council is an initiative of the Troy Area Chamber of Commerce and the City of Troy. Since 1990, TDC has assisted in the investment of over \$1 billion and the creation of nearly 7,000 new jobs. In 2001 alone, Troy experienced nearly \$160 million in expansion and new growth from businesses and commercial enterprises.

With the opening of the 21st century, TDC embarked on a highly successful strategic planning process called “Leadership for the New Decade.” The resulting strategic plan focused on business retention and expansion of existing Troy businesses, rather than just on seeking to attract new companies. The strategic plan also strengthened TDC’s working committee structure by engaging more companies and individuals in TDC’s projects and programs. Finally, the strategic plan recognized the global challenges faced by Troy businesses and also by the entire Troy community. The resulting efforts helped Troy see its existing companies grow and helped fill any available buildings and new industrial sites in just a few years.

As a response to the Great Recession of 2007-2009, TDC again embarked on a strategic planning process which resulted in its “Partners in Progress Initiative.” It began with a comprehensive outreach program to Troy’s manufacturing and distribution companies, elected officials, and other community organizations to determine another five-year program of work which could advance the Troy economy.

The new strategic plan had four elements: Initiate a Workforce Development Program, Improve the Retention and Expansion Program, Improve the New Business Attraction Program, and Develop a Communications Program to provide information about the Troy community and its businesses.

Over the next five years, TDC implemented the Partners in Progress strategic plan. Organizationally, its business membership grew and it took on many new projects. Social Media outreach included ten two-minute Facebook videos aimed at professional recruitment and introducing different aspects of the Troy community, such as education, housing, entertainment, etc. Workforce Development projects included Career Fairs for High School students and teachers/counselors, Job Fairs for the general public, workforce planning summits for employers, development of coordinated training programs at schools and colleges, and creation of TroyCareerConnect.com, an on-line job posting/matching Internet site. Retention and Expansion was equally successful, with several existing Troy businesses expanding facilities to gain market share as the national economy improved. New businesses also came to Troy, filling the few available vacant building spaces and in several cases constructing new buildings. Two manufacturers, F&P America and Clopay Building Products, surpassed 1,000 employees and four others reached levels of 600 to 900 each. Numerous smaller shops were able to double or even triple their employment as their sales and production increased.

In 2015 TDC also took on a leadership role in the Connected Community Initiative and looked forward to a yet another strategic planning process beginning in 2016.

Troy Main Street

Troy Main Street, Inc. is a non-profit organization, established in 1990 in order to promote the economic revitalization of downtown Troy. Their efforts include managing the Downtown Business Recruitment and Retention Program, improving the visual image of Downtown, and organizing Downtown community events.

THE ARTS, FESTIVALS AND SPECIAL EVENTS

Troy Strawberry Festival

Drawing over 250,000 visitors to the City of Troy for a single weekend the first full weekend of June, the Troy Strawberry Festival is the largest single event each year in the City. Hundreds of people work all year to make each Festival more special than the last. The Troy Strawberry Festival is a place where families and singles, young and old, and from every origin and nationality, come together for an unforgettable weekend.



This event owes its success to the joint efforts of the City of Troy, the Troy Area Chamber of Commerce, and the many volunteers who spend thousands of hours manning booths, serving on committees, cooking food, stemming strawberries, and guiding visitors. Festival highlights include; fine arts and crafts show; nature art exhibition; sporting and children’s events; food and game booths; free outdoor entertainment; golf tournament; soccer tournament; and a car show.

The Troy Strawberry Festival is more than just a weekend of fun. It also serves as the major public fund-raising event of the year for many of the area’s civic and charitable groups. Some of these groups are able to earn most, if not all, of their annual funding from this single event. Each year the Troy Strawberry Festival continues to add new and exciting events, such as the Kiddies Tractor Pull, Kids Water ball, and the Friday night children’s events.. There are hundreds of arts and crafts booths and many taste tempting food booths with many unique strawberry delights.

Miami County Fair

The Miami County Fair is held in mid-August at the Miami County Fairgrounds just north of Troy. Besides food, rides, displays, and shows, the week-long event includes agricultural, horticultural and Grange judging, horse shows, tractor pulls, and various 4-H activities.



Festival of Nations

The Festival of Nations is an annual event, presented by the Mayor's Council. It is sponsored by the Troy Foundation and the Troy Area Chamber of Commerce. Ethnic foods, crafts, and entertainment from many nations around the world are featured in Troy's Public Square.



The Mayor's Concert

In August, the Dayton Philharmonic Concert Band and Summer Chorus perform the Mayor's Concert at Prouty Plaza in the Public Square. This popular event is sponsored by the Mayor of Troy and organized by volunteers of the Mayor's Concert Committee.



Downtown Troy Farmers Market

The mission of this event is designed to enhance and promote local farmers and businesses in order to encourage local buying of their products. The market operates on Saturday mornings from 9:00 am to 1:00 pm beginning in June and continuing each Saturday into October.



Taste of Troy

This event includes sample food and beverages from local restaurants, and live music that is held on the Public Square on a Saturday in September each year.



The Great Ohio Bicycle Adventure (GOBA)

Troy has been a destination during this adventure on multiple occasions in past years. features a different part of Ohio, bicycling through peaceful countryside and stopping at exciting tourist destinations. The week-long adventure offers fun, Ohio hospitality, and a challenging and rewarding vacation. GOBA is an annual one-week bicycle-camping tour in June. Each year the GOBA route



The number of activities and events in Troy are numerous for citizens and visitors alike. Troy has been host to events such as the **Gentlemen of the Road Tour** which made a stopover in Troy in August of 2013. This successful event brought approximately 40,000 people each day of the 3 day event to the Troy community. The **Treasure Island Park** development along the Great Miami River is a venue featuring an amphitheater, community shelter, walking trails and includes a Replica Lighthouse which was donated to the City with a legacy grant from the Troy Foundation in celebration of their 90th anniversary in 2014. The **River Rock Concert** was held at **Treasure Island Park** during the **GOBA** tour in 2014 and has become an annual event. Troy is also host to the annual **Downtown Concert Series** held on Prouty Plaza adjacent to the Public Square, as well as the **Hayner Cultural Center Whiskey Run 5K** along with many other run/walk events. Troy also hosts the biannual **Sculptures on the Square**. For Troy residents and visitors, there is always an event or activity available for the varying tastes and interests of all.

THE TROY ECONOMY

Residential Market

Troy has an excellent selection of new and existing homes at various price ranges and in all types of areas, from urban to rural to suburban and historic neighborhoods. Housing options include single-family and two-family homes, as well as multi-family apartments. These are more fully detailed in Chapter 4 of this Comprehensive Plan. Overall, Troy residents enjoy a cost of living lower than in most metro areas, but with a higher quality of life.



Industry

Troy's central location in the Miami Valley region has made it a natural choice for the development of industrial companies. In addition to its location, Troy has a reputation for friendliness and hospitality, which makes it more attractive to outside companies.



Beginning in the 1830s, with the construction of the Miami-Erie Canal to today's Interstate Highway system, transportation has heavily influenced Troy's development. The intersection of Interstate 75 and Interstate 70, approximately 10 miles south of Troy and the Dayton International Airport located less than 15 minutes from the city, provide land and air accessibility which have been major factors in stimulating growth and development on both a national and international level.



The City is accessible without congestion and inconvenience. The Troy Development Council, the City of Troy, and the entire Troy community work hard to attract and retain businesses and industries whose products will be in demand far into the future. These efforts have helped establish a well-diversified industrial base and protect the livelihood of Troy's citizens.

Shopping

Troy provides a wide variety of shopping and entertainment opportunities. The choices available continue to expand each year, with new commercial developments and new businesses always entering the robust Troy market.

Visitors to historic Downtown Troy are treated to the special services provided by local business owners. Unique offerings and food are just a few of the many services and products available. Downtown Troy is also host to a number of professional offices providing legal, medical, financial, real estate, and insurance services.



Major shopping opportunities are also available near I-75 & State Route 41 (Main Street). These include regional department and discount stores as well as smaller specialty stores. Smaller shopping centers are also located in northeast Troy, and east of I -75 along State Routes 41 and 55.

Restaurants

The City of Troy offers numerous opportunities for eating out. The generous selection of restaurants, delicatessens, and confectioneries is suitable for all tastes and budgets. Many are open at times convenient to evening entertainment. Options range from local and family-owned shops, to national chain restaurants. Fast-food and specialty restaurants are also in numerous supply. A Trojan can eat out at a different place every day for over two months



POPULATION AND DEMOGRAPHIC TRENDS

CHAPTER 3



40,000 Concert Goers Enjoying the Gentlemen of the Road Festival

INTRODUCTION

Population and demographic trends are primary factors affecting the land use pattern of communities, counties, and regions. The number of people, their age, the living arrangements in which they place themselves, the types of dwellings they choose to live in, and the places available to find employment all play an important role in how much land is needed to accommodate their choices. This chapter reviews the trends in population growth and the projected population change that is expected to affect Troy and its use of land.

HISTORICAL POPULATION TRENDS

During the mid-1800s, the Miami-Erie Canal was the primary method of transportation for both passenger and commercial use. With the introduction of rail service in the 1850s, much of the transportation business was removed from the Canal. During these two time periods, development remained compact and dense within towns; thus population increases during these periods were limited primarily to incorporated areas such as Troy. As the automobile became a more widespread mode of transportation in the 20th century, highways were improved which allowed people to begin to move outward from the concentrated centers of communities. Since the 1950s, this outward trend has accelerated growth in communities similar to Troy that are located on the edge of large urban centers such as Dayton. The dispersion has also caused development to encroach into more accessible unincorporated areas, such as Concord Township, that were once used exclusively for farming. Troy is one of many communities in the region that was once distinctly separate, but is now one of many nodes within an increasingly larger urban area.

MIAMI COUNTY POPULATION COMPARISON

Table 3-1 illustrates the changes in population within the City of Troy and the Troy Area between 1910 and 2010. The Troy City population is considered to be only those individuals who reside within the City of Troy limits. The Troy Area populations are those individuals who live in the City of Troy, Concord Township, and Staunton Township as a whole. Although there have been steady increases, the largest occurred between 1950 and 1970. These increases were affected in part by three major factors: the construction of Interstate Route 75 through Miami County, the population increase brought on by the baby boom and the relocation of large segments of population from central cities to small towns and suburban areas.

Between 1970 and 2010, population growth of the Miami Valley Region grew at a modest rate. The Troy Area was one within the northern Miami Valley that experienced a significant gain in population during this period. This increase in population was due to the combination of total county growth and the decline in the population in the unincorporated Troy area.

Population	Troy City	Troy Area	Miami County	Troy City % of Troy Area	Troy Area % of Miami County
2010	25,058	32,443	102,506	77.2%	31.6%
2000	21,999	29,327	98,868	75.0%	29.7%
1990	19,956	26,432	93,182	75.5%	28.4%
1980	19,086	25,446	90,381	75.0%	28.2%
1970	17,186	22,919	84,342	75.0%	27.2%
1960	13,685	19,205	72,901	71.3%	26.3%
1950	10,661	15,563	62,000	68.5%	25.1%
1940	9,697	12,485	52,632	77.7%	23.7%
1930	8,675	11,781	51,301	73.6%	23.0%
1920	7,260	9,745	48,428	74.5%	20.1%
1910	6,122	8,375	45,047	73.1%	18.6%
Source: U.S. Census Bureau, 2010 Census.					

http://factfinder.census.gov/bkmk/table/1.0/en/DEC/10_SF1/P1/05000000US39109/06000000US3910918224/06000000US3910974475/16000000US3977588

Table 3-1 Troy City, Troy Area, and Miami County Population Comparisons

This 1970 to 2010 increase for the Troy Area can be attributed to its location on the outer fringe of the Miami Valley Region, a place where adequate land was available at relatively low cost for housing development and where transportation access was convenient. Overall, construction of an adequate volume of new residential housing was maintained in both the City and the Townships to compensate for the decline in the number of persons per household discussed later in this part of the Plan.

The City of Troy's percentage of the Troy Area population has increased over the past several decades, most notably between 1950 and 1970. Here the population grew approximately 6%. This shift in population can be attributed to suburban and rural growth within the Townships that in many years outpaced growth within the City itself.

Table 3-1 also illustrates the Troy Area's population as a portion of Miami County. The share has increased from 18% in 1910 to 31.6% in 2010. The majority of this change occurred from 1910 to 1950, when most cities throughout the United States saw an increase in population due to new employment opportunities in commerce, industry and the public sector. This increase in the urban population during this time usually came at the expense of rural areas, which lost much of its farming population.

POPULATION COUNTS AND PROJECTIONS 1950-2020

Table 3-2 shows the 1950-2010 Census populations and percent changes of population for Troy and surrounding areas. The chart also shows a 2014 population estimate and a 2020 projected population number for each area. Troy's population continues to steadily increase and is projected to continue this trend.

Most of Troy's population growth occurred between the years of 1950 and 1970 where population increased almost 79%. During that same time period, Troy had the highest growth percentage rate of all the areas it was compared to. Tipp City had a high percentage with 69.7% while Piqua had only a percentage of 17.3%.

The Miami Valley Region as a whole has seen both a decrease and a slowdown in their population growth since the 1980 Census. The only other area that has seen a decrease in population was Piqua. Between 1970 and 1980 they saw a 1.3% decrease. Since that time they have only seen slight increases compared to the other areas, which continue to steadily increase.

	Troy		Miami Valley region (GRE, MIA, MOT)		Miami County		Piqua		Sidney		Tipp City	
	Total	% Change	Total	% Change	Total	% Change	Total	% Change	Total	% Change	Total	% Change
Projected 2020			781,360		102,590							
Estimated 2014	25,564	2.0%	800,836	0.0	103,900	1.0%	20,759	1.2%	20,905	-1.5%	9,858	1.7%
2010 Census	25,058	13.9%	799,232	-0.8%	102,506	3.7%	20,522	-1.0%	21,229	5.0%	9,689	5.1%
2000 Census	21,999	12.9%	805,816	0.3%	98,868	6.1%	20,738	0.6%	20,211	8.0%	9,221	34.5%
1990 Census	19,478	2.1%	803,722	1.5%	93,182	3.1%	20,612	0.6%	18,710	6.0%	6,857	22.3%
1980 Census	19,086	11.1%	791,847	-2.9%	90,381	7.2%	20,480	-1.3%	17,657	8.1%	5,607	10.2%
1970 Census	17,186	25.6%	815,547	17.4%	84,342	15.7%	20,741	7.9%	16,332	11.4%	5,090	19.3%
1960 Census	13,685	28.4%	694,623	33.9%	72,901	18.9%	19,219	10.2%	14,663	27.6%	4,267	29.1%
1950 Census	10,661		518,642		61,309		17,447		11,491		3,304	

Estimated 2014 Source: U.S. Census Bureau, Population Division. Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2014

Projected 2020 Source: Ohio Development Services Agency. 2010 to 2040 Projected Population for Ohio Counties - Summary 2010 to 2040 Projected. March 30, 2013.

Table 3-2: Population Counts and Projections 1950-2020

POPULATION DENSITY

Table 3-3 illustrates the 2010 Census population density of Troy as compared to other areas such as the Miami Valley Region, Miami County, Piqua, Sidney and Tipp City. Troy has the highest density of persons per acre when compared with the other cities listed. This is probably due to the fact that Troy had comparatively lower amounts of recently annexed undeveloped land prior to 2000. Troy tends to develop its land within a relatively short period of time after incorporation. Although it is the densest of these communities, ample undeveloped land exists contiguous to and in the vicinity of its borders.

	Acreage	Square Miles	2010 Population	Persons per Acre	Persons per Square Mile	Acers per person
Miami Valley region (GRE, MIA, MOT)	821,760	1,284.0	799,232	1.0	622.5	1.0
Miami County	260,506	407.0	102,506	0.4	251.8	2.5
Piqua	6,842	10.7	20,523	3.0	1,919.7	0.3
Sidney	6,662	10.4	21,229	3.2	2,039.4	0.3
Tipp City	3,955	6.2	9,858	2.5	1,595.2	0.4
Troy	6,208	9.7	25,564	4.1	2,635.5	0.2
Source: U.S. Census Bureau, 2010 Census.						
Miami Valley Region is defined as Greene, Miami, and Montgomery counties.						

Table 3-3 Population Density

AGE DISTRIBUTION

The age profile of the population within a community influences the labor supply, the demand on education facilities, the need for various types of social services, and the need for different types of housing. Table 3-4 provides a look at the pattern of age distribution of the Troy population between 1960 and 2010. Two trends are evident - the appearance and aging of the baby-boom population and the continued prominence of the 65+ age group. As life spans continue to increase and as the baby-boom generation ages, this bracket will continue to grow significantly. Social services and housing types to fit the needs of this segment of the population will be important development factors. In addition, many within the 5-14 age group will soon begin to enter the labor force.

Troy Age Population Distribution 1960–2010						
Age group	1960	1970	1980	1990	2000	2010
Under 5	1,562 11.4%	1,791 10.4%	1,595 8.4%	1,547 7.9%	1,591 7.2%	1,829 7.3%
5–14	2,582 18.9%	3,384 19.7%	3,078 16.1%	2,907 14.9%	3,109 14.1%	3,474 13.9%
15–24	1,698 12.4%	2,813 16.4%	3,213 16.8%	2,460 12.6%	2,779 12.6%	2,988 11.9%
25–34	1,826 13.3%	2,399 14.0%	3,341 17.5%	3,354 17.2%	3,458 15.7%	3,597 14.4%
35–44	1,917 14.0%	1,930 11.2%	2,028 10.6%	2,884 14.8%	3,347 15.2%	3,437 13.7%
45–54	1,592 11.6%	1,896 11.0%	1,817 9.5%	1,936 9.9%	2,937 13.4%	3,471 13.9%
55–64	1,160 8.5%	1,442 8.4%	1,804 9.5%	1,688 8.7%	1,810 8.2%	2,973 11.9%
65+	1,348 9.9%	1,531 8.9%	2,210 11.6%	2,702 13.9%	2,968 13.5%	3,289 13.1%
Source: U.S. Census Bureau, 2010 Census.						

Table 3-4 Troy Age Population Distribution 1960-2010

Table 3-5 shows the percent of population in each age distribution for Troy, the Miami Valley Region, Miami County, Piqua, Sidney, and Tipp City. Like these areas, Troy's population was most concentrated in the 25-54 and 65+ age brackets. The 45-54 and 55-64 age groups represent the baby boomers, which suggests that Troy possesses housing, schools, and access to employment opportunities that have been able to attract this major market segment of the population. Troy has also been able to attract its share of the 65+ age bracket, having approximately the same percentages of its population within this group compared to the Miami Valley Region, Miami County, and Tipp City. Piqua is the only other city with a higher percentage in the 65+ category. Troy and Piqua's high percentage in the 65+ age bracket may be due in part to better accessibility to hospitals and medical and social services in the central and northern parts of the Miami County.

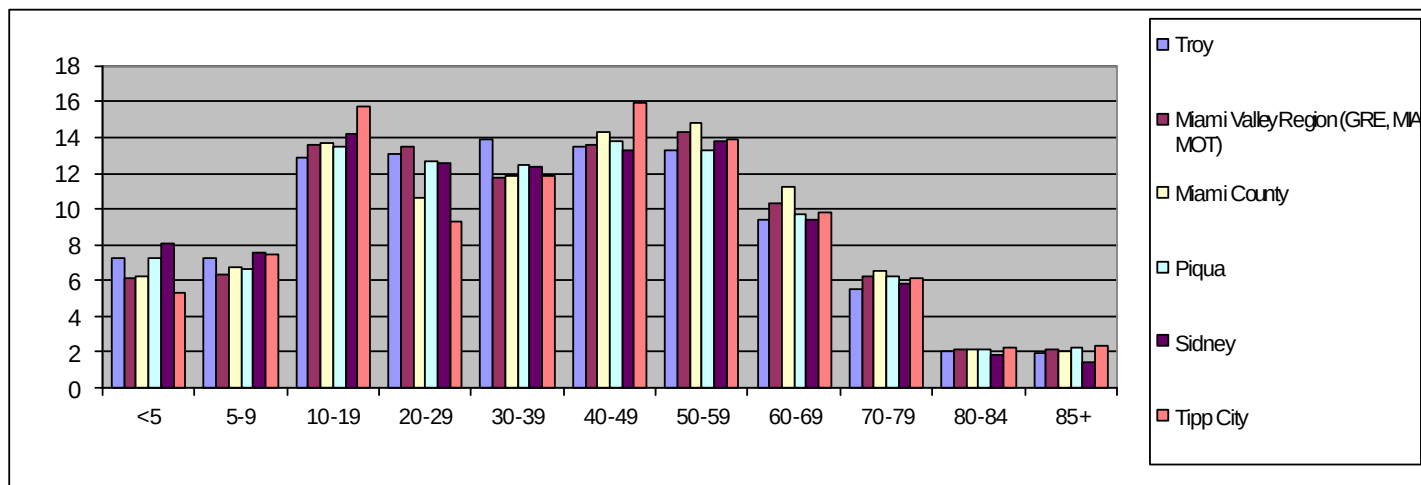


Table 3-5 2010 Age Populations

As shown in Table 3-6, Troy's 2010 median age (36.9) was one of the lowest of the compared areas. Only Sidney (36.1) had a lower median age. The Miami County as a whole had the highest median age at 40.6. Other areas, Piqua (38.1), and Tipp City (40.3) all have similar median ages.

Median Age of Populations 1950–2010						
	1960	1970	1980	1990	2000	2010
Troy	30.7	27.3	29.8	33.2	35.2	36.9
Miami Valley region (GRE, MIA, MOT)	N/A	N/A	N/A	33.4	37.7	N/A
Miami County	29.3	28.0	N/A	34.2	36.6	40.6
Piqua	31.1	28.6	29.8	32.1	35.3	38.1
Sidney	28.5	26.8	28.3	31.4	33.9	36.1
Tipp City	N/A	28.4	31.6	33.9	35.7	40.3
2010 Source: U.S. Census Bureau, 2010 Census.						
Miami Valley Region is defined as Greene, Miami, and Montgomery counties.						

Table 3-6 Median Age of Populations 1950-2010

GENDER DISTRIBUTION AND TRENDS

Table 3-7 shows the distribution by total number and percentages of the male and female population in 2010 for selected localities. Troy as compared to the other shown localities has relatively the same male and female population percentages. Miami County as a whole had the highest male population while Piqua had the highest female population.

	Troy	Miami Valley Region	Miami County	Piqua	Sidney	Tipp City
Male	12,202 48.7%	386,447 48.4%	50,386 49.2%	9,842 48.0%	10,422 49.1%	4,673 48.2%
Female	12,856 51.3%	412,785 51.6%	52,120 50.8%	10,680 52.0%	10,807 50.9%	5,016 51.8%

Source: U.S. Census Bureau, 2010 Census.

Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 3-7 Male and Female Populations 2010

Table 3-8 shows the changes in male and female populations for selected areas from 1960 to 2010. All areas that were compared shared a similarity in that they all had a higher percentage of females than males from 1960-2010 and the male-female population was split almost 50/50 in all areas.

		1960		1970		1980		1990		2000		2010	
Troy	Male	6,544	47.8%	8,233	47.9%	9,010	47.2%	9,295	47.7%	10,679	48.5%	12,202	48.7%
	Female	7,141	52.1%	8,953	52.1%	10,076	52.7%	10,183	52.3%	11,310	51.5%	12,856	51.3%
Miami Valley Region	Male	404,087	48.9%	473,098	48.6%	454,598	48.3%	457,659	48.1%	458,405	48.2%	386,447	48.4%
	Female	421,976	51.1%	499,564	51.4%	487,485	51.7%	493,611	51.9%	492,153	51.8%	412,785	51.6%
Miami County	Male	35,649	48.9%	40,929	48.5%	43,808	48.5%	45,294	48.6%	48,479	49.0%	50,386	49.2%
	Female	37,252	51.1%	43,413	51.5%	46,573	51.5%	47,888	51.4%	50,389	51.0%	52,120	50.8%
Piqua	Male	9,143	47.6%	9,806	47.2%	9,600	46.9%	9,764	48.4%	9,905	47.8%	9,842	48.0%
	Female	10,076	52.4%	10,935	52.7%	10,880	53.1%	10,848	53.8%	10,833	52.2%	10,680	52.0%
Sidney	Male	7,028	47.9%	7,859	48.1%	8,495	48.1%	9,119	48.7%	9,868	48.8%	10,422	49.1%
	Female	7,635	52.1%	8,473	51.9%	9,162	51.9%	9,591	51.3%	10,343	51.2%	10,807	50.9%
Tipp City	Male	2,050	48.0%	2,426	47.7%	2,651	47.4%	2,830	47.0%	4,465	48.4%	4,673	48.2%
	Female	2,217	52.0%	2,664	52.3%	2,944	52.6%	3,197	53.0%	4,756	51.5%	5,016	51.8%

Source: U.S. Census Bureau, 2010 Census.

Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 3-8 Male and Female Populations from 1950-2010

AGE – GENDER DISTRIBUTION AND TRENDS

Table 3-9 shows Troy's combined age and gender trends for 100% of the population between 1960 and 2010.

		1960		1970		1980		1990		2000		2010	
		Total		Total		Total		Total		Total		Total	
Under 5	Male	804	12.2%	6,884	10.7%	813	9.0%	791	8.5%	828	7.8%	907	7.4%
	Female	758	10.6%	907	10.1%	782	7.8%	746	7.3%	763	6.7%	922	7.2%
5-14	Male	1,263	19.3%	1,712	20.8%	1,528	17.0%	1,467	15.8%	1,656	15.5%	1,800	14.8%
	Female	1,319	18.5%	1,672	18.7%	1,550	15.4%	1,461	14.3%	1,453	12.9%	1,674	13.0%
15-24	Male	826	12.6%	1,289	15.7%	1,553	17.2%	1,261	13.6%	1,416	13.2%	1,554	12.7%
	Female	872	12.2%	1,524	17.0%	1,660	16.5%	1,248	12.3%	1,363	12.1%	1,434	11.2%
25-34	Male	880	13.4%	1,233	15.0%	1,630	18.1%	1,647	17.7%	1,848	16.4%	1,779	14.6%
	Female	946	13.2%	1,166	13.0%	1,711	17.0%	1,699	16.7%	1,710	15.1%	1,818	14.1%
35-44	Male	937	14.3%	924	11.2%	1,014	11.3%	1,416	15.2%	1,650	15.5%	1,724	14.1%
	Female	980	13.7%	1,006	11.2%	1,014	10.1%	1,484	14.6%	1,697	14.9%	1,713	13.3%
45-54	Male	771	11.8%	935	11.4%	845	9.4%	925	10.0%	1,414	13.2%	1,673	13.7%
	Female	821	11.5%	961	10.7%	972	9.6%	963	9.5%	1,523	13.4%	1,798	14.0%
55-64	Male	529	8.1%	659	8.0%	811	9.0%	757	8.1%	845	7.9%	1,409	11.5%
	Female	631	8.8%	783	8.7%	993	9.9%	928	9.1%	965	8.6%	1,564	12.2%
65 +	Male	534	8.2%	597	7.3%	816	9.1%	1,031	11.1%	1,122	10.5%	1,356	11.1%
	Female	814	11.4%	934	10.4%	1,394	13.8%	1,654	16.2%	1,846	16.2%	1,933	15.0%
Total	Male	6,544	100.0%	8,233	100.0%	9,010	100.0%	9,295	100.0%	10,679	100.0%	12,202	100.0%
	Female	7,141	100.0%	8,953	100.0%	10,076	100.0%	10,183	100.0%	11,320	100.0%	12,856	100.0%

Source: U.S. Census Bureau, 2010 Census.

Table 3-9 Combined Age and Gender Populations

RACE CHARACTERISTICS

Historically, Troy's population has been more racially diverse than some of the areas to which it was compared. In 1960, Troy had one of the highest non-white population percentages at 4.9%, and the same was true in 2010 when there was a non-white population of 9.9%. The only area that was compared that had a higher non-white population percentage was the Miami Valley Region as a whole. Tipp City was the least racially diverse from 1960-2010. In 1960 Tipp City only had a non-white population percentage of 0.7%. This number only grew to 4.1% in 2010. Table 3-10 shows the non-white population percentages from 1960-2010 for all compared areas.

Non White Residents	1960	1970	1980	1990	2000	2010
	Total	Total	Total	Total	Total	Total
Troy	672 4.9%	853 5.0%	1,067 5.6%	1,122 5.8%	1,859 8.5%	2,479 9.9%
Miami Valley Region	82,963 10.0%	109,729 11.3%	127,605 13.5%	139,877 14.7%	168,264 17.7%	167,568 21.0%
Miami County	1,420 1.9%	1,792 2.1%	2,213 2.4%	2,663 2.9%	4,174 4.2%	5,774 5.6%
Piqua	444 2.3%	787 3.8%	860 4.2%	98 4.7%	1,201 5.8%	1,564 7.6%
Sidney	323 2.2%	507 3.1%	565 3.2%	909 4.9%	1,494 7.4%	2,064 9.7%
Tipp City	32 0.7%	4 0.1%	20 0.4%	43 0.8%	227 2.5%	398 4.1%

Source: U.S. Census Bureau, 2010 Census.

Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 3-10 Non-White Populations 1960-2010

Table 3-11 shows population percentages by race for Troy and all compared areas. Troy had the highest Asian populations in the compared areas. Tipp City had the lowest percentages in each of these categories with the exception of White and Some Other Race.

Area Name	Total Population	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	2 or more races
Troy	25,058	90.1%	4.2%	0.2%	2.4%	0.0%	0.6%	2.4%
Miami Valley Region	799,232	79.0%	15.7%	0.2%	1.9%	0.0%	0.7%	2.4%
Miami County	102,506	94.4%	2.0%	0.2%	1.2%	0.0%	0.5%	1.8%
Piqua	20,522	92.4%	3.3%	0.2%	0.7%	0.0%	0.4%	2.9%
Sidney	21,229	90.3%	3.7%	0.2%	1.6%	0.2%	0.8%	3.3%
Tipp City	9,689	95.9%	0.6%	0.2%	1.5%	0.0%	0.7%	1.2%

Source: U.S. Census Bureau, 2010 Census.

Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 3-11 Population by Race

HOUSEHOLD CHARACTERISTICS

As shown in Table 3-12, all types of households within Troy increased in number between 1970 and 2010. The number of households increased approximately 27% between 1970 and 1980, almost 7% between 1980 and 1990, approximately 17% between 1990 and 2000, and almost 14% between 2000 and 2010. Changes in lifestyle over the past 30 years have resulted in many changes to household patterns. Even though the number of family households has increased, their percentage of all households has been in decline. There has been a growth in both numbers and percentages of single parent families, as well as one-person and two-person non-family households. The number of all non-family households increased from 1,016 to 3,753 from 1970 to 2010. These trends have resulted in a significant drop in the average household size from 3.06 persons in 1970 to 2.38 persons in 2010.

The total number of children living in Troy increased from 6,074 to 6,281 between 1970 and 2010. During the same period the proportion of children living in a family remained almost unchanged. However, the number of children living with only one parent increased from 11.8% of the 1970 total to 31.3% of the 2010 total. In addition, the number of children not living with any parent increased from 52 to 592 during the same period. In contrast, the number of persons 65 and older in Troy increased from 1,531 in 1970 to 3,144 in 2010. Of these individuals, the number living in a family decreased from 65.4% of the 1970 total to 33.7% of the 2010 total. Those seniors living in a non-family group environment, i.e. a nursing home, increased from 2.1% to 7.0% from 1970 to 2000 and information from 2000 to 2010 was not available. These trends suggest the need for less new housing to accommodate families with children, i.e. single family detached homes, and a greater need for attached senior housing in the Troy community.

	1970		1980		1990		2000		2010	
Household Type	Total		Total		Total		Total		Total	
Total Households	5,590	100.0%	7,148	100.0%	7,649	100.0%	8,920	100.0%	10,353	100.0%
Family Households	4,574	81.8%	5,188	72.6%	5,350	69.9%	5,883	66.0%	6,600	63.7%
Married Couple	4,149	74.2%	4,385	61.3%	4,304	56.3%	4,442	49.8%	4,775	46.1%
Single Female Head	352	6.3%	651	9.1%	822	10.7%	1,137	12.7%	1,339	12.9%
Single Male Head	73	1.3%	152	2.1%	224	2.9%	304	3.4%	486	4.7%
Non-Family Households	1,016	18.2%	1,960	27.4%	2,299	30.1%	3,037	34.0%	3,753	36.3%
One Person	935	16.7%	1,731	24.2%	2,091	27.3%	2,597	29.1%	3,153	30.5%
Male	N/A	0.0%	579	8.1%	781	10.2%	1,074	12.0%	1,390	13.4%
Female	N/A	0.0%	1,152	16.1%	1,310	17.1%	1,523	17.1%	1,763	17.0%
Two + Persons	81	1.4%	229	3.2%	208	2.7%	440	4.9%	600	5.8%
Persons per Household	3.06		2.64		2.51		2.40		2.38	
Group Quarters Pop.										
Total	106	100.0%	234	100.0%	296	100.0%	587	100.0%	420	100.0%
Institutional	51	48.1%	216	92.3%	264	89.2%	527	89.8%	263	62.6%
Other	55	51.9%	18	7.7%	32	10.8%	60	10.2%	157	37.4%
Children and Family										
Total Children (under 18)	6,074	100.0%	5,555	100.0%	5,209	100.0%	5,635	100.0%	6,281	100.0%
Living with Parents	5,704	93.9%	5,186	93.4%	4,850	93.1%	5,220	92.6%	5,689	90.6%
Married Couple Families	5,217	85.9%	4,284	77.1%	3,831	73.5%	3,638	64.6%	3,725	59.3%
Single Parent Families	717	11.8%	902	16.2%	1,019	19.6%	1,582	28.1%	1,964	31.3%
Not Living with Parents	52	0.9%	369	6.6%	362	6.9%	415	7.4%	592	9.4%
The Elderly and Family										
Total Persons Age 65+	1,531	100.0%	2,210	100.0%	2,685	100.0%	2,968	100.0%	3,144	100.0%
Living in Family	1,010	66.0%	1,273	57.6%	1,563	58.2%	1,716	57.8%	1,060	33.7%
Head of Family	519	33.9%	669	30.3%	843	31.4%	933	31.4%	N/A	0.0%
Spouse/Other Relative	491	32.1%	604	27.3%	600	22.3%	776	26.1%	N/A	0.0%
Living Outside of Families	521	34.0%	937	42.4%	1,122	41.8%	1,252	42.2%	1,144	36.4%
Living Alone	489	31.9%	N/A	0.0%	937	34.9%	967	32.6%	1,103	35.1%
Multi-Person Household	N/A	0.0%	N/A	0.0%	185	63.9%	63	2.1%	41	1.3%
Group Quarters	32	2.1%	157	7.1%	165	6.1%	229	7.7%	N/A	0.0%

Table 3-12 Household Types

Table 3-13, on the next page, illustrates the comparison between Troy's 2010 household profile and the profile for the Miami Valley Region, Miami County, Piqua, Sidney, and Tipp City. Troy has the second lowest percentage of family households at 63.7% while Miami County had the highest percentage at 70.0%. Troy also had the second highest percent (36.3%) of non-family households while Miami County had the lowest percentage (30.0%). This could explain why Troy has the lowest number of persons per household with only 2.38 individuals. Miami County had the highest number of persons per household with 2.48.

Household Profile, 2010						
Household Type	Troy	Miami Valley Region	Miami County	Piqua	Sidney	Tipp City
Total Households	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Family Households	63.7%	63.6%	70.0%	65.2%	66.8%	69.5%
Married Couple	46.1%	45.2%	54.7%	44.9%	45.7%	54.3%
Single Female Head	12.9%	13.8%	10.5%	14.2%	15.2%	11.0%
Single Male Head	4.7%	4.6%	4.7%	6.1%	6.0%	4.2%
Non-Family Households	36.3%	36.4%	30.0%	34.8%	33.2%	30.5%
One Person	30.5%	30.3%	25.3%	28.7%	27.6%	27.0%
Male	13.4%	13.3%	11.3%	11.3%	12.2%	11.4%
Female	17.0%	16.9%	14.0%	17.4%	15.5%	15.6%
Two+ Persons	5.8%	6.1%	4.7%	6.1%	5.6%	3.5%
Persons Per Household	2.38	2.37	2.48	2.44	2.51	2.48
Source: U.S. Census Bureau, 2010 Census.						
Miami Valley Region is defined as Greene, Miami, and Montgomery counties.						

Table 3-13 Household Profile



HOUSING CHAPTER 4

INTRODUCTION



One of the most important elements of a comprehensive plan is a housing study and owning a home is often the single largest investment a family makes. For some communities, the combined home value may even be the largest percentage of the local tax base. For these reasons, citizens place the greatest share of their attention on issues they believe will directly influence their property values.

In addition, as housing values rise and fall in relation to other nearby communities, first a city's reputation, then its quality of life are affected. Troy has been fortunate throughout its history. It has always been an independent, largely self-sufficient city. While Troy citizens can enjoy the offerings of metropolitan areas a short drive away in any of the four directions, many residents can find all they want within their home community. This has made Troy a warm, comfortable

community that many residents do not want to leave, even after retirement or other life changes.

An analysis of housing stock is an important part of developing a comprehensive community plan. The types of dwelling units, their age, condition, and cost all play into the desirability of preservation, rehabilitation, or demolition of existing housing and into the demand for construction of new housing on vacant land.

This part of the Plan presents a brief look at Troy's housing stock. The communities used for comparisons were chosen because of their close proximity to the City of Troy.

HOUSEHOLDS AND PERSONS PER HOUSEHOLD

Table 4-1 shows the total number of households and the percent change between 1990 and 2010 for Troy and surrounding areas. Between 1990 and 2010, Troy saw the second highest percentage growth of the compared areas with a 19.8% increase. Troy saw growth between 2000 and 2010 with a 16.1% increase. This ranked Troy ahead of the remaining cities that saw an increase of 0.7% to 6.5%. During this same time all of the other areas also showed a moderate increase in the number of households.

Total Households 1990–2010						
	1990	2000	% change	2000 given by SP-1	2010	% change
Troy	7,953	9,524	19.8%	8,920	10,353	16.1%
Miami Valley Region	366,704	399,701	9.0%	322,978	327,630	1.4%
Miami County	34,658	39,765	14.7%	38,437	40,917	6.5%
Piqua	7,957	8,841	11.1%	8,263	8,318	0.7%
Sidney	7,015	8,233	17.4%	7,981	8,344	4.5%
Tipp City	2,515	3,780	50.3%	3,632	3,861	6.3%

Source: U.S. Census Bureau, 2010 Census.

Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 4-1 Total Households 1980-2010

Table 4-2 shows the number of persons per household for Troy and compared areas. Of all the areas compared, the number of persons per household is decreasing and has been since at least 1990. Troy's household size was the second smallest with only 2.38 persons. Sidney was the highest with 2.51 persons.

Persons per Household 1990–2010					
	1990	2000	% change	2010	% change
Troy	2.51	2.4	-4.4%	2.38	-0.8%
Miami Valley Region	2.62	2.43	-7.3%	2.37	-2.6%
Miami County	2.67	2.54	-4.9%	2.48	-2.4%
Piqua	2.63	2.47	-6.1%	2.44	-1.2%
Sidney	2.63	2.5	-4.9%	2.51	0.4%
Tipp City	2.44	2.51	2.9%	2.48	-1.2%
Source: U.S. Census Bureau, 2010 Census.					
Miami Valley Region is defined as Greene, Miami, and Montgomery counties.					

Table 4-2 Persons per Household 1980-2010

AGE OF HOUSING STOCK

Table 4-3 shows that The Troy Planning and Development Division have indicated there has been minimal demolition since 1990. In addition; approximately 18.8% of Troy's entire housing stock was built in 1939 or before. Consistent enforcement of Property Maintenance requirements through inspection and notification has proven to be the most effective tool to maintain and enhance overall property appearance and value.

	Troy		Miami Valley Region		Miami County		Piqua		Sidney		Tipp City	
	Estimate	% of total	Estimate	% of total	Estimate	% of total	Estimate	% of total	Estimate	% of total	Estimate	% of total
Built 2010	15	0.1%	580	0.2%	65	0.1%	0	0.0%	28	0.30%	15	0.4%
Built 2000	1,902	17.1%	29,255	8.0%	4,141	9.4%	544	5.7%	678	7.2%	355	8.3%
Built 1990	1,446	13.0%	34,173	9.3%	5,710	12.9%	892	9.4%	1,083	11.5%	1,050	24.5%
Built 1980	815	7.3%	30,955	8.4%	3,509	8.0%	669	7.0%	906	9.6%	532	12.4%
Built 1970	1,454	13.0%	62,119	16.9%	6,211	14.1%	671	7.1%	1,703	18.0%	510	11.9%
Built 1960	1,236	11.1%	63,422	17.3%	5,711	12.9%	1,161	12.2%	1,009	10.7%	529	12.4%
Built 1950	1,380	12.4%	60,486	16.5%	5,454	12.4%	1,199	12.6%	1,076	11.4%	558	13.0%
Built 1940	801	7.2%	27,773	7.6%	3,123	7.1%	947	10.0%	630	6.7%	212	5.0%
Built 1939	2,100	18.8%	58,237	15.9%	10,202	23.1%	3,426	36.0%	2,343	24.8%	517	12.1%

Source: U.S. Census Bureau, 2008–2012 American Community Survey

Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 4-3 Number of Houses Built in Respective Years

YEAR HOUSEHOLDERS MOVED INTO HOUSING UNITS

Troy's central location and transportation access has made it a natural choice for development. Beginning in the 1830s with the construction of the Miami-Erie Canal, then the railroads of the 1850s, transportation has influenced Troy's development. This continues today with Troy's development benefiting from four interchanges on one of the nation's most heavily traveled north/south highways, Interstate 75. The intersection of Interstate 75 and Interstate 70, approximately 10 miles south of Troy, adds excellent east/west access to the rest of the nation.

Troy has immediate access to the nation's largest 90-minute air travel market, through Dayton International Airport, just 15 minutes to the south. This includes over two-thirds of the nation's population and businesses. The airport is also one of the world's largest cargo centers providing excellent just-in-time delivery for Troy's industries. Land and air transportation have been major factors in stimulating Troy's growth and development on both a national and international level. This growth and development has also increased the desire to move to Troy to work, to live, and/or to raise a family.

Table 4-4 shows the period which householders moved into a housing unit within Troy. For all houses occupied since 1970, approximately 14.6% of the City's housing population moved into a dwelling unit during the period of 1990 to 1999.

Troy saw its highest percentage of householders moving in between the period of 2000 to 2009 with approximately 54.6%. The City saw its lowest percentage period in the period prior to 1969 at 4.2%. All localities that were compared showed this same pattern of high percentages in the period between 2000 and 2009. These figures are a reflection of changes in population, housing, and economic status.

Year Householder Moved into Unit												
	Troy		Miami Valley		Miami County		Piqua		Sidney		Tipp City	
	Estimate	% of total	Estimate	% of total	Estimate	% of total	Estimate	% of total	Estimate	% of total	Estimate	% of total
Moved in 2010 to 2012	1,390	13.4%	35,114	10.7%	3,850	9.3%	1,053	12.1%	903	11.0%	426	10.6%
Moved in 2000 to 2009	5,671	54.6%	162,626	49.8%	19,387	47.0%	4,091	47.1%	4,282	52.1%	2,190	54.3%
Moved in 1990 to 1999	1,513	14.6%	58,106	17.8%	8,574	20.8%	1,747	20.1%	1,651	20.1%	798	19.8%
Moved in 1980 to 1989	761	7.3%	27,394	8.4%	3,638	8.8%	730	8.4%	599	7.3%	197	4.9%
Moved in 1970 to 1979	615	5.9%	23,675	7.2%	3,267	7.9%	540	6.2%	392	4.8%	244	6.1%
Moved in 1969 or earlier	432	4.2%	19,883	6.1%	2,509	6.1%	517	6.0%	399	4.9%	175	4.3%

Source: U.S. Census Bureau, 2008–2012 American Community Survey
Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 4-4 Year Householder Moved into Unit

TYPE OF DWELLING UNIT

Like most other communities and the region as a whole, the dominant type of dwelling unit in Troy is the detached single-family home. As shown in Table 4-5, these single-family homes account for 69.2% of the total housing stock in the community. Condominiums, doubles, apartments, and buildings with 2-9 units in a structure make up about 24.4% of the housing stock in the community and about 2.8% are buildings with 10 or more units in a structure.

Troy's percentage of one-unit housing was in the middle of those communities with which it was compared. Miami County had the highest percentage with 81.8% while Sidney had the lowest at 72.8%. Troy has the highest percentage (24.1%) of 2-9 units in a structure of the areas it was compared to.

2008–2012 Units in Structure

	Troy		Miami Valley Region		Miami County		Piqua		Sidney		Tipp City	
	Total #	%	Total #	%	Total #	%	Total #	%	Total #	%	Total #	%
1 Unit	7,719	69.2	272,468	74.2	35,547	80.6	7,059	74.2	6,495	68.7	3,236	75.6
2-9 Units	2,686	24.1	57,687	15.7	6,144	13.9	1,840	19.4	2,040	21.6	782	18.3
10 or More Units	655	5.9	31,200	8.5	1,456	3.3	548	5.8	459	4.9	209	4.9
Mobile home, boat, RV, van, etc.	89	0.8	5,645	1.5	979	2.2	62	0.7	462	4.9	51	1.2
Total Housing Units	11,149		367,000		44,126		9,509		9,456		4,278	
Source: U.S. Census Bureau, 2008–2012 American Community Survey												
Miami Valley Region is defined as Greene, Miami, and Montgomery counties.												

2000 Units in Structure

	Troy		Miami Valley Region		Miami County		Piqua		Sidney		Tipp City	
	Total #	%	Total #	%	Total #	%	Total #	%	Total #	%	Total #	%
1 Unit	6,750	72.8	300,621	75.2	32,525	81.8	6,637	75.1	5,902	71.7	2,744	72.6
2-9 Units	2,266	24.4	65,810	16.5	5,922	14.9	1,691	19.1	1,856	22.5	828	21.9
10 or More Units	258	2.8	33,270	8.3	1,318	3.3	513	5.8	475	5.8	208	5.5
Total Housing Units	9,274	100.00	399,701	100.00	39,765	100.00	8,841	100.00	8,233	100.00	3,780	100.00

1990 Units in Structure

	Troy		Miami Valley Region		Miami County		Piqua		Sidney		Tipp City	
	Total #	%	Total #	%	Total #	%	Total #	%	Total #	%	Total #	%
1 Unit	5,766	72.5%	279,665	76.3	28,780	83.0	6,133	77.1	5,131	72.5	1,797	71.5
2-9 Units	1,768	22.2%	61,823	16.9	5,084	14.7	1,549	19.5	1,536	21.7	711	28.3
10 or More Units	419	5.3%	25,216	6.9	794	2.3	275	5.8	408	5.8	7	0.3
Total Housing Units	7,953	100.00	366,704	100.00	34,658	100.00	7,957	100.00	7,075	100.00	2,515	100.00

Table 4-5 Number of Units in Each Structure 1990-2012

HOUSING TENURE

Housing tenure refers to the status of those living in an occupied housing unit, either as owner or a renter. Table 4-6 shows the breakdown of Troy and selected areas. The housing tenure of Troy differs slightly from the rest of the region. In 2010, 54.9% of Troy's housing units were owner-occupied, 37.8% were renter-occupied, and the rest were vacant. The Miami Valley Region (57.9%), Miami County (66%), Piqua (54.6%), Tipp City (63.8%) and Sidney (53.4%) all had higher percentages of owner-occupied housing. Table 4-6 also shows that, in general, Troy had a lower percentage of owner occupied homes and a higher percentage of rental units from 1980 to 2000. One possible explanation for this trend is Troy's lower median age compared to the other communities. Typically, younger people tend to reside in rental units until they can improve their financial situation and buy a house.

Housing Tenure 1990-2010									
	1990			2000			2010		
	Occupied Units		Vacant	Occupied Units		Vacant	Occupied Units		Vacant
	Owner	Renter		Owner	Renter		Owner	Renter	
Troy	60.0%	35.5%	4.5%	56.6%	37.3%	6.1%	54.9%	37.8%	7.3%
Miami Valley Region	62.1%	32.4%	5.5%	62.5%	30.5%	7.0%	57.9%	31.3%	10.8%
Miami County	69.8%	26.2%	4.0%	68.6%	26.2%	5.2%	66.0%	26.4%	7.5%
Piqua	63.6%	32.9%	3.5%	58.8%	34.1%	7.0%	54.6%	34.8%	10.7%
Sidney	60.8%	34.6%	4.6%	57.9%	35.3%	6.7%	53.4%	36.7%	9.9%
Tipp City	58.3%	35.2%	6.5%	63.2%	32.4%	4.4%	63.8%	28.3%	7.9%

Source: U.S. Census Bureau, 2010 Census.

Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 4-6 Housing Tenure 1990-2010

MEDIAN HOUSING VALUE

The median housing value for Troy in 2008-2012, as shown in Table 4-7, was in the middle range with a value of \$128,200 as compared to other localities. Tipp City had the highest median housing value of \$154,000 while Piqua had the lowest with \$91,500. This pattern has remained the same since 1990.

High housing value can be attributed to the affluence of a community, as well as an advantageous location in relation to commercial and employment centers. Troy's location provides for convenient access to Dayton and the remainder of the metropolitan area, which in turn increases the demand and value for housing. Generally, the newer the housing stock, the higher the total value. While Troy's median housing value is positively affected by its location, its lower median value in comparison to Tipp City and Miami County can be attributed to the age of its housing stock and current housing conditions.

MEDIAN RENT

Table 4-7 also shows that the 2008- 2012 median rent in Troy was (\$693), Miami County (\$700), Piqua (\$661), Sidney (\$678), and Tipp City (\$727).

Given the large proportion of Troy's 25 to 34 age group, the recent construction and demand for new rental units and the location of the community within the region, the median value for rent can expect to remain high. Another factor in determining the value of rent is the affluence of the community. As seen with the value of housing, a more affluent community can demand and get a higher value of rent because of the amenities it offers.

Median Housing Value and Median Gross Rent						
	MEDIAN HOUSE VALUE			MEDIAN GROSS RENT		
	1990	2000	2008-2012	1990	2000	2008-2012
Troy	\$60,300	\$98,700	\$128,200	\$303	\$537	\$693
Miami Valley Region	\$65,300	\$99,000	\$138,100*	\$310	\$526	\$747**
Miami County	\$64,400	\$109,600	\$138,900	\$291	\$522	\$700
Piqua	\$46,200	\$84,000	\$91,500	\$282	\$504	\$661
Sidney	\$57,200	\$87,600	\$104,300	\$377	\$497	\$678
Tipp City	\$71,300	\$129,400	\$154,000	\$352	\$524	\$727

Source: U.S. Census Bureau, 2008-2012 American Community Survey

Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

*-Average of Median Housing Value of the Miami Valley Region.

** -Average of Median Gross Rent of the Miami Valley Region.

Table 4-7 Median Housing Value and Median Gross Rent 1990-2012

ECONMIC TRENDS

CHAPTER 5

LABOR FORCE PARTICIPATION



Stillwater Technologies Manufacturing Plant
1040 South Dorset Road

The labor force is composed of all individuals 16 years of age and older who are classified as either employed or unemployed. According to the United States Census Bureau's definitions, employed individuals are those "at work" or "with a job but not at work." Unemployed persons are those "looking for work" or "available to accept a job."

Table 5-1 shows the labor force participation rates of Troy and other selected areas in 2000. While Troy's unemployment rate (3.3%) was lower than areas such as Piqua (4.3%), it was higher than Tipp City (2.0%) and Miami County (3.1%). It was the same as the Miami Valley Region.

Labor Force Participation Rates	Total Persons 16+ Years of Age	In Civilian Labor Force	Percent Unemployed	Percent in Armed Forces
Troy	19,760 ± 367	13,163 ± 470	7.4% ± 1.6	0.2% ± 0.2
Miami Valley Region	639,037 ± 536	400,194 ± 2,065	10.0% ± 0.2	0.7% ± 0.1
Miami County	81,000 ± 195	53,054 ± 702	8.3% ± 0.7	0.2% ± 0.1
Piqua	16,245 ± 330	10,261 ± 424	10.3% ± 2.6	0.3% ± 0.4
Sidney	16,315 ± 386	10,456 ± 425	9.6% ± 2.2	0.0% ± 0.2
Tipp City	7,557 ± 233	5,087 ± 242	8.4% ± 3.7	0.0% ± 0.4

Source: U.S. Census Bureau, 2008-2012 American Community Survey
(Miami Valley Region is defined as Greene, Miami, and Montgomery counties.)

Table 5-1 Labor Force Participation Rates

Table 5-2 shows the increase in the Troy female labor force between 1980 and 2000, a trend consistent with society in general. Working females had the greatest percentage increase (7.8%) between 1980 and 1990, and the greatest number increase (1,173) between 1990 and 2000. Conversely, there has been a slight decrease in the total number of males in the Troy labor force since 1980, dropping 3.7% between 1980 and 1990, and another 1.9% between 1990 and 2000. From 1980 to 2000, Troy's female labor force increased from 42.8% to 49.5% of the total. In aggregate, the entire labor force increased by 2,597 or 4.4% from 1980 to 2000.

	# of Males	# of Females	Total	% Male	% Female
2000	5,845	5,720	11,565	73.3%	63.0%
1990	5,202	4,547	9,749	75.2%	58.2%
1980	5,134	3,834	8,968	78.9%	50.4%

Table 5-2 Male-Female Ratio of Labor Force

EDUCATIONAL ATTAINMENT

Educational attainment is often used by businesses to assess the type of labor force available in an area. For example, engineering and research establishments tend to gravitate toward areas with sufficient numbers of persons with higher levels of educational attainment in related areas. Table 5-3 illustrates the educational attainment of persons 25 years or older in Troy and other selected areas. In 2000, Troy had a lower percentage (81.4%) of high school graduates (including GED) than all the areas surveyed except Piqua (74.6%) and Sidney (78.1%).

	Troy	Miami Valley Region	Miami County	Piqua	Sidney	Tipp City
2008-2012 High School Graduates	88.1% ± 2.1	88.9% ± 0.3	88.1% ± 0.9	81.5% ± 2.2	84.1% ± 2.3	92.7% ± 2.6
2008-2012 Bachelor's Degree or Higher	22.3% ± 2.7	25.3% ± 0.4	20.3% ± 1.1	11.8% ± 1.7	11.2% ± 1.5	30.1% ± 4.2
2000 High School Graduates	81.4%	83.7%	82.7%	74.6%	78.1%	89.4%
2000 Bachelor's Degree or Higher	17.1%	22.1%	16.3%	9.9%	13.6%	23.2%
1990 High School Graduates	76.5%	77.6%	76.6%	69.5%	70.9%	80.0%
1990 Bachelor's Degree or Higher	16.9%	19.1%	14.1%	9.0%	14.3%	13.1%
1980 High School Graduates	66.9%	69.9%	66.9%	60.5%	N/A	69.6%
1980 Bachelor's Degree or Higher	13.1%	15.8%	15.8%	7.4%	N/A	10.6%
1970 High School Graduates	59.0%	56.2%	55.5%	49.1%	N/A	66.3%
1970 Bachelor's Degree or Higher	8.8%	11.0%	6.9%	5.5%	N/A	9.7%

Source: U.S. Census Bureau, 2008-2012 American Community Survey
Miami Valley Region is defined as Greene, Miami, and Montgomery counties

Table 5-3 Educational Attainment Rates

Table 5-3 also shows percentages of college graduates with a bachelor's degree or higher. Similar to high school attainment, Troy (17.1%) had a lower percentage of individuals with at least a bachelor's degree than all jurisdictions except Piqua (9.9%), Sidney (13.6%), and Miami County (16.3%). Despite Troy's lower educational attainment percentages compared to other areas, the City has made significant increases in this area over the last 30 years. In 1970, Troy's percentage of high school graduates was only 59.0%, increasing to 66.9% in 1980, 76.5% in 1990, and 84.1% in 2000. Similarly, those individuals with at least a bachelor's degree increased from 8.8% in 1970, 13.1% in 1980, 16.9% in 1990, and 17.1% in 2000. This gain can be attributed in part to the new residential growth attracted to the community during that time period.

INDUSTRY OF EMPLOYED RESIDENTS

As shown in Table 5-4, manufacturing has been the principle sector for employed residents of Troy, with just over 30% of the total jobs in 2000. In that respect, Troy's labor force is similar to that of Miami County. Education, health, and social services were the next largest group at approximately 19%. The retail trade sector was third at just over 10%, and the arts, educational, health, and social services sector was fourth at approximately 8% of the total employed.

Troy's distribution of industry is comparable to cities of similar size; i.e., Piqua which relies on manufacturing, retail, and various public and community services as key employers within the community. These cities differ from larger ones such as Dayton and Columbus, which typically have a higher percentage of construction and entertainment/recreational jobs.

	Troy		Miami Valley Region		Miami County		Piqua		Sidney		Tipp City	
	Total		Total		Total		Total		Total		Total	
Employed Civil Population 16 and Over	11,180	100%	451,820	100%	50,739	100%	10,186	100%	9,800	100%	4,886	100%
Agriculture, Forestry, etc.	11	0.1%	2,428	0.5%	630	1.2%	23	0.2%	52	0.5%	0	0.0%
Construction	496	4.4%	24,578	5.4%	2,977	5.9%	407	4.0%	415	4.2%	186	3.8%
Manufacturing	3,486	31.2%	86,493	19.1%	14,910	29.4%	3,257	32.0%	4,290	43.8%	1,142	23.4%
Wholesale Trade	298	2.7%	14,375	3.2%	1,872	3.7%	446	4.4%	335	3.4%	250	5.1%
Retail Trade	1,201	10.7%	54,334	12.0%	5,926	11.7%	1,465	14.4%	585	6.0%	641	13.1%
Transportation, etc.	500	4.5%	21,550	4.8%	2,640	5.2%	378	5.2%	237	2.4%	363	7.4%
Finance, etc.	489	4.4%	22,771	5.0%	2,023	4.0%	465	4.6%	366	3.7%	174	3.6%
Professional, etc.	649	5.8%	40,549	9.0%	3,416	6.7%	566	5.6%	555	5.7%	491	10.0%
Educational, etc.	2,038	18.2%	93,785	20.8%	8,040	15.8%	1,339	13.1%	1,361	13.9%	761	15.6%
Arts, etc.	874	7.8%	33,846	7.5%	3,437	6.8%	781	7.7%	846	8.6%	374	7.7%
Other Services	379	3.4%	20,014	4.4%	2,247	4.4%	599	5.9%	354	3.6%	254	5.2%
Public Administration	575	5.1%	26,845	5.9%	1,910	3.8%	271	2.7%	256	2.6%	148	3.0%

Table 5-4 Distribution of Industries

OCCUPATION OF EMPLOYED RESIDENTS

Several factors affect the occupations of a given population. They include the demand for specific disciplines in the overall metropolitan employment market, the need for industries to support the basic manufacturing activities of that overall market, and the community's attractiveness as a place to live. As shown in Table 5-5, management was the largest occupational category in 2000 with approximately 31% of the employed residents. Production, transportation, and material moving was second with just over 25%, sales and office third with just under 25%, and service fourth at approximately 14%.

Troy's occupational distribution is similar to all of the cities compared except Piqua, which shows lower levels of management occupations and higher levels of production occupations.

	Troy		Miami Valley Region		Miami County		Piqua		Sidney		Tipp City	
	Total		Total		Total		Total		Total		Total	
Employed Civil Population 16 and Over	11,180	100%	45,1820	100%	50,739	100%	10,186	100%	9,800	100%	4,886	100%
Management	3,492	31.0%	148,360	32.9%	14,752	29.1%	1,954	19.2%	2,509	25.6%	1,690	34.6%
Service	1,505	13.5%	65,954	14.6%	6,510	12.8%	1,542	15.1%	1,418	14.5%	545	11.2%
Sales & Office	2,756	24.7%	118,697	26.3%	12,926	25.5%	2,693	26.4%	1,880	19.2%	1,373	28.1%
Farming, Fishing	52	0.5%	1,106	0.2%	283	0.6%	31	0.3%	29	8.3%	8	0.2%
Construction	566	5.1%	35,828	7.9%	4,064	8.0%	847	8.3%	790	8.1%	305	6.2%
Production	2,809	25.1%	81,875	18.1%	12,204	24.1%	3,119	30.6%	364	33.3%	965	9.8%

Table 5-5 Employment by Occupation

COMMUTING PATTERNS

Table 5-6 indicates the counties where residents of Troy worked, as well as counties Troy workers came from in 2000. Just under two-thirds of Troy's residents worked in Miami County. Of the remainder, almost 14% worked in Montgomery County to the immediate south; the remainder worked in Shelby (2.0%), Greene (1.0%), Clark (1.0%) and other areas (19%). In addition, just under half of the workers in Troy lived in Miami County. Almost 8% came from Miami County, others from Shelby (1.0%), Darke (0.8%), Warren (0.5%), and Greene (0.5%). The balance of workers (42.2%) came from other areas. Both statistics demonstrate the abundance and variety of jobs in Troy and Miami County.

Top 5 counties where Troy residents work			Top 6 counties from where Troy workers originate		
County	No. Workers	% of total workers	County	No. Workers	% of total workers
Miami	4,953	46.3%	Miami	6,836	48.2%
Montgomery	2,034	19.0%	Montgomery	1,739	12.3%
Shelby	677	6.3%	Shelby	811	5.7%
Hamilton	375	3.5%	Darke	752	5.3%
Franklin	367	3.4%	Clark	474	3.3%
Balance	2,285	21.4%	Franklin	298	2.1%
Total Workers	10,691	100.0%	Balance	3,278	23.1%
			Total Workers	14,188	100.0%

Source: U.S. Census Bureau. 2010 data. OnTheMap Application. Longitudinal-Employer Household Dynamics Program.
<http://onthemap.ces.census.gov/>
 Home Destination Analysis run on **all** jobs, not just primary jobs

Table 5-6 Counties Where Residents Work and Workers Reside

Table 5-7 shows the job commuting patterns by percentage of Troy residents 16 and over compared to other areas. Troy's average travel time in 2000 (approximately 17 minutes) was the same as Piqua, but less than all of the other jurisdictions. Shorter commute times can be explained by the greater availability of jobs proximate to home, as well as road capacity and design. Almost 90% of Troy's commuters drove alone to work, which is similar to all of the other areas except the Miami Valley Region and Piqua. The decision to drive alone, car-pool, use public transportation, or walk to work depends on a number of physical and demographic factors. In larger, denser urban areas such as Dayton, individuals are more likely to car-pool and use public transportation to save time due to congestion and limited vehicle parking, especially downtown and in surrounding commercial areas. In contrast, the demand for car-pooling and public transportation is less in areas such as Troy and Tipp City, which provide better vehicular access and more parking options. The decision whether or not to drive alone to work is also based on factors such as income and household characteristics, i.e. family size and labor force participation. Physical and demographic factors can also impact the percentage of people who walk compared to those that commute by vehicle. Pedestrian traffic is impacted by common factors such as the availability of jobs proximate to residential areas and income level. It is also influenced by personal beliefs such as concern (or lack thereof) for the environment.

	Mean travel time to work %	Drove alone %	Car-pool %	Public Transport %	Walked %	Bicycled %	Other %	Worked at Home %
Troy	17.2%	88.0%	7.8%	0.6%	1.6%	N/A	1.2%	0.8%
Miami Valley Region	21.0%	84.0%	8.9%	1.8%	2.4%	N/A	0.7%	2.3%
Miami County	20.1%	86.4%	8.0%	0.5%	1.6%	N/A	0.7%	2.7%
Piqua	17.2%	82.1%	11.0%	1.3%	2.5%	N/A	0.9%	2.2%
Sidney	14.3%	86.0%	8.6%	0.0%	2.0%	N/A	0.0%	2.3%
Tipp City	21.0%	91.1%	5.1%	0.1%	1.6%	N/A	0.8%	1.4%

Table 5-7 Job Commuting Patterns

RELATIVE IMPORTANCE OF SELECTED ECONOMIC SECTORS

Table 5-8 shows the importance of the major sectors of the Troy economy which include manufacturing, wholesale trade, retail trade, and selected services (education, health care, the arts, etc). Manufacturing and retail trade were the most significant of the four selected sectors from 1972 to 1992. Wholesale trade and selected service figures were not available for the period 1992 to 1997, however, this chart shows that manufacturing has remained the most dominant part of the local economy.

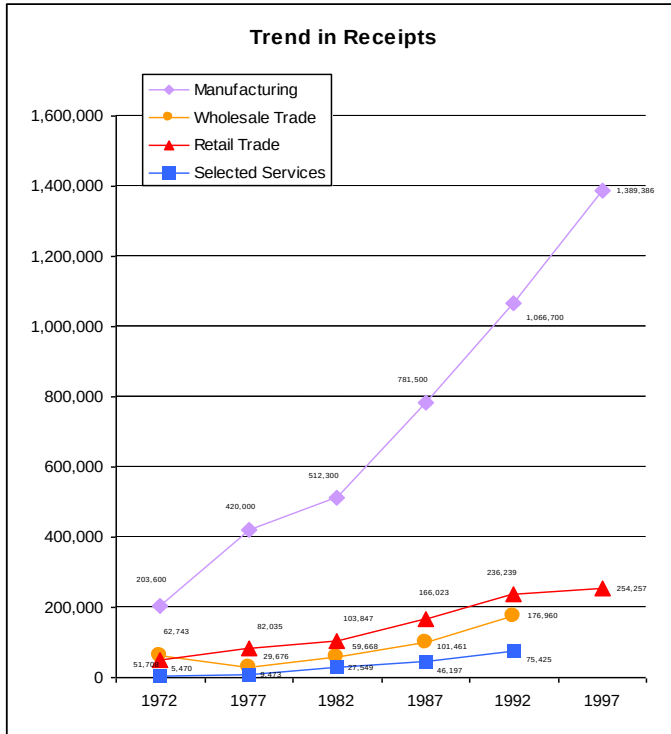


Table 5-8 Major Sectors of Troy's Economy

Table 5-9 shows that Troy's share of the Miami County manufacturing base increased moderately (14%) from 1972 to 1982 and dropped slightly (2%) from 1992 to 1997. The selected services sector increased only slightly (4%) from 1972 to 1992, in contrast, the wholesale sector decreased 15% during the same period. The retail trade sector decreased 2% from 1972 to 1997. Wholesale trade has been less significant in Troy because of the tendency for large wholesalers to locate in more populous counties. That trend, however, may reverse in the future as the Dayton urbanized area spreads northward and additional distribution centers locate near the Dayton International Airport and close to the Interstate Route 70/75 interchange.

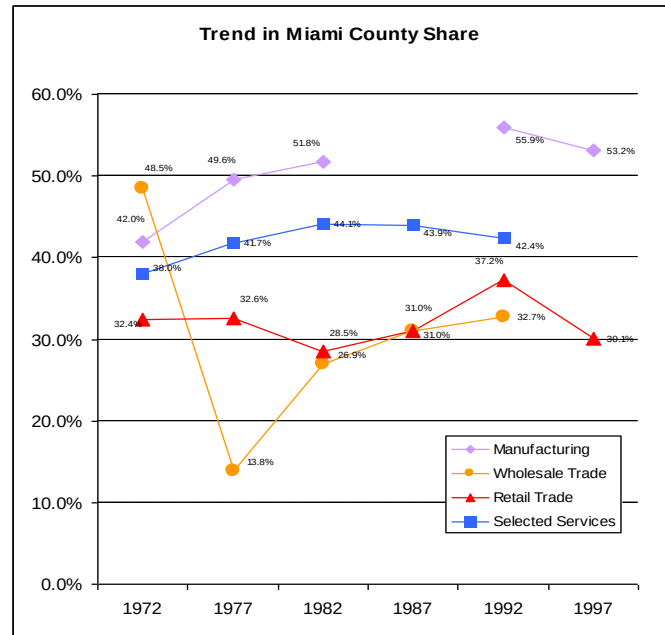


Table 5-9 Troy's Share of the Miami County Economy

HOUSEHOLD INCOME DISTRIBUTION

Income is linked to many other economic factors such as housing, labor force profile, industrial mix, access to employment areas, and ability to attract commercial and service enterprises. As illustrated in Table 5-10, households in Troy with an income between \$50,000 and \$74,999 were the highest percentage for the City. All of the compared areas also had high percentages in this same range except Piqua and Sidney who were in the \$35,000-\$49,999 range. Compared with other areas, Troy was similar with a trend of a high percentage in the \$50,000-\$74,999 range. The only two other localities that did not follow this trend were Piqua and Sidney who had a high percentage in the \$35,000-\$49,999 household income range.

	Troy		MSA		Miami County		Piqua		Sidney		Tipp City	
	Total		Total		Total		Total		Total		Total	
Less than \$10,000	643	7.2%	33,919	8.9%	2,337	6.1%	832	10.0%	695	8.7%	183	5.0%
\$10,000 to \$14,999	625	7.0%	22,100	5.8%	2,243	5.8%	616	7.4%	465	5.8%	236	6.5%
\$15,000 to \$24,999	1,365	15.2%	50,479	13.3%	4,862	12.6%	1,402	16.9%	1,160	14.5%	378	10.4%
\$25,000 to \$34,999	1,376	15.3%	51,348	13.5%	5,329	13.8%	1,208	14.6%	1,265	15.8%	437	12.0%
\$35,000 to \$49,999	1,682	18.7%	65,872	17.3%	7,196	18.7%	1,683	20.3%	1,628	20.3%	624	17.1%
\$50,000 to \$74,999	1,885	21.0%	78,040	20.6%	8,727	22.7%	1,594	19.2%	1,544	19.3%	750	20.6%
\$75,000 to \$99,999	830	9.2%	39,837	10.5%	4,171	10.8%	500	6.0%	700	8.7%	525	14.4%
\$100,000 to \$149,999	413	4.6%	26,520	7.0%	2,449	6.4%	254	3.1%	388	4.8%	358	9.8%
\$150,000 to \$199,999	87	1.0%	5,820	1.5%	589	1.5%	92	1.1%	62	0.8%	88	2.4%
\$200,000 +	83	0.9%	5,785	1.5%	622	1.6%	105	1.3%	95	1.2%	66	1.8%

Table 5-10 Household Income Distribution

HOUSEHOLD INCOME CHANGE

Income change, whether in growth or decline, is a main indicator of a community's economic health. Table 5-11 compares the median household income change from 1989 to 1999 for selected areas. All areas increased their median household income during this time. Tipp City showed both the greatest dollar amount increase (\$18,383) and percentage increase (60.7%). Troy's \$10,499 increase or 36.2% income change were similar to that of the Miami Valley Region. Miami County, Piqua and Sidney all fared slightly better than Troy with higher percentage increases.

	2000 Census Median Income	2000 Census Median Income (IN 2012 INFLATION ADJUSTED DOLLARS)	2008-2012 ACS Median Income (IN 2012 INFLATION-ADJUSTED DOLLARS)	Real Percent Change
Troy	\$39,531	\$54,478	\$50,403 ± 4,614	-7.5%
Miami Valley Region	\$41,550	\$57,261	N/A	N/A
Miami County	\$44,109	\$60,787	\$52,292 ± 1,386	-14.0%
Piqua	\$35,681	\$49,173	\$36,150 ± 2,697	-26.5%
Sidney	\$38,663	\$53,282	\$44,024 ± 2,280	-17.4%
Tipp City	\$48,675	\$67,080	\$54,382 ± 6,241	-18.9%
	1990 Census Median Income	1990 Census Median Income in 1999 \$	2000 Census Median Income in 1999 \$	Real Percent Change
Troy	\$29,032	\$39,006	\$39,531	1.3%
Miami Valley Region	\$30,472	\$40,941	\$41,550	1.5%
Miami County	\$31,425	\$42,221	\$44,109	4.5%
Piqua	\$25,026	\$33,624	\$35,681	6.1%
Sidney	\$26,943	\$36,199	\$38,663	6.8%
Tipp City	\$30,292	\$40,699	\$48,675	19.6%

Source: U.S. Census Bureau, 2008–2012 American Community Survey. Miami Valley Region is defined as Greene, Miami, and Montgomery counties.

Table 5-11 Household Income Change 1990-2000

HOUSEHOLD EARNINGS BY TYPE

Table 5-12, on the next page, illustrates 1999 household earnings by type. The type and amount of earnings within a jurisdiction is important because it is a strong indication of the strength of the local economy, as well as housing and social service needs. Troy's median earnings were ranked fourth lowest for men and third lowest for women of the 6 areas surveyed. In addition, Troy's mean earnings were lower than all of the areas except Piqua and Sidney. Median retirement income was lower than all but Tipp City and Sidney. Troy's mean Social Security income was greater than all of the areas except Tipp City. However, its mean Supplemental Security Income (SSI) was lower than all of the areas. Similarly, its mean public assistance income was less than all of the areas.

	Troy	Miami Valley Region	Miami County	Piqua	Sidney	Tipp City
	Total	Total	Total	Total	Total	Total
Total Households	8,989	379,720	38,525	8,286	8,002	3,645
With Earnings	7,345	302,339	31,839	6,680	6,455	3,061
With Social Security Income	2,351	98,921	10,311	2,470	2,179	850
Mean Social Security Income (\$)	11,721	10,912	11,670	11,624	11,524	12,109
With Supplemental Social Income	280	15,633	1,155	307	378	70
Mean Supplemental Security Income (\$)	5,845	6,472	6,731	6,661	6,568	5,881
With Public Assistance Income	191	10,792	657	248	186	30
Mean public Assistance Income (\$)	1,582	2,468	2,421	1,632	2,598	2,473
With Retirement Income	1,684	84,581	7,918	1,564	1,388	737
Mean Retirement Income (\$)	14,719	19,935	15,905	17,130	12,614	13,831
Mean Earnings (\$)	48,421	51,981	53,284	42,460	48,330	57,791
Median Earning (\$) male full time, yr.-round	35,819	39,102	37,357	31,808	35,127	44,917
Median Earning (\$) female full time, yr.-round	25,536	26,788	25,493	22,241	22,497	27,973

Table 5-12 Household Earnings by Type



The Great Miami River

INTRODUCTION

The natural capability of the land to accommodate development is a significant factor in land use planning. Natural environmental and physical conditions may determine the suitability of a site for various land uses. Development may become costly and public hazards introduced when development occurs in areas unsuited for a particular use or implemented without proper design and implementation.

DEVELOPMENT SUITABILITY ANALYSIS

“Development suitability analysis” is a process whereby the natural characteristics of the land are matched with the physical development needs of individual land uses. Figure 6-1, included at the end of this chapter, contains the Development Suitability Analysis for Soils Study conducted by Miami Valley Regional Planning Commission for the Troy planning area. It must be noted that Troy is serviced by central water and sewer infrastructure, while many of the conditions described in Figure 6-1 complicate development of on-site water and wastewater systems, which are not permitted in existing or future developments within Troy. This discussion though relates to a better understanding of the benefits of central utilities while helping to identify potential development factors for any given site’s particular situation. Development suitability for both residential and commercial/industrial land use types is broken into the following four categories:

Prime Rating

A *Prime Rating* of suitability for residential development requires slopes less than 12%, adequate bearing strength, good natural drainage, adequate depth to bedrock, and no flood hazard. Similar ratings apply for commercial/industrial development, except only slopes less than 6% are included.

Suitable Rating

A *Suitable Rating* for residential development requires slopes less than 12%, adequate bearing strength, and no flood hazard. These areas have constraints requiring moderately extensive efforts to insure adequate subsurface drainage and to prevent frost-heave where bedrock is less than five feet from the surface. Improvements are needed to address constraints.

Marginal Rating

Areas rated as *Marginal* for residential development have slopes less than 12%, adequate bearing strength, and no flood hazard. However, the very poor natural drainage characteristics of soils within these areas can cause wetness problems of a more severe nature than ones ranked *Suitable*. More extensive drainage corrections such as grading of building sites and artificial drainage installations are required for these areas before they can be made appropriate to accept development. Similar ratings apply to commercial/industrial uses, except that areas rated as *Prime* or *Suitable* for residential development and having slopes between 6%-12% are rated as *Marginal*. Extensive earth-moving for large structures and parking lots makes those areas less easily developed. Improvements are needed to address constraints.

Not Recommended

Areas rated *Not Recommended* for either residential or commercial/industrial development have one or more of the following characteristics: a flood hazard, low bearing strength, and/or slope greater than 12%. Development should not be located within an area having this rating without adequately designed and normally expensive measures undertaken to address the particular hazard.

A number of soils are *Prime* (rated) for both residential and commercial/industrial development. This includes single types and variations of Eldean Loam, Eldean Silt Loam, Eldean Miamian-Complex Silt Loam, Martinsville and Ockley Loams, Ockley Silt Loam, Miamian Silt Loam, Warsaw Silt Loam, and Wee Silt Loam. A number of variations of Celina Silt Loam, Glynwood Silt Loam, Glynwood Clay Loam, and Miamian Silt Loam are classified *Suitable* for development.

TOPOGRAPHY

Topography is the general configuration of land surface, including its relief and the position of its natural and man-made features. Both topography and slope (see below) are important development considerations because they impact construction costs, risks from natural hazards such as flooding, as well as natural resources such as soils, vegetation, and physical features such as drainage capabilities and other details impacting design. Topography plays an important part in defining the aesthetic appeal of a given site compared with its intended purpose. Sites with considerable topographic variations may be quite appealing for a large lot residential development employing a variety of home styles and amenities, while that same site would not necessarily lend itself to the development of a large single floor industrial complex.

SLOPE

While topography is a measurement of elevation, slope is the percentage change in the elevation over a certain distance. The general topography of the Troy planning area is rather flat, with slopes of less than six percent covering almost the entire planning area. Only limited areas, often appearing as a single hillside transition from the lower ground elevations found along the Great Miami River flood plain to the higher areas of ground composed of relatively gentle slopes continuing further away from the River to the northeast and west/southwest, with a slope between six and 12 percent exist.

Slopes greater than 12 percent may pose a significant constraint to development or greatly impact the costs to develop. These areas are of very limited scope and are not a major limiting factor relating to any of the overall development pattern of Troy.

DRAINAGE



Due to the generally flat nature of the planning area, much of it is not naturally well drained. This has complicated the design of more recent developments located distant from the major drainage tributaries nearest the Great Miami River. Except for the development of the oldest parts of Troy, now protected by the MCD flood control system, earlier development was simpler when

located in areas that tended to have better access to adequate drainage ways with slopes toward the nearby River. Now, growth is situated primarily at the fringe of the City limits where topography and slopes are much flatter and less defined drainage ways exist, causing storm water (See Glossary for storm water) management features to be designed and over-sized in order to make use of limited downstream field tile or channel capacities.

Since 1982 Troy has had a Storm Water Management Ordinance in place. Such an Ordinance has placed more controls on developments of all types since its adoption. The result has been a better managed system less subject to major flooding events' frequency and impact. As storm water knows no political boundaries, Miami County has adopted a similar set of storm water management controls. While the many storm water control ponds and other features require an administrative accounting of their condition and operation, the benefits have been obvious. The potential "over-sizing" of such features in a newer development can be shown to be beneficial to downstream locations where open channels or piping systems cannot historically, adequately accept all the flow from upstream, and many such ponds become an amenity in a new residential development or commercial/industrial site and are no longer regarded as a mandated nuisance or obstacle to such development.

Soils with a very poorly drained classification present moderate to severe limitations for both rural and urban development, particularly related to on-site water and septic system needs. Such soils require additional development expenses to insure that storm runoff does not pond in a manner that will cause damage, and that high water tables do not become a nuisance or hazard to structures.

An adequate drainage outlet for any new drainage system must be available within a reasonable distance. Additional cost may become an expensive or limiting factor when the natural drainage outlet is through an area that is already developed or may be under-sized.

On-site wastewater disposal systems allowed outside the City jurisdiction often require lowering the water table with curtain drains around the leach field and often require additional lengths of leach line. Development in such areas after being annexed to the City, complying with Troy rules and regulations and using central water and sewer systems allows for a more practical utilization of the land (smaller tracts than typical township or county zoning and health department requirements dictate); eliminates threats to ground-water pollution from improperly designed or operating on-site (septic) systems; allows for storm water run-off control to be better addressed than with larger lots (10 acres plus in the townships) that bypass all Miami County subdivision design criteria; and has a lesser impact on those on-site systems already existing beyond, but relatively near, such new developments inside the City limits. Given such soils and site conditions the utilization of central water and sewer systems like Troy's becomes the preferred and more cost effective manner of addressing development pressures; allowing the development of sites that otherwise could only marginally support development, if at all, given the above discussions; and avoiding costs and problems related to on-site water and sewage systems.

In Miami County, the soils listed as very poorly drained are also classified as "hydric" soils. Hydric soils are formed from water-related processes such as flooding and ponding and/or a water table at or near the surface for significant periods throughout the year. Hydric soils are also good indicators of conditions favorable for wetlands. The limitations mentioned above are less serious for soils rated as somewhat poorly drained. Hydric soils do not easily support the use of on-site (septic system) facilities, may suffer complications when addressing drainage and wells on-site, and should be highly discouraged from development without the presence of central utilities.

FLOODING HAZARD

Given that Troy requires the use of its central water and sewer systems by all new developments, potentially the next most important physical impact on any given site is its susceptibility to flooding and how that area of concern, design and costs are addressed.



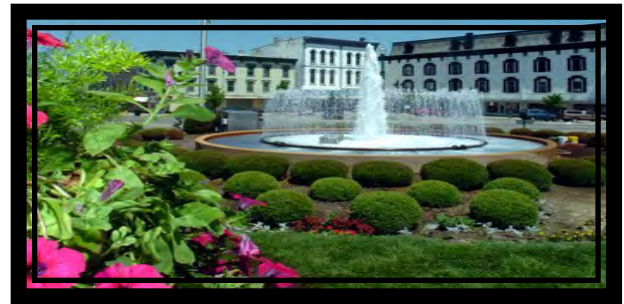
Flood plains present severe limitations for development because they must employ costly building and landscape measures to insure that destructive damage does not occur to structures and property during a flood event. Flood hazard insurance for developments within flood plains can be expensive or possibly unavailable to some property owners. New construction within a typical flood plain as defined by the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP), in which Troy is an active participant, is governed by design parameters, if not discouraged or banned, given the particular site involved.

Troy and its adjacent area are also influenced by the Miami Conservancy District (MCD) flood control program. MCD is the local agency responsible for a system of dams and retarding basins within the Great Miami River basin. The Taylorsville Dam on the Great Miami River is located in Montgomery County, but its retarding basin affects a large area of Miami County. The flood hazard area of this retarding basin is derived from spillway elevations of the dams and is represented in the FEMA flood insurance study for Miami County. The spillway elevation of the Taylorsville Dam is 818 feet above the mean sea level.

In addition, MCD has district flood easements that follow property lines and sometimes extend beyond the designated flood plain boundary listed in the Flood Insurance Study. MCD has indicated that as land is subdivided, the boundary of such easements is changed to more closely match property lines with the flood hazard area of each retarding basin. Development is generally permitted by MCD as long as it is above the spillway elevation, while local zoning may be more restrictive. The main section of the City, including the Central Business District, is south and west of the Great Miami River. Morgan Ditch enters the river from the west at the north end of the City. The Official Plan Flood (OPF) discharge in Troy is 78,000 cubic feet per second (cfs). The District maintains 3.5 miles of levees and 2.2 miles of improved channel in Troy. The right (west) bank levee begins on the south side of Morgan Ditch near Ridge Avenue. The levee runs east along the southern edge of Morgan Ditch 2,500 feet. After the levee crosses Elm Street, it turns to the southeast and follows the river a distance of 1.4 miles. The levee ends at high ground near East Main Street approximately 1,000 feet upstream from the S.R. 41 bridge. Several floodwalls and crest walls supplement the right bank levee in Troy. The left bank levee begins at Riverside Drive opposite the Riverside Cemetery. It progresses west, south and southeast 1 mile and ends at a point 500 feet east of the CSX Railroad bridge near the Municipal Water Plant. There are no OPF openings in Troy. The levee along the north side of Morgan Ditch at the county fairgrounds does not provide OPF protection. The levee was built to provide a regular channel for Morgan Ditch and afford the fairgrounds the same level of protection that the old canal embankments provided along County Road 25A. The CSX Railroad bridge and the Harrison Street and Elm Street (County Road 25A) bridges cross the levee and Morgan Ditch within the flood protection feature. The Adams Street, Market Street, and CSX Railroad bridges cross the levees and Great Miami River within the flood protection feature. The S.R. 41 bridge crosses the river at the downstream end of the maintained channel. There is a low head dam, owned by the City, located within the improved river channel downstream from the CSX Railroad bridge near the end of Clay Street. After the 1913 flood, MCD was created and excavated an improved channel between the low head dam and the SR 41 bridge to provide adequate flow capacity. This channel will carry 48,700 cfs, or 62 percent of the OPF. The remaining flow will pass through the old river channel that winds around the northern and eastern edges of the Miami Shores Golf Course. During high water events, the levees are periodically observed for evidence of seepage, erosion, movement, slumping, and other indications of a problem.

NATURAL RESOURCES

Any time a new development is constructed, it affects the environment around it. Natural resources such as farmland and mineral resources should be considered and integrated into the design of the community.



Prime Farmland

Located in the fertile Miami Valley Region, Troy sits among some of the richest and most productive cropland in Ohio. It is important to note that when prime farmland is lost to other land uses, pressures may be placed upon the farming community to cultivate marginal lands that tend to be more erosion prone, drought-prone, and less productive. Cultivation of these marginal lands may result in higher costs to the farming community and society as a whole in order to maintain the productivity levels formerly obtained on prime farm lands.



Water Resources

One of the most important Natural Resources to be considered is that of water. Water resources include surface water, such as stormwater runoff, groundwater, and deep aquifers. The City of Troy enjoys its location over a clean, productive aquifer enabling it to use groundwater (wells) as its water supply source (also See Chapter 7). Troy residents and others also enjoy a variety of fishing and water recreation activities in this area, in its many ponds, streams and the Great Miami River.



Mineral Resources



The primary mineral resources found within Miami County as a whole are limestone, sand, and gravel. The importance of knowing the locations of these resources in land use planning is the fact they can only be mined where they are located. They cannot be moved like other land uses. Development over areas where these resources are located will preclude their use at a later time, unless the costly relocation of the overlying land uses is accomplished. Gravel operations exist in the southeastern corner of the City at present along Dye Mill Road.

Table 6-1 third column indicates soils which are a probable source of sand and gravel according to the Soil Survey of Miami County, Ohio. These include the various Eldean Loams, Ockley Silt Loams and many others. Soils that were formed from glacial outwash are considered a probable source of sand and gravel. Sand and gravel usually contribute to the stability of soil in the absence of water. However, water readily flows through sand and gravel. Much like the areas prone to flooding, Figure 6-2 shows that these soils are concentrated almost exclusively on the southeastern side of the Troy planning area.



Figure 6-4 “Mineral Resources” shows areas with a shallow depth to bedrock (less than five feet), which include the Miamian, Millsdale, Milton, Randolph, Ritchey and Ross Loams soils. These areas are concentrated almost exclusively on the far north, south and east sides of the Troy planning area. Shallow bedrock requires more expensive excavation techniques to install utilities and building foundations/basements. Areas with shallow bedrock area also adversely affected by erosion and have limited water filtering capability, which affects existing well and septic systems.



TABLE 6-1 Development Suitability Analysis For Soils

SOIL TYPES - TROY, MIAMI COUNTY	RESOURCE POTENTIAL	DEVELOPMENT SUITABILITY FACTORS								DEVELOPMENT SUITABILITY			
		FLOODING HAZARD	LOW BEARING STRENGTH	SHALLOW DEPTH TO BEDROCK	DRAINAGE			SLOPE			RESIDENTIAL		COMMERCIAL/INDUSTRIAL
					SOMEWHAT POORLY DRAINED	VERY POORLY DRAINED	HYDRIC SOIL	SLOPE - LESS THAN 6%	SLOPE - 6-12%	SLOPE - MORE THAN 12%	SUITABLE	IMPROVEMENTS NEEDED TO OVERCOME CONSTRAINTS	
Algers silt loam (Ag)	NATURALLY PRIME												MARGINAL
Blount silt loam (B/A)													SUITABLE
Blount silt loam (B/B)													
Blount silt loam (B/B2)													
Brookston silty clay loam (Bs)													
Celina silt loam (CeA)													
Celina silt loam (CeB)													
Celina silt loam (CeB2)													
Corwin silt loam (CoA)													
Corwin silt loam (CoB)													
Crosby silt loam (CrA)													
Crosby silt loam (CrB)													
Edwards muck (Ed)													
El silt loam (Ee)													
Eldean loam (E/A)													
Eldean loam (E/B)													
Eldean loam (E/B2)													
Eldean silt loam (EmA)													
Eldean silt loam (EmB)													
Eldean-Casco gravelly loams (EoC2)													

Source: Soil Survey of Miami County, Ohio. USDA Soil Conservation Service, 1978. MVRPC

Page 1 of 4
• Slope range is between 6-18%

TABLE 6-1 Development Suitability Analysis For Soils

SOIL TYPES - TROY, MIAMI COUNTY	RESOURCE POTENTIAL			DEVELOPMENT SUITABILITY FACTORS						DEVELOPMENT SUITABILITY		
	NATURALLY PRIME FARMLAND	PRIME FARMLAND WHERE DRAINED	PROBABLE SOURCE OF SAND & GRAVEL	FLOODING HAZARD	LOW BEARING STRENGTH	SHALLOW DEPTH TO BEDROCK	DRAINAGE			RESIDENTIAL		
							SOMEWHAT POORLY DRAINED	VERY POORLY DRAINED	HYDRIC SOIL	SLOPE - LESS THAN 6%	SLOPE - 6-12%	SLOPE - MORE THAN 12%
Eldean-Casco gravelly loams (EoD2)			X								X	
Eldean-Casco complex (EpD3)			X								X	
Eldean-Miamian complex (ErB)	X		X									
Eldean-Miamian complex (ErC)			X									
Genesee silt loam (Gn)												
Glynwood silt loam (GwB)	X			X								
Glynwood clay loam (GwB2)												
Glynwood clay loam (GwC2)												
Glynwood silt loam (GwD2)												
Glynwood clay loam (GyC3)												
Glynwood clay loam (GyD3)												
Linwood muck (Ln)					X							
Lorenzo-Rodman gravelly loams (LrE2)												
Martinsville and Ockley loams (MaB)	X		X									
Medway silt loam (Md)	X											
Miamian silt loam (MhA)	X											
Miamian silt loam (MhB)	X											
Miamian silt loam (MhB2)	X											
Miamian silt loam (MhC2)												
Miamian silt loam (MhD2)												

Source: Soil Survey of Miami County, Ohio. USDA Soil Conservation Service, 1978.
MVRPC

Page 2 of 4
* Slope range is between 6-18%

TABLE 6-1 Development Suitability Analysis For Soils

SOIL TYPES - TROY, MIAMI COUNTY	RESOURCE POTENTIAL			DEVELOPMENT SUITABILITY FACTORS						DEVELOPMENT SUITABILITY		
	NATURALLY PRIME FARMLAND	PRIME FARMLAND WHERE DRAINED	PROBABLE SOURCE OF SAND & GRAVEL	FLOODING HAZARD	LOW BEARING STRENGTH	SHALLOW DEPTH TO BEDROCK	DRAINAGE			RESIDENTIAL		
							SOMEWHAT POORLY DRAINED	VERY POORLY DRAINED	HYDRIC SOIL	SLOPE - LESS THAN 6%	SLOPE - 6-12%	SLOPE - MORE THAN 12%
Miamian silt loam (MkA)	X					X				PRIME	SUITABLE	MARGINAL
Miamian silt loam (MkB)	X					X					X	
Miamian silt loam (MkB2)	X					X					X	
Miamian silt loam (MkC2)						X					X	
Miamian clay loam (MIC3)										X		
Miamian clay loam (MID3)											X	
Miamian and Hennepin silt loams (MmE)											X	
Miamian and Hennepin silt loams (MmF)											X	
Millsdale silt loam (MnA)		X				X						X
Millsdale silt loam (MnB)		X				X						X
Millsdale silty clay loam (MoA)		X				X						X
Millsdale silty clay loam (MoB)		X				X						X
Milton silt loam (MpA)	X					X						X
Milton silt loam (MpB)	X					X						X
Milton silt loam (MpB2)	X					X						X
Milton silt loam (MpC2)						X						X
Milton silt loam (MpD2)						X						X
Montgomery silty clay loam (Mt)		X			X						X	
Ockley silt loam (OcA)	X		X									
Ockley silt loam (OcB)	X		X									

Source: Soil Survey of Miami County, Ohio. USDA Soil Conservation Service, 1978. MVRPC

Page 3 of 4
• Slope range is between 6-18%

TABLE 6-1 Development Suitability Analysis For Soils

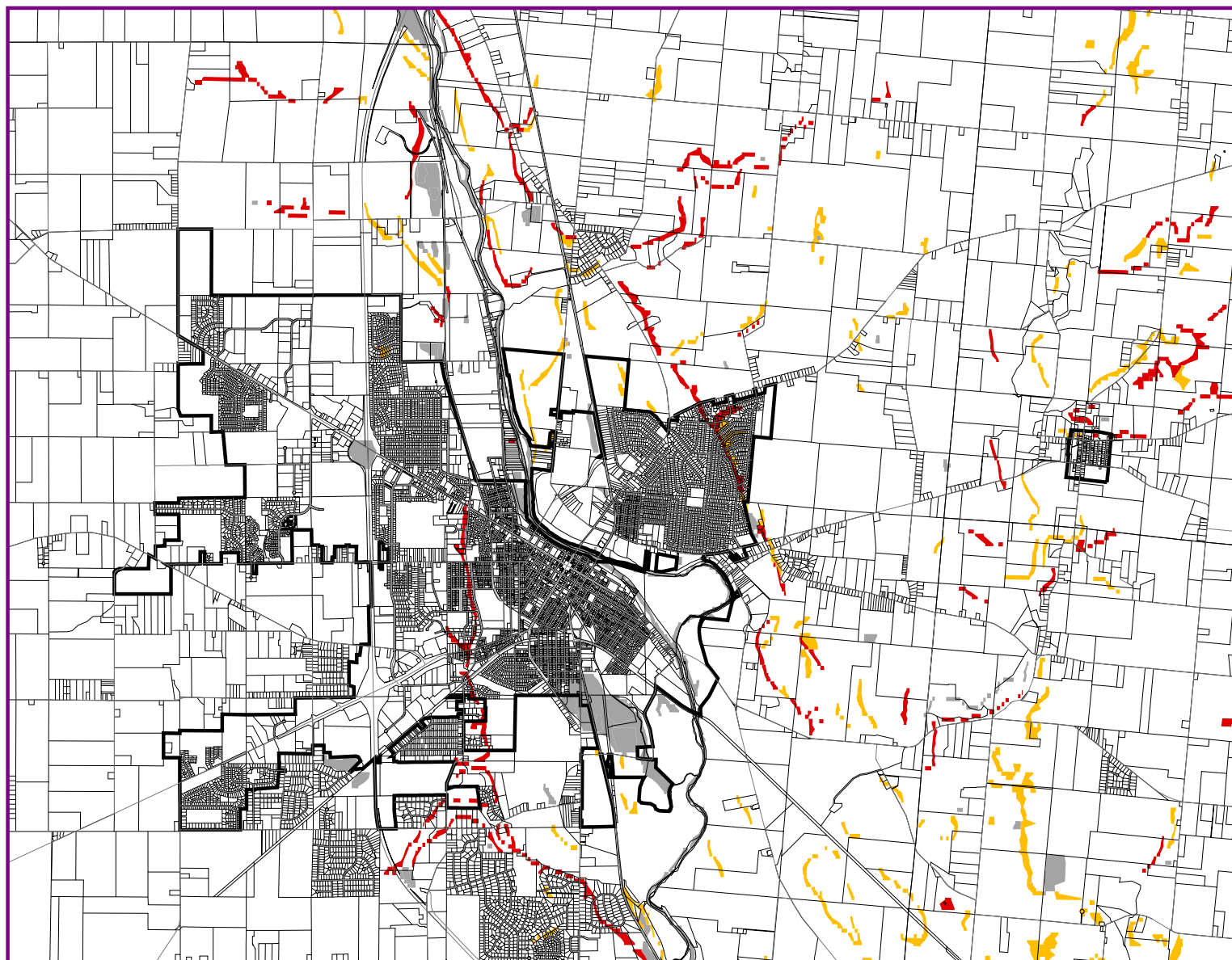
SOIL TYPES - TROY, MIAMI COUNTY		RESOURCE POTENTIAL			DEVELOPMENT SUITABILITY FACTORS								DEVELOPMENT SUITABILITY							
		FARMLAND	PRIME FARMLAND WHERE DRAINED	PROBABLE SOURCE OF SAND & GRAVEL	FLOODING HAZARD	LOW BEARING STRENGTH	SHALLOW DEPTH TO BEDROCK	DRAINAGE			SLOPE			RESIDENTIAL			COMMERCIAL/INDUSTRIAL			
								SOMEWHAT POORLY DRAINED	VERY POORLY DRAINED	HYDRIC SOIL	SLOPE - LESS THAN 6%	SLOPE - 6-12%	SLOPE - MORE THAN 12%	PRIME	SUITABLE	MARGINAL	NOT RECOMMENDED	PRIME	SUITABLE	MARGINAL
Odell silt loam (OdA)																				
Odell silt loam (OdB)			X					X			X					X				
Pewamo silty clay loam (Pe)			X						X		X					X				
Randolph silt loam (RdA)								X			X					X				
Randolph silt loam (RdB)								X			X					X				
Ritchey silt loam (RhB)								X			X					X				
Ritchey silt loam (RhC)								X			X					X				
Ritchey silt loam (RhE)								X			X*					X				
Ross silt loam (Rs)		X			X								X							
Ross silt loam, shallow variant (Rt)					X						X									
Shoals silt loam (Sh)		X			X						X									
Shoals silt loam, mod. shallow vari (Sk)				X	X			X			X									
Sleeth silt loam (SIA)			X		X			X			X									
Stonelick loam (St)		X																		
Wallkill silt loam (Wa)																				
Warsaw silt loam (WdA)		X		X		X					X									
Wea silt loam (WeA)		X		X																
Westland silty clay loam (Wt)			X	X	X						X									

Source: Soil Survey of Miami County, Ohio. USDA Soil Conservation Service, 1978.
MVRPC

Page 4 of 4
* Slope range is between 6-18%

Figure 6-1
Slopes
Troy, Ohio

Slopes
 0-6% Slopes
 6-12% Slopes
 12+% Slopes
 Not Rated



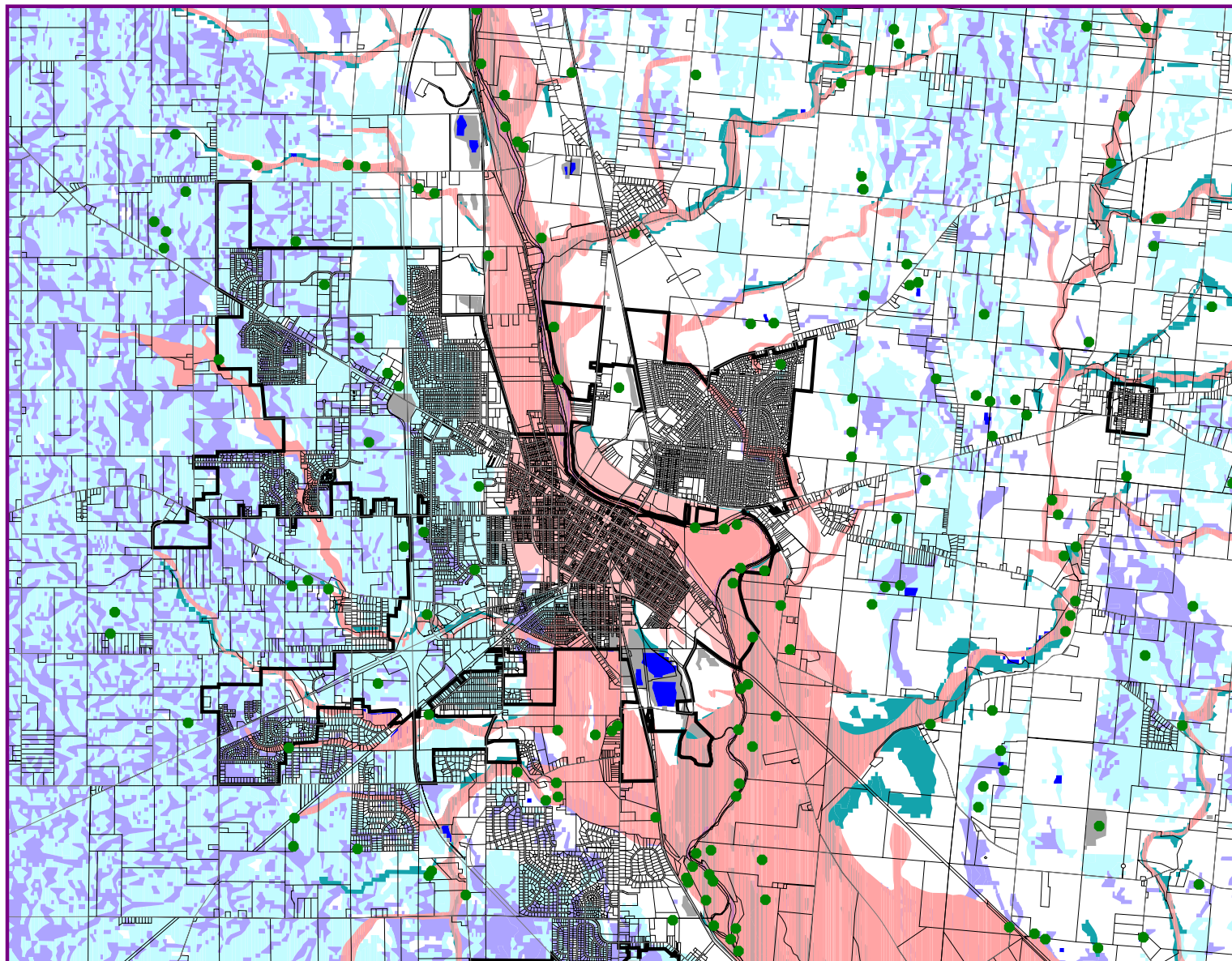


Figure 6-2
Flood Hazard, Drainage
and Wetlands
 Troy, Ohio

- 100-Year Flood Hazard Area
- 500-Year Flood Hazard Area
- Alluvial Soils (Flood Hazard)
- Very Poorly Drained (Hydric)
- Somewhat Poorly Drained
- Well Drained
- Probable Wetland



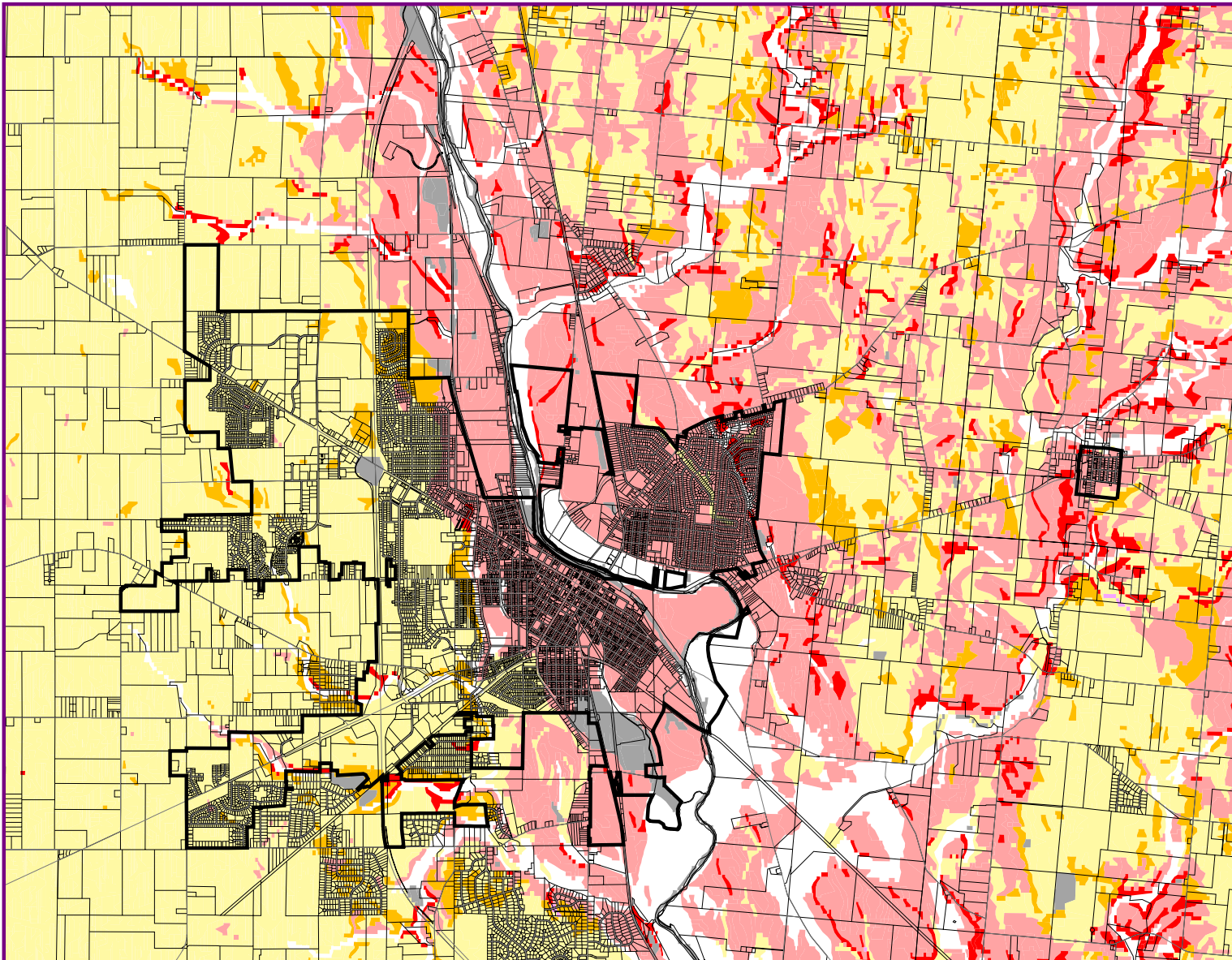


Figure 6-3
Soil Suitability
for Development
Troy, Ohio

Soil Suitability
Prime For Residential & Commercial/Industrial
Prime For Residential & Marginal For Commercial/Industrial
Suitable For Residential & Commercial/Industrial
Suitable For Residential & Marginal For Commercial/Industrial
Marginal For Residential & Commercial/Industrial
Not Recommended
Not Rated

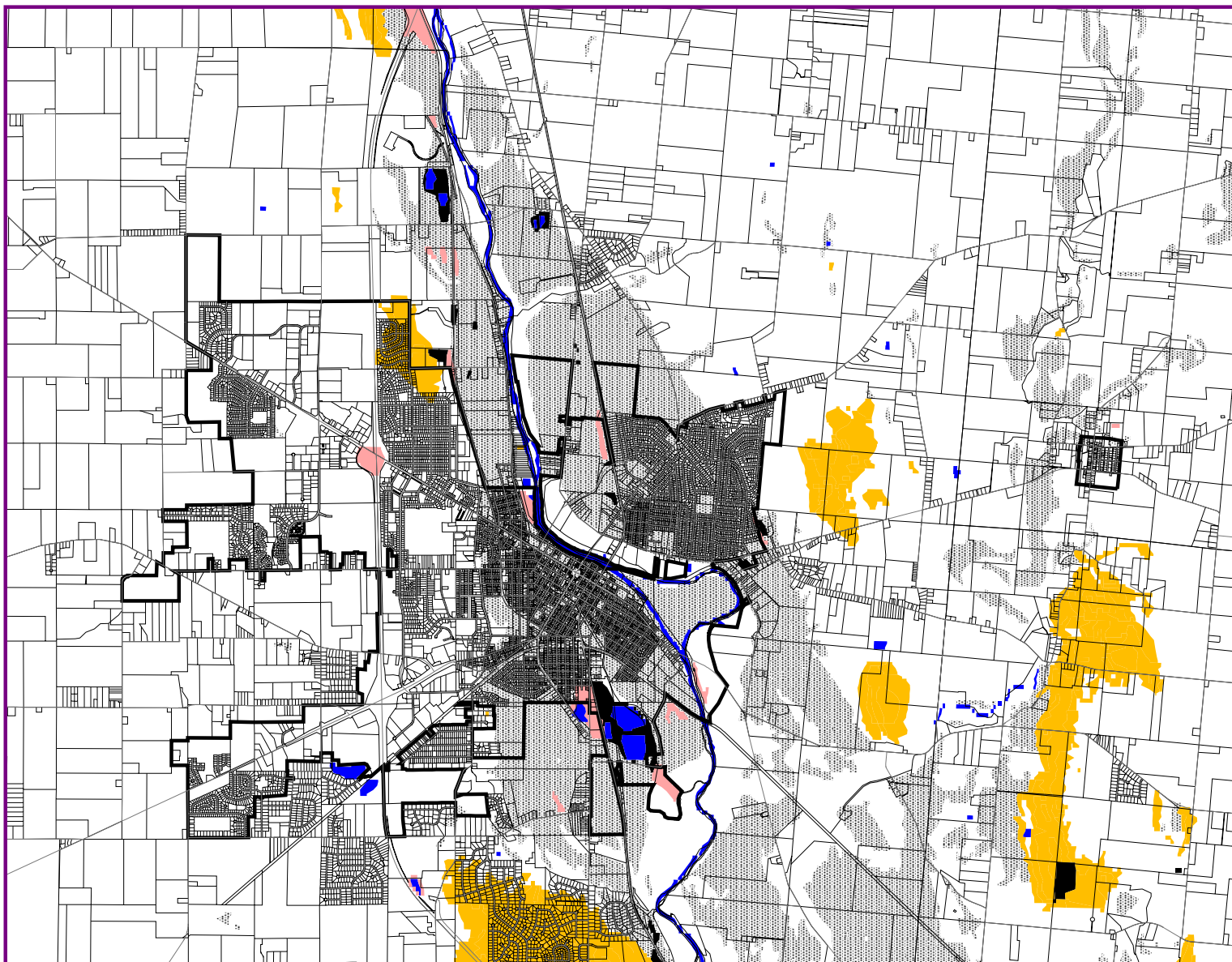


Figure 6-4
Mineral Resources
 Troy, Ohio

Mineral Resources
 Probable Source of Sand & Gravel
 Shallow Depth to Bedrock (5 feet or less)
 Gravel Pits & Quarries
 Water
 Not Rated



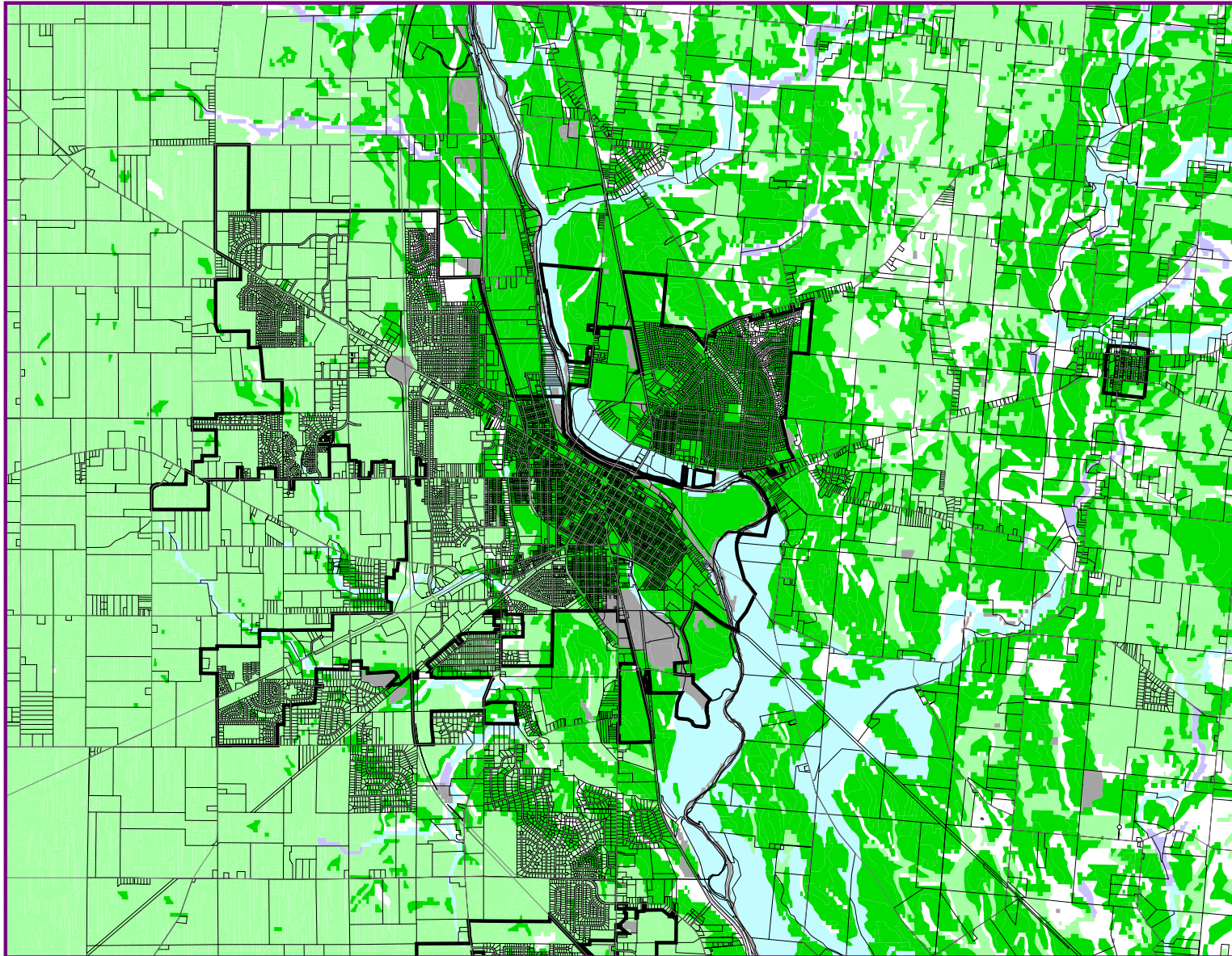


Figure 6-5
Prime Farmland
Troy, Ohio

- Prime Farmland
- Naturally Prime Farmland
 - Prime Farmland Where Drained
 - Prime Farmland Where Protected From Flooding
 - Prime Farmland Where Drained & Protected From Flooding
 - Not Rated



UTILITIES CHAPTER 7



Troy Wastewater Treatment Plant
1400 Dye Mill Road

INTRODUCTION

This chapter presents an overview of the current utility services as provided by the City and other private utilities to Troy and its surrounds. The location and capability of utility infrastructure are two of the most important factors linking what types of future development can be supported, to what degree, at what locations, or with what modifications.

CITY OF TROY ENGINEERING DEPARTMENT

The Engineering Department is comprised of 3 divisions: Operations, Utilities, and Engineering, totaling 49 full-time employees, who are responsible for treating and delivering safe drinking water, collecting and treating wastewater stormwater management, collecting and disposing of solid waste and recycling, maintaining streets, signage, street lights, and signization.

The Utilities Division operations are funded with water and sewer rate revenues. Troy's water and sewer rates and quality of services are very competitive compared to other cities in Southwest Ohio.

A 2016 City of Oakwood water study of 66 local jurisdictions showed that Troy's average quarterly charge for water for \$130.26, which is only 10% over the average. This is compared to Miami County at \$192.66, Piqua at \$196.29, West Milton at \$174.23, and Tipp City at \$146.70. The range of rates reflects the disparity of utilities ranging in size from Dayton (\$94.85) to small county or village systems, which may or may not provide water service that includes non-softened waters to Troy's lime-softened supply, which is one of the softest water supplied in Southwest Ohio. Average quarterly water cost for all those surveyed is \$118.13.

Troy's 2016 quarterly charge for sewer was \$111.96, which is 5.2% lower than 62 other jurisdictions surveyed by Oakwood. By comparison, Miami County is at \$225.90, Piqua at \$127.28, West Milton at \$178.46, and Tipp City at \$85.59. Average quarterly sewer cost for all those surveyed is \$133.38.

Troy's combined water and sewer rate of \$242.22 is 4% lower than the average of 63 jurisdictions in Southwest Ohio. By comparison, Miami County is at \$418.56, Piqua at \$323.57, West Milton at \$352.69, and Tipp City at \$232.29. Rates were in effect as of March 1, 2016, for quarterly consumption of 3000 CF of usage.

Troy sells water and/or sewer services to Miami County and through a tri-county jurisdictional agreement with Miami County and West Milton to supply water to that village. West Milton's average water consumption was approximately 141.45 Million Gallons (MG) (2011 through 2015). There are about water accounts and 2088 sewer accounts serviced by the Miami County Sanitary Engineer in which Troy provides water or sewage treatment for through 20-year agreements between the Troy City Council and Miami County Commissioners dated 2003 and 1988 respectively.

WATER SUPPLY AND TREATMENT

A community's existence and ability to grow is contingent upon having adequate quantities of safe drinking water, and having a water system capable of supporting fire protection needs.



Troy obtains its public drinking water supply from buried valley sand and gravel aquifer associated with the Great Miami River. The City currently utilizes ten gravel-packed production wells to draw water from the buried-valley aquifer for treatment at the Water Treatment Plant. These wells are located adjacent to the Great Miami River (GMR). The wells range from 68 to 124 feet in depth, with screen diameters of 14 to 25 inches, gravel packs averaging 4-6", producing approximately 3.5MGD Million Gallons per Day (MGD) based on the average provided in 2015. In the recent past, the one day peak consumption was 4.755 million gallons on March 5, 2015.

The raw well water is pumped to the Water Treatment Plant (WTP) at 300 E. Staunton Road where it is softened, clarified, disinfected, and filtered prior to being pumped to approximately 11,000 water accounts in the City. The mission of the Troy Water Treatment Plant is to provide an adequate supply of safe and clear drinking water, complying with or exceeding all Federal and State of Ohio health standards.

In 1971, an 8 MGD, lime-softening WTP was constructed near the original 1937 lime-softening plant. In 1999, a multi-phased expansion project was completed to allow for a future treatment capacity of up to 16 million gallons per day. This project included a four million gallon clear well and new power station (1997); four filters, two clarifiers, pump station, and a chemical feed system (1999).

In recognition of the City's commitment to providing excellent water to its consumers, in May of 2000, Troy received one of only five annual Outstanding Public Water Systems awards from the Ohio Environmental Protection Agency. This annual recognition is only given to public drinking water systems maintaining 100% compliance with the Safe Drinking Water Standards, the Safe Drinking Water Act, and requirements of the Ohio Drinking Water Laws. Other awards have included in 2001 from the American Water Works Association, Award of Excellence Management and Employees, in 2002 from the Ohio EPA, Certificate of Recognition for completion of a Drinking Water Source Protection Plan, and in 2014 from the American Water Works Association, 50 Years of Service to the Water Industry.



Beginning in 2004, planned improvements included siting several new wells, completing the addition of generation equipment to provide emergency electrical power to the WTP and several existing wells, and adding a booster station to better service the pressure needs of the far northwest quadrant of the distribution system. Since 2004, the generator projects have been completed with the addition of three generators at the WTP, and the addition of generators for each wellfield. 2006 saw the addition of a booster station on Experiment Farm Road, which helps to increase the water pressure on the west, northwest side of town. In 2014, an Air Stripper Tower was added to strip trace contaminants and VOCs from the water. Volatile Organic Chemicals (VOCs) are carbon-containing compounds that evaporate easily from water into air at normal air temperatures. VOCs are contained in a wide variety of commercial, industrial and residential products including fuel oils, gasoline, solvents, cleaners and degreasers, paints, inks, dyes, refrigerants and pesticides. When VOCs are found in the environment it is typically the result of human activity, such as a spill or inappropriate disposal where the chemical has been allowed to soak into the ground. Once released into the environment, VOCs may be carried deeper into an aquifer in the form of a non-aqueous phase liquid (NAPL), evaporating low concentrations of VOCs as it is transported through the subsurface.

In conjunction with the Troy Fire Department, the Troy water system has jointly earned an "Insurance Services of Ohio" (ISO) rating of 4/4x, which is a very good rating for a community the size of Troy. SO rates fire equipment, staffing, communities, and response, as well as the strength of its water supply. Some insurance companies use this data in calculating premiums business and residential properties.



GROUNDWATER PROTECTION

Troy is active in the protection of our groundwater sources. In 1994 a wellhead protection program was developed. Figure 7-1, located at the end of this chapter, shows the Wellhead Protection areas in Troy and the 1-year and 5-year time of travel. The time of travel boundaries based on modeling of our water system shows how long it would take water in the aquifer along with any potential contaminants to make it to our wellfield. For example, a chemical spill in the one year time of travel area would take a year to reach our production well. These time of travel boundaries were used to enact overlay protection zones, called WO – Wellhead Operation districts and WP – Well Field Protection district overlay zoning districts that are depicted on the Troy Zoning Map (Figure 9-1), located at the end of Chapter 9.

The "WP" Well Field Protection Overlay District, as regulated by Section 1143.21 of the Zoning Code, is designed to safeguard the public health, safety, and welfare of citizens and institutions that are customers of the City's water system. This is done through regulation of the land use, storage, handling, operation, use, and production of regulated substances. The intent of this designation is to protect the community's potable water supply against contamination. These regulations prohibit uses such as sanitary landfills, landfills composed of demolition debris, and dry wells. Business owners and operators within the "WP" Well Field Protection Overlay District are required to implement best management practices (BMPs) to reduce the risk of release and pollution of the environment.

WATER DISTRIBUTION SYSTEM

The City of Troy also owns and operates three elevated storage tanks (water towers). The 1 Million Gallon (MG) "Herrlinger Tower" is located on the east side of Union Street at Herrlinger Park; the 0.5 MG "Stanfield Tower" is located on the south side of Stanfield Road, near Olympic Drive; and the 2 MG "Barnhart Tower" is located on the west side of Barnhart Road south of West Market Street (aka State Route 55). A new .75 MG Extra High Service tower, which will be located to the west of the existing High Service tower on Stanfield Road, is expected to be completed in 2017. These towers can store up to a total of 4.25 MG of water once the new tower is completed.

Troy's water distribution system is currently separated into three pressure zones known as the Low Service (LS), High Service (HS) and Extra High Service (EHS) area. The LS area covers the older lower-lying portion of the Troy and is generally bounded between the Great Miami River, Ridge Ave and the southern corporation limit. The Extra High pressure zone (EHS) was created when an extra high service pump station was put online in December 2006 and is made up of a small portion of our NW corporation limits. The HS area currently makes up the majority of the city and falls between the other two pressure zones. This is more accurately depicted in Figure 7-4, located at the end of this chapter. Pressure ranges in the three zones vary as follows: LS = 61-74psi, HS= 40-93psi, EHS=67-87 psi.

The northwestern most section of the High Service (HS) zone was separated in late 2004/2005 to create a booster station equipped "Extra High Service" (EHS) zone to elevate pressures in this area to a range of 50-70 psi by drawing suction from HS.

Figure 7-2, the "Troy Area Water District," shows the generalized water distribution system for the City, including existing trunk mains and water storage facilities locations.

The majority of the distribution system is comprised of 6-inch through 12-inch piping. There are minor areas of predominantly older neighborhoods serviced by less than 6-inch mains which are for the most part looped and therefore provide adequate service to such areas.

There are also larger trunk lines (16-inch to 24-inch) which connect major sections of the City. The long term capital plan is to replace the smaller than 6" water lines over the next 10 years.

Water Distribution is responsible for maintaining, testing, and repairing 157.16 miles of water mains buried beneath Troy's streets, including 1,356 fire hydrants located in the City. Troy has cast iron pipe dating to 1884 or earlier still in service and in good condition due in part to the quality of the water treatment. This unit is also responsible for assisting the Billing and Collection Department each month with service disconnection due to unpaid water invoices. In 2009, the City upgraded their Water Distribution system to allow for remote, radio reading of the water meters thus allowing the City to quickly recognize when an issue with a citizen's water meter or service arises.

As Troy has grown, its water usage has increased over the years due to the increase in the amount of new development from residential to industrial uses, and on a lesser scale, due to changes in residential water use with the addition of lawn irrigation, hot-tubs and other water-using appliances. At the time, associated improvements in well supply, treatment, distribution and storage have taken place. As population and commercial/industrial development continues, the demand for water and fire protection will increase. Given the current design capacities, the existing treatment plant, ground and elevated storage, and pumping facilities Troy can meet anticipated demands well into the future with minimal effort. Water revenues are sufficient to maintain an excellent bond rating for borrowing purposes and to support the needs of the water operations.

STORM WATER MANAGEMENT

The storm water management system and how it is designed, operated, and managed is directly related to flooding and flood control. The storm water management system plays an important role in controlling discharge to minimize flooding potential within drainage areas.

Troy's storm water drainage and detention system is both natural and man-made. It is comprised of a network of storm sewers, creeks/ditches, and storm water management ponds. Troy adopted a storm water management ordinance in 1982.

Sewer Maintenance is responsible for maintaining and repairing nearly 127.55 miles of storm sewer (6 inches through 60 inches), all manholes, and all storm water catch basins, and culverts. Work crews use advanced technology to clean and inspect storm sewers with jet-vac trucks and specialized equipment with video cameras, so that they function adequately and convey storm flows to ditches and eventually to the Great Miami River (GMR). Staff is also involved in maintaining some of the improved drainage ditches in Troy. The storm water collection system also includes two lift stations built in the mid-1970s in response to particular flooding problems and safety access. The first is located at the Race Drive Underpass under the CSX railroad, where the storm sewer system is located above the underpass street elevations, and where the underpass was lowered for emergency vehicle access to the eastern end of Troy. The second is on North Madison Street where storm water from the adjacent neighborhood must be lifted into the Morgan Ditch, an open channel out-letting to the nearby GMR.

Despite the capabilities of Troy's existing storm water management system, larger storms sometimes result in yard and street flooding. To minimize existing and anticipated flooding due to excessive storm discharge, Troy has completed well over \$4 million in major, phased improvements in various areas of the City. These improvements are to better accommodate flood flows and reduce nuisance flooding within the living levels in homes near the Kidder Ditch in the northeast portion of the City.

The City also experiences flooding hazards within natural floodplains running along and proximate to the Great Miami River. To mitigate this type of flooding, Troy and neighboring communities participate in the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP).

In 2008, the City implemented a Storm Water Utility program. This program collects a monthly storm water fee based on the amount of impervious surface a property contains. The Equivalent Residential Unit (ERU) is equal to 3,000 square feet of impervious surface. Each property's ERU calculation generates fees which are then used to improve the City's major storm water infrastructure for the citizens, provide education to citizens concerning appropriate storm water practices, and to continue to maintain the existing storm sewers and collection systems.

WASTEWATER COLLECTION AND TREATMENT

The wastewater collection and treatment system is essential to insuring the health and welfare of the community's environment and to support current and future needs. A central system is used to collect, treat, and dispose of the wastewater at a low risk to environmental hazards.

The Troy Wastewater Treatment Plant (WWTP) is located at 1400 Dye Mill Road and discharges to the Great Miami River (GMR). The first treatment plant began operation on this site in 1939. Subsequent improvements took place in the early 1950s and early 1960s, and in 1974 the plant underwent a major overhaul, creating the basis for the present WWTP operating as a conventional activated sludge plant in the contact stabilization mode. Since 1995 the City completed a series of phased expansions, adding a 2-stage screw pump station and equalization tanks, power station upgrade, additional secondary clarification, ultraviolet disinfection, and installed odor control technology on its biosolids treatment process. The replacement of two (2), two-stage, 10MGD screw pumps due to the age and wear of the existing pumps, will occur in 2016.

The WWTP provides treatment to all industrial and domestic users of water within the City of Troy and certain surrounding areas of Miami County, where the City sells service to Miami County through an agreement. The WWTP treated an average of 5.03 MGD effluent for the year 2015. Discharge is to the GMR. The Plant has a current National Pollutant Discharge Elimination System (NPDES) permit for the treatment capacity of 7 MGD. The most recent, largest, average daily flow of effluent occurred on May 22, 2014 at 25.24 MGD. During that 24 hour period, the highest flow observed was 42 MGD. The WWTP is well-positioned to accommodate present users and to handle increasing hydraulic and biologic loads well into the future.

Figure 7-3, located at the end of this chapter, illustrates the “Troy Area Sewer District”. All wastewater is collected and moved through this system of sewer mains. Several pump or lift stations exist in the collection system due to the topography of the City, with the main lift station being located at the WWTP. Lift stations, sites where wastewater is lifted mechanically from one sewer elevation to another and allowed to proceed toward the WWTP under gravity flow, include: Fernwood Drive, Heywood School, and Dakota Street locations. Pump stations, sites where the wastewater must be lifted from one elevation and transported via a force main to a higher elevation gravity sewer include: Kirk/Fairfield, Dorset, and the Nottingham residential subdivision.

Sewer Maintenance is responsible for inspection, maintenance and repair over 125 miles of sanitary sewer ranging from 6 inch to 42 inch diameter mains. Crews use advanced technology to clean and inspect the sewer system to ensure efficient transportation of sewage to the Wastewater Treatment Plant. Sewer Maintenance and WWTP staff also maintain the City’s two storm water lift stations. A “jet-vac” sewer cleaning machine and internal video inspection of mains are keys to proper inspection and keeping sewers in good working order. The sanitary sewer system’s oldest components date to about 1903. Annual revenues and carryovers allow for sufficient funds to make needed improvements.

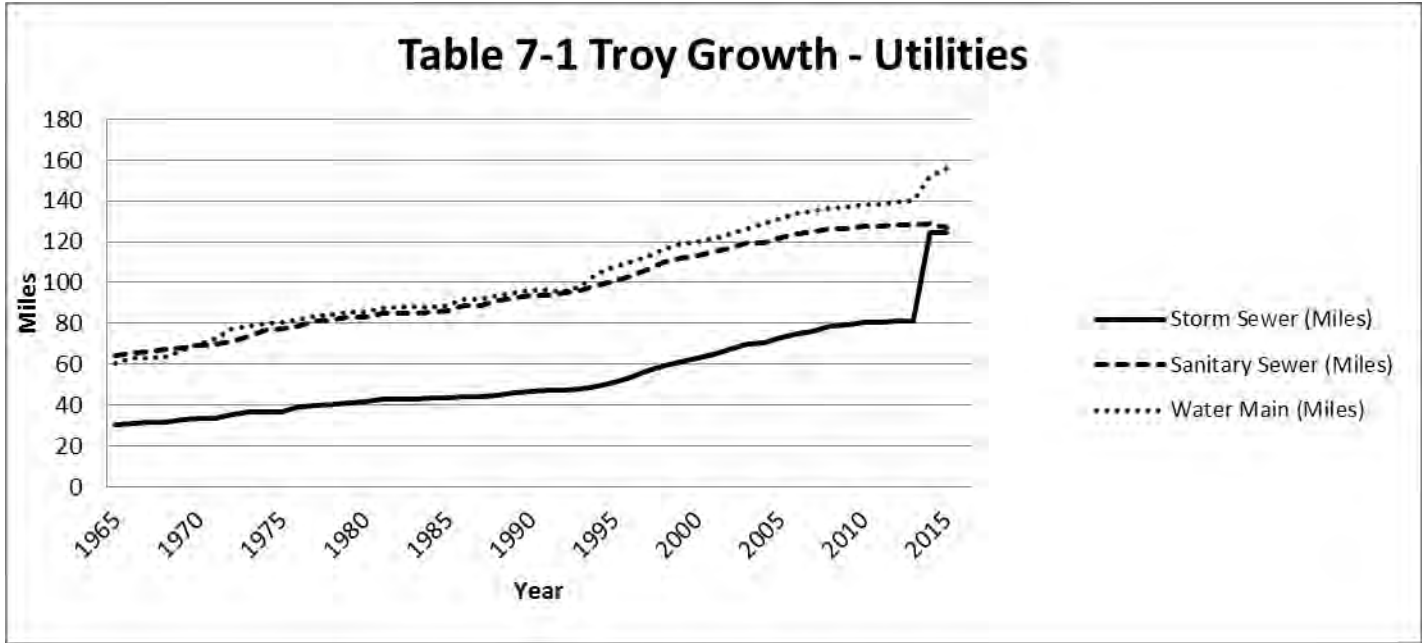
GROWTH TRENDS

Growth trends have been created from data collected over the years from the Operations, Treatment Plants, and MIS Departments. Tables 7-1 to 7-4 illustrate the various growth trends dating back to 1965 to the present in terms of the number of linear miles of infrastructure and the square miles of land area inside the City limits.

Table 7-1 Troy Growth – Utilities 1965 to Present

The number of constructed miles for water, sanitary, and storm sewer systems are illustrated in Table 7-1, indicating a steady trend of growth from 1965 to early 1990’s. The average growth rate for both water and sanitary sewer lines during this time period was approximately 1.1 miles per year (See Table 7-4). Also from 1965 to the early 1990’s, storm sewer had an average growth rate of 0.6 miles a year.

The data below suggests a steady increase in storm sewer and sanitary sewer from the mid-1990’s to approximately 2013. From 2013 to the present the chart indicates a large increase in storm sewer and a slight decrease in sanitary sewer. Due to improved GIS technology now available to the City, unreported utilities are now being accurately identified which results with a drastic jump in the data. Future data should support this trend as more utilities are accurately identified.



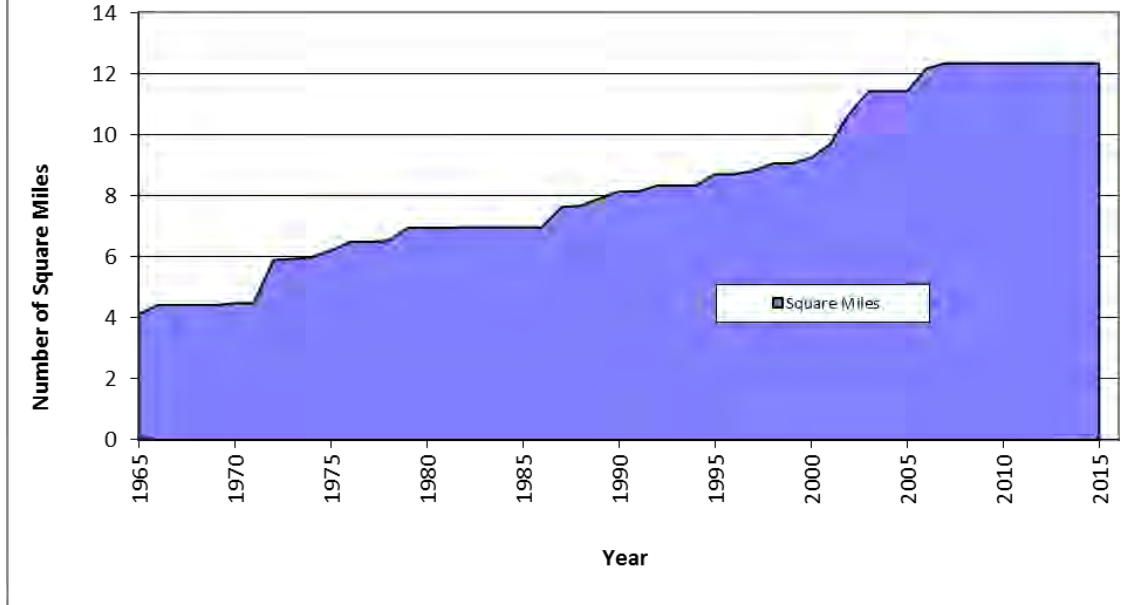
Source: City of Troy, Engineering Division

Table 7-2 Troy Growth— Area of City 1965 to Present

Growth of land area increases by annexation from adjacent Staunton and Concord Townships, into the City of Troy corporation limits. The area line graph depicts the growth trend from 1965 to the present.

The growth rate from the mid 1960’s through the 1970’s saw an annual average increase of about 0.2 square miles per year. This 5% annual increase hit a plateau and dropped in half during the 1980’s and early 1990’s. Annexation and growth then took off around 1999 to 2007, with an average growth rate of 0.5 square miles per year. Data from 2000-2007 suggests that the average rate of growth was a respectable 0.4 square miles per year. However, from 2008 until 2015, the average rate of growth remained flat with no additional square miles. This, largely in part, was due to the recession and housing collapse of the late 2000’s, and the almost non-existent development of housing starts. See “Chapter 9 Land Use Trends” for more on annexations and land area.

Table 7-2 Troy Growth - Area of the City



Source: City of Troy, Engineering Division

Table 7-3 Troy Growth— Street 1956 to Present

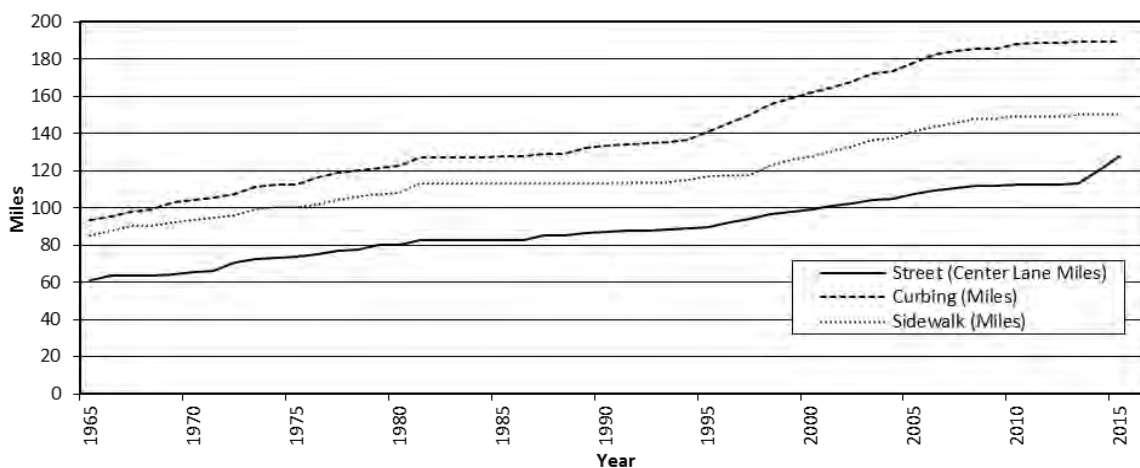
As in the case with water and sewer lines, the amount of streets, sidewalks and curbs have also increased with the general growth of the City. The constructed infrastructure is measured in linear miles and illustrated in trend lines below.

Dating from 1965 to present, both constructed streets and sidewalks have averaged at 1.1 miles per year. Curbs had an average rate of 1.4 miles a year from 1965 to 1994, and have increased to nearly 4 miles per year since. The increase in curbs is partly due to several significant street improvement efforts in the past eight years.

Rates of increase have averaged about 1.5% generally for all street improvements and additions, except for the recent rise in curbs indicating over a 2.5% growth rate annually since 1994.

Since 1995, street miles, curbing, and sidewalks have continued to gradually increase. From 2008 to 2012, the increase somewhat flattened due to the housing market collapse and the stall of new houses and subdivisions being constructed. However, in 2013 to the present, the data indicates a period of growth which is in direct relation to the addition of new subdivisions and housing developments. Sidewalk and curbing miles are expected to continue to increase in the future due to the Sidewalk Replacement Program, and continued street projects.

Table 7-3 Troy Growth - Streets 1965 to Present



Source: City of Troy, Engineering Division

Table 7-4 Troy Growth Statistics – 1965 to Present

Table 7-4 contains the statistics collected for streets, sidewalks, curbs, and the utilities in terms of linear miles. The statistics for area were collected in terms of acres and square miles within the City corporate limits.

Date	Acres	Square Miles	Street (Center Lane Miles)	Sidewalk (Miles)	Curbing (Miles)	Storm Sewer (Miles)	Sanitary Sewer (Miles)	Water Main (Miles)
January 1, 1965	2,643.533	4.131	60.99	85.35	93.24	30.33	64.05	60.68
January 1, 1966	2,830.604	4.423	63.34	87.59	95.64	30.93	65.20	62.99
January 1, 1967	2,830.604	4.423	63.49	90.00	98.08	31.46	65.85	63.21
January 1, 1968	2,830.604	4.423	63.49	90.50	99.08	31.85	67.22	63.66
January 1, 1969	2,830.604	4.423	64.30	92.29	103.19	32.67	68.18	66.71
January 1, 1970	2,868.846	4.483	65.20	93.44	104.42	33.18	69.23	69.62
January 1, 1971	2,881.611	4.503	66.05	94.69	105.68	33.70	69.61	72.61
January 1, 1972	3,774.316	5.897	70.59	95.77	107.57	35.18	71.02	77.15
January 1, 1973	3,796.029	5.931	72.31	99.11	110.91	36.34	73.74	78.84
January 1, 1974	3,831.939	5.987	72.98	100.68	112.48	36.69	76.57	80.08
January 1, 1975	3,975.394	6.212	73.57	100.68	112.78	36.69	77.72	80.45
January 1, 1976	4,153.687	6.490	75.28	101.70	116.16	38.95	78.90	81.62
January 1, 1977	4,153.687	6.490	76.64	104.42	118.88	40.02	81.25	83.52
January 1, 1978	4,179.661	6.531	77.40	105.94	120.40	40.58	82.01	84.47
January 1, 1979	4,453.620	6.959	79.82	107.13	121.59	41.29	82.85	85.39
January 1, 1980	4,453.620	6.959	80.25	107.99	122.45	41.59	83.28	85.86
January 1, 1981	4,453.620	6.959	82.70	112.81	127.27	42.71	85.12	87.66
January 1, 1982	4,456.178	6.963	82.70	112.81	127.27	42.74	85.12	87.78
January 1, 1983	4,456.178	6.963	82.70	112.81	127.27	43.19	85.12	87.78
January 1, 1984	4,456.178	6.963	82.85	112.81	127.27	43.47	85.32	87.94
January 1, 1985	4,456.178	6.963	82.85	112.81	128.00	43.47	86.22	88.84
January 1, 1986	4,461.569	6.971	82.85	112.81	128.00	43.88	88.44	92.05
January 1, 1987	4,887.331	7.636	84.98	112.81	128.80	44.29	88.68	92.05
January 1, 1988	4,911.444	7.674	85.04	112.85	128.90	44.58	90.92	93.47
January 1, 1989	5,068.962	7.920	86.68	112.85	132.20	45.93	92.71	94.91
January 1, 1990	5,213.451	8.146	87.21	112.85	133.30	46.56	93.41	96.14
January 1, 1991	5,213.451	8.146	87.52	112.96	133.93	47.12	93.81	96.44
January 1, 1992	5,336.222	8.338	87.90	113.53	134.69	47.34	94.98	95.65
January 1, 1993	5,336.222	8.338	88.15	113.90	135.19	48.11	96.24	98.38
January 1, 1994	5,336.222	8.338	88.77	115.14	136.43	49.39	98.69	104.40
January 1, 1995	5,576.508	8.713	89.84	116.89	140.95	51.16	100.89	107.74
January 1, 1996	5,578.148	8.716	91.90	117.32	145.83	53.55	103.42	110.22
January 1, 1997	5,644.918	8.820	93.93	117.60	149.99	56.63	106.32	112.75
January 1, 1998	5,799.892	9.062	96.63	122.63	155.39	59.37	109.79	116.19
January 1, 1999	5,799.892	9.062	97.86	126.03	158.69	61.09	111.68	118.53
January 1, 2000	5,917.098	9.245	99.45	127.49	161.87	63.02	113.39	120.11
January 1, 2001	6,206.989	9.698	100.88	130.59	164.84	64.81	114.86	121.62
January 1, 2002	6,846.202	10.697	102.35	132.6	167.98	67.25	116.96	123.83
January 1, 2003	7,312.504	11.426	104.45	136.8	172.33	69.95	119.16	126.23
January 1, 2004	7,312.500	11.426	105.05	137.48	173.38	70.27	119.22	128.81
January 1, 2005	7,315.700	11.431	107.49	141.16	178.26	73.08	121.9	131.31
January 1, 2006	7,786.880	12.167	109.60	143.92	182.48	75.19	123.90	133.67
January 1, 2007	7,900.800	12.345	110.50	145.71	184.27	76.39	125.01	134.92
January 1, 2008	7,900.800	12.345	111.84	147.88	185.61	78.67	126.22	136.44
January 1, 2009	7,900.800	12.345	111.96	147.88	185.85	79.42	126.54	136.92
January 2, 2010	7,900.800	12.345	112.59	149.15	188.20	80.29	127.72	138.21
January 1, 2011	7,900.800	12.345	112.75	149.47	188.52	80.52	127.88	138.39
January 1, 2012	7,900.800	12.345	112.75	149.47	188.52	81.00	127.95	139.65
January 1, 2013	7,900.800	12.345	113.04	150.05	189.10	81.29	128.24	139.94
March 1, 2014	7,900.800	12.345	120.04	150.05	189.10	124.33	128.67	152.25
January 1, 2015	7,900.800	12.345	128.00	150.05	189.10	124.51	128.67	155.83

Source: City of Troy, Engineering Division

ELECTRICITY, GAS AND TELEPHONE SERVICES

In Troy, private companies operate most of the public utilities other than the municipal water and sewer systems. These include power companies that supply natural gas and electric, and numerous telecommunications providers. Telephone and data service is also provided by some companies that do not use standard distribution wires, but have microwave or radio technology such as cell phones operated from broadcast towers. The principal providers of traditional public utilities are listed below.

Dayton Power and Light Company

Dayton Power & Light Company (DP&L) is the principal subsidiary of DPL Inc. DP&L delivers electricity to 500,000 customers in 24 counties of West Central Ohio.



Vectren Corporation

Vectren Corporation supplies natural gas service in Troy and the rest of Miami County. This diversified energy and applied technology company serves 1 million customers in Ohio and Indiana. Vectren has a local operations office located on Experiment Farm Road here in the City.



Charter Communications (formerly Time Warner)

Charter Communications (NASDAQ: CHTR) is among the largest providers of video, high-speed data and voice services in the United States, connecting 24 million customers to entertainment, information and each other. Charter Communications serves customers in 41 states and employs more than 90,000 people across the U.S.



Pioneer Rural Electric Cooperative

Pioneer Electric Cooperative is a not for profit consumer-owned electric utility delivering electric needs to nearly 15,000 member-owners in Miami, Champaign, Mercer, Auglaize, Logan, Union, Madison, Clark, Montgomery, and Shelby counties in Ohio.



Frontier Communications

Frontier Communications provides telephone service in the greater Troy area. Frontier Communications is an S&P 500 company and is included in the Fortune 1000 list of America's largest corporations. Frontier serves predominantly a mix of urban, suburban, and rural areas across the U.S. The company offers a variety of services to customers over its fiber-optic and copper networks, including video, high-speed internet, advanced voice and Frontier Secure digital protection solutions. Frontier Business Edge offers communications solutions to small, medium, and enterprise businesses.

Quick Facts

- ◆ Employees: Approx. 28,600
- ◆ Revenue Run Rate: \$11B (approx.)
- ◆ 12/31/2014 YTD REVENUE: \$4.77B
- ◆ Operating: 29 states



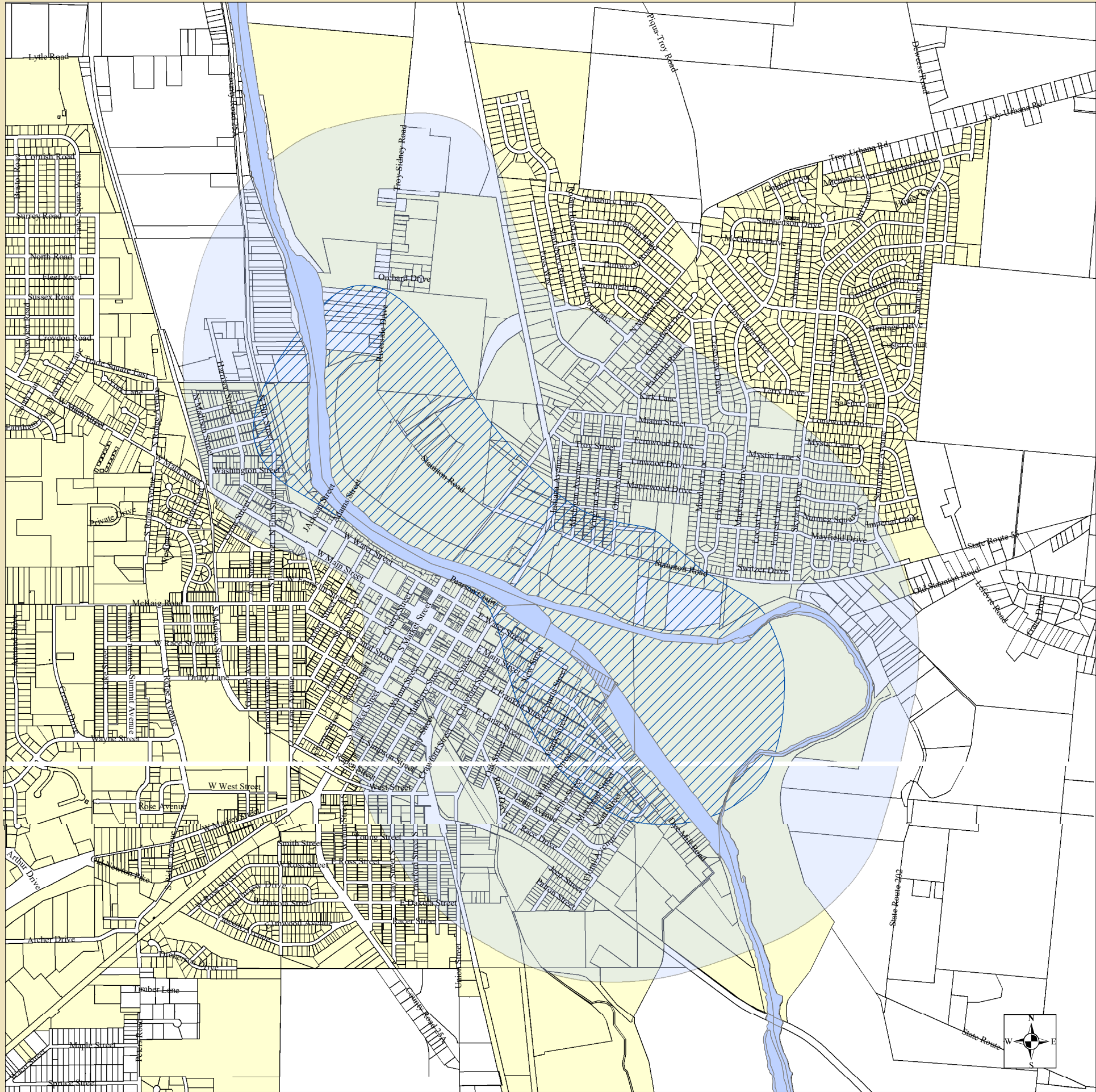
City of Troy

Not only does the City of Troy maintain its own municipal water and sewer systems, the City also oversees the maintenance and operation of 25,987 streetlights. In the next three (3) years, all of the City's streetlights will be upgraded to LED technology.



Figure: 7-1

Wellhead Protection



Legend



1 Year Travel Time

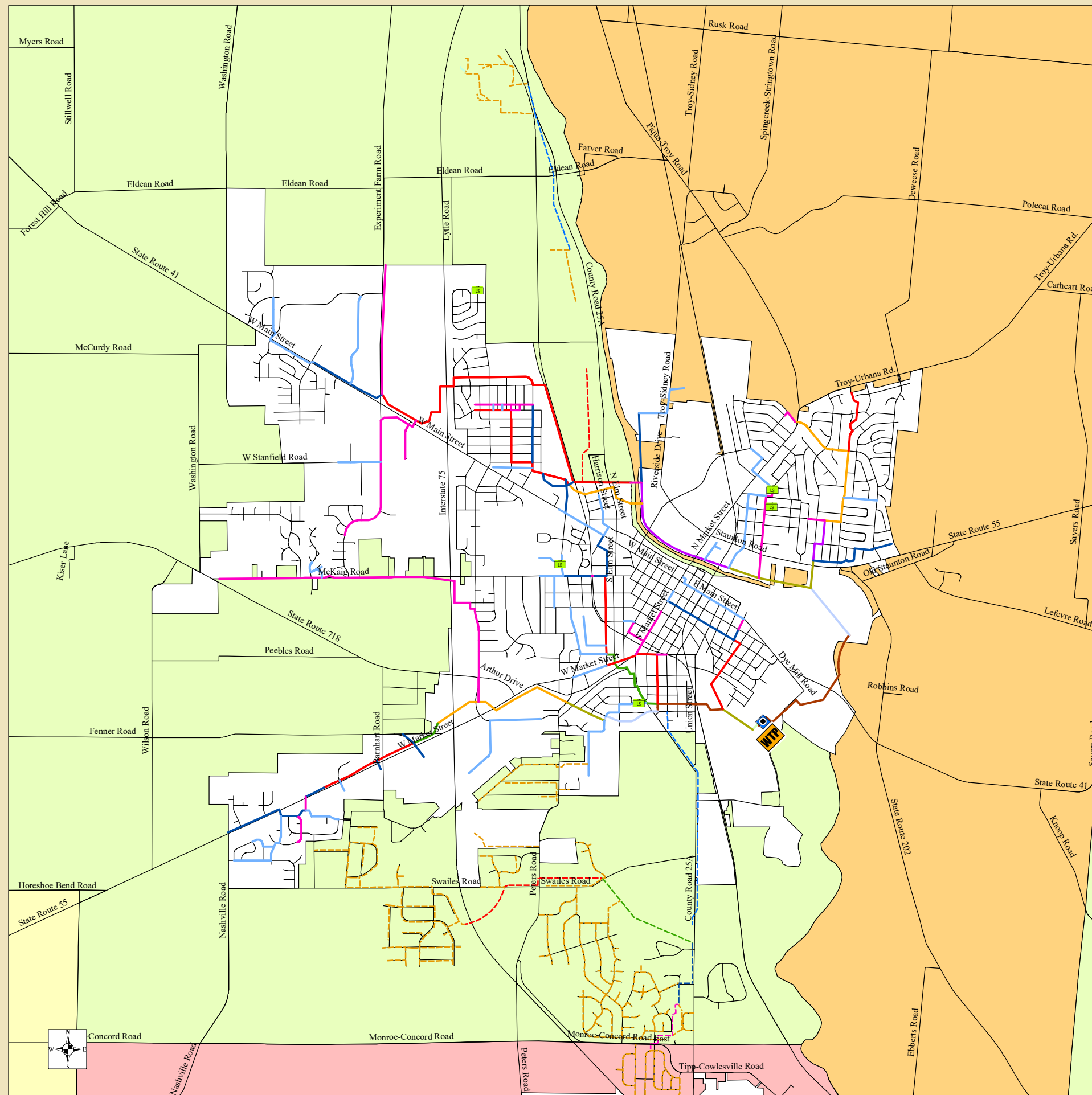


5 Year Travel Time

City of Troy
Planning and Development
February 27, 2006



Figure: 7-3
Troy Area Sewer District



Legend

Layer

	Lift Station		10InchSewer
	Screw Pump		12InchSewer
	WWTP		15InchSewer
			18InchSewer
			21InchSewer
	County4Inch		24InchSewer
	County8Inch		27InchSewer
	County10Inch		30InchSewer
	County12Inch		36InchSewer
	County15Inch		42InchSewer
	County18Inch		60InchSewer
	County21Inch		

Sewer Mains



City of Troy
Planning and Development
February 27, 2006



INTRODUCTION

Maintenance of existing developed areas as well as any future growth and expansion within Troy are dependent upon an efficient transportation network. Such a network allows goods and services to be moved in and out of the City for economic health and prosperity. Lack of an adequate transportation network will lead to a stagnant or declining economy. For this reason, Troy has developed a Complete Street program which incorporates several modes of transportation into one package. The Complete Streets program is discussed later in this chapter.

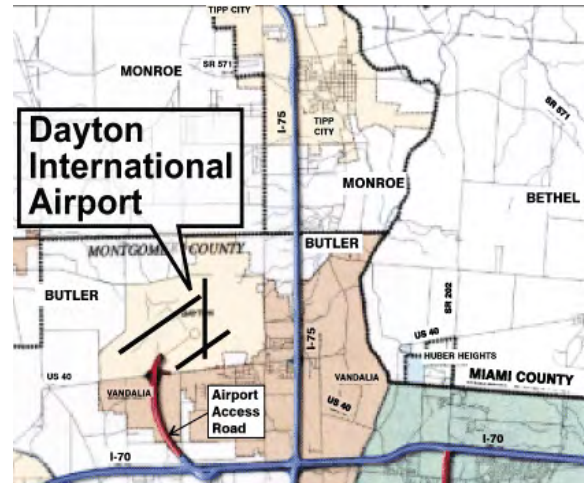
Troy has historically been well linked with the major modes of transportation: first with the Great Miami River and nearby post roads, then with the Miami-Erie Canal and the railroads, and now with highway and air networks. Today, thoroughfares, the most dominant mode of travel for either people or cargo, provide access to the entire study area, as well as links to the rest of the Miami Valley. Six modes of transportation are currently important to the immediate Troy area:

- 1) Air
- 2) Rail
- 3) Recreational trails
- 4) Pedestrian systems
- 5) Public transit
- 6) Thoroughfares

AIR TRAVEL

Today, long distance travel to and from Troy is fast and economical because of ready access to air travel. The major point of entry for passenger and freight flights into the Miami Valley region is fifteen minutes from Troy at the Dayton International Airport. Flight connections are available to national and international destinations.

Dayton International Airport offers a tremendous economic asset to Troy and the surrounding Miami Valley region as a whole, linking it to distant markets around the globe.



The airport is one of the top 100 passenger service airports in the United States. In 2015, more than one million passengers came through the Dayton International Airport. Passenger carriers at Dayton International Airport include: Delta, American, Southwest, and United.

Small aircraft can be accommodated within the Troy vicinity. Activated for aircraft use in September 2000, the WACO Field Airport comprises of a 77 acre site that features a 2,200 foot runway (2,000 usable) in a 1920s-styled, grass turf airstrip and modern aircraft hangar. The airstrip is privately owned and operated by the WACO Historical Society. It was designed specifically for open-cockpit WACO biplanes and other light aircraft.

RAIL SERVICE

The active railway serving Troy is a CSX "Class A" mainline. This is a major north-south line for the United States, handling greater than 20 million tons of freight a year - mainly agricultural products, metals and minerals - compared to the 46 million tons CSX moves each year throughout the state. This particular line generally follows Interstate 75 and the Great Miami River through Miami County, passing through Troy. It is used for freight and cargo without passenger service.

CSX continues to upgrade crossings and make repairs to existing infrastructure. In 2012, improvements were made to the South Union Street line to add gates and redesign the crossing. CSX is proposing to add gates along the East Franklin Street crossing.

Passenger Rail is another mode that is being investigated at the State and regional level for its feasibility in Ohio. How to pay capital and operational costs and secure access from private property for public use is a huge task. The financial and economic feasibility could not be accomplished without a public/private partnership. An October 2004 study titled "The Ohio and Lake Erie Regional Rail Ohio Hub Study" and conducted by the Ohio Rail Development Commission addresses the feasibility of the passenger rail connecting Cleveland, Columbus and Cincinnati together. According to the study the passenger rail is not a viable option for the Region at the moment primarily because of the "unknowns" in emerging federal passenger rail development programs, some of which center around Amtrak's role and funding structures. The "Ohio Hub System" study indicates continued effort with developing coalition forces, public input, and completion of economic impact analysis. Currently the closest passenger rail (Amtrak) station to Troy is found in Hamilton, approximately 47 miles away.

RECREATIONAL TRAILS/BIKEWAYS

Troy's first endeavors into recreational trail and bikeways started in the early 1970s. With the more recent resurgence in multi-modal uses of recreational trails, Troy began expanding the trail system in the early 2000s. The Miami County Recreational Trail Task Force was also created at that time to promote trail connections between cities. As trails are extended and connections are made, bicycle travel is becoming viable for more than just children riding to a nearby school. The Downtown Troy Streetscape project, for example, included bike racks in the Public Square. Details on the existing trails and the expansion plans are included in Chapter 12 Parks, Recreation, and Open Space.



Troy continues to be an active member of the Miami County Recreational Trails Task Force, and added a separate group, founded by the Mayor, to holistically review all trails and bikeway inside the City Limits of Troy. The results of this group led to Troy being designated as "Bronze" Bicycle Friendly Community, by the League of American Cyclists, and to the creation of a Complete Streets policy. This policy ties together all modes of transportation (including motorists, cyclists, pedestrians...etc.) to move safely along the various thoroughfares of the city. The Complete Streets policy is discussed in more detail later in this chapter.

PEDESTRIAN-FRIENDLY DESIGN

With an emphasis on fitness and wellness from the President's Council on Fitness, Sports & Nutrition more people need to be walking, biking, and exercising. As noted above, these activities are being served by Troy's recreational trails and bikeways. The trails are also becoming a travel route for some pedestrians on errands or even commuting to work.

The City of Troy continues to improve the pedestrian walkways in Downtown Troy and has repeated its multi-year Sidewalk Repair Program throughout the City. Implemented in 2003, this program has improved the safety along sidewalks by the elimination of hazards caused by raised or sunken sidewalks. Improved sidewalks are provided along most of the local streets, within subdivisions, and in the downtown area. Future phases of the Sidewalk Repair Program will include installing sidewalks in those neighborhoods where there are gaps in sidewalk connections, eventually providing safe walkways for pedestrians citywide.

Sidewalks are a vital part of neighborhood and community pride and connectivity which is why each year a section of the City is selected for the sidewalk replacement program. The sidewalk replacement program eliminates safety issues by requiring deteriorated sidewalks be repaired so citizens can safely traverse throughout the community. The City Engineering Department reviews the sidewalks and marks the sections that must be replaced. After the marking is completed, an explanation of the markings, a copy of the required work, an estimated cost, and compliance options are sent to the affected property owners. Owners may choose to hire a contractor to replace the sidewalks, or have the cost of the project assessed to their property taxes over a five year period.

New buildings are also being designed with more attention to details that make pedestrian traffic easier or safer. For example, businesses and churches near neighborhoods were the first to understand this issue, but have since been joined by national chains and large businesses. Local and state highway improvement projects now routinely include provisions for pedestrians. In Troy, this created support for the development of a pedestrian route over I-75, linking east and west of State Route 41 interchange area.

COMPLETE STREETS

Roadways traditionally have been designed primarily for motor vehicles. A personal vehicle-centric design approach poses barriers to use by pedestrians, bicyclists and public transportation users, thus limiting active transportation opportunities and potential resulting health benefits. Complete Streets policies support the development of roadway designs that improve the safety of all users and provide additional opportunities for physical activity from transportation. The connections between physical activity and public health have been widely documented. According to the U.S. Department of Transportation, physically active adults "have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, type 2 diabetes, metabolic syndrome, colon cancer, breast cancer, and depression than their physically inactive peer. Active transportation or trips made by walking or bicycling, was identified as a target for measuring progress for healthier people."

The City of Troy Complete Streets program is designed to create or upgrade facilities that safely and comfortably accommodate users of all ages and abilities including, but not limited to motorists, cyclists, pedestrians, transit and emergency responders to move along and cross the street. The program incorporates the needs of all users through the planning and design of the transportation network for all construction projects, including pavement resurfacing, restriping and signalization. It is accomplished by using a combination of sharrows, designated bike lanes, existing trails, and future proposed trails throughout the City of Troy.

The Complete Streets Policy is expected to be adopted by City Council and can be found as Appendix L and a copy of the Complete Streets map is shown as Figure 8-3, which is included at the end of this chapter.

PUBLIC TRANSIT

Introduction

In the first half of the 1900s, public transportation in Troy and throughout Miami County was provided by railroads, inter-urban traction lines, inter-city busses, and local taxi services. After World War II, private automobile availability and use increased dramatically. As a result, many of the public transportation methods fell into decline. This left a part of the population without alternatives for inter-city and even some intra-city travel. In 1968, the Miami County Community Action Council (CAC) was established as a non-profit agency to develop, implement, and operate various human services within the Troy and Miami County. The CAC also emerged as the major organizational entity offering public transit to various human service agencies.

In 1975, the Miami County Commissioners attempted to establish a Miami County Regional Transit Authority by combining resources from several agencies to provide public transit on a countywide basis. That initial effort failed, but in the early 1980s, Piqua and Troy were able to obtain federal transportation grants to support local public transit. These services operated in conjunction with the human services transportation provided by the CAC. In 1986 the Miami County Commissioners successfully applied for federal operating and capital improvement funds for countywide transit service. By 1995, the CAC had assumed the operating role and grant administration for all public transit throughout Miami County outside Piqua.

By 2000, the Miami County Transit Service (MCTS) was the only public transit provider in Troy. Most local taxi service had disappeared, as had inter-city bus service. At that time, the MCTS was financed by grants from the Federal Transit Administration, the Ohio Department of Transportation, the Area Agency on Aging, and from user fares. Service was provided on an on-call basis. There were no fixed routes. The MCTS provided curb to curb transportation by vans and cars, between Tipp City, the Upper Valley Medical Center, Troy, Covington, Piqua, and other parts of Miami County.



The Future of Transit Service in Troy

As a result of the 2000 United States Census, the Troy, Tipp City and West Milton areas were designated as part of the greater Dayton urbanized area. This designation directly affects the transit funding Miami County receives from both the Federal Transit Administration, and changes how the Ohio Department of Transportation interacts with the county. Miami County is designated as a small urban transit system, whereas it previously was classified as rural. Historically, rural systems can leverage greater percentages of operating funds than urban, where the funding focus is frequently more geared toward capital.

Miami County Transit is a designated recipient of 5307 funds from the Federal Transit Administration. These funds, along with Ohio Department of Transportation's Urban Transit Program, and a contribution from the Miami County Commissioners' general fund make up the build of the transit's budget.



All Miami County residents are welcome to ride transit as the Miami County Transit services the entirety of Miami County. The total number of rides provided by the Miami County Transit has remained consistent over the past three years as displayed in Table 8-1.

Year	Total Rides Provided	Number of Clients Serviced
2013	39,879	1,358
2014	41,023	1,428
2015	39,346	1,377

Source: Miami County Department of Transit

Table 8-1 Rides Provided by Miami County Transit

THOROUGHFARES

Introduction

Most travel in Troy is accomplished by private cars and trucks operating on city streets. This includes even short trips for many people. Increasing numbers of trips obviously leads to increased traffic, which is traditionally addressed in a thoroughfare plan.

Thoroughfares serve two functions: 1) mobility and 2) access to land use. The viability of land use is dependent on certain levels of accessibility. Thoroughfares act as a circulation system routing residents to their destinations throughout Troy and the region. They also provide efficiency in the movement of goods throughout the region. A thoroughfare plan is designed to meet the needs of future traffic demands and enable the City to ultimately provide an adequate street system. The plan consists of a program of proposed systematic and gradual changes. A well-planned and detailed thoroughfare plan is vital for healthy development within a city.

Development of Thoroughfares in Troy

The City of Troy has a long history of transportation and thoroughfare planning. In the 1960s, the City adopted a Thoroughfare Plan that focused on the concept of a series of ring roads and/or loops around the city. The smaller rings would serve the city center while the larger rings would provide continuous movement beyond the central business district. During this time, the City also focused on connecting northern residential areas to both the downtown shopping area and industrial areas.

In 1972, the City of Troy adopted a Comprehensive Plan which included a Thoroughfare Plan, which continued the 1960s concept of a series of ring roads and/or loops around the City. These were identified as the inner belt, outer belt, and the downtown loop. Major street improvements were also listed for each of the inner belt, outer belt, and downtown loop sections of the City. These improvements included creating connections between existing thoroughfares, new bridges, and modifications to existing thoroughfares, signalization, and the widening of particular roads/streets.

In 1981, the City of Troy updated the Thoroughfare Plan. This Plan predicted that the previously mentioned outer beltway would carry a significant amount of traffic, which in turn would divert some of this traffic away from the central business district. The information included in the 1981 plan was the basis for the future/proposed plan of the 1990s. The plan in the 1990s summarized existing thoroughfare networks and the surrounding 3-mile area while making recommendations for their improvements. Many of the improvements identified in the 1972 Thoroughfare Plan were still part of the plan in the 1990s.

Another transportation planning document that both Miami County and the City of Troy utilize as a planning reference is the Miami Valley Regional Planning Commission's 2030 Long Range Transportation Plan, which was originally adopted in 1997. This plan is continually updated and revised. It focuses on diverse factors including, but not limited to, development of long-range traffic patterns, fiscal constraints, air quality conformity, and project implementation.

Thoroughfare Classifications

The type of street upon which a property fronts significantly determines how intensely it may develop without creating undue congestion or safety hazards. Thoroughfares are separated into functional classifications according to the function they serve within the overall transportation network. Traffic volumes and intensity, continuity of travel movement, the proportion of through traffic to local traffic, and the number of necessary access points - both to other thoroughfares and to adjacent land - all play key roles in the design of each segment of the thoroughfare network.

The thoroughfare functional classification system for the Troy study area is shown on Figure 8-1, which is included at the end of this chapter. It reflects the following thoroughfare networks:

- ◆ **PRINCIPAL ARTERIALS (also known as interstate highways)** are designed and constructed with mobility and long-distance travel in mind. Roadways in this functional classification category are officially designated as Interstates by the US Secretary of Transportation. Interstates are under the control of the Ohio Department of Transportation (ODOT) for purposes of design, access, and maintenance. The only **Interstate** in Troy is Interstate 75.
- ◆ **MINOR ARTERIAL ROADWAYS** are intended to provide service for trips of moderate length and offer connectivity to the higher Principal Arterial system. In accordance with Miami Valley Regional Planning Commission's (MVRPC) functional classification, the **Minor Arterials** in Troy include:
 - ◇ Parts of State Route 41
 - ◇ Part of State Route 718/Arthur Drive
 - ◇ Part of State Route 55
 - ◇ North Market Street
 - ◇ Part of Experiment Farm Road
 - ◇ Parts of County Road 25A
- ◆ **COLLECTOR ROADWAYS** serve the critical role of gathering and channeling traffic from Local Roads to the Arterial network. Collectors are broken down into two categories: Major Collectors and Minor Collectors. The determination of whether a roadway is a Major Collector or Minor Collector is frequently one of the biggest challenges in roadway functional classification. The distinctions are often subtle.
- ◆ **MAJOR COLLECTORS** are longer; have fewer connecting driveways; have higher posted speed limits; are spaced at greater intervals; have higher annual average traffic volumes; and may have more travel lanes than Minor Collector routes.
- ◆ **MINOR COLLECTORS** are roadways that link and distribute traffic between local roads and Arterials, usually over a distance of less than three-quarters of a mile, and include lower speeds and fewer signalized intersections. Ideally these roadways are within lower density residential and commercial/industrial areas and penetrate residential neighborhoods for a short distance.

In accordance with MVRPC's functional classification, the **Major and Minor Collectors** within the Troy area include:

Major Collectors

Dorset Road (North and South)
Swailes Road
Wilson Road
Washington Road
Eldean Road
Part of Troy-Sidney Road
Piqua-Troy Road
McKaig Road
Riverside Drive
Adams Street

Minor Collectors

Part of Troy-Urbana Road
Part of Experiment Farm Road
Staunton Road

Every 10 years the highway functional classification system in Ohio is updated following the decennial census. The update is necessary to address urban boundary adjustments and changes in how roadways across the state function due to variations in travel patterns and demand brought on by changes in land use and development, population shifts, demographics and other socio-economic factors.

THOROUGHFARE PLAN

The thoroughfare system in any community is defined by the circulation patterns for vehicles and pedestrians. It is extremely important that the system is free-flowing and that all segments of it work together properly. It is designed to meet the needs of future traffic demands and will enable the city to realize an efficient street system. The classifications listed above are used for not only the existing designated streets but are also intended to describe improvements to the facilities for the future. Roadways are planned to fit the intended land use patterns for each portion of the community and include a series of belts to help traffic flow between the natural (Great Miami River) and manmade (Interstate 75 and Railroads) barriers within the Troy community.

Figure 8-2 which is titled "Thoroughfare Improvements" is a map with a list of 59 proposed future road improvements, planned in the next 10-20 years, which are broken into two categories: City of Troy and Miami County. The projects listed from 1-35 are currently inside city limits and highlighted in red. The projects numbered 50-73 are located outside the city limits and highlighted in blue. These improvements are not prioritized in any way, but are simply noted for future projects. Many of these improvements have been on previous thoroughfare plans and have not yet come to fruition, possibly because of cost of the project, severity, and competing priorities.

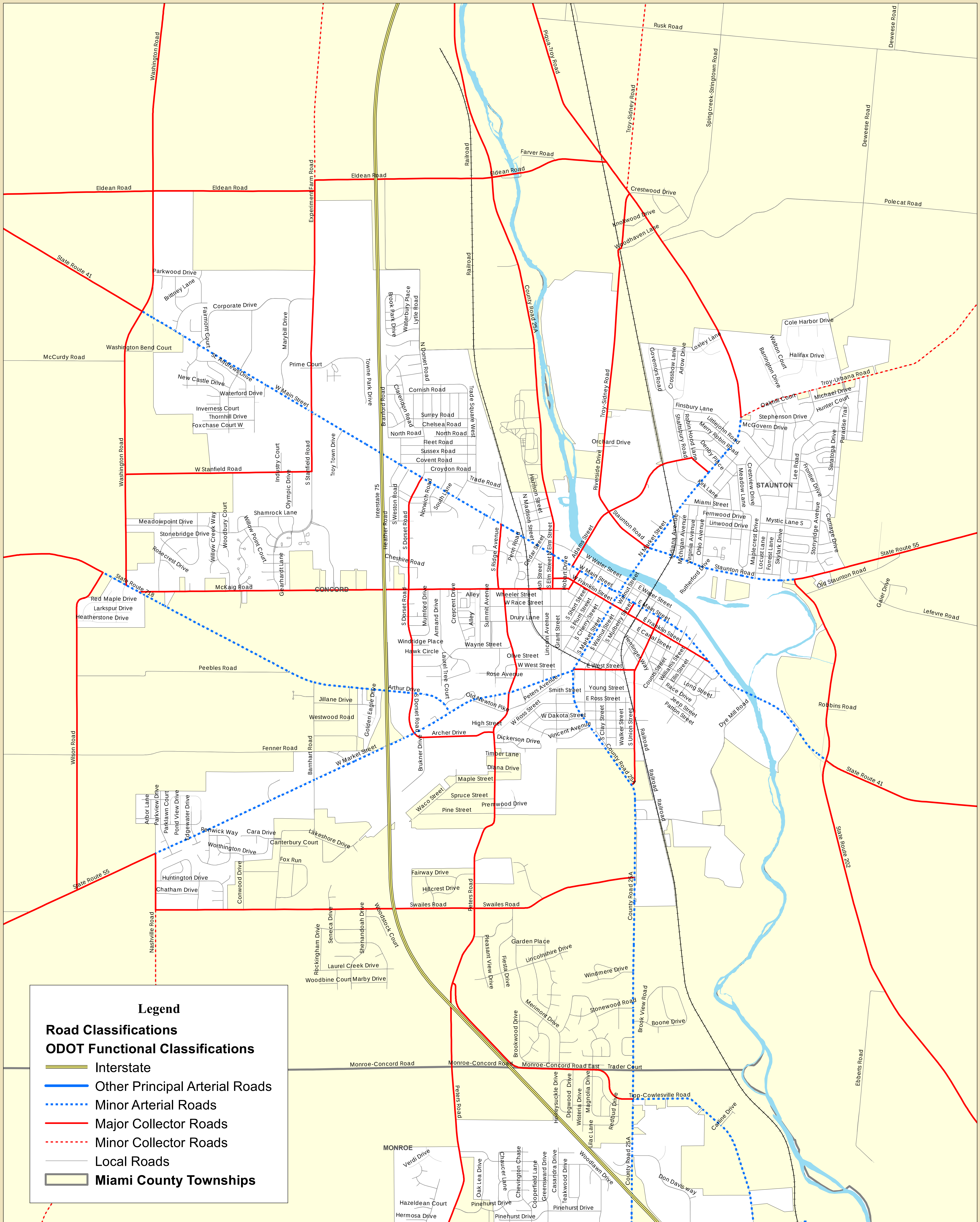
Functional Classifications and Revisions

In most cases, roadway functional classification assignment is straightforward, especially for Interstates and Local Roads. However, there can be debate between adjacent classifications, for example, in deciding whether a given roadway should be classified as a Minor Arterial or Major Collector. In such cases, the physical characteristics – lane width, shoulder width, average annual daily traffic (AADT) should be used to determine "borderline" classifications, as shown in Table 8-2.

Typical Characteristics	Arterials			Collectors		Local
	Interstates	Principal Arterial	Minor	Major Collectors	Minor Collectors	
Lane Width (feet)	12	11 - 12	10 - 12	10 - 12	10 - 12	8 - 10
Inside Shoulder Width (feet)	4 - 12	0	0	0	0	0
Outside Shoulder Width (feet)	10 - 12	8 - 12	4 - 8	1 - 6	1 - 4	0 - 2
AADT (Urban) (000's)	35 - 129	7 - 27	3 - 14	1.1 - 6.3		0.1 - 0.7
Divided/Undivided	Divided	Either	Undivided	Undivided	Undivided	Undivided

Source: Ohio Department of Transportation

Table 8-2 Functional Classification Physical Characteristics



Legend

Road Classifications

ODOT Functional Classifications

Interstate

Other Principal Arterial Roads

Minor Arterial Roads

Major Collector Roads

Minor Collector Roads

Local Roads

Miami County Townships

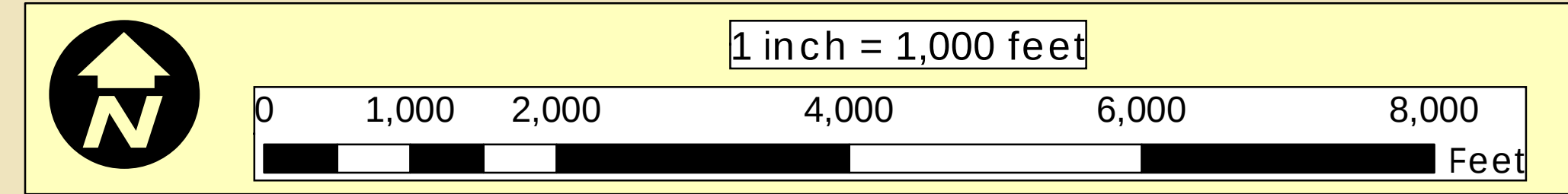
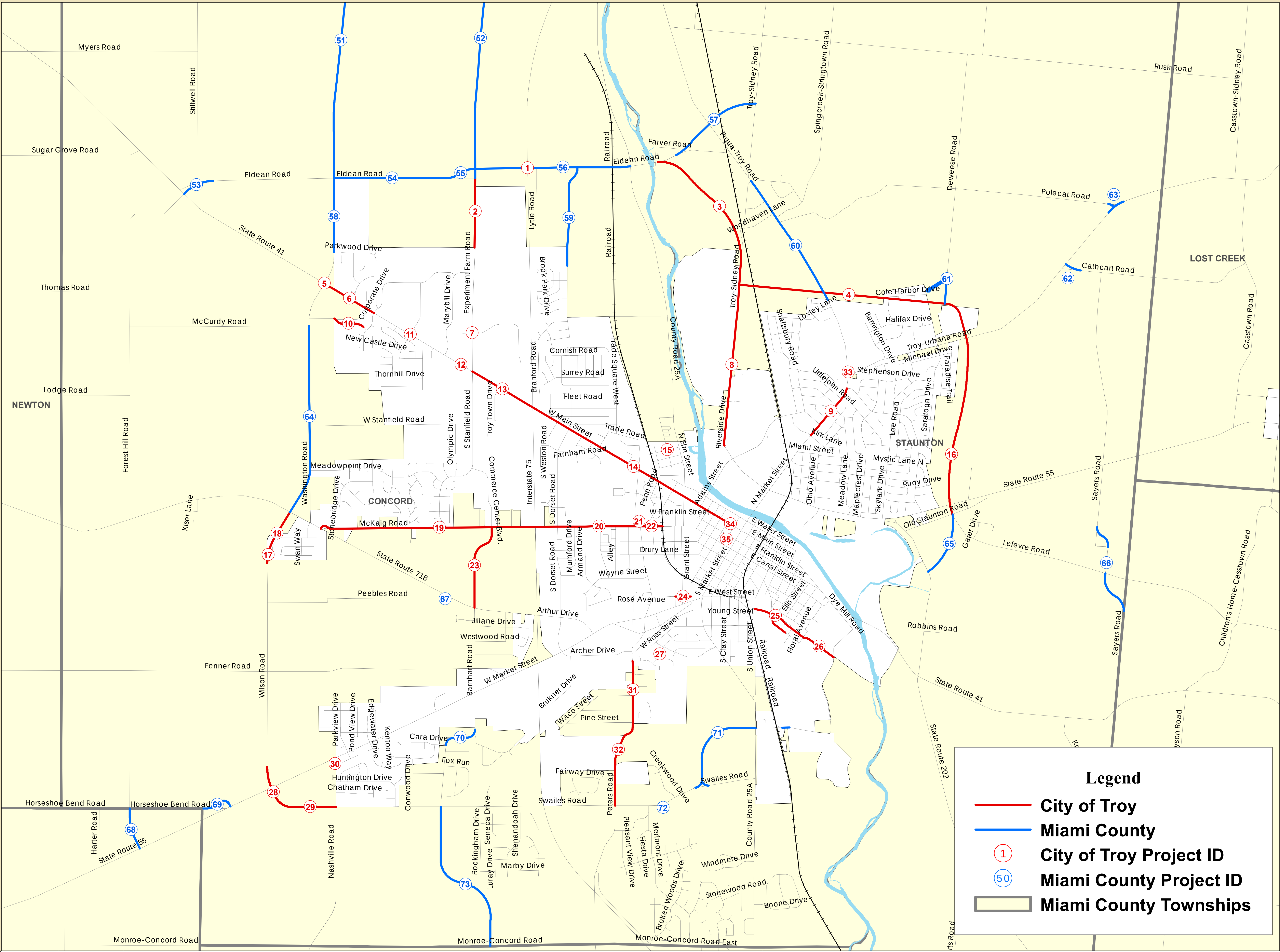


Figure: 8-1 Thoroughfare Classifications



CITY OF TROY			MIAMI COUNTY		
Project ID	L RTP_ ID*	PROJECT NAME	Project ID	L RTP_ ID*	PROJECT NAME
1	533	Northern Access Interchange Feasibility Study between State Route 41 and County Road 25-A	50	517B	Farrington Road Widening (Ph 2) from Experiment Farm Road to Washington Road
2	113	Experiment Farm Road Widening from Corporate Drive to Eldean Road	51	516C	Washington Road Widening (Ph 3) from Eldean Road to Farrington Road
3	509A	Northern Connector (Ph 1) from County Road 25-A to Troy-Sidney Road	52	532	Experiment Farm Road Widening from Eldean Road to Farrington Road
4	509B	Northern Connector (Ph 2) from Troy-Sidney Road to Troy-Urbana Road	53		Eldean Road and Forest Hill Road Realignment at State Route 41
5		Washington Road Realignment at State Route 41	54	512B	Eldean Road Widening (Ph 2) from Washington Road to Experiment Farm Road
6	96	State Route 41 Widening from Kings Chapel Dr to Washington Rd	55	113A	Eldean Road and Experiment Farm Road Realignment
7		Experiment Farm Road and Towne Park Drive Signalization	56	512A	Eldean Road Widening (Ph 1) from Washington Road to County Road 25-A
8	530	Riverside Drive Widening from Community Park to northern Duke Park	57		Eldean Road Realignment from Covered Bridge to Troy-Sidney Road (across Railroad)
9		North Market Street (Ph 2) Improvements from Foss Way/Kirk Lane to Stonyridge Avenue	58	516B	Washington Road Widening (Ph 2) from State Route 41 to Eldean Road
10		Executive Drive Extension to Old Washington Bend Court	59		Dorset Road Realigned Extension to Eldean Road
11		State Route 41 and Kings Chapel Drive Signalization	60	514	Piqua-Troy Road Widening from Corp Limit to Troy-Sidney Road
12	537A	State Route 41 Traffic Signal Interconnect (Ph 2) with Dorset Road & Marybill Drive	61		Realign Deweese Road at Northern Connector (Ph 2) and add cul-de-sac
13	371	State Route 41 Widening from Experiment Farm Road to I-75	62		Cathcart Road Realignment at Troy-Urbana Road
14		State Route 41 Improvements from I-75 to Cherry Street	63		Polecat Road Realignment at Troy-Urbana Road
15		Atlantic Street Cul-De-Sac	64	516A	Washington Road Widening (Ph 1) from State Route 718 to State Route 41
16	509C	Northern Connector (Ph 3) from Troy-Urbana Road to State Route 55	65		State Route 202 and State Route 55 Realignment
17		Wilson Road Curve Realignment south of State Route 718	66		Sayers Road Realignment at Lefevre Road
18		Washington Road and Wilson Road Realignment at State Route 718	67		Peebles Road Realignment at State Route 718
19	121	McKaig Road Widening (Ph 5) from Dorset Road to Cartwright Court	68		Forest Hill Road Extension to State Route 55
20		McKaig Road Improvements (Ph 4) from I-75 to Alley west of Lake	69		Horseshoe Bend Road Realignment at State Route 55
21		Ridge Avenue and McKaig Avenue Realignment	70		Barnhart Road Curve Realignment south of State Route 55
22		McKaig Road Improvements (Ph 3) from Alley west of Lake to Madison Street	71		Dye Mill Road Extension from County Road 25A to Swailes Road
23	103	Commerce Center Boulevard Extension (Ph 3) from McKaig Road to State Route 718	72		Swailes Road Curve Realignment
24		West Street Extension from Garfield Street to Grant Street	73		Barnhart Road Extension from Swailes Road to Monroe-Concord Road
25		Williams Street Extension to Patton Street and Jeep Street			
26		Floral Avenue Extension to Dye Mill Road			
27		Southview Drive Bridge Connector			
28		Wilson Road Realignment at State Route 55			
29	507	Swailes Road Extension from Nashville Road to State Route 55			
30		Nashville Road Realignment at State Route 55			
31	508A	Peters Road Widening (Ph 1) from Dickerson Drive to Premwood Drive			
32	508B	Peters Road Widening (Ph 2) from Premwood Drive to Swailes Road			
33		N Market Street & Troy-Urbana Road Signalization			
34		Streetscape - W Main Street from Cherry Street to Plum Street	*	L RTP_ ID	Long Range Transportation Plan_Project Identification Number
35		Streetscape - S Market Street from Franklin Street To Canal Street			

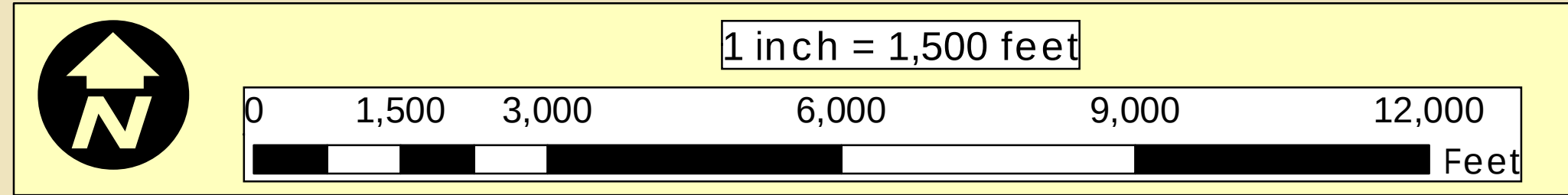


Figure: 8-2 Thoroughfare Improvements



LAND USE TRENDS

CHAPTER 9



INTRODUCTION

Land use data is the most basic and widely used information in the community planning process. An existing land use study consists of an inventory of the present land use within the corporate limits and in surrounding areas of potential growth. Also, maps and charts illustrating the land use pattern assist in the discussion of many everyday issues regarding community development.

For this Comprehensive Plan, Planning and Development Department staff first reviewed previous land use studies from 1986 and 1997. A new land use survey was then conducted in 2002-2003 by staff, with assistance from the Miami Valley Regional Planning Commission. The study used new aerial photographs and a "windshield survey" in the summer of 2002 to verify the use of each property. The land use information was then transferred to a computerized base map for calculation of acreage and display purposes. In 2015, land use is completely computerized by geographical information system (GIS). This provides accurate data unlike the previous land use studies where hand-based maps were scaled for calculations. Figure 9-2 displays the land use studies from 1960 to 2016.

ZONING

Zoning classifications necessarily reflect existing land uses. Zoning classifies each individual parcel of land into a specific district within a city. Each classification represents a list of permitted uses along with regulations for how the land can or cannot be used. Following a comprehensive plan, zoning regulations are enacted to protect property within the community from negative economic, physical, and social impacts of other neighboring land uses. Zoning regulations are also adopted to implement goals and objectives of a city.

As part of an effort to modernize regulations to meet the demands of the Twenty-first Century, the City of Troy adopted a new Zoning Code effective January 2000. In 2009, the code was revamped and updated to include a variety of topics pertaining to alternative energy systems, planned developments, The zoning regulations can be found in text in the Troy Codified Ordinance and the classifications are mapped on the official zoning map.

Figure 9-1, at the end of this chapter, is a copy of the 2016 Zoning Map.

The City is divided into different zoning districts, which are as follows:

- "FP" Flood Plain District
- "A" Agricultural District
- "A-R" Agricultural-Residential District
- "R-1" Single-Family Residence District
- "R-2" Single-Family Residence District
- "R-3" Single-Family Residence District
- "R-3-B" Single-Family Residence District
- "R-4" Single-Family Residence District
- "R-5" Single-Family Residence District
- "R-6" Two-family Residence District
- "R-7" Multiple-Family Residence District
- "OR-1" Office-Residence District
- "OC-1" Office-Commercial District
- "B-1" Local Retail District
- "B-2" General Business District
- "B-3" Central Business District
- "B-4" Highway Service Business District"
- "M-1" Planned Industrial District
- "M-2" Light Industrial District
- "M-3" General Industrial District
- "HP-0" Historic Preservation Overlay District
- "HL-0" Historic Landmark Overlay District
- "PD" Planned Development District
- "WO" Wellhead Operation District and the
- "WP" Well Field Protection Overlay District.

2002 LAND USE CLASSIFICATION

For the purposes of the Comprehensive Plan update, land uses were classified into ten basic categories, as follows:

- ◆ **Agricultural / Vacant / Undeveloped:** Areas free of urban development, including land that is used for farming and other agricultural purposes. Vacant land also refers to land that is not currently classified in any of the other categories listed below.
- ◆ **Single-Family Residential:** Property used for an unattached structure housing a single dwelling unit.
- ◆ **Two-Family Residential:** Property used for two dwelling units within a structure.
- ◆ **Multi-Family Residential:** Property used for one or more structures housing a total of three or more dwelling units.
- ◆ **Commercial / Office / Service / Parking:** Property that involves the retailing of consumer goods and services such as stores, restaurants, commercial businesses, etc., which deals with providing personal and business services. This property classification also includes professional offices and business office services. Parking includes for profit stand-alone uses, as well as parking accessory to commercial and office uses.
- ◆ **Industrial:** Property used for manufacturing and processing establishments, warehouses, bulk distribution, or storage facilities.
- ◆ **Educational / Institutional:** Property used for governmental purposes and those providing for the educational, social, cultural, religious, and health needs of the community.
- ◆ **Open Space:** Property used primarily for recreational purposes, whether it is public as in the case of community parks and land preserves, semi-public as in the case of institutional facilities, or private as in the case of camps and retreats.
- ◆ **Religious:** Property dedicated for a permanently located church, cathedral, synagogue, temple, mosque, or other place dedicated to religious worship and permitted accessory uses.
- ◆ **Cemetery:** Public or private property dedicated as a place of burial.

Troy's 2002 Land Use is shown on Figure 9-2, which is included at the end of this chapter.

EXISTING TROY LAND USE PATTERN

Table 9-1, at the end of the chapter, shows acreage totals by land use category for the incorporated area of Troy, the percentages of developed land versus undeveloped land, and the available historical totals of each specific land use type.

As of 2002, Troy's land use area was approximately 75% developed, with 5,395 acres developed and 1,793 acres remaining vacant or in agricultural use. The total area of the City has more than tripled since 1960; the developed area has grown nearly the same during this period. This significant increase reflects the attraction of Troy's location for urban development. Additional discussion regarding land consumption rates is found later in this chapter.

As Troy has grown, many of the newly developed areas were annexed to the city in order to obtain municipal water and sanitary sewer services. For this reason, Troy has generally annexed adequate land area to maintain a relatively constant ratio of developed and undeveloped acreage. Past annexations are shown on Figure 9-3, at the end of this chapter. Individual annexations are grouped by decade in different colors, to facilitate comparisons to population figures from the Decennial Census reports.

Comparing land uses from 1960 to 2002, undeveloped land has been maintained in the 25% to 37% range. The agricultural and vacant areas of Troy are primarily found proximate to and west of Interstate Route 75 and along the western edges of the City. In general, the developed parts of Troy are spread among the central (downtown), north, south, east and near- west sections of the city.

A higher concentration (density) of uses are found around the original town center east of Interstate Route 75, and a more scattered pattern of less dense uses are found west along the freeway. The three most extensive land uses are single-family residential, parks and recreation, and industrial.

Table 9-1 also shows that residential uses are the most predominantly developed land use, occupying 1,916 acres and accounting for approximately 27% of the overall Troy land area. Residential land uses comprised almost 36% of the developed land area in 2002. These residential areas are primarily located within and immediately surrounding the Downtown Troy area, on the northeast side of I-75 just west of Downtown Troy, and in the northeast area across the Great Miami River. More recent residential development in the past decade has started to occur west of I-75, along both State Routes 41 and 55.

About 1,225 acres of residential land has been developed in the span between 1960 and 2002. Approximately 85% of the developed residential land in 2002 was categorized as single-family residential. Although lots are generally small and the density is the highest in the central areas of the community, single-family housing has remained the dominant use in the areas surrounding downtown. Comparatively high densities are also found in the residential areas further south and east of Downtown Troy.

Multi-family residential uses (two-family and multi-family housing) occupy 280 acres, which is 3.9% of the overall Troy land area and 5.1% of its developed land area. The majority of developed multi-family land is in the form of three or more family residences generally dispersed south, east, and west of downtown.

Commercial land uses occupied approximately 400 acres of land in 2002, which is 5.6% of the overall Troy land area and 7.4% of the developed land area. There was an increase of 318 acres of commercial land between 1960 and 2002.

The primary areas of commercial, retail, and office land uses are located in Downtown Troy and the areas adjacent to or near Troy's two primary I-75 interchanges. In the past decade, several national chain retailers and restaurants have opened Troy stores. Most of these have been located near each other and I-75. Smaller concentrations of local commercial uses are found farther south of downtown and in the northeast part of the city.

As was shown in Table 9-1, industrial uses occupied 855 acres in 2002, accounting for 11.9% of the total area of the total city area and 15.8% of the developed area. Of the 724 acre increase between 1960 and 2002, the most (485 acres) occurred between 1986 and 2002 when the City saw an explosion of new industry as well as expansion of existing industrial companies. This reflects the success of the community's strong economic development efforts, which have grown the local economy even while older manufacturing sectors have started to decline.

Much like commercial development in Troy, most of the industrial growth has been near Troy's two busiest I-75 interchanges. Smaller clusters of older, "traditional" industrial uses are found south of Downtown Troy downtown near the existing rail road line.

Public and semi-public land uses occupied 1,194 acres in 2002, which is 16.6% of the total land area of Troy and 22.1% of the developed land. Public and semi-public uses include institutional and educational uses such as churches, schools, cemeteries, municipal facilities, open space/parks, as well as utilities. The percentage increase may be attributable to increasing demands by modern society for more services and more convenience in existing services. Some churches, for example, have built large new facilities to replace the smaller, neighborhood-style churches of the past.

The majority of recreational uses can be found along the north and south sides of the Great Miami River and in the northeast part of the City. Government uses are primarily found downtown, while schools and utilities are spread throughout the City, the former usually near Troy's various residential neighborhoods.

Rights-of-way occupied 1,030 acres in 2002, which is 14.3% of the total land area and 19.0% of the developed land area of the City. This figure includes the rights-of-way of public streets, alleys, sidewalks, and rail. Since 1960, 576 acres of right-of-way has been added to keep up with residential, commercial and industrial growth.

LAND USE WITHIN STUDY AREA

Within the study area, land use outside of Troy is composed mostly of single family residential and agricultural uses. The semi-rural areas with the most residential activity are immediately south and southwest of the City. They are predominately major subdivisions, with some municipal utility services. Additional, smaller plats can be found farther away from the existing northern and eastern corporate limits, and are usually developed with private wells and septic systems. Farms and agricultural uses are spread throughout the planning area.

LAND ABSORPTION RATE

A land absorption rate is the number of acres of land used for a particular purpose for a given population. Knowledge of the land absorption rate is needed in order to project the amount of land needed for various uses in the future. Many factors play a role in the rate of land absorption. Household size, choice of housing type (single-family/multi-family), and the availability of public utility services affect the residential land absorption rate.

Nationally, household sizes have been decreasing, causing more housing units to be built for an equal population size. Suburban and rural housing, with large lot sizes for landscaping and/or on-site water and sewer systems, has been the choice over smaller and more compact central city lots. New commercial uses have been locating in one-story shopping centers and "big box" buildings, both with landscaping and large parking areas, rather than the compact centers of older areas, which were designed for pedestrians from nearby neighborhoods. Industrial uses have also located on the fringe of urban areas where relatively cheap land has allowed more expansive horizontal layouts with extensive parking.

Also, more outdoor public and semi-public uses such as golf courses, churches, schools, and government service centers have been built to accommodate society's increasing leisure, social, educational, and service needs. This trend to locate in more spacious surroundings than in the past, and a need for additional recreational land will maintain the demand for a substantial additional urban development.

Table 9-2 shows Troy's land absorption rates at several different times, compared to nearby Tipp City's rates at similar periods. The comparison is made to Tipp City, because of its close proximity and because that community has grown much more than Piqua, which is farther away from the metropolitan area's center in Dayton.

	TROY				TIPP CITY			
	1960	1970	1986	2002	1967	1988	1995	2002
LAND USE TYPE								
Residential	51	65	66	86	62	76	109	93
Commercial	6	8	10	18	5	9	14	14
Industrial	10	10	19	38	10	25	50	51
Public Institution	19	19	24	53	10	39	51	73
Right-of-way	33	37	39	46	29	N/A	71	58
Total Developed	118	140	159	241	115	149	295	290

**Table 9-2 Troy Land Absorption Rate 1960-2002
compared to Tipp City 1967-2002**

The developed land absorption rate for Troy has more than doubled (118 to 241) from 1960 to 2002. The greatest proportional rate change has been in the Public/Institutional category, increasing from 19 to 53, and the Industrial category, increasing from 10 to 38. Residential had the greatest number increase (35) during the 1960 to 2002 period.

Compared to Tipp City, Troy had somewhat lower land absorption percentages and number increases for all land use categories from 1967 to 2002. The most similar is the commercial category (5 to 14 for Tipp City and 6 to 18 for Troy). The greatest difference is Public/Institutional (10 to 73 and 19 to 53, respectively). This can be attributed to Tipp City's past lack of growth and more recent attraction to people wishing to relocate from Montgomery County.

Population projections and land absorption rates can be used to estimate additional acreage needed for each land use category. Population multiplied by the land absorption rate determines the additional acreage needed. Table 9-3 shows the additional acreage Troy is projected to need, by land use type, in five-year increments through 2020.

HIGHER GROWTH SCENARIO						
	Residential	Commercial	Industrial	Public & Institutional	Right-of-Way	Total Developed
2002 to 2005	110	24	40	55	54	283
2005 to 2010	103	22	46	64	55	290
2010 to 2015	104	22	46	64	56	292
2015 to 2020	130	27	57	80	69	363
2002 to 2020	447	95	189	263	234	1,228

LOWER GROWTH SCENARIO						
	Residential	Commercial	Industrial	Public & Institutional	Right-of-Way	Total Developed
2002 to 2005	14	4	0	0	2	20
2005 to 2010	76	16	34	47	41	214
2010 to 2015	73	15	32	45	39	204
2015 to 2020	100	21	44	62	54	281
2002 to 2020	263	56	110	154	136	719

Land use projections generated by applying the 2002 Land Absorption Rate to population projections.

Table 9-3 Additional Acreage Estimates through 2020

The Higher Growth Scenario assumes that Troy's population will increase at a rate proportionate to the change between 1910 and 2000. The Lower Growth Scenario assumes that Troy's year 2000 percentage of the County's population (22.3%) remains the same for 2000-2020.

	1960 LAND USE				1970 LAND USE				1986 LAND USE				2002 LAND USE			
	Acres	Percent Developed Area	Percent Total Area		Acres	Percent Developed Area	Percent Total Area		Acres	Percent Developed Area	Percent Total Area		Acres	Percent Developed Area	Percent Total Area	
RESIDENTIAL	691	42.9%	30.5%		1,121	46.7%	29.2%		1,291	41.6%	26.5%		1,916	35.5%	26.7%	
Single-Family	640	39.7%	28.2%		1,016	42.3%	26.5%		1,145	36.7%	23.5%		1,636	30.3%	22.8%	
Multi-Family	11	0.7%	0.5%		105	4.4%	2.7%		89	2.9%	1.8%		186	3.4%	2.6%	
Two-Family	40	2.5%	1.8%						57	1.8%	1.2%		94	1.7%	1.3%	
3+ Family																
COMMERCIAL	82	51%	3.6%		131	5.5%	3.4%		196	6.3%	4.0%		400	74%	5.6%	
INDUSTRIAL	131	8.1%	5.8%		177	7.4%	4.6%		370	11.9%	7.6%		855	15.8%	11.9%	
PUBLIC AND SEMI-PUBLIC	254	15.8%	11.2%		326	13.6%	8.5%		469	15.1%	9.6%		1,194	22.1%	16.6%	
INSTITUTIONAL									157	5.1%	3.2%		371	6.9%	5.2%	
Churches									44	1.4%	0.9%		62	1.1%	0.8%	
Cemeteries									54	1.7%	1.1%		102	1.9%	1.4%	
Recreation									189	6.1%	3.8%		659	1.2%	9.2%	
Utilities									25	0.8%	0.5%					
RIGHT-OF-WAY	454	28.1%	20.0%		643	26.8%	16.8%		468	21.2%	12.5%		1,030	19.0%	14.3%	
TOTAL	1,612	100.0%	71.1%		2,398	100.0%	62.5%		2,208	100.0%	59.0%		5,395	100.0%	75.1%	
AGRICULTURE & VACANT	655		28.9%		1,437		37.5%		1,536		41.0%		1,793		24.9%	
TOTAL	2,267		100.0%		3,835		100.0%		3,744		100.0%		7,188		100.0%	

Table 9-1 Acreage Totals by Land Use 1960-2002

This is to certify that this is the official zoning map referred to in Section 1141 of the Codified Ordinances of Troy, Ohio, as adopted on or about March 16, 2009, with any subsequent amendments indicated hereon.

Mayor _____
ATTEST: Clerk of Council _____
Date: _____

Adopted Ordinance 0-27-2008
Exhibit D
Effective Date: April 1, 2009

REVISIONS:

1. 0-19-2009	26. 0-20-2016
2. 0-20-2009	27. 0-21-2016
3. 0-27-2009	28. 0-22-2016
4. 0-29-2009	29. 0-26-2016
5. 0-7-2010	30.
6. 0-19-2010	31.
7. 0-30-2010	32.
8. 0-2-2011	33.
9. 0-5-2011	34.
10. 0-13-2012	35.
11. 0-21-2012	36.
12. 0-25-2012	37.
13. 0-35-2012	38.
14. 0-9-2013	39.
15. 0-19-2013	40.
16. 0-26-2013	41.
17. 0-20-2014	42.
18. 0-31-2014	43.
19. 0-1-2015	44.
20. 0-11-2015	45.
21. 0-12-2015	46.
22. 0-28-2015	47.
23. 0-8-2016	48.
24. 0-9-2016	49.
25. 0-10-2016	50.

LEGEND

- Historic District
Wellhead Protection Area
- Troy Flood Plain**
- AE
 - A
 - X
- Zoning**
- County Zoning (Outside Troy)
 - Agriculture: 20 Acre Min.
 - Agriculture-Residential: 5 Acre Min.
 - R-1 Single Family Residential: 40,000 SqFt.
 - R-2 Single Family Residential: 20,000 SqFt.
 - R-3 Single Family Residential: 15,000 SqFt.
 - R-3B Single Family Residential: 12,000 SqFt.
 - R-4 Single Family Residential: 9,000 SqFt.
 - R-5 Single Family Residential: 6,000 SqFt.
 - R-6 Two Family Residential: 3,000 SqFt/DU
 - R-7 Multiple Family Residential: 3,000 SqFt/DU
 - OR-1 Office-Residential: 3,000 SqFt/DU
 - OC-1 Office-Commercial District
 - B-1 Local Retail District
 - B-2 General Business District
 - B-3 Central Business District
 - B-4 Highway Service Business District
 - M-1 Planned Industrial District
 - M-2 Light Industrial District
 - M-3 General Industrial District
 - PUD Planned Unit Development
 - WO Wellhead Operation District
 - City Administered County Zoning



1 inch = 800 feet

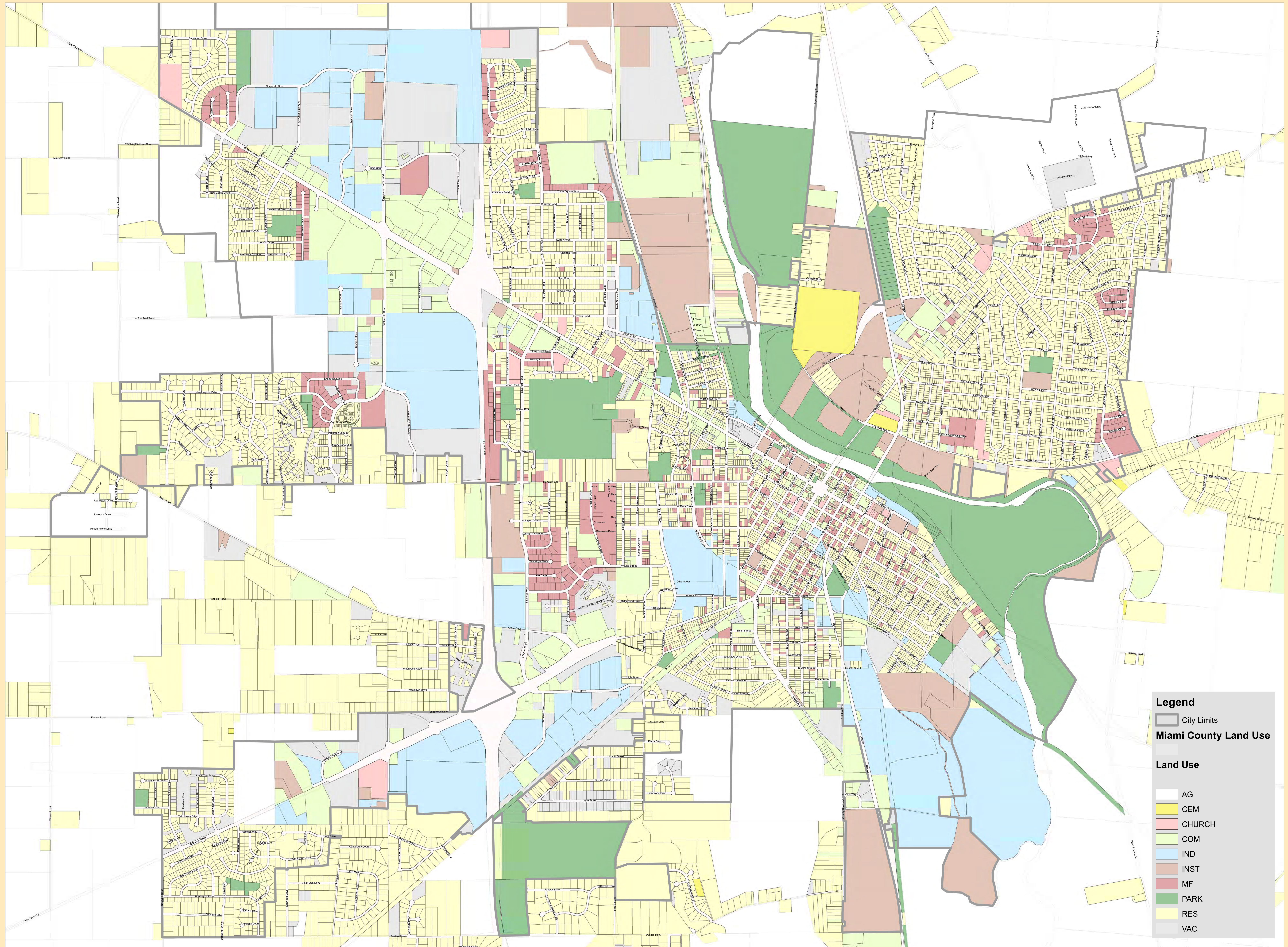
Print Date: 1/3/2017

Figure: 9-1
Troy Zoning Map

City of Troy

100 S Market St . Troy, OH 45373 . 937-339-9481





Legend

City Limits

Miami County Land Use

Land Use

- AG
- CEM
- CHURCH
- COM
- IND
- INST
- MF
- PARK
- RES
- VAC

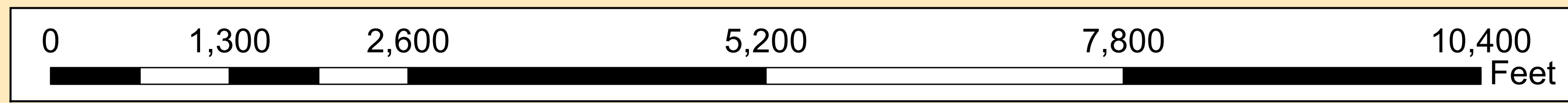
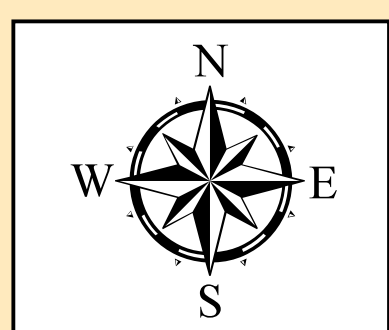


Figure 9-2
Troy Area Land Use

City of Troy
Planning and Development

Date: 1/3/2017





TROY
OHIO

DOWNTOWN TROY HISTORIC DISTRICT CHAPTER 10



INTRODUCTION

The Downtown Troy Historic District is an important part of the Troy community. The Public Square is also one of the most recognizable places in the entire Miami Valley region. Serving the daily needs of Troy's residents, Downtown Troy also serves as a local attraction for visitors from out-of-town. Not only does the District serve residential needs, but it also provides a place for businesses to operate.

A historic district is typically defined as a group of buildings, properties, or sites that have been designated by one of several entities on different levels as historically or architecturally significant. Preservation of these historic areas and/or structures is of vital importance to the long-term health of a community as these areas connect a city's past with its present and link the works of previous centuries with those of today. No community should allow these historic places to disappear. Neglect, random demolitions, and inappropriate renovations can ultimately damage a historic district's identity and its ultimate value. Preservation of individual buildings can help combat problems by stabilizing neighborhoods, providing affordable housing, stimulating private investment, attracting people and businesses back downtown, and attracting tourists to the area.

A historic district also represents a collective past of history, government, residential, and social gathering spots in a city. This is true for the Downtown Troy Historic District and especially true for the Public Square, which is listed on the National Register of Historic Places.

Troy possesses an impressive stock of historic buildings and/or properties. All of these structures/areas could be considered to have historical significance as evaluated by the National Register of Historic Places, Ohio Historical Society, or locally established criteria. The diversity among the different buildings constructed in different eras is what gives Troy its unique, eclectic look. The Downtown Troy Historic District's building stock dates back as far as the first third of the nineteenth century, over a hundred and fifty years ago.

Many more new and recent structures exist that also contribute to Troy's character. A number of vacant or underutilized sites offer the potential for a significant amount of future new construction projects within the district. Improvements to one building within the District inevitably contribute to the overall enhancement to the street character. Incremental maintenance and design improvements made to individual buildings will ultimately improve the District as a whole and the public's perception of the area as a vital and desirable place to grow.

Local government entities have made significant investments in revitalizing the Downtown Troy Historic District. Past investments include the upgrade of public utilities, street repair and design, Downtown Streetscape programs, upgrades to City Hall, the Miami County Courthouse, and the Troy Police Department.

City Council has also provided solid, on-going support to Troy Main Street, which is a non-profit organization promoting the economic revitalization of downtown by managing business recruitment and retention program, improving the visual image of downtown and organizing downtown community events. The Mayor's Office also convenes a monthly meeting to review Downtown Troy programs, projects, and ideas. In 2000, City Council adopted the 2000-2001 Downtown Development Plan as part of a new Downtown Troy Revitalization effort. A copy of that plan is included in the Appendices to this Comprehensive Plan.

Currently, the City of Troy has partnered with MKSK, a planning firm from Columbus, to create a comprehensive approach to further activate the core of downtown and strengthen its connection to the riverfront and link to surrounding neighborhoods, recreational destinations and development opportunities. The end result will be a healthy guide that not only will act as the how-to manual but will be actively used as a developer and business recruitment tool.

The City has paired up with Woolpert, a planning firm from Dayton, to complete a comprehensive downtown parking study that encompasses approximately a 20 square block area. This study will review existing pedestrian and vehicle traffic conditions, patterns, and demands to provide parking improvement options and recommendations.



HISTORIC DISTRICT REGULATIONS

Beyond supporting programs and making investments, local government can also adopt regulations that work to encourage historic district revitalization. The City of Troy adopted its first historic district regulations in the 1970s. These have been vital in helping to discourage demolition of historic buildings and encouragement of renovations that fit the overall historic environment.

The preamble of the Downtown Troy Historic District Ordinance states “the public interest calls for the preservation and protection of significant architectural and archeological resources from Troy’s and America’s histories that lie within the city. Buildings and places, which tell of the presence of our forefathers, add meaning and livability to a city as do handsome residential areas and orderly business districts. To accomplish this, it is necessary to provide a method whereby, with careful consideration for the rights of private property and only after thorough analysis of the objectives to be achieved, certain public controls are required for changes made to meaningful buildings and/or neighborhoods”.

The City of Troy Zoning Code has an extensive section that sets out the historic protection regulations. All new construction or demolition must be presented for prior review by the Planning Commission. In reviewing individual proposals, the Planning Commission has considered the way the changes fit the specific building’s architecture, and how the changes might affect the general streetscape. Some projects have been approved with little or no change, while for others, revised plans were recommended. In a few cases, approval has been denied.

Figure 10-1 at the end of this chapter shows the outline of the current Historical District for the City of Troy.

NATIONAL REGISTER OF HISTORIC PLACES

Having a building, site, or district placed on the National Register of Historic Places is an honor. The National Register of Historic Places is the official list of historic properties recognized by the federal government as worthy of preservation for their local, state, or national significance.

Districts, sites, buildings, structures, and objects of significance in American history, architecture, archeology, engineering, or culture may qualify for listing on the National Register. The sites, buildings, etc., must be at least fifty years old and must possess integrity in their location, design, setting, materials, craftsmanship, feeling, and association. In addition to the above, the site must meet one of the following criteria:

- ◆ Associated with historically significant events;
- ◆ Associated with the lives of significant persons;
- ◆ Embody distinctive characteristics of a type, period, or method of construction or are associated with the work of a master, possess high artistic value, or represent a significant and distinguishable entity; and
- ◆ Have or may yield information important to prehistory or history.

A listing on the National Register accords a certain prestige to property owners and the locality in which it is placed. It also raises the community’s awareness of such structures and their pride. One problem is that a National Register listing does not prevent the owner of the listed property from remodeling, repairing, altering, selling, or demolishing the property, as long as only private funds are used. Listing also does not obligate the owner to make any repairs or improvements to the property. Enforceable rules and regulations to protect historic resources must come from state and local levels. As mentioned above, the City of Troy has adopted a historic district ordinance for this purpose.

The City of Troy has several properties that are included in the National Register of Historic places. These include the Troy Public Square, which is listed as a whole versus the buildings being listed individually. The downtown core contains numerous other individually designated buildings. Another district that has been added recently is the Hobart Steel House District, along Hobart Circle.



COMMUNITY FACILITIES AND SERVICES

CHAPTER 11



**Troy Municipal Building
100 South Market Street**

INTRODUCTION

As the county seat, the City of Troy has a much greater proportion of governmental, institutional, educational, religious, and recreational facilities than any other community in Miami County. These enhance the daily lives of Troy's citizens and provide services beyond the city limits to all residents of Miami County. A majority of the facilities offered by the City of Troy are classified under public use and are open to all residents. These include major educational and governmental facilities. The City of Troy has and will continue to invest significant resources to provide excellent facilities and services.

GOVERNMENT FACILITIES

Troy Municipal Building

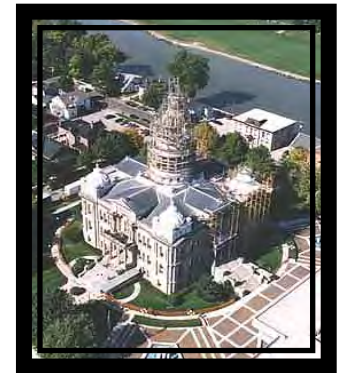
The Troy Municipal Building, also known as City Hall, is conveniently located at 100 South Market Street, one block south of the Public Square. This office facility, which was originally constructed in 1876, has three floors and houses many city services, including the City Council Chambers, the Mayor, Director of Public Service and Safety, City Auditor, Personnel, Income Tax, Engineering, Public Works, Utility Billing and Collection, and Planning and Development.

Starting in 1999 and continuing through 2001, a major addition and renovation project was completed at the Municipal Building. One of the goals of the remodeling was to honor the building's past heritage while redeveloping work areas to be compatible with business operations of the 21st Century. Changes included a new 1,350 square foot public entry, new City Council Chambers, an elevator/stair addition for handicap accessibility, complete mechanical and electrical system replacement, including new fire alarm and fire sprinkler systems. Both the exterior and interior improvements were designed to match with elements from a much earlier time.

The adjacent buildings at 114 and 116 S. Market Street were purchased in 2002 to accommodate expansion for future city government offices or other community needs.

Miami County Courthouse

Construction of Miami's Pride, as the Miami County Courthouse has sometimes been called, was started in 1885 and completed in 1888. It replaced an 1840 courthouse, which had been outgrown following the great growth of Miami County following the American Civil War. The structure's façade resembles the Neo-Renaissance style and includes an 85-foot diameter cast iron dome at the top which resembles the dome on the United States Capitol in Washington D.C. This dome is one of five such major cast iron domes that exist in the United States.



For many years, the Miami County Courthouse was home to almost all county government offices. By the 1970s, the facility was very crowded, and some offices had been relocated to other sites. A new building was constructed nearby, but the courthouse retained its central importance and identity. Some utilitarian renovation was accomplished at the same time as the construction of the new building. On June 13, 1975, the Miami County Courthouse was named to the National Register of Historic Places making it eligible for federal funds for restoration and renovation. In November of 1982, a three-phase, six and a half year renovation was finished. The renovations included dome repairs, façade restoration from the ground up to the domes, and interior restoration.

The Miami County Courthouse continued to house the lower courts and ancillary county service offices. As the building continued to age, the Miami County Commissioners considered how best to preserve or replace it. Because of its importance to the identity of the entire Miami County populace, a temporary county-wide tax was supported to fund the repairs. From 1996 to 1998, the Courthouse underwent an extensive restoration that will continue the beauty and grandeur for generations to come. The five million dollar restoration program extensively refurbished the cast iron dome, the four corner domes, the slate roof, the pavilions, the bell, the clockworks, and even the statuary, as well as replacing the existing lightning protection system, providing exterior lighting, and painting and finishing the building in its original colors.

The Miami County Courthouse continues to dominate the Troy skyline and makes an important statement of the stability and stature of Troy.

Miami County Safety Building

Due to the problem of extreme overcrowding in the Courthouse and County Jail in the 1960s, office space and a new jail were needed. On August 23, 1972, as part of the Courthouse renovations, the jail



and Sheriff's offices were demolished to make room for a new building. A three-story office building connected to a new jail was built and is now known as the Miami County Safety Building. The building officially opened in 1974 and houses the County Administrative offices. The Safety Building houses the Common Pleas Courts, the Miami County Jail, and offices of several elected officials including the County Commissioners, Sheriff, Prosecutor, Recorder, Treasurer, and Auditor.

Hobart Center for County Government

By 2000, the Safety Building was itself, being outgrown. In addition, citizens continued to have difficulty visiting offices there due to the extreme shortage of off-street parking. The County Commissioners continued the capital improvement work begun with the Courthouse renovation by purchasing the office part of the Hobart Brothers plant on West Water Street, along with its relatively large parking lot. Extensive remodeling converted the building to offices for several county departments formerly housed at the Safety Building, including Health, Building Inspection, Zoning Inspection, and other Miami County employees who needed to be easily accessible to the general public, but were not directly involved with the courts or the Commissioners.

Troy Police Department



As part of the continuing capital improvement of Troy city facilities, a new Police Department building was constructed at the southwest corner of Mulberry and Main Streets. Police headquarters is now a modern, well-equipped building that houses all police operations and a three-hour prisoner holding area. The new building was located in Downtown Troy for its central location and to preserve the connection between the Police Department and the community. The new building was designed in an historic style complementary to the surrounding historic neighborhood. Occasional visitors sometimes comment how nice it is that an "old Downtown Troy building" had been saved and converted for police use.

The Troy Police Department is divided into three sections: Detective, Patrol, and Administration. A Captain, three detectives, and three DARE/School Resource Officers (SRO) staff the Detective section. The Patrol section includes the police officers that citizens see on a daily basis. A Captain and six Sergeants supervise patrol operations in three shifts of up to ten officers, 365 days a year, 24 hours a day. The Administrative section provides radio communication and information management for patrol officers and is the public information office for citizens. The Department has a fleet of eight marked cruisers and a fleet of unmarked and specialty vehicles. The staff consists of 43 sworn officers and 6 civilian employees.

The Troy Police Department is accredited by the Commission on Accreditation for Law Enforcement Agencies, Inc. Not all police departments have received this honor and recognition. The accreditation process is an in-depth study of all of the policies and procedures used by the department. The study involves areas such as management, direction and control, patrol and investigative functions. By achieving this status, the Troy Police Department continues to be recognized as a progressive and professional organization. Troy's accreditation was fully renewed in 2003.

Troy Fire Department

It is the mission of the Troy Fire Department to exceed the expectations of our community and provide the highest quality of services to preserve and protect the lives, property, and the environment. This mission is accomplished through our "Vision" to respond efficiently with courage and compassion to any calls we receive. This will be accomplished by a comprehensive system of prevention, education, and mitigation of hazards within our community. By following these guiding factors allows our organization the status of an "ISO Class 3" fire department. The Troy Fire Department is a full time department with all members certified as firefighter2/Paramedics. Troy Fire Department is the fourth largest fire district in Ohio responding to the City of Troy, Concord Township, Staunton Township and EMS for parts of Lost Creek Township.



Our rich heritage of being a full time department since 1857 shows our commitment to those we serve. Our community outreach through our department includes many programs such as School and Business educational seminars, Safeguard (Call in service for our senior citizens), Safety Squad, Inflatable ADA compatible fire safety house, Firefighter Phil, Paramedic bike teams for special events and other numerous safety related events. Our fully certified response force of firefighter/paramedics ensures top quality care for all that utilize our services.



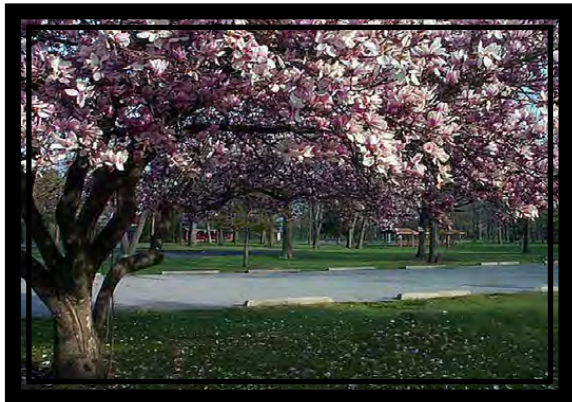
Our operational side of Troy Fire Department has many specialized functions with individuals certified in swift water rescue, Trench, High Angle Rescues, Vehicle/Machinery Extrications, Hazmat, and Confined Space Rescues. We accomplish this through 3 fire stations strategically placed in Troy. The current location of the stations is as follows:

- ◆ Station 1 is located just south of downtown at 19 East Race Street. It was opened in 1966 and was the only Fire Department facility for many years. This station houses the majority of the apparatus. Engine 1, Aerial Tower 1, Tanker 1, and Medic 1 all respond from this station. Reserve Medic 4, the Air Trailer, and Rescue Boat 1 are also kept at this station. A Platoon Commander and four firefighter/paramedics are assigned to this station daily.
- ◆ Station 2 is located north of the Great Miami River at 1582 North Market Street. This station was opened in 2007 and is our training station as well as our Administrative headquarters. This station houses Engine 2, Medic 2, our rescue boat 3 as well as our bicycle paramedic team and responds to the Northern portion of our fast growing response area.
- ◆ Station 3 is located west of I-75 at 40 South Stanfield Road. Station 3 is home to our Fire Prevention/Investigation Bureau. This station was opened in 1995 and houses Engine 3, Medic 3, Hazmat 1, Safety Squad and rescue boat 2. Two firefighter/paramedics are assigned to this station each day as well as our two full time Fire Safety Inspectors/Investigators.



RECREATION AND SPORTS

The Troy community enjoys a wide range of high-quality recreational and sports facilities. These are so important to the community that a continuing program of capital improvement and parks expansion has continued in Troy for many decades. A complete description of parks and recreation programs is included in the following Chapter 12 of this Comprehensive Plan.



MUSEUMS AND CULTURE

Overfield Tavern

The oldest building in Troy is Overfield Tavern. In 1803, Benjamin Overfield first settled along the banks of the Great Miami River in what would someday become Troy. By September of 1808, Benjamin had apparently completed construction



of the two-story log building that has survived to this day. He obtained the first tavern license in Troy and later offered his tavern as a meeting place for the courts until a courthouse could be built. In 1966 the Overfield Tavern Museum was opened to the public under the direction of the Troy Historical Society. Many of the furnishings of the period have been added by the Society. The Tavern is owned and maintained by the Overfield Tavern Museum Corporation.

Museum of Troy History

Across Mulberry Street from Overfield Tavern, the Museum of Troy History at 124 East Water Street includes exhibits on the history of Troy and Miami County. The building itself is a restored pre-Civil War house with rotating exhibits on topics such as sports, religion, and health care. These rotating presentations join a permanent exhibition on food preservation, canning and period furniture. Special activities include a July Ice Cream Social, an Annual Tour of Homes in October, and a Christmas Open House.

Troy-Hayner Cultural Center



In 1942, Mary Jane (Harter-Coleman) Hayner left her mansion home at 301 West Main Street to the Troy Board of Education to be used for a library, museum, or other educational purposes. Mrs. Hayner had been the widow of William Hayner, owner of the Troy-based Hayner Distillery. She loved to travel and had filled her home with many treasures from foreign lands. Initially, the mansion became the home for an expanded Troy-Miami County Public Library. By 1976, the library had outgrown the building and moved to a new location a block away on Main Street. At that time, Mrs. Hayner's splendid mansion was placed on the National Register of Historic Places and plans were made to turn the building into a community cultural center. Renovations began at once and in December of 1976, the first open house was held. Community groups and local businesses such as the Afternoon Garden Club and the Hobart Corporation were instrumental in donating time, equipment, and materials.

The Troy-Hayner Cultural Center hosts art exhibits, concerts, classes, public meetings, and weddings. The Carriage House has become art studios and the courtyard provides a perfect setting for dramas, dances, and other summer performances. The former servants' quarters have been transformed into staff offices.

Troy Hall of Fame

The Troy Hall of Fame has been established to honor outstanding citizens of Troy. To be considered, a candidate must have significantly excelled beyond the normal requirements of his or her chosen field of endeavor and/or made a significant contribution to the City of Troy which has a positive impact on the quality of life shared by the citizens of Troy. The special achievement or contribution must not only bring honor to the individual but also, by extension, to the City of Troy on a national, regional or local basis. The Troy Hall of Fame museum is housed in Hobart Arena. The Troy Hall of Fame was a project of the Troy Daily News with funding support from the Troy Foundation. Troy Hall of Fame members include pioneer aviator and industrialist Clayton J. Brukner, NASA Astronaut Nancy Decker Currie, several members of the Hobart family, and other local citizens who have helped make Troy a better place.

WACO Museum

The aviation legacy of Clayton J. Brukner lives on at the WACO Museum, located at 105 South Market Street, in Downtown Troy. In the 1930s, Mr. Brukner's WACO airplanes made Troy the light civilian airplane manufacturing capital of the world. WACO planes were reliable, strong, and became the favorite of aerial acrobats and serious pilots. The company's sales motto was, "Ask any pilot."



The museum is operated by the WACO Historical Society. It displays artifacts from WACO's earliest days of making one-of-a-kind planes, through the glory years of the 1930s, with mass-produced open-cockpit and cabin biplanes, and on into WWII with combat gliders. The company was most famous for the CG-4A, the most widely used United States troop/cargo glider of WW II. That glider was instrumental in the allied invasion of Sicily in July of 1943 and the D-Day assault in France on June 6, 1944.

Thanks to several important collections that have been donated, the museum has literally thousands of photos and documents, many on display, and others that are available to researchers. Aircraft parts and WACO memorabilia are also there to see, including brochures, service manuals, company newsletters, wind tunnel models and more.



The WACO Historical Society also operates the WACO Field, located just south of Troy. More information about the airfield it is included in Chapter 12, Parks, Recreation and Open Spaces.

SCHOOLS

A majority of the land in the city limits of Troy is located within the boundaries of the Troy City School District. A small portion of northeast Troy extends into the Miami East Local School District. Private education, in addition to public, is also offered to residents at five separate school facilities.

Troy City Schools

The stated mission of the Troy City Schools, in partnership with the community, is to provide a quality education so students can become productive and responsible citizens. Encompassing a total of 367 square miles in Miami County, the Troy City School District serves residents in the City of Troy, rural Concord Township, and Monroe Township. Troy schools have a tradition of providing young people with a quality education based on innovative curriculum and support services designed to meet student needs. The school district enjoys widespread community support that gives meaning to the phrase, "In Troy, Civic Pride is City Wide." The school district has one senior high school, one junior high, one sixth grade building, and six elementary schools (kindergarten through fifth grade) composed of approximately 4,500 students.



Table 11-1 shows the total Troy City School District enrollment for the years of 2000-2003. The enrollment in this table is broken down by K-6, Junior High, and Senior High levels. The enrollment at the K-6 and Senior High levels has declined over the past four years. Enrollment at the Junior High level has fluctuated up and down. Total enrollment in the Troy City School District has declined by 256 students in the past four years.

	K-6	Junior High	Senior High	Totals
2012	2,503	708	1,428	4,639
2013	2,511	702	1,368	4,581
2014	2,475	746	1,342	4,563
2015	2,466	715	1,358	4,359
Average	2,488.75	717.75	1,374	4,580.5

Table 11-1 Troy City School District Enrollments 2012-2015

Table 11- 2 shows the Troy City School District enrollment by building. Troy currently has nine school facilities, including six elementary buildings, one sixth grade building, one Junior High and one Senior High. Total enrollments at these facilities have declined overall. Yet even though the total enrollments at these facilities have declined, the capacity at some has been surpassed.

	1999	2011-12	2012-13	2013-14	2014-15	24 students	30 students
Concord	568	612	581	594	617	504	630
Cookson	475	363	369	367	359	480	600
Forest	0	308	308	309	299	0	0
Heywood	373	338	355	344	307	384	480
Hook	339	320	290	276	277	312	390
Kyle	302	228	205	255	259	312	260
Van Cleve	398	350	403	330	348	480	600
Junior High	756	708	702	746	715	672	840
Senior High	1,506	1,428	1,368	1,342	1,358	1,488	1,860

Table 11-2 Troy City School District Enrollment by Building 1999-2015

The last two columns of Table 11-2 show the estimated capacity for each building first with a scenario of 24 students per classroom and last with 30 students per classroom. Generally, a better education is provided where the student-teacher ratio is smaller, so 24 students per classroom is a preferred goal. In 2003, Concord Elementary, Hook Elementary, and the Junior High surpassed their capacities, considering the lower ratio of 24 students per classroom. This has prompted the Board of Education to review the capacities of each building and begin to make plans for realignment, building additions, or construction of new buildings. Community focus groups and strategic planning sessions have helped the Board to determine the needs and desires of parents, teachers, and interested citizens. Construction levies may be included on future ballots for the voters' consideration. The Board intends to act before a crisis is reached, to protect the futures of the school children and the excellent reputation of Troy schools.

Miami East School District

Located in the east of Troy, the Miami East School District covers the rural area of Lost Creek, Brown, Elizabeth, and Staunton Townships, in addition to a small part of northeast Troy. The district boundaries are shown on Figure 11-1, located at the end of this chapter.



Prior to 2004, Miami East had one High School, one Junior High, and three elementary schools. As part of a multi-year capital improvement program, a "super-campus" has been developed north of Casstown. A new elementary school has completely replaced the smaller schools, which have been sold. The new school was built at the same site as the high school and the junior high school.

Total student enrollment for the district has actually declined slightly, from 1,319 in 2000-2001, to 1,291 in 2001-2002, and 1,293 in 2002-2003. 1,262 in 2010, 1,251 in 2011, 1,252 in 2012, 1,256 in 2013, 1,294 in 2014 and 1,301 in 2015. Miami East expects the new super-campus arrangement will allow for flexibility in meeting student population fluctuations and result in reduced costs from previous years of operating multiple buildings. As a rural district, all students were already bussed, so transportation costs were not a factor in the building decisions.

Upper Valley Career Center

The Upper Valley Career Center in Piqua includes the Troy City School District in its service area. UVCC provides vocational training for high school juniors and seniors and operates a state-designated full-service Adult Education Center for on-going adult training. Customized training is also available to meet the continuing needs of businesses and industries. Consultants can tailor and deliver ongoing custom training programs. UVCC hosts approximately 850 high school students on its main campus and nearly 1,300 students at satellite programs housed in associate school districts. Both the high school and adult division programs are focused towards building career skills. In cooperation with area businesses and industries, UVCC has built an outstanding core curriculum and a reputation as one of the best in the state of Ohio.

PRIVATE SCHOOLS

The Troy community offers a number of private education alternatives for students in kindergarten through twelfth grades. They include:

St. Patrick Catholic School

This Catholic parochial school, located at 420 East Water Street, serves a total of 147 students in grades K-8. The school has been operated by St. Patrick Catholic Church for many years.

Miami Montessori School

This is an elementary school that follows the Montessori Method, which has individualized learning plans for each student. They are an affiliate of the American Montessori Society with a State of Ohio charted elementary program; and a State of Ohio licensed preschool program and before/after school care. The Miami Montessori serves over 70 children, between the ages of 3 and 12 years old.

Troy Christian Schools

The privately operated Troy Christian Schools have been growing in Troy for about thirty-six years. They include early childhood, elementary, Jr. high, and high school which are all located in Troy near I-75. These schools stress Christian education and attract students from not only Troy, but from communities as much as 20 miles away. The early childhood serves 197 students and is located with the elementary (K-6), which serves 295 students. The Jr. High and High School (7-12) are combined and serve a total of 354 students. Troy Christian Schools are members of the Association of Christian Schools International.



LOCAL COLLEGES, UNIVERSITIES, AND ADULT/CONTINUING EDUCATION

There are several colleges, universities and adult/continuing education facilities located in close proximity of the City of Troy. In addition to those listed in the following paragraphs, the City of Troy is a short distance from popular local colleges and universities such as Sinclair Community College, Wittenberg University, Urbana University, Cedarville College, Wright State University, and the University of Dayton.

Hobart Institute of Welding Technology

The Hobart Institute of Welding Technology was founded in 1930 and has trained over 80,000 students from around the world in advanced welding techniques. Recognized as the premiere teaching institute in the welding field, the Hobart Institute offers a variety of certification programs requiring up to nine months of classroom and laboratory work.



Edison State Community College

Edison State Community College was established in Piqua approximately thirty years ago. This junior college offers two-year degree programs, certifications, general education classes and transfer programs for universities. Edison has a growing business and industry center to support the skill development needs of area businesses. Edison recently launched a major new research and training initiative for the plastics industry.

LIBRARIES

Troy-Miami County Public Library

The Troy-Miami County Public Library is located at 419 West Main Street and is open seven days a week. This public library offers approximately 190,000 books, magazines, and periodicals for patrons. It also has services such as photocopiers, videos, audio cassettes, compact discs, references, pamphlets, large print books, talking books for the blind, home-bound delivery, a bookmobile, special collections for schools, subscriptions to 250 magazines, and multiple computer terminals for access to the Internet. The Troy-Miami County Public Library and the Dayton and Montgomery County Public Library share collections and other services, including holdings in an online catalog.



The library also offers a number of programs for children and families, such as a summer reading club, outreach services to nursing homes and senior citizens, family fairs, and story times for toddlers and preschoolers. The Friends of the Library is an organization whose members support the Troy-Miami County Public Library by volunteering their help during the two fund-raising book sales held each year.

The Troy Historical and Genealogical Library

Until 2002, the Troy History Room, also known as the Troy Historical and Genealogical Library, was located at the Troy-Hayner Cultural Center. The Troy-Miami Public Library purchased the property located at 100 West Main Street to house the Genealogical Library, which was reopened in 2003.



The Troy Historical Society serves about 3,000 people a year from all over the United States. Patrons are usually researching family history or looking for historical documents from the Troy and Miami County Area.

The new facility functions as a research library and features books, maps, manuscripts, wills, and land records. An extensive micro film catalog includes Miami County and City of Troy marriage records and birth and death records. A small staff of library employees and Troy Historical Society volunteers are on hand to help guide visitors through the library's materials.

QUASI-PUBLIC COMMUNITY FACILITIES

Quasi-public uses are open for use by the community, but may be privately owned or are not as accessible as fully public facilities. These include religious facilities such as churches, utilities such as power and water service plants, certain health services and retirement and nursing facilities serving the elderly.

Religious Institutions

In days gone by, most churches were located in Downtown Troy so their congregants could walk from their homes to nearby services. As society has changed, churches have changed as well. Today's churches typically have larger memberships, and offer services and programs on most days of the week. Newer churches have been built on larger sites with larger structures, parking lots, and private open space to better serve their wide spread, larger congregations. Over twenty religious worship facilities are provided within Troy and the surrounding areas.



HEALTH SERVICES

The Miami Valley Region has a total of fourteen hospital facilities, one of which is located in the Troy area, providing a full range of diagnostic and treatment services. Troy and the surrounding area also benefit from a network of convenient outpatient and inpatient medical treatment facilities. This is especially true in the case of outpatient facilities; having services available close to work and home can minimize pain, expense and time in treatment, and may also result in a quicker recovery time.

Upper Valley Medical Center

In 1998, the Upper Valley Medical Center opened its doors. This new hospital, located north of Troy along I-75, was an important step in preserving convenient health care services for the Troy community. The former Stouder Hospital in Troy and the Piqua Memorial Hospital were becoming obsolete and were too small for economic feasibility. The new acute care facility was designed for optimum accessibility and flexibility to best serve the Miami County's changing health care needs. Approximately 222,000 square foot in size, Upper Valley Medical Center has a total of 199 bed; 10 special care, 99 medical/surgical, 39 psychiatric, 11 physical rehab, 16 OB level 1, and 24 newborn care beds. Upper Valley Medical Center is now a part of Premier Health, which is a comprehensive health system serving southwestern Ohio through member and affiliate organizations in seven counties.



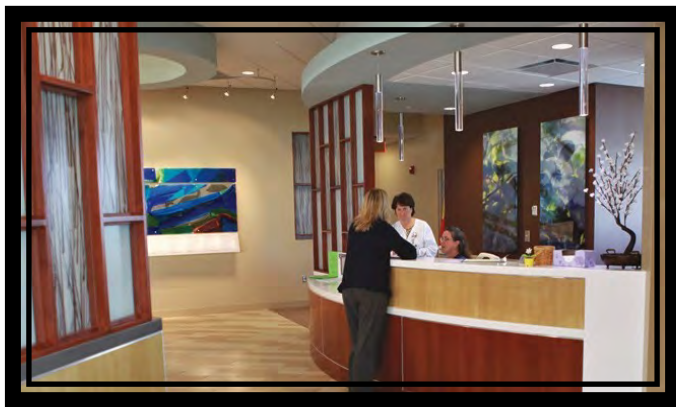
Several other regional hospitals and medical care facilities are available to patients in Troy, including Children's Medical Center, Charles F. Kettering Medical Center, Good Samaritan Hospital, Grandview, and Miami Valley Hospital in Dayton and Wilson Memorial Hospital in Sidney.

UVMC Behavioral Health Care Services

Upper Valley Medical Center Behavioral Health Care Services provide a high-quality, professional, cost-effective continuum of mental health services. Inpatient treatment is provided in a confidential, respectful manner. Arrangement of referrals for after-care for all patients occurs upon discharge. The facility is located on the UVMC medical campus. The patients have access to the outdoors, weather permitting, during their stay. Their physician-led treatment team promotes mental, emotional, behavioral and physical health through educational, therapeutic and medical interventions. Both Adult and Youth inpatient services are provided, upon an in-depth intake assessment to assure the most appropriate level of care, and case management is enlisted at all levels.

UVMC Cancer Care Center

The UVMC Cancer Care Center is approved by the American College of Surgeons, Commission on Cancer, and is committed to the Commission's high standards of performance improvement, outcome measurements, cost effectiveness, and collaboration with physicians, Hospice, the American Cancer Society, and other health care service agencies. The center provides a comprehensive continuum of cancer services to patients and their families, focusing on education, prevention, early detection, and treatment of cancer. The patient-centered model of care enables the center to practice in a comprehensive manner and recognizes the impact cancer has on the lives of individuals and their families.



UVMC Dialysis Center

The UVMC Dialysis Center offers treatment for kidney failure via dialysis, a process that enables the body to use an artificial method of removing wastes from the bloodstream. They offer patients two kinds of dialysis: outpatient hemodialysis and continuous ambulatory peritoneal dialysis (CAPD). Center patients receive their hemodialysis treatments in a clinical environment that is cheerful and homelike. Once treatment begins, patients can relax in comfortable recliner chairs and read, watch television, or listen to music.



The UVMC South Outpatient Care Center

The UVMC South Outpatient Care Center on South Dorset Road in Troy is a close-to-home facility designed to help make outpatient care convenient for area communities. Services available include occupational health, physical/occupational therapy, and laboratory and radiology services. In addition, medical professional offices are provided for both general and specialized medical doctors.

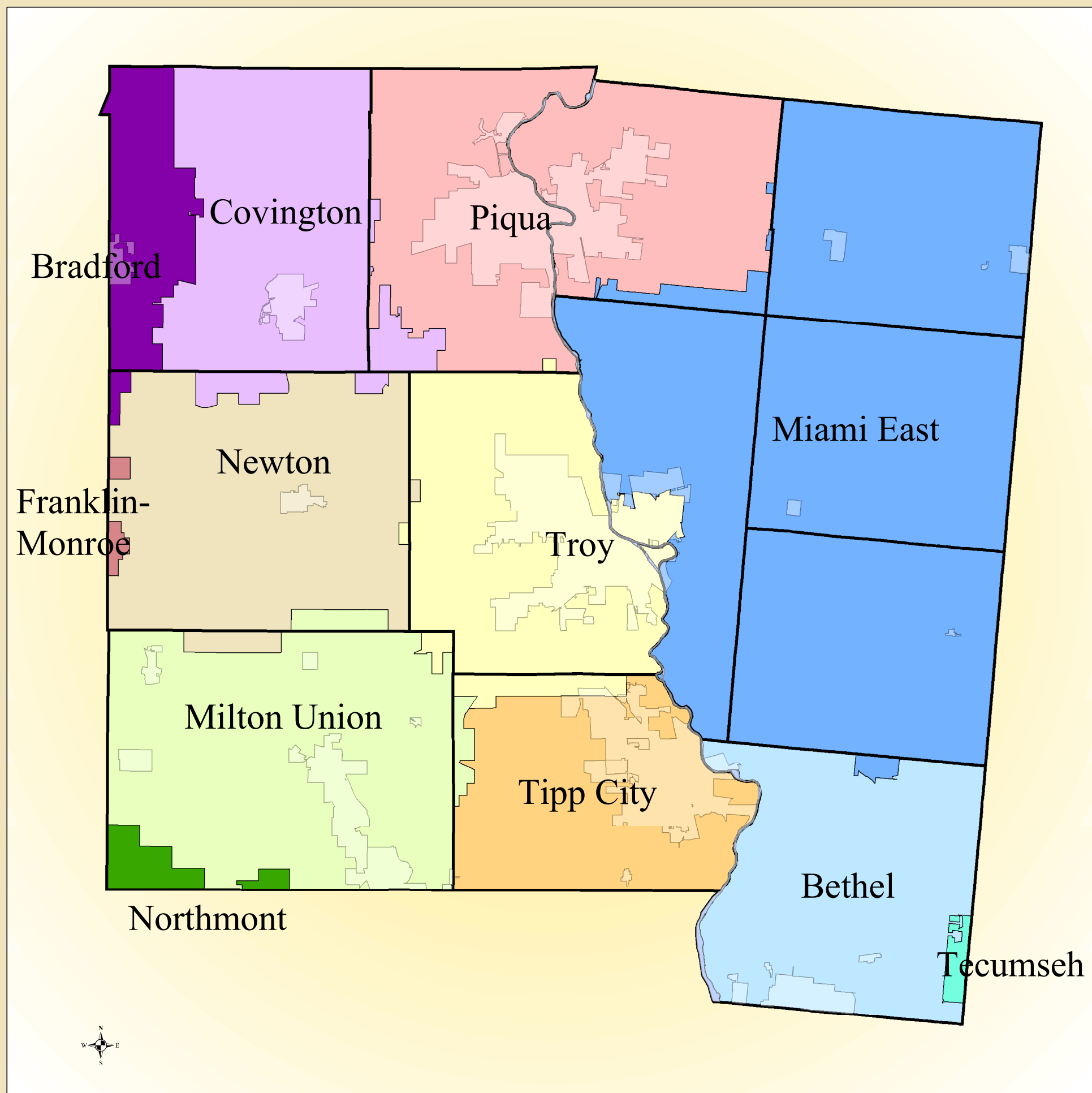


Stanfield Place

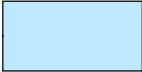
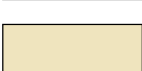
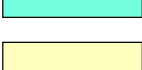
Similar to the Outpatient Care Center, UVMC's Stanfield Place, on Stanfield Road in Troy, provides laboratory and radiology services as well as medical professional offices.



Figure: 11-1
Miami County School Districts



Legend

	Bethel
	Bradford
	Covington
	Franklin-Monroe
	Miami East
	Milton Union
	Newton
	Northmont
	Piqua
	Tipp City
	Tecumseh
	Troy

TROY
OHIO

City of Troy
 Planning and Development
 February 27, 2006



INTRODUCTION

Parks and recreation are a vital part of every person's quality of life. Parks have a unique way of mixing fun and happiness with recreation and exercise, as well as having a positive impact upon each citizen and on society as a whole. Every individual benefits from quality parks and recreational facilities in one way or another. Organizations such as the Ohio Parks and Recreation Association have identified four major benefit categories in regards to parks and recreation: individual, economic, community, and environmental.

In regards to the economic and community benefits, parks and recreation have a significant effect on the shaping of the surrounding lands. They also create real estate opportunities for the area. Families are generally attracted to areas that possess easily accessible parks and recreation. As noted landscape architect Frank Law Olmstead proved to New York City in the 1850s, the increase in nearby property values more than compensated for the cost of developing Central Park. Over a century later, the same principles are at work here in Troy.

Individual benefits of parks and public spaces come in different forms, but the greatest benefit is from the endless opportunities that parks and recreation provide. These opportunities include, but are not limited to, relief from the noise and congestion of the cities, open areas for exercise, places for communing with nature, and simple relaxation. Parks and recreation also create a common space where members of diverse populations can intermingle.

GOVERNING BOARDS

As an Ohio statutory city, Troy has two independent boards that govern the use, maintenance, and creation of all public park and recreational activities. These boards also directly supervise the Park and Recreation Departments.

Board of Park Commissioners and Park Department

The Board of Park Commissioners consists of three members who are Mayoral appointees in accordance with Ohio Revised Code Chapter 511.19. The Board has maintenance responsibility over the real property and all improvements and buildings located in the parks of the City, including, but not limited to, the Hobart Arena, the Municipal Swimming Pool, the Senior Citizens Center and the Miami Shores Golf Course. The budget is allocated annually by the Troy City Council, and is administered by the Board.

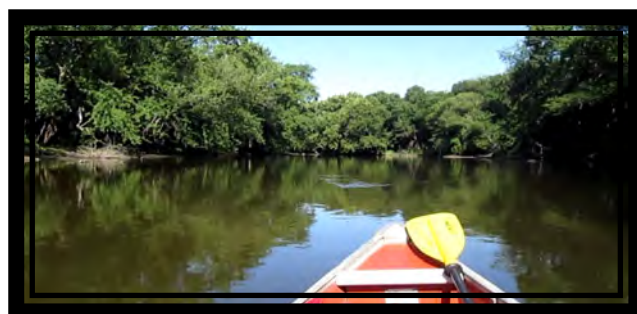
The Park Department office is located at 265 Adams Street. Staffed with full-time and seasonal employees, the Park Department is responsible for maintaining Troy's public parks, and city-wide tree trimming and removal on public property. The Park Department reports directly to the Board of Park Commissioners.

Recreation Board and Recreation Department

The Recreation Board consists of five members. Three members are Mayoral appointees and two members are appointed by the Troy City School District Board of Education, in accordance with Ohio Revised Code Chapter 755. The Board has the power to schedule, equip (with non-permanent personal property) and operate playgrounds, play fields, swimming pools and other recreation centers.

The Recreation Department office is located at 255 North Adams Street, inside Hobart Arena. The purpose of the Recreation Department is to collaborate and cooperate with other community minded recreational and educational agencies to present recreational programs to the community. The Recreation Department handles approximately 100 recreational programs each year. Examples of these programs include softball, baseball, gymnastics, basketball, cheerleading, and ice skating lessons to name a few.

The Recreation Department is also in charge of several special purpose facilities and programs that provide recreational opportunities, such as Hobart Arena, and the Troy Playground Program which provides children, ages 6-13, the opportunity to participate in youthful activities, games, and social situations at several of the local parks. Much of The Recreation Department's work is done in conjunction with the Park Department.



NATIONAL RECREATION AND PARK GUIDELINES



The National Recreation and Parks Association (NRPA) states that every community has its own unique blend of social and economic characteristics which define it. Each community should be considered on an individual basis to tailor the most appropriate range, quantity and quality of recreational facilities, and open space for an individual community.

In 1995, NRPA deleted old standards of recommending a certain number of developed land acres per 1,000 residents of a city. (Troy's earlier park plan had recommended 12 acres per 1,000 city residents.) Instead, NRPA put into place new guidelines to supplement their basic statement that each community is unique and must have its own standards. Their new guidelines included:

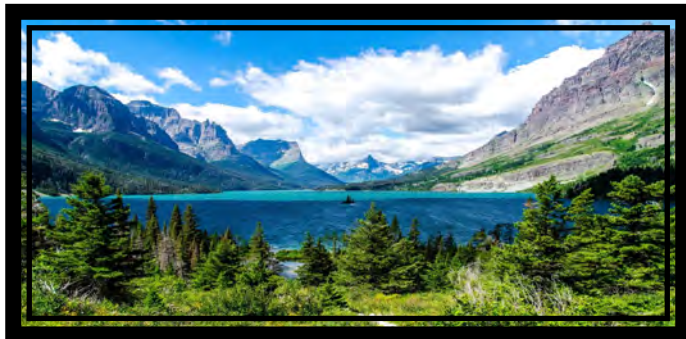
- ♦ the need to accommodate different ages, cultures, abilities
- ♦ the need to include local citizen opinions in park planning
- ♦ identification of the fitness and wellness movements
- ♦ establishment of a local level of service standards
- ♦ address any new environmental, social and demographic trends

Most significantly, though, is the fourth change: the establishment of *a local level of service standards* and the recognition that the residents of each community should be given the right to determine the size and use of land set aside for parks and recreation facilities.

Cognizant of such changes, NRPA developed the new guidelines based on the systems approach to facility planning. This approach requires that recreation planners and urban planners work with residents and community groups in an ongoing, dynamic planning process.

Past planning models relied less on direct community involvement and more on mediated public hearings with limited technocratic input from staff and consultants. Importantly, the new approach also recognizes that facility planning should constitute a component of a given community's comprehensive land use plan.

Most park and urban planners realize that socioeconomic trends will always influence future planning methodologies.



EDSALL MASTER PLAN FOR PARKS AND RECREATION

In 1990, Edsall & Associates of Columbus, Ohio, a planning consultant company, was hired to put together an updated Master Plan for Parks and Recreation in the City of Troy. Before the 1990 Plan, the previous Master Plan for Parks and Recreation was completed by Edsall in 1980.

The 1990 Plan took several things into consideration, including: community attitudes, community needs, goals and objectives, existing parks, recreational and school facilities, and community opinion. Edsall gathered information during various interviews and community input sessions. Interviews were conducted with groups such as Troy Junior and Senior High School students, coaches, PTO representatives, etc. In addition to the developmental plans, individual cost estimates were given for the development and/or improvement of particular parks and school facilities. The 1990 Plan focused on everything from site preparation and improvements, to landscaping, to utilities, and to building expansions, etc.

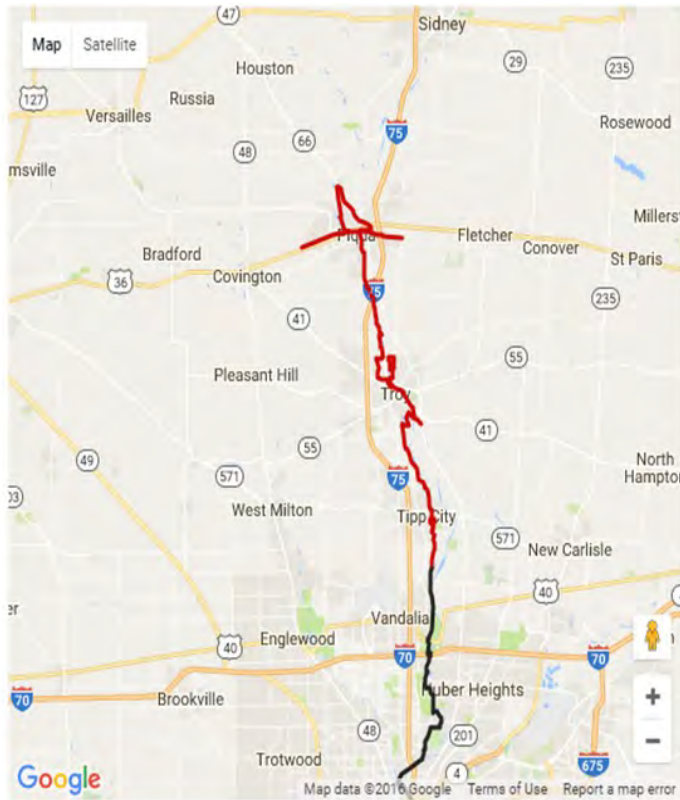
All parks and facilities within the city limits were individually evaluated, with specific development plans being made for several individual parks and school facilities. The park plan for the future emphasized the continued development of new parks dispersed throughout the city, neighborhoods, and subdivisions. The 1990 Plan also called for the development of a network connection by recreational trails and the expansion of current community parks.

RECREATIONAL TRAILS AND BIKEWAYS

In the early 1970s, Troy began its first endeavors into the development of bicycle trails. These early trails, which are still in use today, were located along the banks of the Great Miami River. These bike trails provided connections from the Miami Shores Golf Course by way of the municipal pool, stadium and into the Westbrook area of Troy. They were supplemented by "bike routes," which were located on less busy streets, and were identified by posted signs. The bike routes fell into disuse, but the bike trails were the nucleus for other recreational use of the river's edge, including jogging, skating, and an exercise course.

Modern, well-designed recreational trails are now an important part of Troy's park and recreation planning process. The trails provide access to important recreational facilities such as Hobart Arena, Troy Memorial Stadium, and many Troy parks. Recreational trails also provide for bicycle and pedestrian connections to downtown Troy's retail and restaurant opportunities. These trails also assist in our community's renewed interest in physical activity for all ages. In 2003, the City of Troy created new trails in Duke Park and through the Westbrook area to the city's northern border, at Lytle Road.

Troy continues to be an active member of the Miami County Recreational Trails Task Force, which started in 2001. The Troy City Council and the Board of Park Commissioners proactively support the overall goal of a multi-regional trail system. This includes a Resolution of Support of several counties' efforts in the development of this program. The results of the Task Force created a connected recreational trail that connects Cincinnati to north of Troy by Bikeway Route 25, which you will find running through Troy on the banks of the Great Miami River.



Miami County Recreational Trails Task Force Plan (Red=Miami County Trails)

The State of Ohio designates primary bikeways within the state and the number 25 defines the trail as a north-south trail mimicking roadway route 25. Trail route 25 is the City's primary trail; however, the City hosts connectors from this network to Duke Park and into the Floral Acres neighborhood. Additional future developments of bike trails are under consideration for establishment in proposed housing developments. Route 25 is also a part of the Buckeye Trail network and the Federal North Country Trail.

The development of Treasure Island Park has allowed for an expansion of trails further use of recreational opportunities. In 2014, the Ohio Department of Natural Resources designated the Great Miami River as a State Water Trail, and in 2016, the Department of the Interior designated the Great Miami River a National Water Trail.

A Complete Streets program has been created to incorporate the needs of all modes of transportation through the transportation network planning, design and implementation process. The transportation network, which includes street construction, pavement resurfacing, restriping and signalization, will provide various forms of transportation to increase the public health, reduce demand for motor vehicle, and connect neighborhoods with various points of interest, such as public parks. The complete streets program integrates future bike lanes and trails and connects them with existing trails to provide safe and convenient non-motorized means of transportation. The Complete Streets program is explained in detail in Chapter 8 Transportation and Mobility.

In 2015, the League of American Cyclists awarded the City "Bronze" status as a Bicycle Friendly Community.

MIAMI COUNTY PARK DISTRICT



The City of Troy, being located in the heart of Miami County, enjoys easy access to a variety of parks and recreation also offered in nearby townships. The Miami County Park District (MCPD) connects residents with nature and contributes to the high quality of life of Miami County residents by providing outstanding environmental and nature education programs. The MCPD encompasses all of Miami County and features a number of natural areas and reserves. The MCPD administers all of the County's park sites and programs.

Recent land donations ensure that the District will continue to grow in the years to come. In 1996, Mark Knoop donated 239 acres, east of Troy, to the Park District. This area, now known as Lost Creek Reserve, has become a nature education program area.

In 2003, Twin Arch Reserve was created. This park is located north of Troy along the Great Miami River and County Road 25-A. The Twin Arch Reserve will support river and pond fishing, hiking, and other woods activities. In 2013, this park was connected to the recreational trail near the Eldean Covered Bridge by the construction of the Robert J. Shook Bikeway Bridge. This connection completes a missing link that now makes biking accessible from Cincinnati to Miami County.

PARK INVENTORY & STATISTICS

The City of Troy is made up of over 7,710 acres and covers over 12.04 square miles. This city size allows for the creation of an extensive parks program and strong recreational facilities that generally cannot be made available in small villages or rural areas. Currently there are over 25 parks in the City of Troy.

Parks and open spaces inside the city limits of Troy comprise of 925 acres, or approximately 12% of the city's total land area. This represents 1,600 square feet of parks and recreation per capita. For comparison, an earlier master plan for Troy parks recommended there should be about 12 acres of different type of parks for each 1,000 persons (or 523 square feet per person). With 25,058 persons in the City of Troy as of the 2010 Census, Troy has nearly three times that recommended park acreage goal. Table 12-1 shows the existing Troy parks, open spaces, and recreational facilities by type of use, total square footage, acres, percentage, and square feet per resident.

	Acres	Square Feet	% Open Space Acreage	% Acreage of City Limits	Square Feet Per Capita
Public Parks	521.00	22,694,594.03	56.36%	6.76%	905.68
Public Recreation	198.90	8,663,900.92	21.51%	2.58%	345.75
Private Parks	38.30	1,668,165.22	4.14%	0.50%	66.57
Private Recreation	166.30	7,243,829.45	17.99%	2.16%	289.08
TOTAL	924.48	40,270,490.02	100.00%	11.99%	1,607.09

Source: City of Troy GIS Data - 2016

Table 12-1 Use of Parks and Open Space

Figure 12-1 at the end of this chapter shows the current placement of public and private recreation facilities in the Troy community. Figure 12-2 shows the location of City of Troy Parks, and Figure 12-3 shows existing and proposed recreational trails.

Compared to other cities in the local area, Troy offers many more parks and recreational facilities for its citizens. Table 12-2 shows a comparison of the sizes of local cities and the number of public parks each currently possesses.

	Total Acres	Square Miles	Population	Current Number of Parks
Piqua	7,609.6	11.89	20,522	18
Sidney	7,776	12.15	21,299	24
Tipp City	4,889.6	7.64	9,689	16
Troy	7,710.3	12.04	25,058	25

Source: 2010 US Census (Population) and City Provided Information - 2016

Table 12-2 Comparison of Cities & Parks

The Troy community is very proud of its parks and continues to support the very wide range of recreational activities available to all its citizens. This is shown in the consistently high level of community involvement and the amount of financial support given to parks and recreation.

OPEN SPACE

While Troy is a small city with approximately 25,000 residents and 12 square miles of land area, it maintains vast areas of public and private parks. These parks are shown on Figure 12-2, at the end of this chapter. The City of Troy Park Department maintains over twenty-five parks throughout the community. Each park is unique and offers a wide range of activities for individuals of all ages. The Troy Recreation Department annually publishes a directory of Troy parks and recreation programs, to help encourage citizens to participate in these recreational activities.

The 1990 Master Plan for Parks and Recreation cited five different types of parks within the City. They include sub-neighborhood, neighborhood, community, city, and special facility parks.

Sub-Neighborhood Parks

Neighborhood parks, according to the 1990 Master Plan, can be categorized two different ways, either as sub-neighborhood parks or neighborhood parks and ball fields. Sub-neighborhood parks are also classified as mini-parks or playgrounds. They are defined as having a hard surface area with miscellaneous facilities, open space, playgrounds and sitting areas. Parks in this category usually are between 2,500 square feet and 5 acres of land. These parks have a service area of only about ¼ mile. The City of Troy currently has thirteen sub-neighborhood parks:

- ◆ Brukner Park

◆ Campbell Park

◆ Edgewater Park

◆ Herrlinger Park

◆ Hook Park

◆ Kensington Park

◆ Lincoln Center
- ◆ McKaig-Race Park

◆ Meadow Point Park

◆ Nottingham Park

◆ Stonebridge Park

◆ Waco Park

◆ Westbrook Park

Neighborhood Parks

Neighborhood parks differ from sub-neighborhood parks in that they usually are between 5 and 20 acres of land and have a service area of ¼ to ½ miles. These parks offer more variety in recreational activities than sub-neighborhood parks. The City of Troy offers thirteen public and private neighborhood parks:

- ◆ Archer Park

◆ Boyer Park

◆ Carriage Crossing Park

◆ Cookson Park

◆ Halifax Park

◆ Heywood Park

◆ King’s Chapel Park
- ◆ McKaig-Race Park

◆ Menke Park

◆ Stonebridge Meadows Park

◆ Trinity Park

◆ Trostle Park

◆ Westlake Park

As new residential neighborhoods are created, the Troy Planning Commission and the Board of Park Commissioners review each proposal to determine the need for creating a new park. Convenience for park patrons and concerns for park maintenance are both considered.

Community Parks

In the 1990 Master Plan, community parks are classified as those parks which are usually between 5 to 20 acres of land. Activities at these parks include court games, miscellaneous facilities, open space, ball fields, playgrounds, and/or water recreation. These parks serve all residents within a service area of ½ mile to 3 miles. Currently the City of Troy has two community parks:

- ◆ Troy Community Park
- ◆ North Market Street Ball Fields

Located on 33 acres of land along the Great Miami River, Troy Community Park offers a wide selection of recreational activities for all ages. The park currently has a baseball/softball field, two basketball courts, nine tennis courts, a volleyball court, and a frisbee golf course. The park also offers playground and picnic equipment, and sixteen covered shelter houses that offer electricity and grills. Troy Community Park is also home to the Troy Civic Theatre, which operates the “Barn in the Park.”

The North Market Street Ball Fields include a lighted softball field and a lighted baseball field with stadium-style seating. These fields are home to the Troy High School baseball and softball teams, as well as adult leagues.



City Parks

City parks are defined as those between 100 to 250 acres, with a 20-minute driving range. These parks should offer court games and facilities, open space, picnicking, ball fields, playgrounds, trails, and/or water recreation. Currently, Troy has one city park, Paul G. Duke Park. This is the city's largest park, with 153.660 acres. Located at 1670 Troy-Sidney Road, Duke Park offers a wide variety of recreational opportunities for all ages. Currently there are three lighted softball fields, two lighted baseball fields, one lighted football field, four unlighted fields, tennis and basketball courts, playground equipment, ten picnic shelters with grills, eleven soccer fields, a 1.8 mile recreational trail, and a special mountain bike trail, and a dog park approximately 3 acres. The city has designs to develop an approximately 117 acre extension of Duke Park to the north (known as Huelskamp Farm). The extension includes 12 baseball fields and one Miracle Field that is handicap accessible with synthetic turf. In addition, the design shows three full-sized soccer fields at the south end of Duke Park.

RECREATION FACILITIES

Over the years, recreational services and facilities have provided something for all age groups in the Troy community. With new residential areas developing and with the constant shift of age groups, the diverse needs of Troy must be evaluated continually. These evaluations ensure that leisure activities and parklands continue to have viable uses and commensurate benefits for the taxpayers. Continued enhancements and additions to the parks and recreation programs have made them some of the best in the State of Ohio.

Just as modern standards for park acreage have become more subjective, current national standards for recreational facilities are flexible, and consider variations in climate, preferences, and resident age and income. Table 12-4 shows the national standards in regards to population and recreational facilities, and compares suggested goals for Troy along with the current offerings in the Troy park and recreation programs.

FACILITY	POPULATION STANDARD	CITY SHOULD HAVE	CITY ALREADY HAS
Baseball Fields	1 per 5,000	4	19+
Basketball Courts	1 per 5,000	4	12+
Football Fields	1 per 20,000	1	2+
Golf-Driving Range	1 per 50,000	0	0
Golf Course	1 per 25,000	0	2
Ice Hockey Arena	1 per 100,000	0	1
Soccer Fields	1 per 10,000	2	15+
Swimming Pool	1 per 20,000	1	2
Tennis Courts	1 per 2,000	11	19+
Trails	1 per Region	1	1+

Table 12-3 National Guidelines for Recreational Facilities

The City of Troy has met or exceeded all of the national standards for these types of facilities. In fact, Troy has in two situations (golf course, and ice hockey arena) possessed facilities the standards suggest the community would be too small to warrant. This variety of recreational facilities has given the residents of the entire Troy community more diverse recreational options than are available in any similar cities.

In addition to all of the public parks and recreational facilities in the City of Troy, many private individuals, groups, and companies offer additional park and recreation space. Most of these locations offer some of the same activities as the public parks and recreation.

Several public-minded companies in Troy offer space on their grounds for park and recreational activities. These include soccer and baseball fields at Archer Industrial Park, UTC Aerospace, Hobart Brothers, and Honda.

RECREATION FACILITIES AND OPEN SPACE

The Troy community enjoys several specially designed recreational facilities and community centers. These include:

- ◆ Hobart Arena
- ◆ Hobart Urban Nature Preserve
- ◆ Joe Reardon Skate Park
- ◆ King's Chapel Community Center
- ◆ Lincoln Community Center
- ◆ Marina Boathouse at Treasure Island
- ◆ Miami Shores Golf Course
- ◆ Prouty Plaza
- ◆ Riverside Cemetery
- ◆ The Public Square
- ◆ The Rec
- ◆ Troy Aquatic Park
- ◆ Troy Country Club
- ◆ WACO Field
- ◆ William H. Maier Senior Citizens' Center

Hobart Arena

In 1946, William H. and Edward A. Hobart had a vision. Their vision was a vastly expanded recreational program for the City of Troy. This expansion would involve an 18-hole golf course, a new football stadium, and a winter sports arena. They proposed that if the citizens of Troy passed a \$450,000 bond issue to build the golf course and stadium, the C.C. Hobart Foundation would build and give to the City of Troy, a winter sports facility. The Troy City Council accepted and approved the plan. At a special election in 1947, the citizens overwhelmingly approved the plan. On September 6, 1950, the vision became a reality with the opening of Hobart Sports Arena.



The Hobart family continued to be very involved in community life. In 1995, Lucia Bravo visited Hobart Arena and noticed several areas that needed to be upgraded. She and her husband, Robert, gave more than a million dollars to be used as seed money for renovation. They felt that by committing such a large amount, the citizens of Troy, as well as other groups and organizations, would also donate towards the upgrading of the facility. Troy City Council and the Recreation Board approved the plan for renovations in 1996.

During the 1996 renovation, Hobart Arena's exterior areas were extensively repaired, exterior lighting was upgraded, and new landscaping was added. New concession stands were constructed and two existing concession stands were relocated to make room for the construction of the Troy Hall of Fame entrance. The restrooms and locker rooms were both renovated in the process. The arena's ceiling was painted and the ice surface was enlarged, including a new dasher board system, new lighting over the ice, and new plastic seating to meet current safety requirements. The acoustics were evaluated and new baffles and new sounds systems were installed. The City Council provided extra funds for a new electrical and air-conditioning system.

Following the above renovations, the facility realized a significant increase in rentals and special events. As a result, in 2015, City Council unanimously approved a \$9.6 million in funding to renovate and expand the venue to address maintenance, operational and capacity issues. The renovation is slated to be completed by the end of 2016.

The above renovations, will return Miami Valley's showplace of the 1950s and 1960s shining again. With a seating capacity of 3,800, some of the best known entertainers in the world have performed at Hobart Arena, including Elvis Presley. The Arena has hosted all types of sporting events, ice shows, trade shows, conferences, and concerts. In addition, it has been home to the Troy Skating Club since its inception in 1951, the home of the Troy High School Varsity Hockey Team, and the Recreation Department's Youth Hockey Program.

Hobart Urban Nature Preserve

The Miami County Park District developed the Hobart Urban Nature Preserve, which is made up of an 80-acre parcel of property right in the center of the City of Troy, just south of Menke Park. This preserve is used for nature education and leisure activity for future generations of city residents.



Joe Reardon Skate Park

Located at 1021 West Main Street, this five acre park provides 12,500 square feet and several pieces of equipment for BMX and skateboarder enthusiast. This is the only skate park located within the City.

King's Chapel Community Center

The King's Chapel Community Center, located at 133 Kings Chapel Drive, is a neighborhood community center, which was built in 1997. Funds to build the center came from the Ohio Department of Natural Resources. The King's Chapel Community Center is utilized in the summer for the Troy Playground program.

Lincoln Community Center

The Lincoln Community Center (LCC) is located at 110 Ash Street. The LCC, established in 1924, has striven to build a strong environment for the people in the community. The LCC provides educational, social, cultural, and recreational facilities and tools that cater to patrons of all ages. Vibrant and alive, the LCC offers more than forty-two programs which consist of: youth basketball, after school tutoring, job readiness programs, senior aquatics and many more. The LCC averages more than 2,800 visitors a month and is working towards adopting a strategic plan to shape the way for the future.



Marina Boathouse at Treasure Island

The Marina Boathouse at Treasure Island is located at 409 South Elm Street. This historic area along the levy of the Great Miami River is the perfect place for recreation and gatherings. The renovated park includes paved trails that are perfect for biking and running, an amphitheater with seating for up to 1,000 people, renovation of the boathouse for the home of a new restaurant, and a second location of Adventures on the Great Miami, where you can rent canoes, kayaks, and floats for cooling off in the river.

The park includes benches made from old blocks from a former 1800s canal lock that was removed from underneath the Hobart Brothers/ITW Manufacturing plant along West Main Street.

Miami Shores Golf Course (Public)

Owned and operated by the City of Troy, the Miami Shores Golf Course, is a golf course which features 130 acres and 18 holes with rye fairways and bent grass greens. Located on East Staunton Road, the course was designed by architect Donald Ross and was completed in 1949. Two major renovations have occurred since that time, once in 1977 and then again in 1997. During these renovations both the front and back nine holes were renovated.



Currently the course offers a pro-shop, practice area, locker rooms, and a concession area with a grill. Banquet facilities are also available on the grounds to accommodate up to 128 patrons. Golf outings can be scheduled for up to 128 players. Both members and non-members are invited to play at Miami Shores Golf Course.

Prouty Plaza

Located in the northwest quadrant of the Public Square, Prouty Plaza consists of approximately .3 acres of open space. Prouty Plaza is used for numerous events throughout the year and is



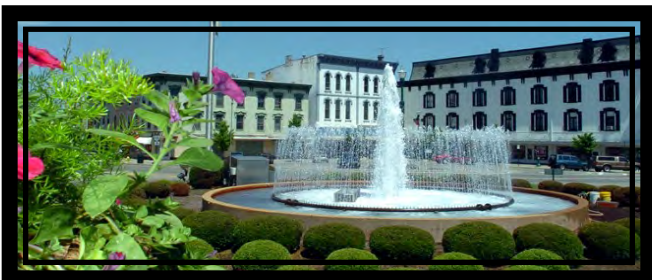
Riverside Cemetery

Established in 1867, Riverside Cemetery provides traditional burial space as well as a public mausoleum, and many options for those who may be considering cremation.

The City of Troy also maintains Rosehill Cemetery which is a Veteran's Memorial in Riverside Cemetery honors our military men and women. Rosehill Cemetery is an inactive, historical cemetery with several of Troy and Miami County's founding families.

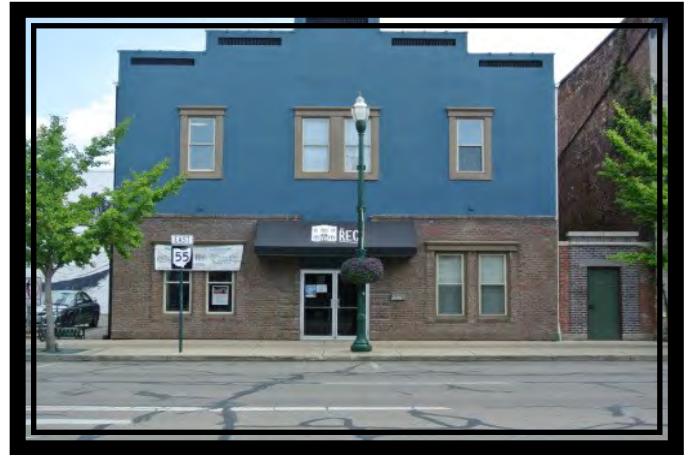
The Public Square

The Public Square is the one of the most recognizable features within the City of Troy and the Miami Valley region. Located in the heart of downtown, it is the center point for many community events. The square is centered by a small landscaped park area and fountain.



The Rec

The Rec is located at 11 North Market Street and located in a historic building in downtown Troy. The Rec provides a recreational and social environment for the citizens of Troy with the primary emphasis on youth. The Rec provides a supervised location for local teens to come after school. Teens can meet their friends and enjoy playing pool, basketball, homework, or just hanging out. The Rec also has computers with internet access available for use. There is no charge for 6th-12th grade students to use this facility afterschool. Students must have a parent signed student agreement form on file. The Rec can be rented for family parties, business meetings, church dinners, and other community group activities. The Rec is governed by their board of directors.



Troy Aquatic Park

Troy Aquatic Park (TAP) is a state-of-the-art modern day facility with amenities such as: two giant water slides, drop slide, diving Board, heated pools, interactive water play equipment in zero depth area, zero depth entrance and giant shade structures. Sunbathers can enjoy the large grassy areas and the lounge chairs throughout the facility. For those who prefer to avoid the direct sun, there are ten giant umbrellas, which shade a 20-foot diameter. The facility also features the Boogie Board Café for concessions providing items such as pretzels, hot dogs, pizza slices, chips, ice cream and beverages, along with a variety of candies. The concession area also provides shaded umbrella chairs and tables. The TAP offers a variety of program opportunities such as adult hour lap swimming, water workouts and swim lessons. The TAP is home to the Troy Tidal Waves swim team since 1973.



Troy Country Club (Private)

Located at 1830 Peters Road, the Troy Country Club (TCC) offers a wide variety of amenities including swimming, golf, tennis, banquet facilities, in addition to the 18-hole par 70 championship course that is open year round. In 2012, the Troy TCC purchased an indoor Tru Golf Simulator to allow members to play and practice year round. In 2002 the club underwent a \$1.2 million renovation project, which included an addition of a



Troy Memorial Stadium

Another part of the above-mentioned Hobart plan was the construction of a stadium. The same vote that cleared the way for the Hobart Arena created the Troy Memorial Stadium. The first football game was held on Friday, September 9, 1949. The stadium was dedicated as a memorial for all of those who have fought and died for our country. A dedication ceremony was held one year after the stadium opened. Since that time, the stadium has served as a source of pride for the Troy community and is home to various athletic contests including football, soccer, and track.



By 1989 it was evident that renovations and additions to the stadium would be needed to keep it in top shape. The renovations would be completed in two phases starting in 1993. The first phase renovations on the stadium were completed in September of 1994 at the cost of \$1.1 million. This project included moving the south stands back so that a new all-weather metric track could be constructed. The field was re-graded and rebuilt for better play of soccer and football, new lighting was installed, and the scoreboard was replaced. After the renovations were complete the stadium was rededicated in September of 1994.

More recently, starting in 2002, the stadium underwent additional renovations and additions. The changes included an upgrade to the restrooms, concession stand, Alumni room, and locker rooms. In addition to these upgrades, a new press box was installed for the media. Handicap accessibility was made easier with the addition of wheelchair seating.

With these additions and renovations, the City of Troy has attracted events such as regional track meets, Olympic qualifiers, and larger events such as outdoor concerts to the stadium and the Troy area.

WACO Field

WACO Field is located at 1865 South County Road 25A near Dye Mill Road. The WACO Aircraft company was the largest manufacturer of civil aircraft in the country in the late 1920's and early 1930's and houses an active runway, learning center, and museum to preserve aviation's past while nurturing aviation's future. This airfield is part of a historical aviation complex that offers a 2,200 feet long grass runway (2,000 useable feet). This fully operational grass flight strip is used throughout the year by amateur pilots. In the summer, the annual WACO Fly-in brings vintage aircraft from around the country. During the festival, or by appointment, visitors can take a ride in a vintage aircraft and see Troy from a bird's-eye-view.

In 2009, WACO added a 7,500 square feet hangar which is home to the WACO Aircraft Museum, Research Library, Classroom/Conference Rooms, Gift Shop, and Museum offices. In 2012, WACO added a Quonset hut and picnic shelter for all to enjoy

William H. Maier Senior Citizens' Center

Located at 134 N. Market Street, the center gives senior citizens in the area the chance to gather for companionship along with providing enjoyable activities such as scheduled day trips, dancing, exercise opportunities and various types of games, socialization and recreational opportunities, Information and referral Health education and screenings, crafts and instructional programs, and networking with other social services for community service volunteer work. The Senior Center is available for anyone 55 years of age and over, as well as spouses younger than 55 years of age for a nominal yearly fee. The Center is governed by the Board of Park Commissioners.



Figure: 12-1
Open Space and Recreation

Legend

Open Space

Type

- Private Park
- Private Recreation
- Public Park
- Public Recreation
- Troy Public Schools
- Troy Private Schools
- Cemeteries
- Public Open Space

City of Troy
Planning and Development
December 28, 2016

TROY
OHIO

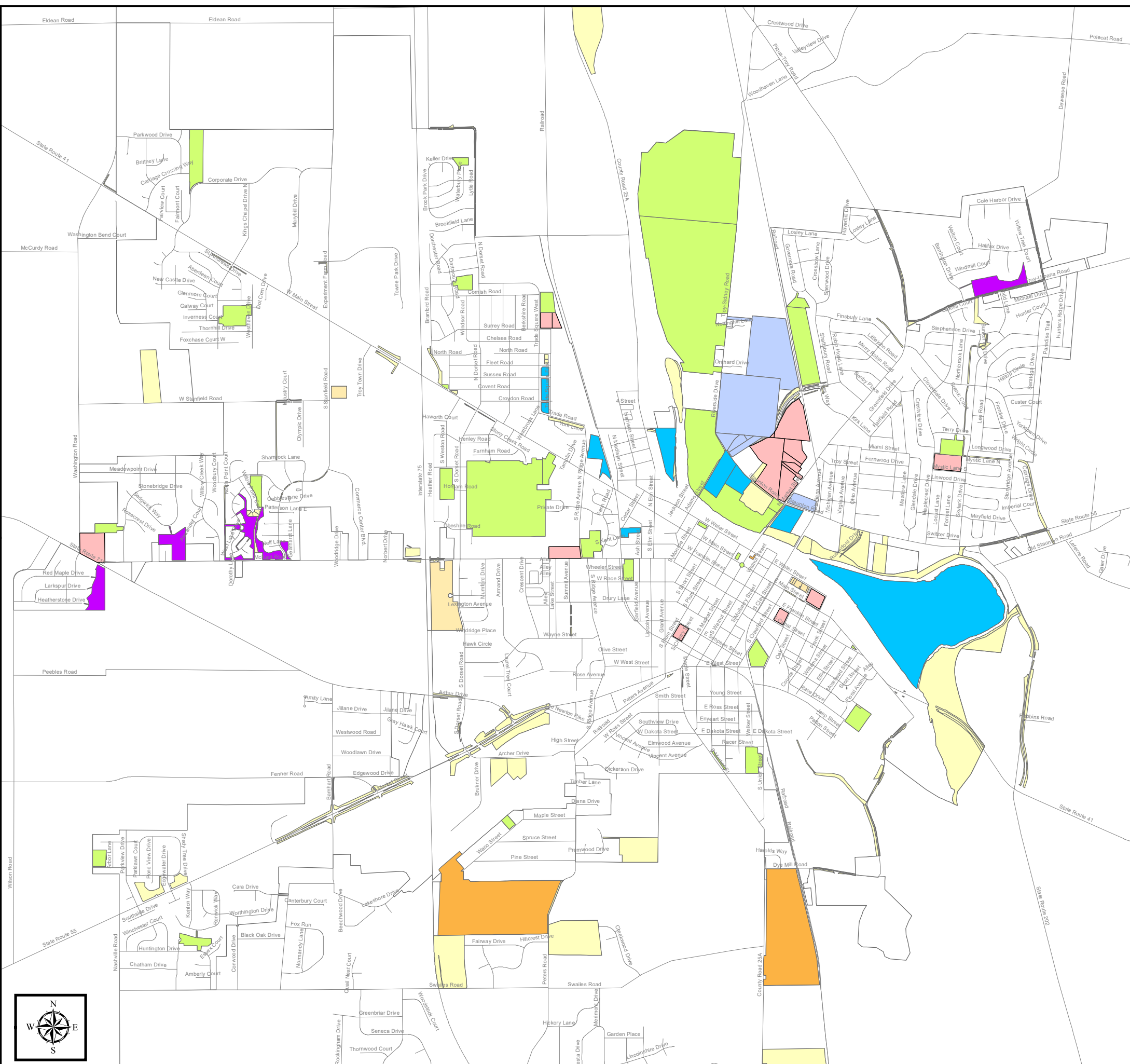
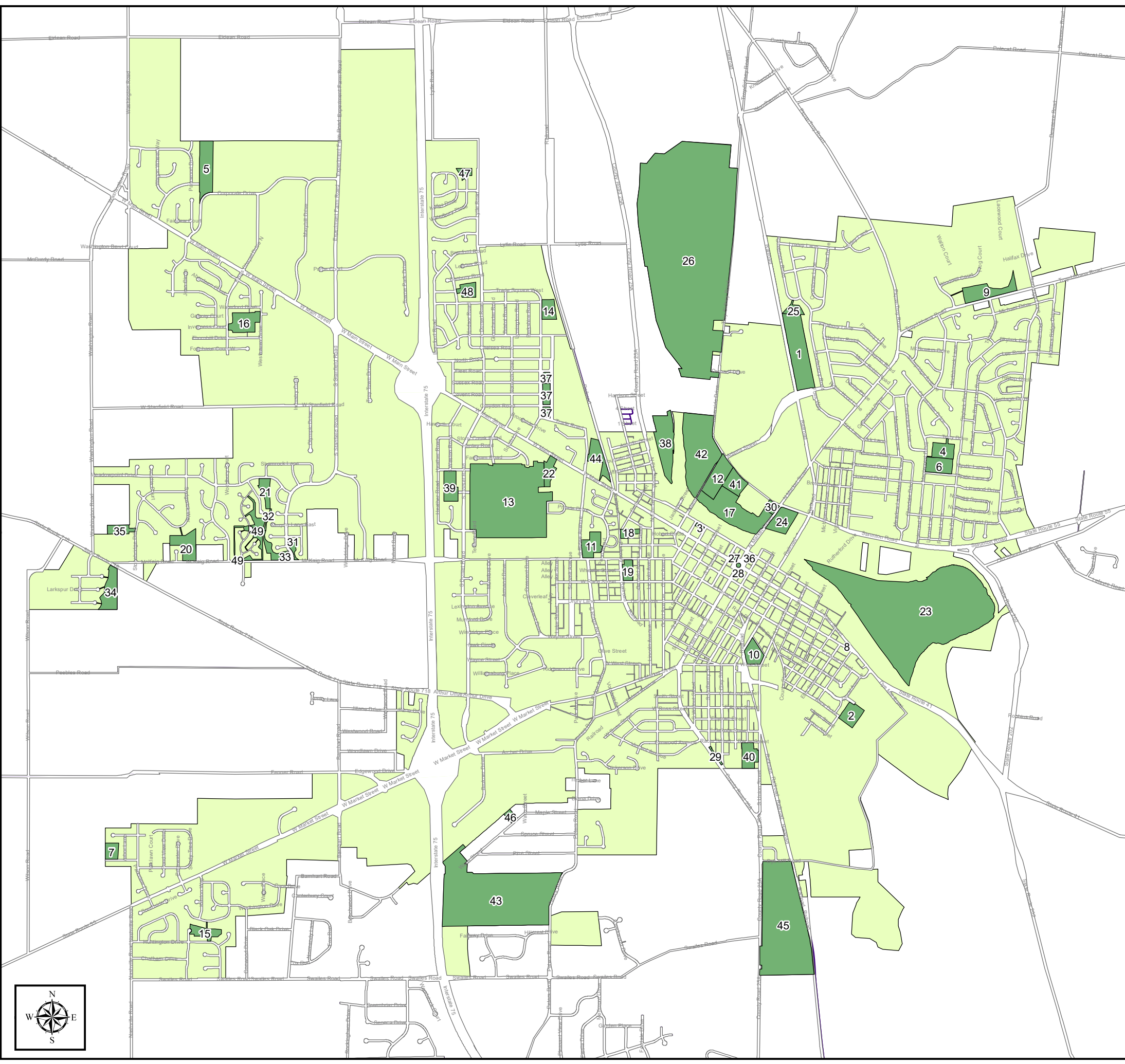


Figure: 12-2
City of Troy Parks and Recreation

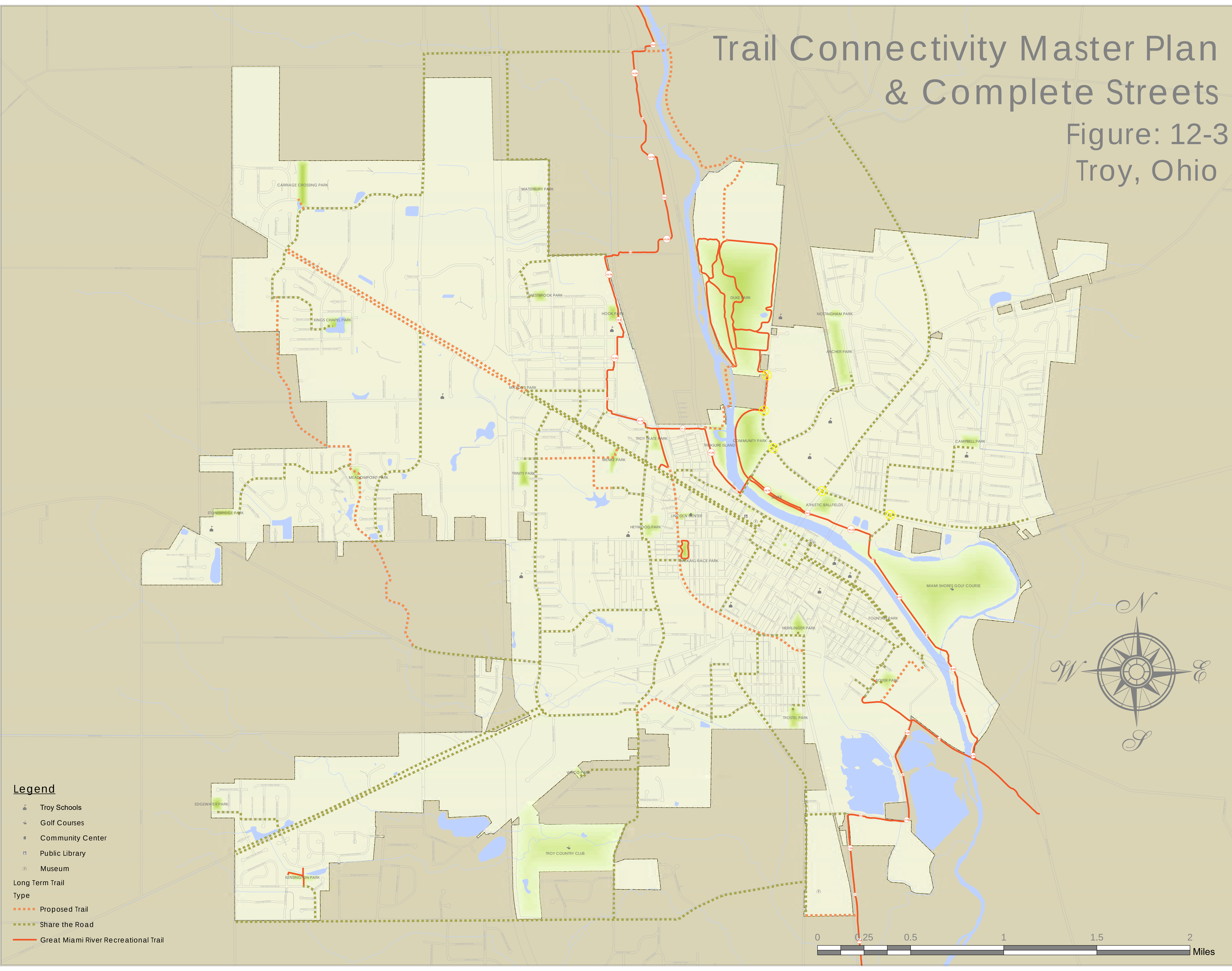
ID	Name	Address	Type	Acres
1	Archer Park	554 Shaftsbury Road	Public Park	20.60793066
2	Boyer Park	1200 Floral Avenue	Public Park	5.300544828
3	Brukner Park	400 West Water Street	Public Park	0.459161995
4	Campbell Park	785 Maplecrest Drive	Public Park	5.068884221
5	Carriage Crossing Park	212 Carriage Crossing Way	Public Park	10.83813494
6	Cookson Park	921 Mystic Lane North	Public Park	6.045738317
7	Edgewater Park	2881 Wooden Lane	Public Park	3.161916409
8	Fountain Park	E Main Street	Public Park	0.126060279
9	Halifax Park	Troy-Urbana Road	Private Park	9.614922273
10	Herrlinger Park	302 Union Street	Public Park	5.001346403
11	HeywoodPark	Mckaig & ridge	Public Park	6.048503809
12	Hobart Arena	255 Adams Street	Public Recreation	9.518078668
13	Hobart Urban Nature Preserve	1400 Tyrone Avenue	Public Park	83.90610814
14	Hook Park	799 Trade Square West	Public Park	3.953319246
15	Kensington Park	2600 Renwick Way	Public Park	4.288371462
16	Kings Chapel Park	131 Kings Chapel Drive	Public Park	7.934029888
17	Levee	Adams Street	Public Park	22.80848777
18	Lincoln Center	110 Ash Street	Public Recreation	1.919009751
19	McKaig-Race Park	822 Mckaig Avenue	Public Park	3.021193272
20	Meadowpoint Green Space and Pond	Sedgwick Way	Private Park	7.663079964
21	Meadowpoint Park	2430 Meadowpoint Drive	Public Park	3.544910902
22	Menke Park	1176 West Main Street	Public Park	3.985577713
23	Miami Shores Golf Course	402 East Staunton Road	Public Recreation	154.5463653
24	North Market Street Ball Fields	133 North Market Street	Public Recreation	7.255958353
25	Nottingham Park	718 Governors Road	Public Park	2.378049266
26	Paul G. Duke Park	1670 Troy-Sidney Road	Public Park	153.6609078
27	Prouty Plaza	NW Public Square	Public Park	0.28396692
28	Public Square	Public Square	Public Park	0.229123256
29	S Market Street Green Space	S Market Street	Public Park	0.559574395
30	Sounds Sculpture	N Market and Staunton	Public Park	1.786054053
31	Stanfield Place Park	881 Stanfield Road	Private Park	1.12277774
32	Stanfield Place Park	2378 Patterson Lane W	Private Park	0.741417725
33	Stanfield Place Park	890 Stanfield Road	Private Park	3.625444947
34	Stonebridge Meadows Park	State Route 718	Private Park	8.306158801
35	Stonebridge Park	Stonebridge Drive	Public Park	3.214734944
36	The Rec	11 N Market Street	Private Recreation	0.203504356
37	Trade Square Athletic Fields	Trade Square W	Public Recreation	1.097401716
38	Treasure Island	439 North Elm Street	Public Recreation	9.709260909
39	Trinity Park	1600 Tyrone Road	Public Park	5.993435732
40	Trostel Park	1237 S Union Street	Public Park	5.566939689
41	Troy Aquatic Park	460 W Staunton Road	Public Recreation	5.683326612
42	Troy Community Park	200 Adams Street	Public Park	33.27725006
43	Troy Country Club	1830 Peters Road	Private Recreation	93.44182414
44	Troy Skate Park	N Ridge & W Main	Public Recreation	5.920518417
45	WACO Field	1865 CO RD 25A	Private Recreation	72.65011318
46	Waco Park	1410 Waco Street	Public Park	1.3716837
47	Waterbury Park	1313 Waterbury Place	Public Park	1.623894823
48	Westbrook Park	831 Dartmouth Road	Public Park	3.435805359
49	Westlake Park	Westlake Drive	Private Park	7.222002825

City of Troy
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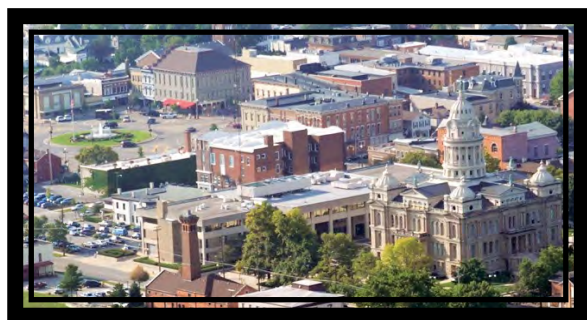


Trail Connectivity Master Plan & Complete Streets

Figure: 12-3
Troy, Ohio



VISIONING CHAPTER 13



A VISION FOR TROY AND THE STEPS TO ACHIEVE IT

Background

The City of Troy has a rich tradition of community planning. City leaders can easily point to many examples of how past community planning efforts have helped to shape a city that is a source of pride for residents. Today, Troy has community facilities and recreational amenities commonly associated with much larger cities; it has a very attractive and viable downtown; there are more good local jobs in Troy than the resident labor force can fill thereby attracting commuters from the region; schools are a source of pride and general community development is occurring at a steady pace. The past successes of Troy are due in large part to visionary leadership and a commitment to various forms of deliberate community planning.

Looking to the future, civic leaders believe that the best is yet to come for the City. They also believe that with thoughtful and deliberate planning, Troy can continue to be a highly desirable and livable town, taking its rightful place among the best communities to live, work, and raise a family. It is also recognized that while there is a strong planning tradition and a great sense of pride, the task of shaping development and redevelopment will be more challenging than ever in the years to come. As a city grows, challenges increase in both size and complexity. Consequently, the responses to such challenges must also increase. Realization of this fact led to the decision that this Comprehensive Plan update was necessary to redefine the desired image of Troy, and identify necessary steps to achieve that vision.

Planning Process

The process followed to develop this Comprehensive Plan included, and began with, a substantial effort to gather relevant information about the City from a purely analytical standpoint. Throughout this Plan, Troy has been described and analyzed in great detail thus providing an excellent description of many dimensions of the City. After comprising a rough draft of the Comprehensive Plan, work turned toward a more creative and engaging process with public visioning sessions and Planning Commission workshops. In this later phase, emphasis was directed toward creative thinking about the most pressing community issues, goals, and required actions to meet expected challenges. The goals, issues, and actions were defined into the following categories:

- ◆ **Goals:** Aim and purpose;
- ◆ **Strategies/Policies:** A method for achieving an end. A method of action selected to guide and determine present and future decisions;
- ◆ **Related Initiative:** An introductory step; and
- ◆ **Output Measures:** A suitable limit; to determine the extent or amount; capacity of something ascertained by measuring; to bring into comparison or competition; the amount produced.

Overall Vision

Summarizing all of the thinking that took place in the public visioning sessions and the Planning Commission workshops is difficult. However, the following are general recurring themes that became evident:

General Themes:

- ◆ Troy has a strong tradition and exceptional track record with respect to economic development; providing the City with quality jobs, a strong economic base and the resources necessary to provide a high level of services and civic amenities. This success is the product of strong leadership and sustained commitment that will certainly continue in the future.
- ◆ The City is generally supportive of physical growth so long as such growth represents a measured, steady, and Comprehensive Planned expansion of the City.
- ◆ It has been recognized that there is a need for ongoing monitoring of housing choices in the City and the balance between the demand and supply of commercial space. The City will use its planning and zoning authority to carefully expand the supply of various kinds of residential and commercial zoning to balance community-wide needs.
- ◆ While growth is important, the City is also interested in defining and carrying out focused and deliberate actions to help redevelop and maintain older areas of town.
- ◆ City leaders recognize the potential of the City to become better known as a unique destination. The Downtown Troy area, with its unique shops and restaurants, is the heart of this draw, and further development of this special place is a definite City priority.
- ◆ City leaders recognize the importance of open spaces, parks, and recreation to overall community livability and will continue to emphasize the development of these outstanding community assets.

The above general themes provided the basis in which to create 14 elements representative of the City's purpose and function. Each of the 14 elements became the chapters of this Plan, serving as the foundation for future policies.

Representing the above General Themes, the following seven topic areas emerged in which goals, policies and action items were defined:

- ◆ Neighborhoods and Housing;
- ◆ Economic Development;
- ◆ Downtown Development;
- ◆ Land Use and Thoroughfare;
- ◆ Urban Design;
- ◆ Community Facilities and Services; and
- ◆ Parks and Open Space.

The numbered goals and sequence of policies and action items are not prioritized in any fashion.

NEIGHBORHOODS AND HOUSING

#1 Goal: Neighborhoods and Housing. The City of Troy will offer residents a wide-range of housing choices, providing many options for all types of people as they move through various stages of life.

Strategies/Policies

As a general City policy, housing choice will be promoted during zoning decisions on individual projects and in terms of future Zoning Code updates. Additionally, such a review should also include an assessment of regulatory barriers to developments with mixed housing types (especially the high-end condominium market attractive to “empty nesters”). Among the typical issues, proposed residential rezoning applications should be judged in the context of whether such development will improve or reduce housing choices in the City.

Related Initiative

Require planned developments when either industrial or residential future developments are adjacent to one another to appropriately address conflicting uses.

Output Measures

Progress toward this goal can be measured by statistically comparing the diversity of the housing stock in Troy with the diversity found state-wide.

Type of Units by Percentage			
	One Unit	Two Unit	Three + Units
Ohio	71	5	24
Troy	73	7	20

US Census Bureau: 2000

#2 Goal: Neighborhoods and Housing. To have a ratio of owner-occupied housing and rental housing that is equal to or better than the state and national statistics.

Strategies/Policies

Concerns over the ratio of rental to owner occupied units is primarily focused toward older parts of Troy where there is a concentration of rental units that skews Citywide statistics toward higher numbers of rental units overall. Over the long-term, conversion of these units to owner-occupied units is desired. Strategically, the City of Troy will take steps to promote the older areas of Troy as a sound place for private investment and home ownership.

Related Initiative

Encourage and support private development initiatives by seeking grants, (i.e. Community Housing Improvement Program), to fund down payment assistance and housing rehabilitation and the Community Reinvestment Area program. Work with local lenders and non-profit organizations to foster attention to such areas.

Output Measures

To align the Troy’s owner/renter occupied ratio (60/40) to that of the states (69/31).

Percentage of Owner & Renter Occupied Housing		
	Owner Occupied	Renter Occupied
Ohio	69%	31%
DMSA	67%	33%
Miami	72%	28%
Piqua	63%	37%
Tipp City	66%	34%
Troy	60%	40%

US Census Bureau: 2000

#3 Goal: Neighborhoods and Housing. To avoid a concentration of low-to-moderate income (LMI) housing anywhere in the City.

Strategies/Policies

Concentrations of low-to-moderate-income (LMI) housing is generally found in older areas of Troy and near downtown. As a general land use and community development policy, the City of Troy should be taking available steps to encourage home-ownership and home maintenance in the central City. Along with code enforcement for existing development, new development should seek to provide more market-rate and upscale housing opportunities with home ownership opportunities to the highest extent practical.

Related Initiative

Housing grants such as the Community Housing Improvement Program (CHIP) can help fund private owner-occupied housing rehabilitation. Stepped up and targeted housing code enforcement is a supportive activity that can help make sure that rental units are not allowed to deteriorate with deferred maintenance. Stricter enforcement of local building, housing, and health codes are called for to eliminate eyesores and to upgrade the marginal buildings. At the same time, the City can promote the existing Community Reinvestment Area more extensively to encourage building maintenance (of all types). Rezoning older areas from industrial and multi-family to single-family will encourage home owner occupancy and mixed residential use. Initiate housing programs that would encourage a market for first time homeowners and rehabilitation hobbyists. City staff will study and provide the Planning Commission with recommendations for strategies to decrease LMI housing concentrations.

Output Measures

Under the Department of Housing and Urban Development (HUD), census blocks with over 51% of LMI concentrations are eligible for improvements. Compare other communities in the Miami Valley that have housing programs to disperse concentrated LMI housing areas, especially those leveraging state and federal funding.

#4 Goal: Neighborhoods and Housing. To protect and restore historically significant residential properties and individual units.

Strategies/Policies

The City will safeguard historic and architecturally significant residential structures. With the support of property owners, reasonable efforts will be made to create protections and incentives. Additional steps to protect historic and architecturally significant areas in Troy are called for, especially in light of the growing numbers of rental units in older historic parts of town. There is concern that as rental units, maintenance could be deferred and historic neighborhood qualities could decline. Strategically, the City is interested in regulatory design review measures when there is evidence of public support. The City's role is viewed in terms of encouraging and being supportive of grass-roots efforts and to help draw attention to the benefits of such actions.

More local work is needed to survey the historic property owners to determine the level of commitment to historic preservation. The self-proclaimed Southwest Historic District is a volunteer run neighborhood that has fared well with maintaining historic appearance. This is an area where the neighborhood does better seemingly without any governmental control, perhaps because it started out as a "grass roots" involvement. Staff was asked to determine the level of commitment to historic preservation by working with existing organizations such as the Southwest Historic District and the Troy Historical Society. A list of initiatives was created after several meetings with the property owners of the Southwest Historic District (Note next paragraph).

Related Initiatives

Perform surveys and studies of public attitudes towards historic preservation. Ascertain the appropriate public and private means necessary in order to achieve desired results. Encourage grass root efforts with housing improvement programs; incentives; architectural consultation; information awareness programs; work-shops; literature to homeowners; assistance with identification of historic neighborhoods (signs, entry areas, landscaping, bronze markers); historic merit awards; and a list of reliable contractors with skills to perform historic work. Other historic preservation efforts should include providing "ad-hoc" representation on the Planning Commission for historic reviews, more regulation on window replacements so that vinyl replacements are not the norm instead of the exception. Research the feasibility of raising grass root efforts in spreading the concept of volunteer neighborhood associations, much like the Southwest Historic District, to other areas in Troy. Assist interest groups in the possibility of a volunteer initiated deed restriction for a historic neighborhood district. Retain and encourage the social fabric of historical homeowners with support and assistance. Assistance and support from the City and other nonprofit organizations could increase the level of commitment, interest, value, and identity of all historical buildings in the downtown area.

Output Measures

With improving and preserving the historic buildings and homes (as documented in the Ohio Historic Inventory), measure style and building material degradation of time period architecture, especially with noted construction improvements over the last 20 years. Reduce the permanent loss of character defining features of the historic district.

#5 Goal: Neighborhoods and Housing. To eliminate poor housing conditions from further property decline and encourage infill, rehabilitation and restoration.

Strategies/Policies

Zoning in some central City areas should be reviewed to encourage adaptive reuse of buildings and property. In some places, this may involve changing existing zoning, or possibly creating a new zoning district aimed at providing the needed flexibility to encourage appropriate residential redevelopment. It is thought that in some cases, existing zoning may present an obstacle to the creative reuse of underutilized property. Strengthen code enforcement in targeted areas to address problem properties, (tax delinquent and/or nuisance ones) to stop what might be early signs of neighborhood decline. Other cities have used land banks, land re-utilization programs for tax delinquent properties, gift of deeds in lieu of foreclosure and property receivership programs. Such actions need to be investigated in Troy.

Related Initiatives

To stimulate residential in-fill development, (construction of new housing on existing vacant lots), specifically single-family housing, the City should be utilizing development incentives such as Community Reinvestment Area's below market rate interest loans, housing trust funds, available tax credit programs, rezoning of nonconforming lots and grants to stimulate new in-fill housing construction.

Output Measures

Number of blighted properties, structures, foreclosures, and vacant lots. Assist local agencies with builders interested in infill housing and slum and blighted properties. Diminish the number of identified properties.

#6 Goal: Neighborhoods and Housing. To carefully expand residential areas commensurate with community facilities such as schools, parks and utilities.

Strategies/Policies

A review of local subdivision regulations have been reviewed to ensure that set-aside provisions of land for community facilities, (open space, walkways, bike paths, parks), to enhance the City's quality of life are appropriately addressed. Further, the use of impact fees and raising the fees for permits should be regularly studied to potentially off-set costly City expenditures on infrastructure expansions, new parks and recreational facilities.

Related Initiative

Research Cost of Services Study (CSS), Level of Service (LOS) Study, Fiscal Impact Analysis, Impact Fee Study and a Land Evaluation Site Assessment (LESA).

Output Measures

Upon completion of the above studies, use as standards for measuring public financial and service sustainability of the community.

#7 Goal: Neighborhoods and Housing. Encourage energy efficiency and renewable energy in new construction and renovation projects.

Strategies/Policies

As technology changes, energy efficiency and renewable energy continue to be important topics in new construction and renovations projects. Similar to other established goals (see Community Facilities and Services, goal 4); the city shall encourage new construction and renovation to take advantage of the "green movement" to support energy efficiency and renewable energy uses. These alternative energy sources can be implemented during new construction phases, in-fill projects, as well as, home renovation projects.

Related Initiative

Encourage energy efficiency and renewable energy by working with the Federal, State and County governments to implement "green technology" uses in programs, such as, the Community Development Block Grant (CDBG) program, the Community Housing Improvement Program (CHIP) and the Community Reinvestment Area (CRA). These programs support new construction, home renovation, and reinvestment projects.

Output Measures

Increase the number of energy efficient homes within the community.

ECONOMIC DEVELOPMENT

#1 Goal: Economic Development. Retain and expand employment base

Strategies/Policies

The Troy Development Council is a public-private partnership with a mission to retain and expand existing businesses and to attract new businesses. Using the Business First program, Troy Development Council will continue to interview and store data on area companies and evaluate and assess business trends and needs. Over seventy local and regional resource partners participate to provide assistance in areas such as workforce, utilities, financing, infrastructure, and information technology, to name a few.

Related Initiative

Actively keep data base current, continue to perform company surveys, and provide direct point to point contact with CEO's utilizing resource partners. With a developed data base, Troy Development Council can create retention and expansion strategies to specifically target the needs and interests of local companies.

Output Measures

The number and type of concerns mentioned by companies interviewed. Troy Development Council subcommittee reports on land use, workforce, retention and expansion, and economic development. Continue the Retention and Expansion, Business First program. Encourage further partnership efforts with the Troy Development Council.

#2 Goal: Economic Development. Plan for and develop a Regional Employment Center

Strategies/Policies

The City of Troy and related development organizations will pursue a policy and strategy of developing a large employment center that is generally west of I-75 and north of the current corporation limits. This area will offer large and small development sites and will be a premier industrial, office, and business center that will be easily accessible to, and visible from I-75. Build out of the area will likely require several years. This future area should offer "shovel ready" sites with power, utilities, infrastructure and economic development incentives in place as soon as possible.

Related Initiatives

Related initiatives include efforts from the Troy Development Council and transportation-related improvements discussed in Chapter 14. Planning efforts include land acquisition, utility expansions of water, sewer, power and communication, infrastructure requirements, emergency services, facility planning, engineering services, intergovernmental relations, etc. Other efforts should include recruitment of adequate workforce, so that skills match future jobs.

Output Measures

The number of acres of available industrial property, amount of property zoned with incentive programs in place and the necessary utilities. Look into economic cooperative agreements with adjacent townships to pro-mote industrial development. Create a Growth Development Policy reflecting the Future Land Use and Thoroughfare Plan (See Chapter 14). Recruit new business and industry that will provide long-term, quality employment opportunities.

#3 Goal: Economic Development. Capture economic development opportunities via local business expansions and recruitment of new businesses.

Strategies/Policies

As the local employment base grows, there is greater potential to capture local business expansions and recruitment of new businesses. Greater local emphasis will be placed on this as a key part of the City's local economic development strategy. With this, the City will strengthen its array of economic development incentives and programs to spur business expansions and for new business recruitment.

Related Initiative

Perform an inventory of large, medium, and small size businesses and industries. Solicit industry suppliers to increase local industry type such as automotive, plastics and technology. Continue to network Troy as an economic leader by conducting trade missions with European and Asian industries, and participating with local and regional economic development organizations. Encourage further partnership efforts with the Troy Development Council.

Output Measures

Compare with the number and percentage attributed from the increased investment value of new businesses and industry expansions.

#4 Goal: Economic Development. Use or reuse vacant or underutilized commercial and industrial structures.

Strategies/Policies

Along with the development of greenfield sites, current vacant and underutilized commercial and industrial buildings and sites should be targeted for reuse and redevelopment. The targeted sites usually have negative environmental issues, are older structures, or are land-locked and are found in mixed-use neighborhoods. Future development of these sites will be costly since environmental remediation and perhaps, clearance would be required. After identifying key properties, the City will review local codes and move to modify them if need be to encourage redevelopment and reuse of such sites. The City should also be looking toward the use of Clean Ohio funding to address environmental issues within buildings or vacant sites, and should modify local codes to encourage adaptive reuse of older obsolete commercial and industrial buildings.

Related Initiative

Pursuit of Clean Ohio funds for cleanup of sites with environmental issues. Perform an Inventory of the total number of functional obsolete buildings. Determine the feasibility of a business incubator leveraging local and federal funds.

Output Measures

Using acceptable inventory results and obtaining the total number of functionally obsolete buildings, reduce list by a minimum of one building a year.

#5 Goal: Economic Development. Ensure an adequate supply of viable industrial land for both small and large companies.

Strategies/Policies

According to Table 9-1, 2002 Industrial Land Use, Troy has an approximate 700 total acres of undeveloped, industrial zoned land. About one-half of this number is unlikely to ever reach built out. The current industrial user is looking for unencumbered rectangular blocks of land with close proximity to state highways and the interstate. Using the annual absorption rate of 38 acres of land developed each year, (See Tables 9-1 & 9-2), it is estimated that between 300-400 acres of viable industrial land is available for development. These developable areas are primarily found in the northwest part of Troy along West and South Stanfield, Corporate Drive, and Experiment Farm Roads. With future growth of the City, adequate land supply is needed to provide space for new and expanding industries.

Related Initiative

Following the Future Land Use and Thoroughfare Plan, ascertain costs and procedures necessary to secure land for future industrial development. Compile cost of public services, pricing from utility companies and for design build-to-suite applications. Have Troy Development Council seek options, costs, and the legal steps necessary for future industrial growth. Make policies of existing undeveloped industrial zoned areas inside the City corporation limit, and define future developable areas outside the City. Industrial undeveloped land, when adjacent to residential districts, shall be planned under an Industrial Planned Development requiring adequate buffer when adjacent to a residential district (See Chapter 14).

Output Measures

Average industrial user requires 15-25 acres of viable land. In order to attract large users, 50-100 acres are needed per site. The City should expand so that enough available industrial ground that is "shovel ready" or "ready to develop" before build out is reached in the projected 7 to 11 years for both the average and large users.

#6 Goal: Economic Development. Include provisions for high-speed telecommunications infrastructure in future industrial development.

Strategies/Policies

In order to be competitive in terms of both attracting new industry and retention of existing industry, the City must be able to provide high-speed fiber optic infrastructure. Efforts to address this are now underway under the auspices of the Troy Development Council. The City can, however, supplement this effort by instituting requirements in its subdivision regulations to require the placement of "empty conduit" in new right-of-ways to accommodate the installation of fiber optic cables in the future.

Related Initiative

Continue to work with newly formed technology committee, which is representative of IT professionals to ascertain the City's technology needs and future uses to promote economic development and business. Survey needs of existing industries and potential high technology users.

Output Measures

Upon surveyed needs, initiate feasibility study for the type of broad band technology needed for area companies.

#7 Goal: Economic Development. Improve the quality of the workforce.

Strategies/Policies

In align with Goal number one, regarding recruitment and expansion of business, Troy needs to utilize existing programs and surrounding higher educational institutions to improve the workforce. By providing training opportunities and utilizing the job center, Troy will provide the workforce with the necessary skills that will match future jobs.

Related Initiative

Continue to work with TDC to expand the SkillTrac program. Utilize the existing programs offered by surrounding educational institutions such as: Sinclair, Edison, Urbana University and the JVS. Perform surveys with established businesses to determine the specific skills needed, and then adapt policies and program to address those skills. Continue support with the Business First program and surrounding communities.

Output Measures

Increase the enrollment in the SkillTrac program. Upon surveyed needs, form training programs to address identified skills sets. Exploit existing relationships with local colleges and universities to increase the number of training programs.

#8 Goal: Economic Development. Promote Local Ownership of Commercial Buildings.

Strategies/Policies

Work with TDC to market existing buildings to local investors and remove them from the hands of "out of towners" including established Trusts. Troy can re-establish local ownership in our business districts, and continue to allow us to promote on-going programs supported by the Development Department.

Related Initiative

Promote programs to financial support potential owners to obtain mortgages, building repair, reinvestment in the core of the business districts.

Output Measure

Reduce the number of absentee landlords on commercial buildings and shopping strips within the City. Increase the number of applicants in the following programs: Small Business Development, Downtown Business District, Revolving Loan Fund, Community Reinvestment area. Continue to seek federal funds to provide financial opportunities for businesses in need.

#9 Goal: Economic Development. Promote Troy as a Marketing Tool.

Strategies/Policies

Utilize the City's website to attract business to the area. Provide attractive data relating to our workforce, education, available sites, secondary educational opportunities, housing statistics, recreational opportunities, natural resources and other amenities the City has to offer. By working with the local businesses, Troy can create a 'Job Opportunities' page that list employment opportunities within the municipality.

Related Initiative

Continue to improve communications with the public by updating the Economic Development's website from the City's homepage. Provide maps and descriptions of marketable land, business programs allowing for easy access. Include information from the local schools and available housing for business CEOs within the area.

Output Measures

Create a 'Job Opportunities' link that informs the public regarding local employment opportunities. Enhance the current website to improve Troy's marketability and create a one-stop-shop for information

DOWNTOWN DEVELOPMENT

#1 Goal: Downtown Development. Promote the use of the vacant second and third story floors, with the installation of elevators, walkways and off-street parking areas, maintain and occupy first floor levels with an emphasis of retail recruitment and other compatible uses.

Strategies/Policies

Downtown Troy businesses have many benefits, including great traffic flow on two state highways, paver side-walks, decorative street furniture and other street amenities, parking spaces, all of which are maintained by the City. In spite of these benefits, the City further seeks to better utilize the large amount of vacant and underutilized space in the second and third floors of buildings in the downtown (around 70-80% vacancy rate). Use of this space provides significant economic development potential and helps to generate activity Downtown. A way to open this space up is to find opportunities to install elevators in key buildings, connect them to common walkways, and have them adjacent or near off-street parking lots. This will promote high-end condominiums and lofts for the upper floors. The mixed use of the street-level buildings is viewed as being important as a way to generate more activity Downtown.

Related Initiative

Create a Special Study which investigates opportunities for shared elevators. Conduct research to determine building code variances with the state to allow occupancy for the 2nd and 3rd floor. Creative financial methods need to be examined, such as a special improvement district, shared tax district or tax increment financing. The Economic Development Department and Troy Main Street should perform a detailed inventory of all the floors of the Downtown buildings, including the vacancies, conditions, uses, and lease rates.

Output Measures

Fifty percent occupancy of listed vacant upper floors in the Downtown within two years of the completed Downtown inventory.

#2 Goal: Downtown Development. Encourage downtown property owners to reinvest in their properties through economic incentives.

Strategies/Policies

The City of Troy has a Community Reinvestment Area program in place which covers the same geographic area as the Historic District. Tax incentives are provided for new real estate investments to the extent that the value of property improvements are not subject to real estate taxes. In this way, a property owner is not adding to his or her tax burden with new investment. The City will continue this program and seek ways to advertise the benefits of new investment in and near downtown. The 2001 Downtown Revitalization Program was a success as a number of buildings were improved, by leveraging Program with private dollars. This encouraged, other building owners throughout the downtown to make investments on their own, further expanding the success of the Program.

Related Initiative

Promote the CRA program to property owners in the Downtown. Continue to administrate and promote the Downtown revitalization through the Downtown Building Repair Program.

Output Measures

Increase the number of properties taking advantage of the property improvement programs and the dollars of new investment.

#3 Goal: Downtown Development. Support a “theme” for Downtown and market/destination niches.

Strategies/Policies

Local organizations are now working on the development of Downtown themes in an effort to create a unique “brand” and identity. A variety of restaurants and unique shops are emerging as key elements of this downtown theme. Strategically, it is thought that groups such as the Troy Main Street, property owners, and businesses need to move toward developing a clearer and more widely accepted theme for Downtown. This includes greater consensus-building efforts among Downtown stakeholders to make sure that such a theme and identity is reflective of local attitudes and perceptions

Related Initiative

Following the recommendations of the Walkable Communities Workshop, designate an arts district and concert park location Downtown. Promote evening activities and encourage business owners to extend evening hours. Complete a preliminary assessment by identifying properties, kinds of uses, and infrastructure improvements needed. Submit for possible Downtown revitalization funding.

Output Measures

Existence of a commonly held and widely recognized Downtown theme. Use results from a Walkable Community Workshop which focused on West and East Water Street, the Miami River Corridor and Downtown areas (See Appendix J). Increase activities downtown especially toward evenings and weekends, increase the number of businesses that stay open in evening and weekends.

#4 Goal: Downtown Development. Continued safeguarding of the downtown’s historic and architecturally significant buildings.

Strategies/Policies

Many downtown buildings, (and adjacent residential areas), are older, Victorian style structures with historical significance and unique architectural qualities. Most of the recent downtown renovations have been sensitive to historic preservation principles, due to the City’s Design Review legislation. While much progress has been made, it is thought that more illustrated and focused design guidelines could be developed to provide a clearer picture of desirable rehabilitations. Samples of such illustrated standards can be found in communities such as Dayton (St. Anne’s Hill Historic District), Montgomery and Hudson. New standards or guidelines will need to find a balance between absolute historic preservation and economic realism of market forces.

Related Initiative

Develop an illustrated design and renovation guideline book for the Troy Historic District. Provide historic expertise from an architect or craftsman to the historic property owners. Allow for ad hoc representation to the Planning Commission from any historic home owners or historic neighborhood association. Examine the possibility of adding bronze plaques for referencing historically significant buildings.

Output Measures

Produce illustrated design guidelines for historically significant buildings within two years from the Comprehensive Plan adoption. Compare and evaluate property improvement changes with the Ohio Historic Inventory forms. Add a historic district map for pedestrian use downtown.

LAND USE AND THOROUGHFARE

#1 Goal: Land Use and Thoroughfare. To develop a new, world class, regional employment center that will provide area residents with ample employment opportunities.

Strategies/Polices

The development of a regional employment center northwest of the current City limits is planned, representing a significant initiative for the City. The future land use maps, (Chapter 14), depict a large area approximately 1,500 acres to serve as a future employment center for the growing needs of the City and region. This area has significant I-75 visibility and the size to accommodate both long-term build out for smaller users, and needed larger industrial development parcels that the City now lacks (See also #5 Goal: Economic Development). Working cooperatively with other units of government, and through appropriate private and semi-public entities, the City of Troy will take the actions necessary to make this development a reality. Strategic steps, including more focused land use and transportation planning, are needed to ensure success (related transportation strategies are discussed separately later in this Chapter). The importance of this area to the long-term economic health of Troy underscores the need to strongly discourage incompatible land uses, (such as residential) from this area. Should parts of this area become sites for residential development, the industrial development potential of this area would be diminished considerably and the full potential of this area may never be reached.

Related Initiative

More focused planning in the Northwest areas of the City to minimize potential land use conflicts and to plan for needed infrastructure.

Output Measures

Use an inventory of available sites for small, medium, and large sized businesses and industries to determine need of future users.

#2 Goal: Land Use and Thoroughfare. To provide adequate easy, safe and convenient interstate access to this regional employment center.

Strategies/Polices

The decision to create a significant employment center northwest of the City, along I-75, has important implications for city wide transportation. First, a new interchange at Eldean Road is desired to improve access. The interchange at CR 25A to the north is an asset, but an additional interchange at Eldean is also desired to maximize the I-75 access. There are some concerns over the spacing of a future interchange at Eldean Road in relation to existing interchanges, which indicates the need for further engineering studies. Potential federal funding of this improvement may also depend on further engineering analysis. However, it is also possible to consider privately-funded interchanges, as have been done elsewhere when associated with significant development projects.

Related Initiative

Conduct an engineering study to determine if a new I-75 interchange at Eldean Road is feasible. Look into creating a central organization such as a Transportation Improvement District (TID) in which a group of stakeholders can determine the necessary studies for the interchange employment center. A public bonding authority would need to identify a revenue stream (See Glossary of Terms for more on TID).

Output Measures

Determine Ohio Department of Transportation, District 7 criteria for new interchanges on I-75. Examine the feasibility of a new central organization from existing examples of TID's in communities such as Hamilton, Miami Township and Montgomery County.

#3 Goal: Land Use and Thoroughfare. Maintenance of open roadway corridors to allow for future road construction and widening in association with private development.

Strategies/Polices

There is an important need to identify future road collectors and to make sure that private development does not inadvertently block needed road alignments. This includes being careful concerning the type and intensity of development in and near a future interchange at Eldean Road. The transportation element of this Plan clearly indicates road extensions of Major and Minor Collectors. Future private development in and near these corridors should be designed to accommodate planned roadways and intersections allowing for needed roadway connections.

Related Initiative

Create an inventory list and map of specific locations of future interchanges and widening that impacts Major and Minor Collectors.

Output Measures

Use standards found in the Troy Subdivision code for intersection widths and in Chapter 14, "Future Land Use and Thoroughfare."

#4 Goal: Land Use and Thoroughfare. To protect existing roadway capacity with access management guidelines.

Strategies/Polices

To help make sure that new private development occurs with adequate attention to minimizing traffic flow problems, the City will further develop and update local access management requirements. City requirements will define desired curb cut spacing, and requirements for accessing roads and traffic impact studies. While I-75 moves large volumes of traffic through Troy, its use for local traffic should not be encouraged. For example, Experiment Farm Road, South Stanfield Road, and Dorset Road in particular, are significant north/south bound Major Collectors in Troy. Access management along these and other significant corridors should be applied as it keeps local traffic off I-75.

Related Initiative

Subdivision and Construction Management Code updates that addresses access management in a clear and complete manner.

Output Measures

Existing and future road capacity for Major and Minor Collectors and Streets. Criteria used to determine access management guidelines from other nearby community's Access Management Plans or guidelines. Criteria will be incorporated by staff by updating the Subdivision Regulations and other Codified Ordinances

#5 Goal: Land Use and Thoroughfare. To maintain a marketable balance between the supply and demand for retail space.

Strategies/Polices

As a general planning policy, the City intends to monitor the amounts of commercial space and carefully expand the supply of vacant commercial space only when it is clear that it is needed. City leaders are very much aware of the fact that large amounts of vacant, commercially zoned land can diminish the incentive to reuse older space and lead to growing levels of “second and third tier” commercial uses drawn to cheaper space when the original use relocates or closes. Only limited amounts of future commercial areas are shown on the future land use map for this reason.

Related Initiative

The GEM Market Study (see Appendix B) notes declining conditions and vacancies of Troy’s older shopping centers. Maintaining economically viable commercial centers in Troy is necessary in order to keep market demand up, lease rates reasonable and to reduce blighting influences. Limit the increase of new commercial land when vacancies in other parts of the City are over 55%.

Output Measures

The ratio of the number of square feet of vacant commercial space under roof compared to the number of square feet of undeveloped commercial land.

#6 Goal: Land Use and Thoroughfare. To eliminate existing intersection capacity and safety problems.

Strategies/Polices

Upgrades to intersections and roadways have been identified by the Engineering Department. The City intends to utilize programs such as the Ohio Public Works Commission, and other federal aid system pro-grams to fund needed upgrades. Locations of problem areas are shown on Figure 14-6, “Thoroughfare Improvements.”

Related Initiative

Pursuit of available funding sources to address identified intersection problem areas.

Output Measures

The number of potential projects identified as being problem areas as listed on Figure 14-6.

URBAN DESIGN

#1 Goal: Urban Design. To create attractive and dramatic gateways into Troy that provides a sense of arrival and positive first impression.

Strategies/Polices

Community gateways are a way to define a sense of place and arrival. “Gateways are an entrance corridor that heralds the approach of a new landscape and defines the arrival point as a destination” (Planners Dictionary, APA). Signage, monuments, landscaping, natural features, or a change in development character are ways to create an impression. The effects created by gateways are one of welcome, aesthetics, pride, identity and community. The I-75 corridor represents an important gateway to the City. Many people form first impressions of a community by what they see when they first enter a town. The inclusion of the City logo on the noise barriers of I-75 helps to define arrival into the community, but more can be done to create a stronger statement. Options include bolder design elements expressed in the infrastructure itself or more significant landscape treatments adjacent to or within the right-of-way.

Related Initiative

Plan for gateway development projects for both the major and minor roads. Expand “Operation Cloverleaf” to the remaining I-75 interchanges, all the county and state routes entering the City such as SR 41 west and east, SR 718, SR 55 west and east, CR 25A north and south, etc., should receive some additional treatments to better create a sense of place. Seek funding sources such as the Transportation Enhancement Program (TEP) administered by the Miami Valley Regional Planning Commission as the local Metropolitan Comprehensive Planning Office (MPO). This program can fund highway beautification projects. Seek to involve both the public and private sectors to maintain areas.

Output Measures

Exit 74 (SR 41 & I-75 interchange) landscape treatment to be a benchmark for the interchange at Exit 73 (SR 55 & I-75). Use newly designed primary gateway on 1611 West Main Street, which has future plans for a monument sign and landscaping for other City gateways in the City. Compare other Miami Valley or state communities that have primary gateways and secondary gateways with a theme (i.e. Beavercreek, Englewood, & Fairborn).

#2 Goal: Urban Design. To continue to find ways to include public art as an important community element.

Strategies/Polices

Local funding for public art has been very limited. However, recent displays in 2003, 2005, 2007 and 2009 of sculptures downtown were well received. A few select communities have raised funds for public art, and there is collective interest in providing more public art in Troy on an on-going basis. Strategically, the City of Troy will seek funding for public art (especially downtown) in an effort to enhance the urban environment and create a higher level of visual interest.

Related Initiative

Create a strategy to fund public art through development and redevelopment fees similar to that of park fees for subdivisions. The City can set aside funds towards public art projects specific to the developing site or to another designated area of the City. Acceptable public art (such as fountains, memorials, sculptures, etc.) could be counted in lieu of fees. Seek further funding opportunities for public art.

Output Measures

Compare other Ohio communities, such as the City of Dublin, in public art requirements with development.

COMMUNITY FACILITIES AND SERVICES

#1 Goal: Community Facilities and Services. To provide a growing community with appropriately expanding public infrastructure.

Strategies/Polices

In a growing community, maintaining an expanding system of infrastructure is difficult. Particularly challenging is the matter of providing services for the future Regional Employment Center on the northwest side of Troy. It was stated that there was enough water and sewer capacity to service approximately 1,500 acres if needed. Nonetheless, more focused policies and planning may be needed to define specifically how larger development areas will be served economically with collection and distribution lines, and how such improvements will be paid for. At issue, are matters of trunk lines and interceptor sewers.

Related Initiative

Development of preliminary plans for serving identified growth areas indicated in Figure 14-1, "Future Land Use and Thoroughfare Plan". Explore the feasibility of a Storm Water Utility (See Glossary for Storm Water Utility).

Output Measures

Measured by the amount of increase in distribution lines for "on-demand" users (See Charts 7-1 & 7-2, Chapter 7 "Utilities").

#2 Goal: Community Facilities and Services. Maintain high quality public safety services

Strategies/Polices

A Strategic Study and Master Plan for the Troy Fire Department was completed in 2003. A series of recommendations are made in this report. Phase 1 of the study is already completed with new fire stations located east and west of I-75. Long-term plans show six fire stations that generally circle the center of the City. This concept remains a viable long-term plan for the City. Given the potential service demands of the employment center at maximum build-out, the design and capacity of the fire stations to the northwest should be adjusted accordingly.

Related Initiative

Following the assorted recommendations contained in the 2003 Fire Study (See Appendix C).

Output Measures

Emergency vehicle response times as compared with similar-sized communities.

#3 Goal: Community Facilities and Services. To facilitate broadband and state-of-the-art telecommunications infrastructure to local businesses and residents.

Strategies/Polices

Broadband related telecommunications infrastructure is viewed as being among the most important elements of community infrastructure necessary for the new industries and jobs of the 21st century. Such information technology is critical, especially as business practices increasingly progress to higher technology and the need to move huge volumes of data quickly through the internet. Since the City does not have broadband services, the Troy Technology Team, a volunteer Information Technology group has been meeting to ascertain the needs, capabilities, and advice on the direction the City needs to go in order to have adequate broadband service. (See also #5 Goal: Economic Development)

Related Initiative

Implementation of recommendations from the study group.

Output Measures

Compare the percent of homes and businesses with broadband access.

#4 Goal: Community Facilities and Services. Develop an energy policy to encourage energy conservation in new and existing facilities.

Strategies/Polices

Local governments have been leaders in promoting renewable energy at the community level with innovative policies and programs that have made a positive impact. Encouraging and supporting the development of renewable energy can bring substantial benefits to the City. With the creation of an Energy Advisory Group (EAG), the EAG can guide the city toward a sustainable energy future without increasing adverse impacts to the community. The city can promote and develop energy conservation strategies and programs, as well as, encourage local businesses and other agencies to follow. The objective of the EAG should include: advocacy and education, reduction in energy demand, review and development of ordinances, policies, programs and legislation, encourage public-private partnerships.

Related Initiative

Implementation of recommendations from the advisory group.

Output Measures

Increase the number of energy efficient buildings and facilities within the community.

PARKS AND OPEN SPACE

#1 Goal: Parks and Open Space. To expand the park system and open space requirements commensurate with Population growth.

Strategies/Polices

The City of Troy provides more park and recreation space per capita than its similar sized communities. Given future growth assumptions, maintaining a high ratio of population to open space will require a commensurate amount of parkland acquisition. Currently, the Subdivision Regulations require parkland dedication for major subdivisions. Strategically, the City will reexamine the amounts of parkland dedication required and make necessary adjustments to bring the requirements into line with existing ratios of parkland per person. Related provisions include investigating requirements to require linkages between parkland and connections to adjacent parkland.

Related Initiative

Create standards or guidelines for future development taking in consideration both community parks and neighborhood parks. Continue to implement and update the 1990 Parks and Recreational Master Plan indicating connected parkland, bikeways, and recreational passive and active areas. Create standards and criteria for recommending neighborhood parks.

Output Measures

Changing ratio of parkland per resident as compared with ratios in similar-sized communities. Parkland should be in usable condition, seeded and filled at proper grade.

#2 Goal: Parks and Open Space. Create a comprehensive strategic River Corridor Plan to fully utilize the adjacent parks, lands, river, views and neighborhoods.

Strategies/Polices

The Great Miami River is a natural resource which is not being utilized to its fullest potential. Few communities have natural resources like a river running through the middle of town as does Troy. By joining forces with local organizations, regional plans are in motion for the development of establishing the Great Miami River Corridor as a destination venue. These efforts are being guided in part, by the Miami Conservancy District, the University of Dayton, and various political subdivisions. The destination concept will market both recreational benefits, as well as, become an economic tool for regional marketing. Future plans include two water-way access points to the Great Miami River (Peterson Road, Twin Arch Park). Troy currently has a well-defined access point at Treasure Island Park and also has a safe bypass for kayaks and canoes at the dam south of Market Street. Utilizing the development of the bicycle trails, the potential impact and benefits of water trail developments will broaden the scope of planning to both cycling and water trail development.

A recent completed study determined the re-development of the Marina into a recreational amenity will create benefits for the City, such as an “identity”, which can be used as an economic marketing tool by separating Troy from other similar cities.

Related Initiative

Continue to identify and examine the strengths and weaknesses of the existing uses along the river. Continue to Research various funding opportunities to assist in the river corridor plan. Build consensus with interest groups to obtain direction for future improvements. Coordinate with the Corp of Engineers and the Miami Conservancy District. Review waterway usage in order to properly enhance the accessibility and usability of the river. Create a destination location for recreational enthusiasts. Focus on the creation of an “identity” to define Troy.

Output Measures

Re-investment in the river corridor as a destination to increase economic stimulation in the areas of increased downtown activity, merchant sales, river front property investment, and recreational activity to enhance awareness of Troy as a destination city.



FUTURE LAND USE AND THOROUGHFARE PLAN

CHAPTER 14



FUTURE LAND USE AND THOROUGHFARE PLAN

This chapter presents future land use and thoroughfare objectives and strategies for each of the Sub-Areas of the Troy community. These areas are shown graphically on the Future Land Use map, which is included as Figure 14-1 at the end of this chapter. These Sub-Areas simply divide the City's future planning areas by four geographic quadrants: North West, North East, South West and South East. For each Sub-Area narrative there is a corresponding Sub-Area map found at the end of this chapter in Figures: 14-2 through 14-5.

The purpose of Chapter 14 is to provide a long-term guide for directing where sustainable residential and non-residential growth should occur. Immediate and future development pressures pertaining to land use and road networks are addressed in this chapter. As development decisions are made, the map and text of the Sub-Areas should be used as a reference. Private investors and interested property owners should like-wise use this information as guides relative to the City support for development proposals.

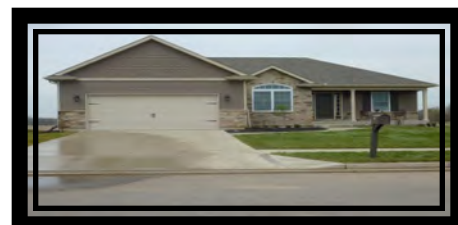
Building upon existing land use patterns, the general future development for each Sub-Area is planned by balancing supply and demand in the Troy community. Because of the long-term planning involved, each development in a Sub-Area needs to reconcile with the various growth measures and suitability of the land. Seeking balanced growth for the community, development should fulfill specific needs as reflected in this Comprehensive Plan and supporting studies. Sufficient tax revenues, for example, need to be generated from non-residential development to support residential services, since residential development generally does not support itself. Likewise, a sufficient amount of undeveloped land is desired to ensure development opportunities continue to exist for Troy's future. Although future annexation of farm land may not be ready for development, the Agriculture Zoning District can be used as the "holding zone" until property owners seek to develop their land.

Residential Development

Areas indicated on the Future Land Use map (Figure 14-1) as suitable for residential development must meet the supply and demand of the Troy community, including appropriate housing types and densities. Based upon the existing residentially zoned areas, the community has approximate 1,300 homes in its housing inventory, which is equivalent to approximately eight and a half years at the current growth rate of 2.3% or 157 homes a year. The majority of the housing supply consists of lots with approximately 9,000 square feet or less. Seeking a diverse housing stock, the City of Troy does not support future zoning of land for additional lots of this size or denser residential districts for the purpose of developing new single-family housing. However, lot size and density under a Planned Development, which provides the community a variety of additional amenities and diversity of housing stock is encouraged (see ending paragraph). Consistent with the GEM Study (Appendix B), there is a need for upper-end housing stock to provide for "move-up" housing for existing and new residents. Upper-end housing will improve the economic condition as well as the fiscal stability in the City. Attracting and retaining residents with higher income will then provide support to the income tax base and a diverse housing stock.

Additionally, the community seeks to increase home-ownership by balancing the ratio between rental properties verses owner occupied properties (See Chapters 4 & 13). The City of Troy does not need to support the rezoning of land to accommodate additional multiple family development unless such development fulfills a related initiative or strategy, such as clustered residential development with mixed densities and housing types under a Planned Development District as previously discussed. Development proposals for multiple family units need to submit a non-biased market study as evidence of demand for the proposed product in the community.

A mixture of residential units and densities under a Planned Development District is desired. Planned developments are encouraged as a flexible tool to meet the community's gross density needs, while providing a creative site development plan with a mix of housing types, densities, and values within individual developments. Other objectives that should be addressed by Planned Developments include: preservation of any natural features such as woodlands, stream corridors, ravines; multi-modal connectivity for vehicles, pedestrians and bicycles; full application of new urbanism principles (see Chapter 13 and Glossary of Terms); use of clustered/open space development to preserve open space (Conservation Design); and mixture of uses and densities.



Future Land Use Categories

- ◆ **Residential**—Urban residential served by public utilities and with proper storm water drainage. Densities range from five acres to 3,000 square feet to the unit depending upon the zoning district found in the Troy Zoning Code.
- ◆ **Neighborhood Commercial District**—Non-residential compatible uses including: retail, service and office uses that serve the daily needs of the consumers in nearby neighborhoods.
- ◆ **Commercial**—Typically located on major thoroughfare networks. Auto-oriented retail, services, and office uses that serve daily and weekly needs of consumers from throughout the community; includes off-street parking; should have pedestrian links to adjacent neighborhoods.
- ◆ **Industrial Planned Development**—Located next to existing or future residential uses. Sensitive to residential properties, the Industrial Planned Development includes uses that are compatible and do not negatively impact residential area properties. Such industrial classified uses will be low intensity followed by extensive landscaping and buffering.
- ◆ **Industrial**—Manufacturing including light and heavy assembly, production and industrial processing, ware-housing and distribution; requires road access (not necessarily rail).
- ◆ **Parks and Open Space**—Includes recreational facilities, private and public parks, open space, greenways, and flood plains.
- ◆ **Public and Institutional**—Includes schools, government facilities, public and private institutions, and places of worship.

NORTHEAST SUB-AREA

Proposed General Development Pattern

In accordance with the Future Land Use & Thoroughfare Plan, the Northeast Sub-Area is bounded by the Great Miami River east of Duke Park and north of East Main Street (SR 41). This area also includes Planning Areas 78, 80-90 in the 1998 Miami County Comprehensive Plan and Planning Areas 57-65 in the 1989 Troy Comprehensive Development Plan Update.

Land Use

As previously indicated in the 1989 Troy Comprehensive Plan Update, low density residential is the primary future land use designation for the Northeast Sub-Area with a few neighborhood commercial districts located at Piqua-Troy and Troy-Urbana Roads and along SR 55.

Because of the uniqueness of the land adjacent to the City's highest concentration of residential neighborhoods to the south, the land area north and south of the proposed urban connector should be planned comprehensively. Existing natural resource areas such as flood plains, slopes, stream corridors, and wooded areas should be identified and preserved with the proposed development. As indicated in Chapter 13, parks and open spaces should be commensurate with the future development types and densities, which are to be coordinated with the City's Park Board.

Following previous comprehensive plans, the desired future residential development for this area is low-density residential, due to both the characteristics of the land and the adjacent uses to the south. The existing road network cannot support unrestricted or increased numbers of similar residential densities. With future improvements to the road network, however, higher densities could be accommodated.

Future residential development should be commensurate with the changing needs of the Troy community, as reflected in the Comprehensive Plan. To achieve the City's desired housing diversity, a low-density designation of 2.18 units an acre, translating to a minimum of 20,000 square feet lots is needed. However, higher densities and housing diversity can be encouraged for the Northeast Sub-Area, if accomplished through a Planned Development District. A well-planned development incorporating mixed uses with various densities could also contribute to the housing goals of this Comprehensive Plan.

The Staunton Tributary and the floodplains of Spring Creek and the Kidder Ditch will require extensive storm water control planning prior to any new development. This land area necessitates drainage issues be addressed upfront, and adhere to existing storm water management regulations. Other existing natural features such as ravines, streams and ponds, and wood-lands should be preserved wherever possible, and be integrated with the future development.

The Northeast Sub-Area does indicate Neighborhood Commercial uses at the intersection of Piqua-Troy and Troy-Urbana Roads, and at the intersection of Troy-Urbana Road and the proposed north-south connector. As defined earlier in this chapter, the Neighborhood Commercial District is intended to serve the daily needs of consumers in nearby neighborhoods and not compete unduly with the existing community service area at the Sherwood Plaza on North Market Street. The Neighborhood Commercial District for each of the mentioned intersections should be less than five acres with a Floor Area Ratio (FAR) of 0.1 (See Glossary for FAR). Based upon the developing needs of the City, an increase in either acreage and/ or FAR may be pro-posed, but only through a Planned Development District incorporating a "Town Center" (See Glossary for Town Center) or mixed use concept.

Transportation

The major roadways in the Northeast Sub-Area are SR 55, SR 41, and SR 202. The area lacks a major road-way corridor that would reduce truck traffic from the downtown area, and improve cross-town traffic from the northeast residential areas to the commercial areas on the west side of Troy. The new roadway is expected to allow access from the Lytle Road area near CR 25A, crossing the Great Miami River, and extending to SR 202. The City of Troy has separated this new roadway into three separate segments, recognizing that construction of the entire roadway and bridge at one time may exceed the financial capabilities of any one funding source. The bridge in this new roadway ideally would be scheduled for completion prior to the reconstruction of the Adams Street Bridge. Staging the bridge projects in this order will ensure that there are always two river crossings available for northeast Troy residents.

NORTHWEST SUB-AREA

Proposed General Development Pattern

The Northwest Sub-Area is bounded west of the Great Miami River, Adams Street Bridge and McKaig Road; south from CR 25A and Farrington Road; and east of Forrest Hill and Stillwell Roads. This area represents Planning Areas 45, 50, 68-77, and 79 in the 1998 Miami County Comprehensive Plan and Planning Areas 1-11, 48-52 in the 1989 Troy Comprehensive Development Plan Update.

As stressed in Chapter 13, future industrial and office development are high priorities for the City. Industrial development is the continual focus in the Northwest Sub-Area where existing arterial corridors and an inter-change access are planned along I-75 and Eldean Road. Smaller, but sizeable industrial areas are also planned along Stanfield Road, Washington Road and SR 55. Already planned Washington Road and Wilson Road improvements will provide necessary capacity for future developments.

The City seeks “shovel ready” sites in which 100 to 200 hundred or more plus acres would have on site power, water, sewer, and infrastructure in place ready for a user. To acquire “shovel ready” sites, the City shall secure land options and coordinate in advance prior to industries coming to Troy with the necessary land owners, utility companies, real estate brokers, builders, contractors, etc.

Land Use

Consistent with the 1989 Troy Comprehensive Plan Update, the Northwest Sub-Area is Troy’s primary industrial use area. As recommended in Chapter 13, an approximate 1,500 acre industrial employment center is planned. This center will stretch south from Farrington Road, down to Eldean Road, with an interchange at I-75 and Eldean Road. Located in both Washington and Concord Townships, the primary land use is agriculture. Two west-east tributaries running towards the Great Miami River split it into the upper and bottom half. Regional storm water drainage control is encouraged.

With Experiment Farm and Washington Roads improved as north-south Minor Arterials, and Eldean and Farrington Roads as east-west Minor Arterials, the area is suitable for industrial development, provided it is accomplished with municipal utilities. Existing water and sewer service in this area can easily be extended, but may necessitate another water tower depending upon the type of usage and long-term volume.

With the planned Eldean Road interchange, areas north and south on Eldean Road just east of the interchange are designated for industrial use. The realignment of Lytle road and North Dorset Road to Eldean Road would provide the necessary road access for industrial uses. Industrial uses south of Eldean Road and east of I-75 will need to be a Planned Development District due to the close proximity to Brook Park North residential area (see Industrial Planned Development Land Use category on page 14-3).

Commercial use is proposed for the existing I-75 and CR 25A interchange. This area is expected to have an increase in north and south-bound motorists between the two urban service areas, thus increasing the probability of attracting a mix of high scale office and retail development.

The new road corridor is expected to be an arterial roadway designed with a minimum of eighty feet of right-of-way and with no direct driveway access to adjacent residential properties. The alignment of this new roadway has not been finalized, but it is anticipated to line up with, or connect to the proposed new bridge over the Great Miami River. The location of the bridge is currently being reviewed, and an engineering feasibility study is underway.

Figure 14-6 lists the transportation improvements that have been identified as necessary. A more detailed description of the improvements in the Northeast Sub-Area follows:

15 - Northern Connector Bridge over the Great Miami River extending to Troy-Sidney Road. This new bridge over the Great Miami River will improve traffic flow between the northeast and northwest segments of town. The bridge is also expected to be completed prior to the replacement of the Adams Street Bridge. A feasibility study was started in 2004 to determine the best location for the bridge, and the route to connect to Troy-Sidney Road.

16 - Northeast Connector from Troy-Sidney Road to Troy-Urbana Road, including the realignment and cul-de-sacs of DeWeese Road and a new bridge over CSX. This extension of the new roadway described in Items 15 and 17 will provide a more direct route for traffic flow between the northeast and northwest segments of the City.

17 - Northeast Connector from Troy-Urbana to Old Staunton near SR 202. This will complete the roadway segments identified in Items 15 and 16 and bring traffic around, creating a new loop roadway.

18 - Realign Troy-Urbana Road at Piqua-Troy Road. Elimination of the poor site conditions and improving visibility will be the outcome of this improvement.

22 - Sayers Road Improvements. Poor alignment can be improved.

33 - Polecat Road/Troy-Urbana Road intersection improvement. Providing an intersection with more of a right angle will improve visibility at this intersection.

34 - Intersection improvements at Cathcart and Troy-Urbana Roads. Providing an intersection with more of a right angle will improve visibility at this intersection.

35 - Relocate Eldean Road with a new CSX overpass. The low clearance that exists at the current underpass is an impediment to traffic flow.

36 - Eldean Road to “South” Troy-Sidney/Riverside Drive. This new roadway will improve access between the northeast and northwest sections of town and will provide access to I-75 if a new intersection is built at Eldean Road.

37 - Lee Road connection to new connector road. This is necessary to help neighborhoods with access to the new connector roadway.

42 - SR 202 to SR 55. As the northeast connector road is built, a connection between SR 202 and SR 55 may become necessary.

43 - Adams Bridge reconstruction. This bridge is a Miami County bridge and the County Engineer’s Office will be reconstructing the bridge. Funds are preliminarily planned for this project in 2010 or 2011.

Following Lytle Road to CR 25A, an office/non-residential designation has been suggested on the north side, which is consistent with Miami County office uses that have already been established on CR 25A. On the south side, future industrial use is most appropriate in order to fit with existing industry along Lytle Road and the railroad on the west end.

Areas shaded gray and cross-hatched are designated as Industrial Planned Development. These areas are found to be adjacent to or in between existing or future residential development. With a required Planned District, industrial developments shall have extensive landscaping and buffering so that such uses will be in harmony with existing or future residential properties. Industrial Planned Development Districts will be compatible with nearby residential uses so that the permitted uses are low intensity. Industrial Planned Developments are necessary in order to properly provide the protection of both residential and non-residential land investments. The Northwest Sub-Area has four future industrial land uses that should be developed as Industrial Planned Development Districts:

- ◆ West Stanfield Road on both the north and south sides;
- ◆ Southeast of the proposed Eldean inter-change;
- ◆ Southeast of the Eldean Road and Washington Road intersection;
- ◆ South of McCurdy Road and west of Washington Road.

Traditional industrial classified land uses in the Northwest Sub-Area, such as the Troy-West site along South Stanfield Road, include land already zoned but undeveloped. Of Troy's approximately 300-400 acres of viable industrial land supply, available industrial land is expected to reach build out in the next seven to eleven years. See absorption rates in Chapters 9 "Land Use" and Chapter 13 "Economic Development" goal #5. It is imperative for the economic well-being of Troy that the City keep adequate industrial land supply to allow for business growth and to provide land for building expansions or relocations.

The Northwest Sub-Area has two Neighborhood Commercial designations located at Washington Road intersections at SR 41 and SR 718. Intended to only serve nearby neighborhoods and compliment adjacent uses, the Neighborhood Commercial District would service less than five acres with a Floor Area Ratio (FAR) of 0.1 at each of the locations (See Glossary for FAR). If more intense commercial uses are desired, a Planned Development District incorporating mixed use elements in a "Town Center" environment would be permissible as long as the adjacent uses are benefited (See Glossary for Town Center). The Neighborhood Commercial area at the SR 718 location, for example, should only permit uses that would enhance and benefit Concord School and residential homes nearby. Both locations have road realignments planned, since Washington Road serves as a north-south Major Collector on the west end of town. This Major Collector is expected to service increasing numbers of residential motorists as the west end of Troy continues to increase in residential developments.

Commensurate with the housing need in the City and the extension of future utilities, the intersection area of Washington/Wilson Roads and SR 718 would be suitable for general residential use. Very low density residential development of 1.09 units to an acre, translating to a minimum of 40,000 square feet lots, is recommended for this planning area. Higher densities may be recommended with a Planned Development District.

Transportation

Major existing roadways in this sub-area include CR 25A, SR 41, I-75, and SR 718. Many of the roadways in this sub-area are rural in nature and the improvements are needed in the alignments to improve visibility and safety of the motoring public.

As described in the Northeast Sub-Area portion, access between the Northeast and Northwest quadrants is limited, so an additional bridge over the Great Miami River is needed to improve traffic flow throughout the area.

An additional transportation improvement viewed as important to Troy is the addition of a new interchange on I-75 at Eldean Road. This new interchange would help to reduce the volume of traffic at the SR 41/I-75 interchange, and would also benefit the general flow of vehicles between the Northeast and Northwest Sub-Areas. Funding for this new interchange has not been identified; however, federal funding appears unlikely as of 2004.

Figure 14-6 lists the transportation improvements that have been identified as necessary. A more detailed description of the improvements in the Northwest Sub-Area follows:

5 - Short term improvements to Washington Road to square the intersection at SR 718. This short-term improvement would increase safety at this intersection, especially with the proximity to the Concord School. The long term solution is described in Item 8.

6 - McKaig Road squared off at SR 718. There are several alignments for this to happen. The current angled intersection is poor and visibility and safety would be improved with modifications to the intersection.

8 - Realign Washington Road to Wilson at SR 718. The long term solution to this intersection is to purchase land and build a more gradual curve, with right angles at SR 718.

9 - Realign Washington Road at SR 41 and cut Old Washington off with a cul-de-sac near SR 41 with access only to the south. This improvement is being considered for Safety funds from ODOT. The high volumes of traffic on SR 41, and the angles of the intersection, create problems for motorists.

10 - Realign Eldean Road on SR 41 to Forest Hill Road. Providing an intersection with more of a right angle will improve visibility.

12 - North Dorset Road to Eldean Road with a driveway to UVMC. Northern extension of N. Dorset Road, which could provide a second access point to UVMC.

13 - Eldean Road Interchange on I-75. The City would like to promote a new interchange on I-75 at Eldean Road. Alternative financing may be necessary, as state and federal funds may not be available for this project.

14 - Eliminate offset of Eldean Road at Experiment Farm Road. Roadway improvements to eliminate the offset of Eldean would improve traffic flow.

15 - Northern Connector Bridge over the Great Miami River. This new bridge over the Great Miami River will improve traffic flow between the northeast and north-west segments of town. The bridge is also expected to be completed prior to the replacement of the Adams Street bridge. A feasibility study started in 2004 to determine the best location for the bridge and the route to connect to Troy-Sidney Road.

23 - *Connect Ridge Avenue offset at McKaig Road.* Plans have been made to eliminate the offset of Ridge Avenue at McKaig to make one four-way intersection instead of two (2) three-way intersections.

25 - *Water Street alignment improvements at Elm Street.* Providing an intersection with more of a right angle will improve visibility.

26 - *Cut Atlantic Street off with a cul-de-sac at Elm Street due to the bridge.*

27 - *Railroad branch improvements.* Location at six (6) existing RR crossings.

28 - *Provide second entry to Carriage Crossing Plat.* This will be achieved with the completion of the Carriage West Subdivision that is now under construction.

40 - *Fox Harbor Drive connection to "Old Washington" cul-de-sac.*

43 - *Adams Bridge reconstruction.* The Adams Street bridge is expected to be replaced or reconstructed in approximately 2010 or 2011. This would be a project of the County Engineer.

SOUTHWEST SUB-AREA

Proposed General Development Pattern

The Southwest Sub-Area is bounded by SR 718 & McKaig Road east and west; I-75 south to Kessler-Cowlesville Road. This area represents Planning Areas 60-67, 104, 109-116 in the 1998 Miami County Comprehensive Plan; Planning Areas 12-27 in the 1989 Troy Comprehensive Development Plan Update; and Planning Areas 1, 13-16, and 55 of the 2003 Tipp City Comprehensive Plan.

Land Use

The Southwest Sub-Area is the part of the Troy community that is generally built-out, especially along McKaig Road, SR 718 and SR 55. Finished residential subdivisions blanket the south side of SR 55 and along Swailes Road to I-75. In the past, residential development has occurred without municipal utilities and proper storm water management control. Residential development is most likely to continue further south from Swailes Road to Monroe-Concord Road and then to Kessler-Cowlesville Road, but should only be developed in keeping with modern municipal standards. Both the 1998 Miami County Plan and the 2003 Tipp City Plan indicate low density residential for these areas.

Road improvements, including an extension of South Stanfield Road from McKaig Road, SR 718 and Barnhart Road from Swailes Road to Monroe-Concord Road, will serve as Minor Collectors for local traffic as well as enhance future residential development. Other road improvements include Wilson Road realignment at SR 718 and SR 55 intersections. Wilson Road, similar to Stanfield Road and Dorset Roads, will serve as a Major Collector with limited access. A waterline was recently installed along Wilson Road, thereby increasing the development potential of the area.

Neighborhood Commercial District land uses are indicated on three areas of the Southwest Sub-Area map: the intersections of Wilson Road and SR 718, Wilson Road and SR 55, and SR 55 and Barnhart Road. Each of these areas should not be larger than five acres in size with a Floor Area Ratio of 0.1 (See Glossary for FAR). Uses at these intersections should be non-residential but compatible to neighboring properties. Based upon the developing needs of the City, an increase in either acreage and/or FAR may be acquired but only through a Planned Development District incorporating a "Town Center" (See Glossary for Town Center) or mixed use concept.

Land on both sides of Wilson Road, just south of Peebles Road, is designated as an Industrial Planned Development. Because this land would be abutting residential on the west and east ends, the uses must be compatible following development regulations required for Industrial Planned Districts. Land between Peebles Road and SR 55, primarily used as agriculture, should be developed as low density residential. Such residential development shall be commensurate with needs of the Troy community as reflected in this Plan. To achieve the City's desired housing diversity, a low density designation of 1.09 units an acre, translating to a minimum of 40,000 square feet lots, is needed. However, higher densities and housing diversity is encouraged for the Southwest Sub-Area through a Residential Planned Development District. A Planned Development District incorporating mixed uses with various densities would also be found in keeping with the Plan.

Other areas planned for Industrial Planned Development are shaded gray and cross hatched. These areas are found to be adjacent to or in between existing or future residential development. With a required planned district, industrial developments shall have extensive landscaping and buffering so that such uses will be in harmony with existing or future residential properties. Industrial Planned Development Districts will be compatible with nearby residential uses so that the permitted uses are low intensity. Industrial Planned Developments are necessary in order to properly provide the protection of both residential and non-residential land investments. The Southwest Sub-Area has three future industrial land uses that should be Planned Industrial Development Districts:

- ◆ West side of the future South Stanfield connection from McKaig Road to SR 718;
- ◆ Both sides of Wilson Road south of Peebles Road to SR 55;
- ◆ Between Wilson Road and Forest Hill Road.

General residential is indicated south of Swailes Road and Nashville Road and both sides of the future Barnhart Road connecting to Monroe-Concord Road. Because of existing nearby residential developments and poor access to major roads or to I-75, these areas are most suitable for residential development commensurate with City housing needs as reflected in this Plan.

Transportation

Major existing roadways in this sub-area include SR 55, I-75, and SR 718. Many of the roadways in the Southwest Sub-Area are rural in nature and the improvements are needed in the alignments to improve visibility and safety of the motoring public.

Figure 14-6 lists the transportation improvements that have been identified as necessary. A more detailed description of the improvements in the Southwest Sub-Area follows:

1 - Nashville Road squared off at SR 55. Improved angles at the intersection will improve safety.

2 - Wilson Road squared off at SR 55. Improved angles at the intersection will improve safety.

3 - Swailes Road connected to Wilson Road at SR 55. This new roadway segment would improve the traffic flow and accessibility in the southwest section.

7 - Wilson Road curves improved. Softening of the curves on Wilson Road will improve safety.

11 - Stanfield Road to Barnhart Road connector. This new roadway would provide more direct access for properties in the south area to gain northern access.

29 - Forest Hill Road connection to SR 55. This extension could eliminate Harter Road.

30 - Square off Horseshoe Bend Road at SR 55. Improved angles at the intersection will improve safety.

32 - Square off Peebles Road at SR 718. Improved angles at the intersection will improve safety.

41 - Improve curves on Barnhart Road. Softening of the curves on Barnhart Road will improve safety.

SOUTHEAST SUB-AREA

Proposed General Development Pattern

The Southeast Sub-Area is bounded by the east side of I-75; McKaig Avenue and East Main Street (SR 41); and south to Kessler-Cowlesville Road. This area represents Planning Areas 94 -102 in the 1998 Miami County Comprehensive Plan; Planning Areas 28-40 and 63-70 in the 1989 Troy Comprehensive Development Plan Update; and Planning Areas 2-5 of the 2003 Tipp City Comprehensive Plan.

Land Use

The Southwest Sub-Area is mostly built out in terms of development, but with some pockets of undeveloped ground mostly found just off of CR 25A and adjacent to nearby residential subdivisions. Available undeveloped land is mostly encumbered by physical constraints, particularly flood hazard areas, and the Taylorsville Dam Retarding Basin, which is controlled by the Miami Conservancy District. The area between Dye Mill Road and the Great Miami River is inaccessible to any major street network. Several mining extraction areas remain on the north and south sides of Dye Mill Road that will be used as recreation areas after reclamation, in the distant future.

Currently, water and sewer services are not provided by the City along CR 25A, Union Street, or Swailes Road. A waterline loop to Swailes Road and Dye Mill Road along CR 25A is feasible. With private investment, the Miami County sewer force main can be tapped into by area users along CR 25A.

Swailes and Dye Mill Roads both are slated for future road improvements. Widening and straightening Dye Mill Road to SR 41 will improve the accessibility for trucks. Jeep Street is planned for future connection to Dye Mill Road, allowing additional access for businesses along Race Street and Floral Avenue.

Industrial uses in the Southeast Sub-Area include the Waco Field, fronting Dye Mill Road and CR 25A. Further south on CR 25A are two other areas designated as future industrial land, consistent with the Miami County and Tipp City Plans.

Transportation

Major existing roadways in this sub-area include SR 55, CR 25A, and SR 202. Many of the roadways in this subarea are rural in nature and the improvements are needed in the alignments to improve visibility and safety of the motoring public.

Figure 14-6 lists the transportation improvements that have been identified as necessary. A more detailed description of the improvements in the Southeast Sub-Area follows:

4 - Improve curves on Swailes Road. Softening of the curves on Swailes Road would provide a safer roadway.

19 - Dye Mill Road Improvements (5 phases). Dye Mill Road widening and improvement of the alignment is necessary. It is likely that this could be done in up to five (5) phases.

20 - Dye Mill Road to Swailes Road connection. This new roadway connection extends through flood plain and could be a concern of FEMA.

21 - Williams Street connections to Jeep Street and Patton Street. This new roadway will improve traffic flow in this neighborhood.

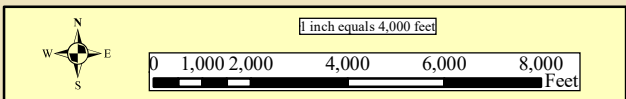
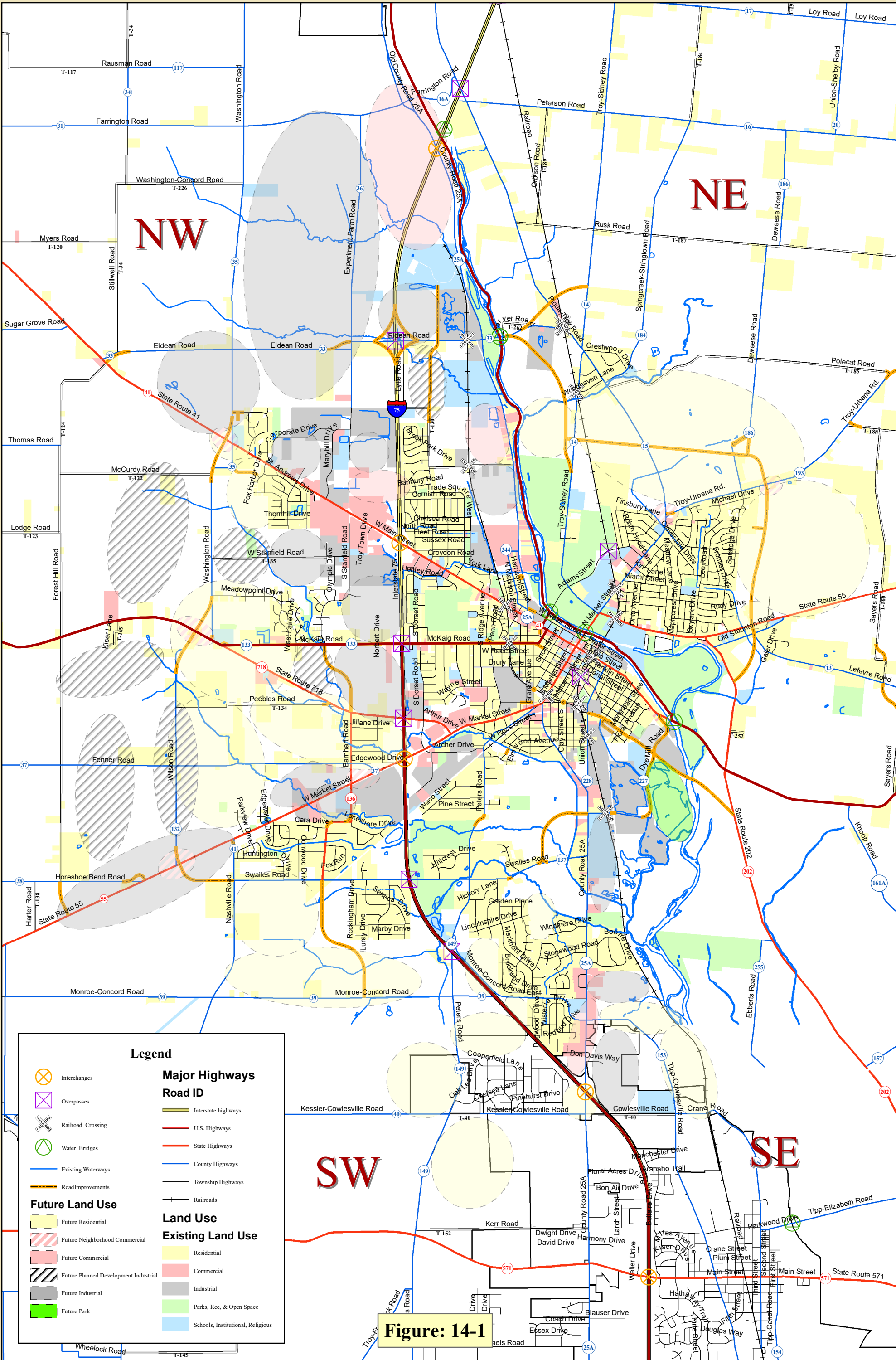
24 - Complete West Street. This will extend West Street with the segment from Garfield Street to Grant Street link.

27 - Once the Railroad spur is "branched", improvements at six (6) existing RR crossing can be made.

31 - Improvement at curves along Peters Road. The curves along Peters Road can be softened to provide a safer roadway.

38 - Connector between Dye Mill Road and SR 202. This is a long-term project.

39 - Southview Drive bridge connecting to Pleasantview subdivision. The bridge is a requirement of the next phase of the Pleasantview Subdivision.



Troy Future Land Use

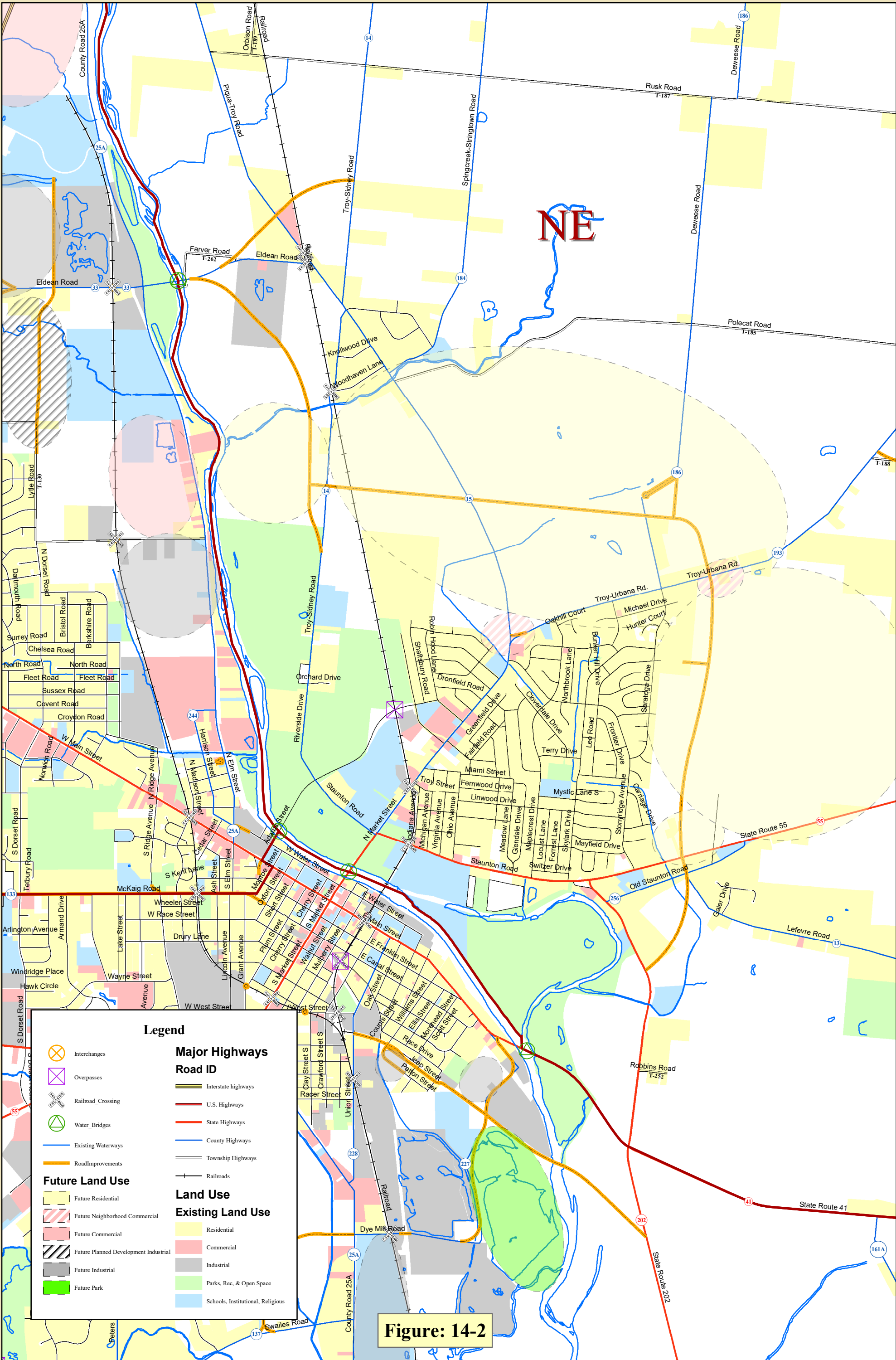


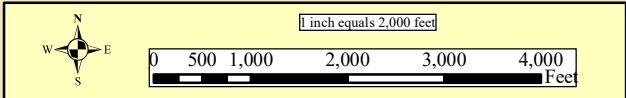
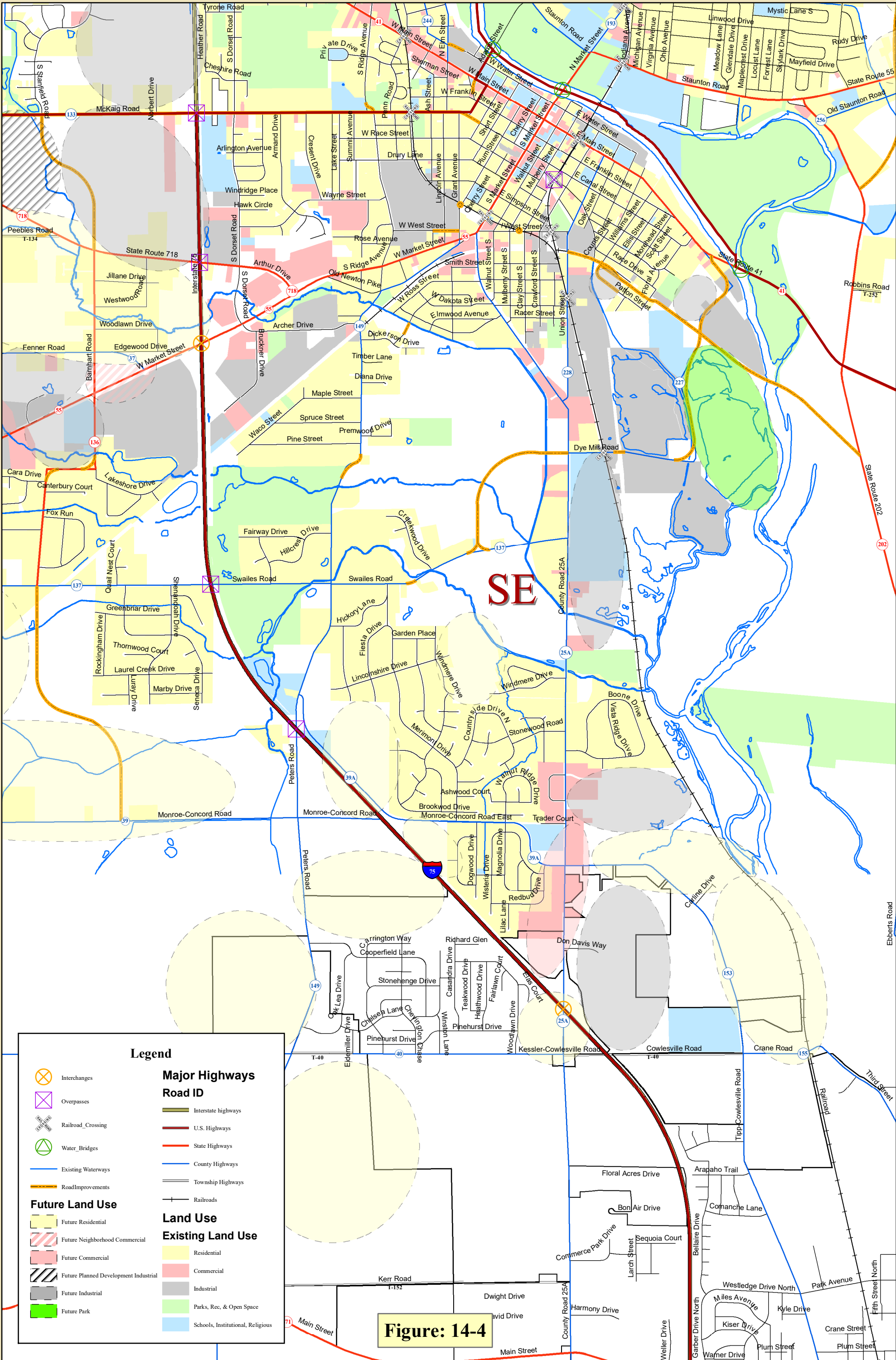
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NE Future Land Use

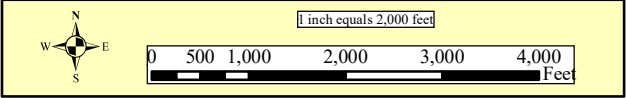
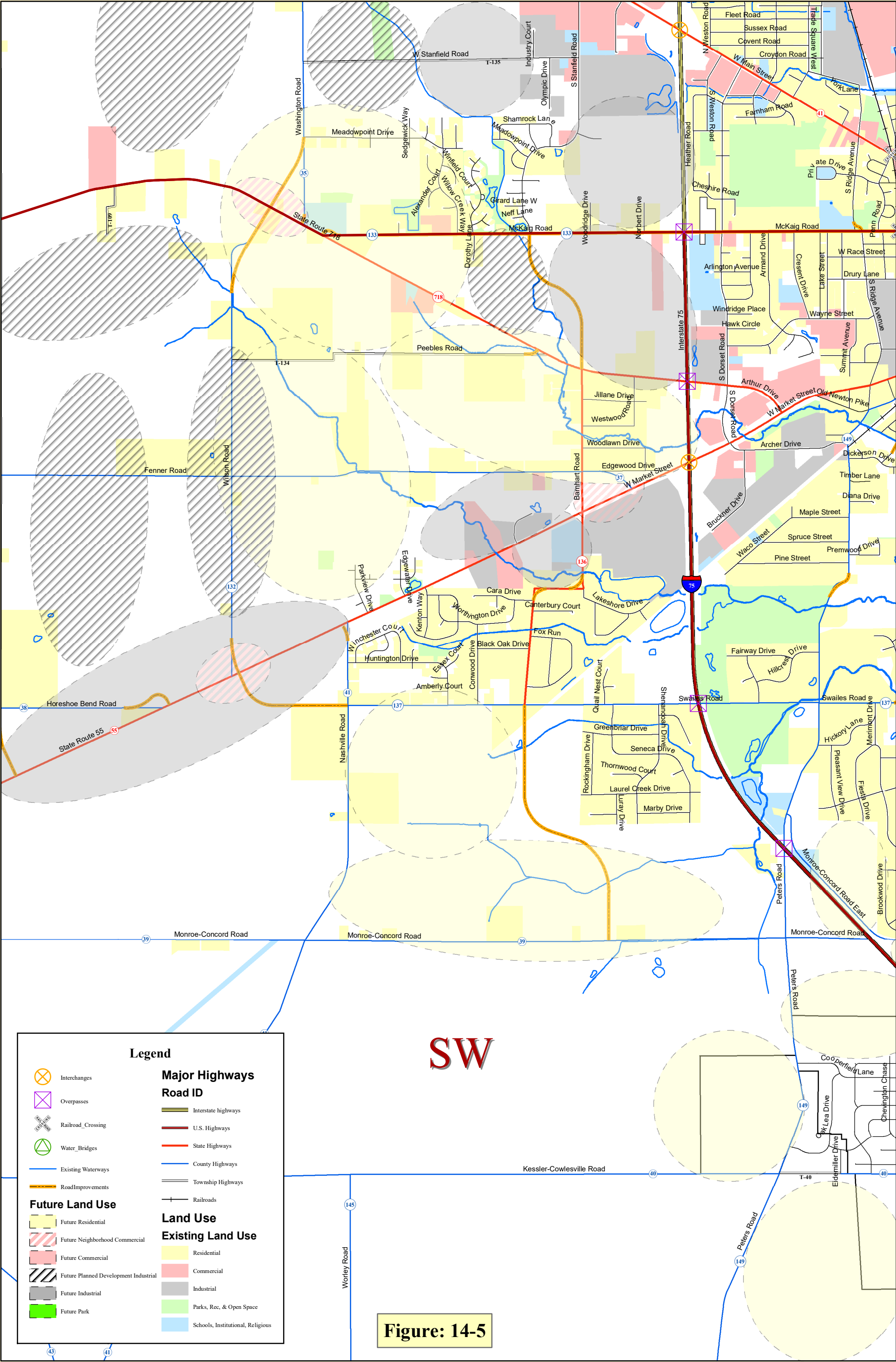
City of Troy
Engineering Department

TROY
OHIO

100 S Market Street
Troy, Ohio 45373
February 27, 2006



SE Future Land Use



SW Future Land Use

1. Nashville Rd. squared off @ SR55

2. Wilson Rd. squared off @ SR55

3. Swailes Rd. connected to Wilson @ SR55

4. Improve curves on Swailes Rd.

5. Washington Rd. squared off @ SR718 (Short Term)

6. McKaig Rd. improvements

7. Wilson Rd. curves improved

8. Re-align Washington Rd. to Wilson Rd. @ SR718

9. Re-align Washington Rd.-squared off @ SR41 - cut off "Old Washington" with cul-de-sac near SR41 access to S only

10. Re-align Eldean Rd. on SR41 to Forest Hill Rd.

11. Stanfield Rd. to Barnhart Rd. connector

12. N. Dorset Rd. to Eldean Rd. with Driveway to UVMC

13. Eldean Rd. interchange on I-75

14. Eliminate offset of Eldean rd. at Experiment Farm Rd.

15. Revised

16. NE connector Troy-Sidney Rd. to Troy-Urbana Rd
Re-align, cul-de-sac on DeWeese, bridge at RR

17. NE connectorTroy-Urbana to Old Staunton Rd.

18. Re-align Troy-Urbana Rd. at Troy-Piqua Rd.

19. Dye Mill Rd. iimprovements (in phases)

20. Dye Mil Rd. to Swailes Rd. connection (if approved by FEMA)

21. Williams St. to Jeep and Patton St.

22. Sayers improvements

23. Connect Ridge Ave. to Ridge Ave. @ McKaig, eliminate offset

24. Complete West St. from Garfield to Grant St.

25. Water St. alignment improvement @ Elm St.

26. Cut off Atlantic Ave. with cul-de-sac

27A-F. Make improvements at branch RR crossings

28. Provide second entry to Carriage Crossing [COMPLETED]

29. Forest Hill Rd. connection to SR55 - could eliminate Harter Rd.

30. Horseshoe Bend @ SR55 squared off

31. Peters Rd. curve improvements

32. Peebles Rd. @ SR718 squared off

33. Polecat Rd. @ Troy-Urbana Rd. improvements

34. Cathcart Rd. @ Troy-Urbana Rd. squared off

35. Re-locate Eldean Rd. with RR overpass

36. Northern Connector

37. Lee Rd. connection

38. Dye Mill Rd. to SR202 connection (Rec Trail extension)

39. Southview Dr. connection (bridge) to Pleasantview

40. Fox Harbor Dr. to "Old Washington" with cul-de-sac

41. Improve curves on Barnhart Rd.

42. SR202 to SR55 connection

43. Adams St. bridge replacement

44. Swailes Rd. to Monroe Concord connection

45. Floral Ave. to Dye Mill Rd. connector

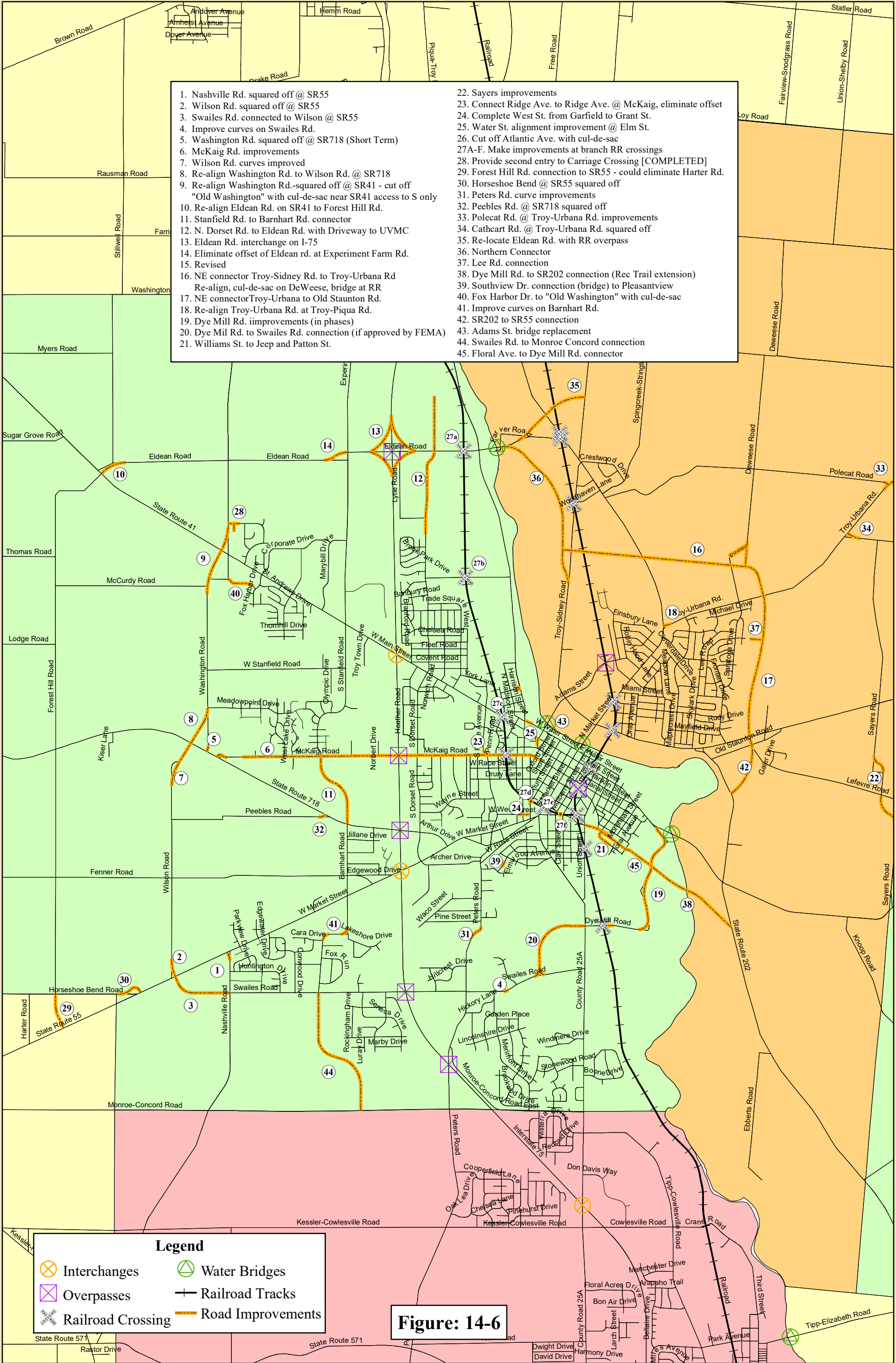


Figure: 14-6

Thoroughfare Improvements

CHAPTER 15 – RELATED STUDIES

INTRODUCTION

Strategic Plans are never intended to simply exist as a binder that is forever sitting on the shelf. These are collaborative works that involve many different contributors and include directions for many aspects of City development. Many people put time and effort into chronicling ‘the next step’ for the City of Troy.

The addition of this chapter is intended to avoid that near term fate. Using this Plan on a frequent basis for policy, planning, regulatory, and capital decisions will lead to its commonplace acceptance and reference. This is the goal of this chapter to make this Comprehensive Plan a “living document” that is responsive to ongoing change. That is, a document that is frequently referenced for guidance in community decision-making. Its key planning considerations, goals, and action strategies must also be revisited periodically to ensure that the Plan is providing clear and reliable direction on a range of matters, including land development issues, infrastructure investments and vision.

This chapter is not just about a list of action items. It is a challenging process that will require the commitment of the City’s elected and appointed officials, staff, residents, business owners, various institutions, foundations, other levels of government, and other organizations and individuals who will serve as champions of the Plan and its particular direction and strategies. Among its purposes, this final chapter highlights specific roles, responsibilities, and methods of implementation to execute priority Plan recommendations. Equally important are formalized procedures for the ongoing monitoring and reporting of successes achieved, difficulties encountered, and new opportunities and challenges that have emerged since this Plan adoption to help maintain its relevance and credibility as an overarching policy guide.

The City of Troy has conducted several studies from the adoption of this plan that should be included into this living document. These plans include the Troy Downtown Riverfront Study (2017), Downtown Parking & Traffic Assessment (2017), and the Sherwood Study (2017). These plans provide planning for specific areas of Troy and may be referenced when future decisions are made. This chapter provides a brief summary of these studies which have been added as appendices to this Plan.

TROY DOWNTOWN RIVERFRONT STUDY

The City identified a need to continue to increase investment in Downtown, our close-in neighborhoods, and along the Great Miami Riverfront and improve the communication amongst stakeholders to build broad consensus and support for a shared vision. To that end, several community partners came together to develop a riverfront strategic development plan to provide key physical and programmatic investment recommendations for the Downtown and riverfront for five to ten years into the future. This study has been attached to this Plan as Appendix M.

DOWNTOWN PARKING & TRAFFIC ASSESSMENT

The purpose of this study was to develop a workable parking and transportation management plan for the Downtown area. The plan has been developed to address known parking and access constraints and will assure on-going improvements in access opportunities for patrons, employees and residents of the downtown. The plan provides the City with solutions to assure that parking management strategies and programs are implemented in a manner that best serves the unique and changing nature of the downtown business environment. This study has been attached to this Plan as Appendix N.

SHERWOOD STUDY

The Sherwood study focused on reinvestment and redevelopment opportunities for the Sherwood Shopping Center as well as possibilities to help other property owners invest in their surrounding parcels. The study provided different scenarios for investing in the Sherwood Shopping Center site, infrastructure improvements, market dynamics, and regulatory issues. This study has been attached to this Plan as Appendix O.



APPENDIX A

TROY DEVELOPMENT COUNCIL

LEADERSHIP FOR THE NEW DECADE

The 2001 TDC Strategy

The Troy Development Council
A Public/Private Partnership

Prepared with the Support of:
The Miami Valley Economic Development Coalition
Dayton Power & Light
The Ohio Department of Development

March, 2001

EXECUTIVE SUMMARY

Strategies are working documents. The Troy Development Council (TDC) strategy will continue to evolve with the changing community and economic environment, just as this strategy has important differences from the TDC of the past.

Troy-area businesses are the foundation of this strategy. Fostering their retention, expansion, and competitiveness is the TDC's first job. The strategy includes a number of ways to conduct business retention and expansion and business attraction more effectively through better networking, stronger customer relationships, and methodical attention to the right details. Leadership in workforce development is especially important.

Continuing to attract high-quality business to Troy also drives the area's long-term economic health. The strategy urges the TDC to work even more strongly with the state of Ohio and the Dayton Regional Development Alliance to foster business attraction.

The strategy focuses on four key activities that will significantly impact Troy's long-term economic future:

1. Developing systematic information about employer workforce needs and participating in a comprehensive county or multi-county workforce development strategy.
2. Helping landowners, the townships, and the City to accomplish annexation of key future industrial and business park parcels.

3. Conducting a full analysis of options for establishing a controlled, master planned industrial/office park.
4. Reorganizing the TDC to give stronger focus to these three major strategy initiatives, broaden its organizational perspective, and strengthen private sector financial and volunteer resources to supplement City financial support.

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IV. Community Marketing & Product Development

1. The Current Situation
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V. Organizational Development

1. The Current Situation
2. Restructuring the TDC
3. Stronger Public Communications
4. Build Long-Term Countywide and Regional Vision
5. Future Staff Requirements
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I. TROY'S ECONOMIC ENVIRONMENT

The mission of the Troy Development Council, as a public/private initiative, is to advance the economic development interests of the Troy community and the businesses within the community.

Troy faces two types of economic development competition-global and regional. The community and Troy employers compete against other economic environments and business organizations on a global basis. And the community competes against other communities within the region to attract business and workers.

1. Troy's Strengths and Opportunities

Troy is a very special community.

- Historically, it has had very great success with home-grown industries.
- It has high ability to engage in community philanthropy and develop community amenities.
- People take especially great pride in their schools.
- Many residents have lived in the area for most of their lives.
- And the local economy has rebounded from the impact of downsizing at Hobart Brothers and Hobart Corporation with the attraction of companies such as Honda, Panasonic, and F&P America and the growth of companies such as Stillwater Technologies.

Troy also enjoys important advantages for long-term economic growth.

- It has an excellent location, with good frontage on or near I-75 and reasonable proximity to Dayton International Airport, I-70, Dayton, Columbus, Cincinnati, and Indianapolis.
- It has a strong historic track record of business attraction success.
- It has potential business and industrial sites near I-75.
- It is organized in a public/private economic development partnership.
- The region enjoys competitive vocational and technical training through Upper Valley JVS, Edison State, and Sinclair and its potential is enhanced by the presence of Wright State University, the University of Dayton, and the University of Phoenix.
- Troy citizens strongly support economic development.

2. Troy's Challenges

Troy also faces important challenges to future economic development.

- Parts of the economic base are at risk. Other communities, states, and countries seek to recruit Troy companies. Larger companies are continually making decisions about where to place new products. And current workforce shortages inhibit the ability of many local companies to expand.
- The city has relatively little room for business growth within its current boundaries. Population growth within the city of Troy, while still positive, is slowing and the population is aging. Few prime, competitive sites are left for industrial and office development within the current city limits.
- Troy's neighbors, especially Piqua and Tipp City, have active annexation histories, and the possible passage of new state legislation may give townships substantially more power to limit or influence urban annexation.

- The dominant metropolitan Dayton growth pattern is south and east, not toward Troy.
- Troy is far less competitive relative to its neighbors than it was a decade ago. In part, this is because Troy was so successful at industrial development, which occupied its prime industrial land. Other Miami Valley communities have also formed effective public/private development organizations. Other communities offer business parks (not just industrial parcels), which better suit modern corporate needs. Further, while Troy has little speculative industrial and no speculative office buildings to market, some rival Miami Valley communities do.
- Full employment limits business growth. Many local companies cannot expand to full capacity because they cannot find sufficient workers. Their costs are going up because employee turnover is so great and many new workers are less productive. And fewer outside companies are considering Troy because of the tight labor market.
- Troy and Miami County do not appear to have strong competitive advantage for the new economy. They appear to be more suited to industrial growth than office and research and development activities. Further, Troy is not a major center for rapidly developing entrepreneurial companies.
- Troy needs to assimilate new leadership into the Troy Development Council.

With these factors in mind, the Troy Development Council engaged TICKNOR & ASSOCIATES to assist in the preparation of a strategic economic development plan for Troy and its immediate environs.

II. CITIZEN GOALS

This plan was developed through very significant citizen input, including:

- Interviews with more than 20 civic leaders
- Community focus groups involving 224 randomly selected Troy-area residents
- 372 randomly selected household telephone interviews across all four wards through Wright State University
- Completion of 51 leadership surveys in concert with a leadership planning retreat
- Review by the TDC Executive Committee, and
- Many hours of discussion and deliberation.

1. Citizen Telephone Interviews

The randomly selected household interviews indicated a number of important ways in which residents are pleased with Troy.

- 94% of current residents are satisfied with Troy as a place to live
- 89% believe that Troy is on the right track
- 87% favor the quality of life in Troy
- 87% respond that the quality of life in Troy has changed for the better
- 77% agree that new business development has increased the value of residential properties.

They reported relatively few major concerns.

- 71% report that Troy streets have become too congested.
- 52% answer that loss of farmland in Troy is a problem.
- 29% reported that downtown Troy retail stores sell the things I need.

They favor a proactive economic development approach.

- 80% want Troy to encourage growth, while only 3% want the City to discourage growth
- 71% are very supportive or supportive of annexation as a development policy
- 54% are very supportive or supportive of tax abatement as a development strategy, with the proportion increasing to 68 to 71% if tax abatement is used to attract high tech companies, clean industry, and industry that pays higher wages.
- Citizens give strongest emphasis to development focus on Retaining & Expanding Troy area businesses (5.8 on a 7 point scale), Improving Workforce (5.8), Cooperating with Other Development Groups (5.5), Downtown Improvement (5.2), and Annexation (4.0).
- They want to be more informed about Troy's development strategy and results (6.3 on a 7-point scale).

In summary, Wright State reported that citizens like the community, they are optimistic about its future, and they support strategic economic development opportunities.

2. Troy Civic Leadership Survey

The November, 2000 survey of public and private Troy leadership, including City Council members, also confirmed the general desire to have proactive policies and programs to move Troy's economy forward.

The proportion considering key economic goals to be important or very important is very high:

• Supporting well-planned growth	100%
• Building the school tax base	96%
• Creating high-paying jobs	90%
• Building the property tax base	90%
• Building the income tax base	86%

Only 8% of the civic leaders believe that it is very important or important to slow Troy's growth.

Leadership also takes a proactive position regarding development policies and programs. The proportion considering the following priorities to be important or very important is:

• Retaining the manufacturing base	98%
• Attracting key workers to Troy	94%
• Business attraction	94%
• Workforce development	92%
• Annexing land for business development	86%
• Increasing the supply of business park land	80%

III. BUSINESS RETENTION, EXPANSION & SUPPORT

1. The Current Situation

Business retention and expansion is the foundation goal of the TDC. Existing companies and small business growth accounts for up to 80% of the job growth in most areas.

Troy residents are highly aware of the effects of plant closings and corporate downsizing. Troy lost more than 3,000 jobs through the reductions at Hobart Brothers and Hobart Corporation and the Friendly's plant closing. Many were high paying management, research, and production jobs.

TDC currently has three key business retention and expansion activities.

- Business volunteers, utilizing a system developed by Dayton Power & Light, visited major employers in 1997 and 1999 to conduct formal interviews about the strengths and weaknesses of local operating conditions and whether there are any local impediments to reinvestment or expansion.
- Because Retention & Expansion calls indicated a strong need to increase the local supply of skilled workers and find ways to decrease employee turnover, the Chamber/TDC began a Workforce Development Initiative.
- Key TDC and local elected officials also periodically visit the headquarters of local Japanese-owned companies in Japan. Economic developers across the country find that maintaining direct relationships with Japan-based decision-makers is an important retention and expansion strategy.

The City of Troy also makes property tax abatement available to existing Troy businesses undertaking significant additional business investment and job creation. This form of abatement applies only to new investment without extending abatement for past investment.

2. Key Actions for Continuous Improvement

1.) **Utilize the TDC President and Board to build marketing intelligence and identify business opportunities** through personal networking and annual interviews with targeted Troy area firms.

- Systematically profile company growth opportunities and constraints, regularly assess the local business climate (including the competitiveness of local telecommunications infrastructure), and strategically direct the application of key business support programs through annual formal contact and regular informal contact with key managers. The TDC President should make regular contacts, including conducting a formal retention and expansion survey such as the Dayton Power & Light or Vectren Star 1 system, himself. In addition, the TDC board should maintain assigned informal personal relationships to keep the channels of communication with key area business managers open.

- As supported by local managers, call selectively on the domestic headquarters of major Troy area employers and host visiting headquarters managers to assess expansion opportunities/threats, regional purchasing opportunities, and develop spin-off or supplier business attraction leads.

- Make periodic reports to the Troy City Council about business conditions within Troy.

2.) **Continue to assist local firms** in utilizing local, university, state, and federal economic development tools, supporting proposals to headquarters to win new product mandates or capture new capital investments, gaining timely approvals of business investment plans through the local regulatory process, and advocating their local transportation improvement needs.

- Develop print and website information describing available types of business assistance. (Involve the City, Troy Main Street, and the Small Business Development Center.)

- Jointly sponsor an annual seminar or speakers series on "Building Your Workforce" featuring business solutions and economic development solutions to workforce development, labor recruitment, productivity, training, regulatory, and other important industry issues uncovered by the TDC's business survey and contacts.

- While residential and retail development are not part of the direct TDC mandate, the TDC will continue to support downtown Troy development in cooperation with the City, Troy Main Street, and the Chamber. Downtown merchants and Troy Main Street drive this process. The TDC will play a supportive role.

- Monitor and report results in terms of numbers of businesses contacted, requests for information, programs applied, and resulting job and investment impact.

3. Breakthrough Strategies

1.) Work with key public and private economic development allies and educational leaders to **meet local business demands to increase workforce quality**.

- The 2001 TDC Business Survey will concentrate on workforce issues to assist local manufacturers and support local workforce development planning efforts and business recruitment. It will better define employer workforce needs, future job openings, and career paths. It will also promote continued employer involvement in the area's NationJob job opening Internet site, sponsored by Dayton Power & Light, and assess the prospects for extend utilization of the Work Keys job profiling and student assessment system.

- Work with economic development partners, especially Jobs & Family Services and major Troy area employers, to conduct a major, jointly funded workforce development strategy. The strategy will give special emphasis to career paths for the non-college bound and the future workforce needs of the advanced manufacturing, medical and information technologies sectors. Reflecting the broad commuting range for persons working within Troy, the strategy should be on a multi-county basis.

IV. COMMUNITY MARKETING & PRODUCT DEVELOPMENT

1. The Current Situation

Troy has recovered from downsizing within its historic anchor companies largely through the attraction of new business, of which Honda, Panasonic, and F&P America are the leading examples, as well as the expansion of existing businesses such as B.F. Goodrich, Motoman, and Stillwater Technologies. The TDC has been instrumental in developing baseline economic development information about Troy, creating the Troy, Ohio USA logo and image, and working with businesses directly and through economic development allies as they consider locating in Troy.

The planning process clearly supported the TDC's current business attraction policies.

- Business attraction is a tool to enhance the local property and income tax base.
- Troy should seek to attract quality companies that pay above-average wages and salaries, provide strong income and property tax benefits, have low environmental impact, are committed to being good corporate citizens, and are compatible with local companies.

The TDC responded to approximately 250 general business attraction inquiries in 2000 and worked with 23 business clients with particular interest in Troy. It turns down companies that would not pay sufficient wages or would have highly negative traffic or other impacts.

The next several years are a period of controlled proactive marketing while cementing ally relationships for several critical reasons.

First, for Troy, as for other communities of this size throughout the country, relationships with larger economic development allies, especially the state, drive business attraction success.

The Ohio Department of Development is the dominant source of business attraction leads from companies outside of Ohio for many critical reasons.

- Prospects need apple-to-apple information about a number of communities as well as centralized information about available buildings and sites. The state is a central source of information on all Ohio communities. It has a well-established system of sending leads down to appropriate regional and utility economic development groups to collect centralized information to send back to the business client.
- It is the source of most potential economic development incentives.
- It has the staff and marketing budget to promote its services and build relationships with site location consultants, real estate advisors, and key targeted businesses.
- Foreign companies are especially apt to work directly through state development contacts.

Other allies are also important, though their ability to identify business attraction prospects directly is well below the state's ability.

- The Dayton Regional Development Alliance is very important. It is Troy's primary point of contact from the Ohio Department of Development. It is the regional administrator for the statewide Procure building and site information system. It conducts an economic development public relations and marketing campaign. And some businesses, especially potential office locations, contact metropolitan development officials directly rather than the state. In 2000, the Alliance did not generate any business client visits for Troy, however. Troy did not have the real estate product in terms of existing buildings or master planned industrial and office parks that the six Alliance prospect companies that visited Miami County were seeking.
- Dayton Power & Light brought several clients to Troy in 2000. It was also involved in working with important Troy projects such as Panasonic and F&P America.
- Area commercial and industrial builders and real estate brokers are also good lead sources, especially for companies expanding or relocating within the Southwest Ohio market.

Secondly, direct economic development marketing is very expensive. Individual ads in the site selection magazines generally cannot differentiate the locality, and face a very crowded marketplace. Direct mail faces similar obstacles. And calling upon individual companies is generally done in concert with regional and state allies.

Thirdly, the business attraction marketplace is weakening. The market has been very strong throughout the sustained economic boom of the 1990's. But slowing national economic growth rates and the possible recession have diminished the business location market.

Fourthly, Troy is not currently in as strong of a competitive position to compete for business attraction as it could be in the future.

- Nearly 80 percent of site selection clients begin their community searches seeking a new or recently built existing available building (though fewer than half find them). Troy has only limited smaller buildings available, and this is a recent phenomenon.
- There is a strong trend among industrial users, especially quality companies paying top wages, to locate within controlled business or industrial parks close to expressway interchanges. Troy has only limited industrial acreage, and it lacks a centrally developed controlled business or industrial park.
- Many prime future development sites are outside of the current Troy City limits.
- Troy's economic development data, in terms of workforce and other key criteria, has become dated, and it is still in the midst of building its economic development website.

Given its limited resources in the transitional period of strategic development over the next two years, the best way for the TDC to market is to network well and be well prepared to service prospect clients. At the same time, the TDC will solidify its economic development data, seek to develop an industrial or business park, and work to support annexation of key future industrial and business park parcels into the city.

2. Key Actions for Continuous Improvement

1.) Continue to enhance close working relationships with key business attraction allies: The Ohio Department of Development; The Dayton Regional Development Alliance; Dayton Power & Light; and major Southwest Ohio construction firms and commercial and industrial real estate brokers.

- Find ways to participate more regularly and effectively in the Dayton Regional Development Alliance. This will require either that Miami County bring a full-time professional economic developer onto the Regional Development Alliance Board or that the Alliance, with Miami County's encouragement, allow Miami County local economic developers to play a more active direct role.
- Participate selectively in state and Regional Development Alliance trade shows and personal prospect calling trips for industries and geographic targets that fit with Troy area's comparative advantages. This is particularly important for the Far East and Europe.
- TDC should develop stronger personal relationships and systematic face-to-face and written communications with major Ohio and Southwest Ohio commercial builders and commercial and industrial realtors. This will include membership and personal participation in major metropolitan Dayton (and possibly metropolitan Cincinnati) chapters of IDRC/NACORE.
- The TDC President should position himself to become a board member and officer of the Ohio Development Association by 2003 by becoming an active committee member and participant. This is key relationship building.

2.) Maintain and improve core marketing materials and tools.

- Upgrade and maintain Community Profile, Building & Site, and Quality of Life print materials and create Workforce print materials.
- Continue to work to be fully compliant with Ohio Department of Development economic development data requirements.
- Continue to develop and update a TDC Web Site for retention & expansion and business attraction purposes.
- Work with the City of Troy to refine tax abatement in three major ways.
 - Update the Wright State analysis of the long-term tax abatement benefits.
 - Work with the City to develop matrix-style guidelines for tax abatement levels based upon job quality, investment, and overall income and property tax impact.
 - Report the annual and cumulative results of major past projects that have received tax abatement. (This also affects Business Retention & Expansion.)

- Monitor and report results in terms of numbers of businesses contacted, requests for information, prospect visits, and resulting job, investment, and tax base impact for 2001 and since 1990.

Once Troy has more building and site product located within its city limits, the TDC should implement more aggressive proactive economic development marketing.

3. Breakthrough Strategies

1.) Develop an action plan to improve Troy's economic development real estate product.

- Work with the state, Dayton Regional Development Alliance, Dayton Power & Light and commercial and industrial real estate brokers to analyze Troy's industrial and office real estate market. Major tasks are to: inventory the economic development site and building product currently available along I-75 and I-70; confirm the degree to which successful projects focus upon business parks and existing buildings; and measure the number of acres Troy would need to control to have a 20-year business development inventory.
- Evaluate proactive public/private land development strategies potentially applicable to Troy. To be competitive in the fast-paced current economic development marketplace, Troy will need to go beyond hoping that new businesses will patiently wait for state industrial infrastructure development grants. Possible ideas for a more proactive future are:
 - Continuing to work with critical landowners to assess their current plans.
 - Working with pertinent developers to achieve private sector development.
 - Trading annexation into the city and possible selected public infrastructure development in agreement for hard zoning of the property for industrial and/or office use, possibly with an agreed upon maximum offering price and CPI escalator.
 - Developing an agreement in which the private sector develops the land while the public sector develops key infrastructure, possibly with an agreed upon maximum offering price and CPI escalator.
 - Optioning land through the TDC or a newly formed non-profit local development corporation.
 - Purchasing land through the TDC or a newly formed non-profit local development corporation and developing the first phases of a Troy business park, seeking to bring on a master developer or multiple developers to build speculative buildings.

Choice among these options requires careful study of market potential, acquisition costs, potential marketable acreage, infrastructure financing costs, potential land sales cost and public benefits through property tax and income tax revenues.

2.) In concert with the business park development strategy, continue to plan for and support selective annexation of key future industrial and business park land in order to create a continuous twenty year inventory for economic development.

- Work with key landowners, Township Trustees, and City officials regarding effective actions to bring key industrial and office development parcels into the city, considering the potential tax benefits versus the infrastructure costs to serve, potential development corridors, and the impact on adjoining township land.
- Support targeted landowners during the annexation process.

V. ORGANIZATIONAL DEVELOPMENT

1. The Current Situation

Local economic development organizations take many forms, but the most successful always have a strong public/private partnership.

- The public sector is essential because it controls the planning, zoning, regulatory and annexation process, tax incentives, and the level of public sector funding for economic development.
- The private sector is essential because it adds credibility and business acumen, helps to legitimize the process, and can be a strong source of active volunteers and private sector fundraising.
- Increasing, public/private economic development is also broadening their reach to add Board members or Task Force participants appropriate to new strategies. Education officials, newspaper and other media executives, foundation officers, and others are playing constructive roles in development strategies in a number of communities.

The present TDC is a partnership between the City of Troy and the Troy Area Chamber of Commerce.

The City makes many important investments.

- It provides significant program funding, amounting to annual investments of \$110,000 in 1999 and 2000, plus special \$90,000 funding in 2000 to support planned annexation activity.
- The Public Services Director and Director, Planning and Development, also play important roles on the TDC Board.
- The Mayor also serves as an economic development ambassador for Troy, including participation most external marketing missions.
- City staff and the TDC President also work closely together in meeting the information, planning and zoning, and incentive requirements of Troy economic development projects.

The private sector also invests in the TDC.

- The private sector continues to support TDC initiatives. Year 2000 funding amounted to \$41,000 with commitments totaling \$25,000 from the Miami Valley Coalition and Dayton Power & Light to support strategic planning.
- The TDC applied successfully to the Internal Revenue Service to obtain 501-c-3 status, which has just been granted. This will facilitate future giving by foundations, non-profits, and corporations.
- Key private sector individuals also serve on the TDC Board of Directors. These include the past Chairpersons of the Troy Area Chamber of Commerce.
- The Chamber President also serves as the President and Chief Operating Officer of the TDC. Normally, this individual devotes approximately 20% of his/her time to the Chamber and 80% to the TDC. Location of the TDC offices within the Chamber further cements the private partnership.

2. Restructuring the TDC

In order for the TDC to continuously improve its current functions and take on new strategic initiatives, a number of key organizational changes are in order. These range from the Executive Committee and Board of Directors to setting up key Standing Committees, Task Forces, and ultimately to staff and budget issues.

The TDC strategy should lead to the structure of the TDC Board membership and governance. Broadening private sector funding, broadening the strategy mandate, and the public's desire for a stronger TDC communication strategy all suggest important adjustments in TDC membership and structural organization. At the same time, it is important that the City remain a strong part of the TDC at every level.

Executive Committee

TDC will establish an Executive Committee possessing two essential elements. Its members will be strongly involved in TDC and in directing the TDC President. And its structure will allow for both continuity and orderly succession.

Many local development groups have the following Officer and Executive Committee structure.

- Chair
- First Vice Chair (Co-Chair, Retention & Expansion Committee)
- Secretary/Treasurer (Co-Chair, Marketing Committee)
- Public sector representative
- Past Chair (Co-Chair, Membership Committee)

The Executive Committee would meet monthly. The Chair would be in regular contact with the TDC President on an as-needed basis.

TDC Board of Directors Membership

The TDC Executive Committee can choose two complementary types of Board membership.

One common type of membership is comprised of major TDC contributors, private and public. In many communities, for example, organizations or individuals that contribute at least \$5,000 annually to the public/private economic development partnership have a seat on the Board. Typical private sector members include banks, utilities, developers, hospitals, law firms, newspapers, radio and TV stations, and other major corporate service firms that would benefit from economic development. Manufacturing companies typically are not paying members unless the organization has a very strong workforce development mandate.

A second type of membership is to appoint Board members who can best play an active role in formulating and carrying out the strategy, regardless of funding investment. These players typically include one or two key local elected officials, one or two key members of the city staff, school superintendents, community college presidents, foundation leaders, and key business representatives from banking, utilities, law, and other businesses that reap strong benefits from solid community planning and development.

Boards typically meet either monthly or bimonthly, with a substantial annual meeting at the end of each year to report on the past year's accomplishments and next year's plans.

In addition to Board of Directors membership, organizations and individuals could also become Contributing Members of TDC based upon significant annual contributions of time and/or financial contributions below the \$5,000 annual level. Some of these individuals will be active committee members. Some will donate lesser amounts than required for Board eligibility. Their contributions to TDC will still be welcome and important. Contributing Members as well as Board Members will be invited to the TDC annual meeting.

Recommended Year 2001 Committee/Task Force Structure

The TDC should establish a Standing Committees and Special Task Forces structure as soon as possible to move this strategy forward. Each would have Executive Committee members and report to the Executive Committee on a regular basis. But each should have the ability, especially among the Task Forces, to involve key experts and stakeholders who are not TDC members.

Standing Program Committees

- Retention & Expansion
- Communications & Marketing
- Membership & Funding

Special Year 2001 Task Forces (which may subsequently become Standing Committees)

- Workforce Development
- Planning and Development (for business park planning and annexation issues)

3. Stronger Public Communications

TDC Board discussions prior to this strategy, household surveys, and focus groups all indicate a desire for the

TDC to more strongly communicate its purposes, strategies, and results to the public at large. This is not to say that the public expects to learn confidential prospect or business retention and expansion information. But they do wish to have greater opportunity to be informed.

To meet this goal, the TDC should plan an integrated communications strategy for 2001 and beyond. Key aspects would include:

- Preparing and publishing a summary of this strategic plan
- Giving presentations of the plan to key civic and service organizations
- Developing a regular economic development forum within the Troy newspaper
- Giving quarterly briefings to the City Council regarding the status of the Troy economy
- Mailing a two page economic development year in review annually to each household
- Conducting an Annual Meeting and issuing an Annual Report to review past accomplishments and publicize future plans.

Because citizens are strongly focused on economic development quality, not quantity, the TDC should also revise its Mission Statement and adopt the following Vision Statement as part of the internal communications strategy.

Recommended TDC Mission Statement

To improve the quality of life for Troy-area residents through proactive planning and focused public/private initiatives to achieve quality local economic development.

(Current TDC Mission Statement)

It is the mission of the Troy Development Council, as a public/private initiative, to advance the economic development interests of the Troy community and the businesses with the community.

Recommended TDC Vision Statement

Quality economic development supports a high standard of living, healthy neighborhoods, and a strong tax base to support quality municipal and educational services.

4. Build a Long-Term Countywide and Regional Vision

Key aspects of this strategy require being a more effective organization in working with external economic development and business allies.

Key external aspects of the strategy are:

- Work with Jobs & Family Services, other economic development groups, major educational institutions, and major employers throughout the northern Miami Valley Region to form and implement a competitive workforce development strategy.
- Support hiring a fulltime economic development manager for Miami County.

- Build stronger marketing relationships with the Dayton Regional Development Alliance and the Ohio Department of Development.

It is important to look for other ways leverage Troy's economic development efforts by cooperating with appropriate economic development groups beyond the city of Troy.

It is also important to continue to look outside to benchmark the TDC against best national practices for similar organizations.

5. Future Staff Requirements

The TDC must have highly capable staff to be effective. Volunteers are essential, but staff carries out most of the functions of the TDC. TDC will likely need to hire a second key individual if it opts to initiate major breakthrough strategies. This would not be necessary only if two parallel developments occur outside the TDC:

- The workforce development strategy builds staff to create workforce development competitive advantage beyond that reached by other Jobs and Family Services agencies in Ohio, Indiana, and the Midwest; and
- The City of Troy has sufficient community and economic development staff to carry out the breakthrough annexation and business park development initiatives.

Because 2001 is a transitional year to decide whether to implement a full workforce development strategy and whether to become actively involved in the business park development process, the TDC will at first rely extensively on Task Force and consultant expertise. Recently retired or loaned executives with a strong desire to support the TDC on a part time basis could also be an important transitional resource, if such individuals are available

Projected TDC President Time Allocation, 2001

Strategy Area	% Emphasis	Comments
Retention & Expansion	20%	Strong Board support
Business Attraction	20%	External web-site development support
Workforce Initiatives	15%	Strong Task Force Possible consulting
Annexation & Land Development	7.5%	Strong Task Force Possible consulting
Administration, Board Relations & Public Communication	12.5%	Strong Board support
Total TDC	75%	
Chamber of Commerce Duties	25%	

Once the new programs are underway, the TDC and/or the new Workforce Development initiative will need to add appropriate staff. This will depend upon the nature of the forward strategy initiatives as well as their institutional and organizational structure. Having adequate staff resources to carry out a proactive workforce development strategy will be essential to retention and expansion efforts and to community product development. This will likely require adding additional staff to the TDC.

6. Implementation Guidelines & Budget

Key Initiatives: 2001 Implementation Plan (Breakthrough Actions in Italics)

	Champion	Start Date	End Date	2001 Budget
Complete Strategy	TDC	7-00	3-01	\$6,000
Present Strategy to City Council	TDC		3-01	
RETENTION & EXPANSION				
Business Calling	Chuck Cochran	4-01	9-01	
Business Networking	TDC R&E Com. Chair	Ongoing	Ongoing	
HQ Calls	Chuck Cochran	10-01	Biennial Cycle	\$4,000
Print Brochure/Website	Chuck Cochran	11-00	9-01	\$10,000
Workforce Development Seminar	TDC Workforce Task Force Chair	1-02	2-02	(2002)
Report Activities, Local Business Climate	Chuck Cochran	3-01	Quarterly	
<i>Workforce Survey</i>	TDC Workforce Task Force Chair			
<i>Conduct Workforce Strategy</i>	TDC Workforce Task Force Chair			
Implement Workforce Strategy	To be Determined	10-01	Ongoing	
BUSINESS ATTRACTION				
Better Dayton Alliance participation	C. Cochran/Mike Pfeffenburger	2-01	Ongoing	
State & Alliance Proactive Mkt.	Chuck Cochran	Ongoing	Ongoing	
Develop builder, developer network	Chuck Cochran	1-01	7-01	
Outreach, Advertising & Promotion	Chuck Cochran	Ongoing	Ongoing	\$14,000
Trade Mission	Chuck Cochran	Ongoing	Ongoing	\$10,000
Upgrade print materials	TDC Marketing & Communication Committee Chair	10-01	6-02	
Data development	Chuck Cochran	9-01	12-01	\$2,500
Website development	Chuck Cochran	11-00	6-01	\$5,000
Monitor & report attraction results	Chuck Cochran	1-01	Ongoing	
COMMUNITY PRODUCT DEV.				
<i>Inventory competitor land/buildings</i>	Chuck Cochran	4-01	7-01	
<i>Conduct Land development strategy</i>	Outsource	7-01	12-01	\$30,000
<i>Support Annexation for industrial & business parks</i>	TDC Planning & Develop. Chair And Larry Wolke & Tony Char	Ongoing 4-01	Ongoing Ongoing	**
Update WSU Abatement Study	Tony Char	4-01	9-01	\$6,500
Work w/ City to Develop Guidelines	Chuck Cochran/Tony Char	3-01	7-01	
ORGANIZATIONAL ISSUES				
<i>Achieve 501 c-3 status</i>	Chuck Cochran	1-00	Done	
<i>Establish New Executive Committee</i>	Current TDC Co-Chairs	3-01	3-01	
<i>Establish New Board structure</i>	Current TDC Co-Chairs	3-01	5-01	
<i>Refine job description/review process</i>	TDC Executive Committee	4-01	6-01	
<i>Raise \$60,000 private support</i>	TDC Membership Chair	3-01	7-01	
<i>Upgrade internal communications</i>	Chuck Cochran/Communication & Mkt. Chair	2-01	Ongoing	\$10,000
<i>Search for 2nd TDC ED professional</i>	TDC Executive Committee	9-01	1-02	(2002)
<i>Build regional vision</i>	New TDC Board	Ongoing	Ongoing	

* TDC portion of larger effort. ** Carryover from 2000 budget.

Key Initiatives: 2001/02 Implementation Timeline

Key TDC Initiatives	2001				2002			
	1Q							
Complete Strategy	X							
RETENTION & EXPANSION								
Business Calling		X	X				X	
Business Networking	X	X	X	X	X	X	X	X
HQ Calls				X		X		X
Print Brochure/Website	X	X	X					
Workforce Seminar					X			
Monitor & Report Results	X	X	X	X	X	X	X	X
Workforce Survey		X	X					
Conduct Workforce Strategy	X	X	X	X				
Implement Workforce Strategy				X	X	X	X	X
COMMUNITY MARKETING								
Better Dayton Alliance participation		X	X	X	X	X	X	X
State & Alliance Proactive Mkt.		X	X	X	X	X	X	X
Develop builder, developer network		X	X	X	X	X	X	X
Upgrade print materials				X	X	X		
Trade mission			X	X				
Data development			X			X		
Website development	X	X	X			X		
Monitor & report attraction results	X	X	X	X	X	X	X	X
COMMUNITY PRODUCT DEV.								
<i>Inventory competitor land/buildings</i>		X						
<i>Conduct Land development strategy</i>			X	X				
Implement Land development strategy					X	X	X	X
Support annexation	X	X	X	X	X	X	X	X
Update WSU Abatement Study			X					
Work w/ City on Abatement Guidelines			X	X				
ORGANIZATIONAL ISSUES								
<i>Achieve 501 c-3 status</i>	X							
<i>Establish New Executive Committee</i>	X							
<i>Establish New Board structure</i>		X						
<i>Refine job description, review process</i>		X						
<i>Raise \$60,000 private support</i>	X	X		X	X			
<i>Upgrade internal communications</i>			X	X			X	X
<i>Add second TDC ED professional</i>					X	X	X	X
<i>Build regional vision</i>	X	X	X	X	X	X	X	X



APPENDIX B

TROY MARKET STUDY 2003

Conducted by
Gem Public Sector Services

A Division of
Gem Real Estate Group
Dayton, Ohio

A MARKET STUDY OF: The City of Troy Miami County, Ohio

FOR
The City of Troy, Ohio
100 South Market Street
Troy, Ohio 45373

BY
Gem Public Sector Services
A dba Of
The Gem Real Estate Group, Inc.
Suite 610
6 North Main Street
Dayton, Ohio 45402
(937) 228-2882

TIME FRAME OF THE STUDY
Second Quarter, 2003

DATE OF THE REPORT
August, 2003

I. EXECUTIVE SUMMARY

The City of Troy, Ohio requested a market analysis of all areas of town in order to focus comprehensive planning, economic development strategies and development initiatives on the basis of market driven information.

A. Definition of the Study Area

The study area has been defined as all of the land area inside the municipal boundaries of the City of Troy, Ohio.

B. Purpose of the Analysis

The purpose of the analysis is to determine the range of potential land uses that can be accommodated throughout the City of Troy, now and in the future, based on the needs demonstrated by the marketplace.

C. Objective of the Analysis

The objective of the analysis is to provide market-based information that will enable officials of the City of Troy to develop plans for the future of the city and its environs. The analysis will assist the City in developing strategies, initiatives, and plans to serve the needs of residents of the community and provide for business opportunities that meet market demand.

D. The Specific Question(s) To Be Answered

The analytical questions to be answered in the following report are:

1. What is the current status of the City and how competitive are existing developments?
2. What are the consumer needs in the community?
3. What business opportunities could be developed on the basis of market demand?
4. How will trends for the future influence land use needs in the City?

E. What Analytical Methodologies Have Been Used in This Analysis

The methodologies applied during the course of this analysis include the use of both primary research and secondary data. Formal and informal interviews have been used to discover information about the study area. Demographic data has been obtained from several public and proprietary sources that have been identified throughout this report. Basic quantitative methods have been applied to develop useable information from the data that has been obtained. Of course, the analyst's observations, judgment and conclusions are also contained in this report.

F. The Housing Market

The housing market in the City of Troy is projected to grow between now and 2007. The number of housing units that may be added to the City's inventory ranges between 276 units and 656 units depending on the data sources. This represents an increase ranging between 3% and 7% in the number of housing units in the City. The estimated housing inventory growth appears to outpace the projected population growth rate and household growth rate in the City.

The occupancy styles of the households in the City strongly suggests that a significant percentage of the freestanding, single family residences in the City may have been converted to rental housing. The percentage of conversions may be as high as 20% of the inventory. This appears to be indicative of a potential housing issue with regard to the preservation and enhancement of the current inventory of single-family homes. In addi-

tion, the percentage of households living in rental housing is expected to increase between now and 2007. Should this projection be realized, it is likely that more single-family homes will enter the rental market.

The majority of new units projected to be introduced to the housing market between now and 2007 are free-standing, single-family residences. Approximately 75% of the anticipated new inventory is expected to be single-family homes. Of course, the City must have land that can accommodate housing growth in order for this projection to be realized.

Competitively, the market appears to be reasonably stable, now and in the future, regarding housing supply and demand. Housing values are projected to grow based on the continuation of current trends. Approximately 75% of the housing inventory is projected to be valued at \$75,000 or greater by 2007. Areas in close proximity to the City of Troy are projected to share in the housing growth in the future. These areas reflect similar characteristics to those of the City of Troy in the future. In general, the housing market in the City of Troy and its environs appears to be competitively well positioned for growth in the time period between now and 2007.

G. The Office and Industrial Markets

The data suggests that the City of Troy should experience employment growth of approximately 3% to 4% in the office and industrial segments of the market between now and 2007. Most of this growth is believed to originate from already existing businesses and industries.

While growth is suggested on the basis of historical trends, the City's employment and a very significant portion of the Troy, resident workforce is employed in the manufacturing segment of the City's industrial base. This segment of employment has shown susceptibility to structural displacement from offshore relocations as well as employment reductions from the introduction of automated technologies. The City of Troy must be aware of any possible weaknesses in its manufacturing industrial employment base.

The City's inventory of existing, modern office and industrial space appears to be at, or near, stabilized occupancy. Like many older cities, the City of Troy does have a significant component of older, functionally obsolescent, underutilized space. Much of this space is not currently available in the lease or sale markets. For most market participants this space would not represent a competitive alternative even if it were currently available for sale or lease. However, the sites occupied by these older spaces could represent redevelopment alternatives that could bolster the City's inventory of competitive office and industrial sites in the future.

The City of Troy does not appear to have market ready sites to attract large-scale users at this time. This has been a market segment in which the City has successfully competed in the past. While employment growth projections are modest relative to existing businesses and industries, the City cannot compete for major new companies without competitive, market ready sites.

Regardless of the City's policy decisions regarding redevelopment sites or major new industrial/office parks, the competitive environment is likely to become more intense in the future. With improvements to I-75 and the I-70/75 interchange, the attractiveness of locations along the interstate corridor is likely to improve. Troy is in a competitively advantageous location with multiple highway exits in, or in close proximity to, the city.

Based on a review of the SIC codes of the employers in the City of Troy, the City appears to have positioned itself well with regard to the segments of business and industry that should grow as a function of the new economy and the implementation of technology.

H. The Retail Market

Troy appears to be at the heart of a strengthening retail hub at the interchange of S.R. 41 and I-75. This retail hub is projected to grow in significance in the future. Currently the area serves a population well beyond the city limits of Troy. In the future, this hub should serve a broader market geographically and capture a larger share of the consumers' dollars who shop there than is captured today.

While the retail hub at S.R. 41 and I-75 gains strength, older venues on local thoroughfares in the City will find it increasingly difficult to compete. In fact, some current, older retail venues will be better off redeveloped for another land use or mix of uses than to remain as retail locations in the future.

The historic downtown should retain its unique market niche as long as the overall theme of the historic town square continues to grow. This unique market niche will be the home of a variety of local merchants in the future.

I. Observations and Conclusions

The City of Troy is poised to undergo a transition as a city over the next several years. The County Seat of Miami County, Troy has historically enjoyed a reputation of being a pleasant place to live and work. The City has historically had more than a proportionate share of successful companies located in town. The lifestyles of residents were comfortable based on stable employment, social and cultural amenities, and a variety of locally based merchants that offered high quality goods and services to consumers. Troy has offered a blend of urban and rural living that has been somewhat unique in the region. However, the City of Troy is confronting change. Some of this change has emanated from within, but much of the change that has occurred in recent years has been a function of increasing urbanization of the unincorporated areas around Troy coupled with economic development along the I-75 corridor north of Dayton.

Troy may evolve into more of a core city surrounded by suburban townships in the near future. Some of the demographic data analyzed during the course of this study suggests that the City of Troy may be undergoing a transition to a community with more urban characteristics. The age makeup of the population, income levels,

the percentage of rental housing, the age of the housing inventory, aging industrial infrastructure, and newer alternative retail outlets on the fringe of town, all speak to the potential for the City of Troy to exhibit more urban, core, city characteristics.

GENERAL RECOMMENDATIONS

There are several strategic measures that the City of Troy can take that may serve to delay or eliminate any potential degradation of the City's built environment and its image over the next several years. Of course, the built environment will continue to age. However, the City of Troy should regard its inventory of all land use types as perishable commodities. Structures of all types have economic and physical lives. Often the economic life of an improvement is shorter than the physical life. The difference between these two life cycles is the origin of restoration, rehabilitation, and reuse projects. The point of this discussion is that the City of Troy must recognize when properties are in their declining economic years and work to find feasible alternatives for the improvements or clear the existing improvements from the landscape and make sites ready for redevelopment.

The housing inventory is of particular concern because of the rental component of the market. Landlords make improvement decisions on the basis of economics not aesthetics. While the curb appeal of a property may improve its overall marketability, there may not be a direct payback for a cosmetic upgrade. Homeowners will expend money on cosmetic improvements because of the pride of ownership and the statement that a good-looking property makes. Minimum maintenance standards are essential for homeowners and landlords. Landlord registration may be a prudent move on the part of the City. This can be especially useful if a property becomes a nuisance because of maintenance issues or because of the occupancy. Presale inspections are another means of making sure that the housing inventory is at least being upgraded to a minimum standard on a periodic basis. Making smoke detectors a requirement in all rental housing units can afford the Fire Department the opportunity to inspect rental units periodically for compliance and to observe general conditions in rental properties. Incentives for home improvements in the form of low interest loans, and possibly loans convertible to grants for significant renovation or restoration projects, can help to maintain the housing inventory. The City could consider buying properties in the marketplace that have been converted from owner-occupied housing and returning the properties to the market with restrictions that preclude rental occupancies. The City may also want to consider restoring single-family homes that have been converted to multiple family units, recognizing that the end values may be less than the City's purchase prices. This is not an exhaustive list of potential tools. Some of the recommendations may not be acceptable for a variety of community reasons. The point is that proactive steps to preserve and enhance the housing inventory are far better than allowing the inventory to decline.

Specific strategies have been identified in the preceding text with regard to the office and industrial segments of the market. Typically, less can be done to counteract the effects of aging industrial infrastructure than other land

uses because of the decision-making processes of corporate owners. Communication and information are the best tools to work with businesses and industries. If a business or industry elects to relocate and close their local facilities, the City must be able to assert itself with regard to all of the steps that the company can take to make sure that the site and its improvements do not languish on the landscape for decades. Industrial properties, in particular, are of such significance that they can negatively influence adjacent neighborhoods for years if they are shuttered and allowed to deteriorate. An aggressive stance with regard to industrial closures is very important to the overall health, appearance, and perceptions that a community creates.

Retail uses are perhaps the most fluid among the four primary land-use categories. Retailers must be responsive to changes in style reflecting consumer preferences and changing lifestyles. Market share is critical to the retailers' success. Typically, the market moves at a much faster pace than the rate of change in a retail property. It is the pace of change of consumer desires that makes existing retail establishments obsolete in a relatively short time. It is unlikely that the pace of change will slow significantly in the retail markets in the future. The City of Troy must be attentive to the pace and direction(s) of housing growth in the future. Businesses follow people and growing residential areas offer the best opportunities for retailers to capture a market share and expand this share as the community develops. Once an area is fully developed, shopping center developers and their primary retail tenants may look for the next location to build a new center in an expanding market area. Unfortunately, once an existing center is left behind as a community grows, it may continue to erode as a trading center until it contributes virtually nothing to the economic health of the community. There are few tools that can be used to stop the nomadic behavior of retailers and a moratorium on new retail development may actually harm a community if it becomes inconvenient for residents to shop. Tools that prevent retail properties from deteriorating over extended periods are gaining momentum in other parts of the country. Perhaps the most definitive public measure is a demolition bond requirement that requires a developer to demolish an existing center if it falls below some established minimum occupancy level or loses a primary, anchor tenant. Measures like this may seem arbitrary, but they do prevent a community being burdened with unproductive former retail sites that could be put to good alternative reuses.

III. SCOPE OF THE CITY OF TROY MARKET ANALYSIS

A. Definition of the Study Area

The study area has been defined as all of the land area inside the municipal boundaries of the City of Troy, Ohio.

B. Purpose of the Analysis

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E. What Analytical Methodologies Have Been Used in This Analysis

The methodologies applied during the course of this analysis include the use of both primary research and secondary data. Formal and informal interviews have been used to discover information about the study area. Demographic data has been obtained from several public and proprietary sources that have been identified throughout this report. Basic quantitative methods have been applied to develop useable information from the data that has been obtained. Of course, the analyst's observations, judgment and conclusions are also contained in this report.

B. The City of Troy and Vicinity

Note: The term market area is considered synonymous with the term neighborhood; however, **the Appraisal Institute** has shown preference for the term market area as a means of avoiding possible conflicts.

According to the Third Edition of the Dictionary of Real Estate Appraisal, Appraisal Institute, Market Area is defined as:

The geographic or locational delineation of the market for a specific category of real estate, i.e., the area in which alternative, similar properties effectively compete with the subject property in the minds of probable, potential purchasers and users.

Overview

The local market area is best described as all of the land inside the boundaries of the City of Troy, which influences a greater area as a result of the composition of land uses, governmental influences, market resources, social amenities, school district, and overall location. Troy and its environs comprise part of the "Upper Valley" sub-market of the Dayton-Springfield MSA.

Physical Characteristics

Transportation in Troy and the immediate market area is focused on I-75. The City of Troy and the surrounding

market area have above average interstate access. The West Main Street (SR 41)/I-75 (Exit #74) and West Market Street (SR 55)/I-75 (Exit #73) interchanges provide adequate access to the City. In addition, the convergence of State Routes 41, 55, 202, and 718, in the heart of the City of Troy provides ample surface roads for market area circulation. County road 25-A also traverses the City and provides additional linkages to other communities in Miami County. The map below illustrates the location of the City of Troy in the context of the local market area.



Generally, the topography of the area is level. However, some of the minor tributaries of the Great Miami River create some sloping/rolling topography in specific areas. The terrain is generally open, with some wooded areas, and soil conditions have historically been conducive to a variety of developments. No major developed portions of the subject market area appear prone to repeated flood hazard.

The City of Troy is the urbanized hub of a larger market area. The overall setting of the market area is suburban in nature, with a rural flavor. Specific land uses in the City and the immediate vicinity include all four of the basic uses groups; retail (single-tenant structures, multi-tenant centers, convenience businesses such as restaurants, and a variety of consumer product and service enterprises), office, industrial, residential (including single-family homes and a variety of multi-family dwellings and complexes), along with a number of governmental, religious and social uses intermingled.

The retail market area centers around "Troy Towne Center", a 250,000±SF community shopping center, anchored by Wal-Mart. The Wal-Mart store is slated to undergo significant expansion to a "Super" store in the near future.

Other retailers have located the immediate, surrounding area over the past decade. These other retailers include: Meijer, Staples, Tractor Supply Company, Rex Radio & Television, Sears Hardware, CVS, Advance Auto Parts, Auto Zone, Hampton Inn, Fairfield Inn, Holiday Inn Express, Residence Inn, and Hollywood Video. Additionally, several restaurants, ranging from "casual dining" to "fast food", have also located in the immediate area, including; Applebees, Fazolis, Bob Evans, McDonalds, Burger King, Steak N Shake, Wendys, and Taco Bell.

Recent development activity in the immediate vicinity has included residential uses, as well as some additional commercial development. Residential construction

activity has historically been steady. New homes are currently being constructed in several developments around the county. An indicator of the extent of new housing construction in Miami County is the number of permits granted over the past several years. The table below presents this data

<i>Building Permits</i>	<i>1993</i>	<i>1994</i>	<i>1995</i>	<i>1996</i>	<i>1997</i>	<i>1998</i>	<i>1999</i>	<i>2000</i>
Number of Permits	287							
Total Value	\$28,417,000	\$39,260,000	\$36,523,000	\$41,613,000	\$48,353,000	\$48,963,000	\$50,585,000	\$43,250,000

Source: *State of Ohio*

Several apartment communities compete in the local market. Both market-rate and subsidized units are available in the area. Buckeye Community, Floral View, Garden Manor, Heather Green, Heritage, Kimberly Village, Meadowview, Park Regency, Stoney Ridge Place, Terrace Ridge, Traditions, Villa DeMarquis, and Staunton Commons. A sampling of these competitive properties will be used to determine the market rent level for the subject property.

Development activity has been spurred by the relative strength of the manufacturing employment base. Panasonic, Honda, Hobart, Prestolite, ITW and others form the economic “backbone” of the area.

Governmental/Social Characteristics

The immediate market area relies on Miami County and the City of Troy for various levels of public services (police, fire, street maintenance, zoning, and permits), a broad range of recreational programs, and a variety of housing options.

Miami County is generally located in West-Central Ohio. The county, established by Act on March 01, 1807, currently encompasses 407.0-mi². The City of Troy, which serves as the county seat, was settled in the 1808. The city government operates under a modified mayor/council structure as provided for by state statutes, with a full-time Director of Public Service and Safety (City Manager). There is a 1.75% city income tax in place as a primary means of funding the city's operations. Police and fire protection services appear adequate. The Miami County Sheriff's Office and the State Highway Patrol provide additional service to the surrounding unincorporated areas and I-75, respectively. Additionally, the city maintains several parks, and a community center.

The Troy City School District provides a base of primary and secondary education to the area. The Ohio Department of Education posted its results from the Ohio Proficiency Testing Program for 2001-2002, which is summarized below:

<i>Test Section</i>	<i>Grade 4</i>	<i>Grade 6</i>	<i>Grade 9</i>	<i>Grade 10</i>	<i>Grade 12</i>
Citizenship	62.9%	80.1%	81.9%	90.7%	79.0%
Mathematics	57.4%	62.0%	76.8%	87.4%	67.7%
Reading	60.8%	68.0%	91.9%	96.1%	75.3%
Writing	82.3%	82.6%	93.4%	95.9%	93.1%
Science	59.4%	65.8%	79.4%	92.8%	73.9%

Note: Percentages of students passing each section of test by grade level.

Similar, state averages are summarized below:

<i>Test Section</i>	<i>Grade 4</i>	<i>Grade 6</i>	<i>Grade 9</i>	<i>Grade 10</i>	<i>Grade 12</i>
Citizenship	60.4%	68.9%	82.5%	91.0%	71.6%
Mathematics	59.4%	61.1%	72.5%	83.4%	61.9%
Reading	56.0%	58.3%	90.5%	95.9%	74.1%
Writing	79.3%	82.6%	91.6%	96.7%	87.8%
Science	55.6%	60.6%	78.1%	87.9%	70.8%

Note: Percentages of students passing each section of test by grade level.

Therefore, as shown by these test results, the Troy City School District is performing at a level above the indicated state averages, consistent with other, suburban public school districts. Further, the Ohio Department of Education noted a 2001 attendance rate of 95.1%, and a 2001 graduation rate of 79.2% for the District, compared to state averages of 93.9% attendance and 81.2% graduation, respectively.

A broad measure of the health and well being of a geographic area is provided by the growth trends of its population. These numbers and their trends not only tell us about the labor supply, but also inform us about the total consumer population in the local market area. These statistics indicate a growing population over the next 5-years. The number of households in Troy and vicinity are estimated to grow at a faster pace than the population. This is the result of the combination of population growth while the number of persons per household is declining. The demographics of the local market area will be discussed in detail in the following sections of this report.

Economic Characteristics

A number of economic characteristics of the City of Troy and its surrounding market area are discussed in detail in the following sections of this report. However, to summarize, the economic future of the area is best described as generally growing. Over the last ten (10) years, property values and development trends in the area have been growing. Property values appear to be increasing, as most properties in the area are average to good in condition and appear to be of average to good construction quality. Employment centers are easily accessible, with a middle income population base supporting the commercial businesses throughout the area. Because of the description above, we consider the area physically adaptable to a variety of land uses.

Conclusions

Overall, real estate market values in the City of Troy and the surrounding market area have been steady over the

past few years due to consistent, continual demand. This trend is expected to continue given the reputation of the area within the regional marketplace. According to several local market participants, demand for real property should remain steady over the next few years, given current economic conditions.

The area benefits from above average accessibility to the interstate highway system, ample local roadway linkages, an adequate public school system, and a steady amount of development activity, indicating the area is growing. Generally, the market area has average to above average attributes (physical, social/governmental, and economic).

In recent years, the subject area has been a stable environment due to favorable governmental influences, readily available vacant land, and adequate access to amenities (food service, lodging, housing, etc.). In summary, it appears that the local area is poised to be well positioned for continued demand for residential, retail, office and industrial uses within the market.

VII. THE HOUSING MARKET

A. The Inventory

The housing inventory in the City of Troy covers the broadest range of ages, sizes and types of any community in the immediate vicinity.

As indicated in Table 14., the housing inventory currently consists of 9,580 units of which 6,767 units, or 70.64%, are freestanding, single-family homes. The housing inventory has grown by 1,574 units since 1990 and is projected to grow by between 276 and 656 more units through 2007. Total housing numbered 8,006 units in 1990 with 4,806 units of freestanding, single-family

residential inventory; 69.74%. The housing inventory in 2007 may grow to as many as 10,236 units with 7,260 freestanding, single-family homes; 70.93%.

Overall housing growth in the City of Troy between 1990 and 2007 appears to be in a range from slightly in excess of 23% to almost 28% depending on the projected growth rate between 2002 and 2007. Annexations in the intervening years explain part of the City's growth, but there is no question that Troy has grown as a function of increasing urbanization in Miami County and the City's image in the marketplace.

TABLE 14. (CONTINUED)	CITY OF TROY, OHIO MARKET STUDY					
	INVENTORY OF HOUSING BY STRUCTURAL TYPE					
Demographic Measure	Area					
	Concord Twp.	Dayton MSA	Miami County	Piqua City	Tipp City	Troy City
2007 Housing Units By Number of Units in the Structure (#)						
Single Detached Unit	9,323	288,292	33,836	7,055	2,963	7,260
Single Attached Unit	227	19,546	28	133	114	224
Structures w/ 2 Units	657	15,233	2,467	913	354	650
Structures w/ 3-4 Units	873	25,144	2,278	456	456	873
Structures w/ 5-9 Units	605	23,171	1,501	275	359	605
Structures w/ 10-19 Units	352	17,276	3	167	23	352
Structures w/ 20-49 Units	176	172	368	106	3	176
Structures w/ 50+ Units	0	6,912	74	0	74	0
Mobile Homes/Trailers or Other	182	13,320	1,487	182	54	96
Total Housing Units	12,395	418,067	43,200	9,374	4,399	10,236
2007 Housing Units By Number of Units in the Structure (%)						
Single Detached Unit	75.22%	68.96%	78.32%	75.26%	67.37%	70.93%
Single Attached Unit	1.83%	4.68%	1.45%	1.42%	2.60%	2.19%
Structures w/ 2 Units	5.30%	3.64%	5.71%	9.74%	8.04%	6.35%
Structures w/ 3-4 Units	7.04%	6.01%	5.27%	5.81%	10.36%	8.52%
Structures w/ 5-9 Units	4.88%	5.54%	3.47%	2.93%	8.17%	5.91%
Structures w/ 10-19 Units	2.84%	4.13%	1.30%	1.78%	0.52%	3.44%
Structures w/ 20-49 Units	1.42%	2.19%	0.85%	1.13%	0.06%	1.72%
Structures w/ 50+ Units	0.00%	1.65%	0.17%	0.00%	1.67%	0.00%
Mobile Homes/Trailers or Other	1.47%	3.19%	3.44%	1.94%	1.22%	0.93%
Total Housing Units	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

B. The Market

Overall vacancy in the local market suggests a supply/demand balance although vacancy rates appear to be on an upward trend. The housing market in the City of Troy is more dependent on rental housing than any of the other measured communities in Miami County and the county statistics, in general. The trend for rental housing appears to be on a growth path as projected from the historical data. Troy exhibits a larger segment of rental housing in its overall inventory than the Dayton-Springfield MSA in general. This disparity between the owner/renter composition appears to have existed for a number of years. The composition of the housing inventory and the composition of occupancy styles do not appear to have any direct correlation. A growing segment of the freestanding, residential housing inventory appears to be entering the rental market.

TABLE 14.	CITY OF TROY, OHIO MARKET STUDY					
	INVENTORY OF HOUSING BY STRUCTURAL TYPE					
Demographic Measure	Area					
	Concord Twp.	Dayton MSA	Miami County	Piqua City	Tipp City	Troy City
1990 Housing Units By Number of Units in the Structure (#)						
Single Detached Unit	7,221	260,578	28,138	6,001	1,728	5,583
Single Attached Unit	193	19,087	642	132	69	193
Structures w/ 2 Units	675	15,640	2,235	846	243	675
Structures w/ 3-4 Units	738	24,747	1,783	502	225	738
Structures w/ 5-9 Units	360	21,436	1,066	201	243	360
Structures w/ 10-19 Units	254	16,578	427	141	0	254
Structures w/ 20-49 Units	165	8,638	367	134	7	165
Structures w/ 50+ Units	0	7,005	99	0	99	0
Mobile Homes/Trailers or Other	148	11,711	1,228	77	28	53
Total Housing Units	9,754	385,420	35,985	8,034	2,642	8,006
1990 Housing Units By Number of Units in the Structure (%)						
Single Detached Unit	74.03%	67.61%	78.19%	74.70%	65.40%	69.74%
Single Attached Unit	1.98%	4.95%	1.78%	1.64%	2.61%	2.29%
Structures w/ 2 Units	6.92%	4.06%	6.21%	10.53%	9.20%	8.37%
Structures w/ 3-4 Units	7.57%	6.42%	4.95%	6.25%	8.52%	9.22%
Structures w/ 5-9 Units	3.69%	5.56%	2.96%	2.50%	9.20%	4.50%
Structures w/ 10-19 Units	2.60%	4.30%	1.19%	1.76%	0.00%	3.17%
Structures w/ 20-49 Units	1.69%	2.24%	1.02%	1.67%	0.26%	2.06%
Structures w/ 50+ Units	0.00%	1.82%	0.28%	0.00%	3.75%	0.00%
Mobile Homes/Trailers or Other	1.52%	3.04%	3.41%	0.96%	1.06%	0.66%
Total Housing Units	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
2002 Housing Units By Number of Units in the Structure (#)						
Single Detached Unit	8,705	280,141	32,160	6,745	2,600	6,767
Single Attached Unit	217	19,411	632	133	101	212
Structures w/ 2 Units	662	15,353	2,399	893	321	656
Structures w/ 3-4 Units	833	25,027	2,131	532	388	833
Structures w/ 5-9 Units	533	22,661	1,373	253	325	533
Structures w/ 10-19 Units	323	17,071	523	159	16823	323
Structures w/ 20-49 Units	173	9,015	368	114	4	173
Structures w/ 50+ Units	0	6,939	81	0	81	0
Mobile Homes/Trailers or Other	172	12,847	1,411	151	4683	172
Total Housing Units	11,618	408,465	41,078	8,980	3,882	9,580
2002 Housing Units By Number of Units in the Structure (%)						
Single Detached Unit	74.93%	68.58%	78.29%	75.11%	66.98%	70.64%
Single Attached Unit	1.87%	4.75%	1.54%	1.48%	2.60%	2.21%
Structures w/ 2 Units	5.70%	3.76%	5.84%	9.94%	8.27%	6.85%
Structures w/ 3-4 Units	7.17%	6.13%	5.19%	5.92%	9.99%	8.70%
Structures w/ 5-9 Units	4.59%	5.55%	3.34%	2.82%	8.37%	5.56%
Structures w/ 10-19 Units	2.78%	4.18%	1.27%	1.77%	0.41%	3.37%
Structures w/ 20-49 Units	1.49%	2.21%	0.90%	1.27%	0.10%	1.81%
Structures w/ 50+ Units	0.00%	1.70%	0.20%	0.00%	2.09%	0.00%
Mobile Homes/Trailers or Other	1.48%	3.15%	3.43%	1.68%	1.18%	0.87%
Total Housing Units	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

inventories in the adjacent townships. The lower values of the City's inventory also attracts lower income households.

The composition of the housing inventory is heavily skewed toward freestanding, single-family homes in a population with aging residents. A transition in lifestyles is typical as people age and the inventory in the City of Troy needs to reflect the population demographics in order to provide the lifestyle alternatives that allow people to age in place.

The composition of the inventory of housing in the City of Troy and vicinity is detailed in Table 14., above. The composition of the housing unit growth is projected to remain heavily weighted toward freestanding, single-family residences. However, occupancy styles suggest that a portion of the freestanding, single-family, residential, inventory has been converted to rental housing. There are 5,413 owner-occupied, housing units in the Troy inventory today. Owner-occupied housing has grown from 4,806 units in the 1990 census. The difference between the number of owner-occupied housing units and the inventory of freestanding, single-family residences is of interest. Since freestanding, single-family homes are a housing product built for owner use, the percentage of this inventory that has been converted to rental occupancy can point out future trends in housing values and housing maintenance. The statistics suggest that as much as 20% of the freestanding, single-family residential inventory has been placed in the rental market. This means that as many as one in five houses is rented. The values of homes in neighborhoods in which rental units are interspersed may become more dependent on the state of the rental market than the ownership market. Therefore, sales prices will be more dependent on the economic value of the property for rental than on the desirability of the home, or the neighborhood, for owner occupancy. Additionally, rental homes are generally not as well maintained as owner occupied homes. There are usually economic objectives for landlords to invest money in rental housing versus the "pride of ownership" objectives of many homeowners. The underlying motives for the transition of freestanding single-family residences to rental units are the important questions to answer. Some answers to this question can reflect positively on the community and other answers are negative. If rental unit owners report that they have purchased properties because these homes represent good values and that the units are easy to rent, the reasons for rental conversion may be a function of the overall image of the community and, possibly, a shortage of properties in the rental marketplace. Conversely, if properties are being converted to rental units because the owners have not been able to sell their properties for prices that reflect perceived values, or if the properties simply have not sold after significant exposure in the marketplace, then the reasons for rental conversion may indicate current and future housing problems in the community. Rental conversions may indicate other problems in a community not directly related to the housing inventory itself. The loss of a major employer in a community can send ripples through the housing market that create temporary shifts in the rental/owner composition of the inventory. If such conditions were present in the marketplace during a census year the data could reflect this atypical condition. This does not appear to be the

case in Troy. As much as 14% of the freestanding, single-family residential inventory, as measured in 1990, had been placed in the rental market. As stated above, as much as 20% of this inventory is in the rental market today. The statistics suggest that a trend is observable. Data contained in Tables 15. And 16., below suggest that the rental segment of the freestanding, single-family residential inventory may grow by almost ten (10) percent between 2002 and 2007; from 20% of the inventory to 22% of the inventory. This percentage increase in rental units is projected even though the overall inventory of freestanding, single-family homes is projected to grow by as much as seven (7) percent during the same time period. Thus, the freestanding, single-family rental housing inventory may grow by as much as eighteen (18) percent between 2002 and 2007. This increase would add 240 homes to the rental inventory.

In examining the inventory of housing in the City of Troy, it appears that age, condition, and original quality of the housing stock may be the most significant influences on the conversion of inventory from owner occupancy to rental occupancy. Homes of average original quality that are in average condition and of advanced age (over 60 years old) may be perceived as being in the declining years of their useful (economic) lives. If an investment in a unit of this inventory cannot be justified on the basis of market appreciation in the future, then a rental income stream may be the only means of sustaining the market value of the property. Sales for rental conversion become the quickest and easiest means for current owners to divest themselves of their residential real estate and the sellers can obtain a price that reflects their perception of market value. A more serious problem is revealed if existing owners simply cannot sell their properties. In this case a rental conversion may be the only means for an owner to recoup their investment in the property. This market condition reflects some serious supply/demand balance issues and does not bode well for the future of the community. Overall vacancy rates in the Troy market suggest that a serious supply/demand imbalance does not exist. However, vacancy rates are on an upward trend that is projected to continue in the future. The overall age of the housing inventory combined with observed market conditions suggests that some existing housing units will be taken out of service in the future that will result in the inventory remaining relatively balanced in the future. This does not mean that there should not be initiatives to preserve and enhance the value of the existing housing inventory. The trends indicate that it may be appropriate to begin to address the needs of an aging housing inventory before it becomes problematic.

C. Future Demand

Future housing growth in the City of Troy is being driven by population growth and the declining number of individuals per household in the City. It is possible for population growth to occur without the need for new housing, but the number of persons per household must be increasing. The opposite condition appears to be true in the City of Troy. Data suggests that the population under the age of 35 has decreased between 1990 and today while the population 35 years of age and older has increased. The age demographics appear to support the decline in the average number of persons per house-

hold that has been observed in the data. The demand for new housing units appears to be outpacing the rate of population growth in the City. This observation is consistent with the demographic data cited above. The predominant form of new housing growth will take place in the freestanding, single family home segment of the housing market although trends indicate that there should be growth in the numbers of multiple family dwelling units as well. It should be noted that growth in the total numbers of housing units in the City does not mean that new construction will not exceed the projections indicated. In fact, new construction should exceed the numbers of additional units projected in order to replace units in the current inventory that may be at the ends of their economic lives. The replacement portion of the housing market should range between one percent and two percent of the total housing inventory. Housing replacement rates in this range mean that the inventory of existing housing will be replaced in a time period between fifty years and one hundred years. Many communities cannot replace existing housing at the pace needed to continuously refresh the inventory due to the lack of available land for replacement housing and the scattered occurrence of worn out houses. Nonetheless, communities should be aware of an aging inventory of housing and the changing maintenance and enhancement needs of this inventory as it ages.

Table 15., provides some indication of the projected price migration of the owner-occupied housing inventory in the City of Troy and its environs, assuming observed trends continue. The projected price migration of housing is at least indirectly tied to the income demographics of the population of the City as cited above. As is projected in Table 15., over 75% of the housing inventory should exhibit market values at or above \$75,000 per home by 2007. This projection compares to approximately 65% of the housing inventory at price ranges of \$75,000 or over, today and less than 30% of the owner-occupied housing inventory at price ranges of \$75,000 or over in 1990. Of course, local and national market conditions will influence the actual growth that takes place between now and 2007, but a continuation of existing trends suggests that the majority of the housing inventory will continue to grow in value over the next five years.

Demographic Measure	CITY OF TROY, OHIO MARKET STUDY OWNER-OCCUPIED HOUSING SEGMENTED BY MARKET VALUE					
	Area					
	Concord Twp.	Dayton MSA	Miami County	Piqua City	Tipp City	Troy City
1990 Owner-Occ. Housing Units	6,323	239,296	25,134	5,108	1,539	4,806
By Value (\$)						
Undefined Value	642	30,734	4,216	463	116	361
< \$50,000	1,429	64,232	6,371	2,706	241	1,332
\$50,000 to \$74,999	1,973	64,298	6,533	1,290	552	1,824
\$75,000 to \$99,999	1,033	40,538	4,100	361	422	803
\$100,000 to \$149,999	783	26,648	2,725	195	165	422
\$150,000 to \$199,999	312	7,654	797	61	27	44
\$200,000 to \$299,999	128	3,727	330	21	12	14
\$300,000 to \$499,999	17	1,165	47	10	3	5
\$500,000 >	6	300	15	1	1	1
Total Owner-Occ. Housing Units	6,323	239,296	25,134	5,108	1,539	4,806
1990 Owner-Occ. Housing Units						
By Value (%)						
Undefined Value	10.15%	12.84%	16.77%	9.06%	7.54%	7.51%
< \$50,000	22.60%	26.84%	25.35%	52.98%	15.66%	27.72%
\$50,000 to \$74,999	31.20%	26.87%	25.99%	25.25%	35.87%	37.95%
\$75,000 to \$99,999	16.34%	16.94%	16.31%	7.07%	27.42%	16.71%
\$100,000 to \$149,999	12.38%	11.14%	10.84%	3.82%	10.72%	8.78%
\$150,000 to \$199,999	4.93%	3.20%	3.17%	1.19%	1.75%	0.92%
\$200,000 to \$299,999	2.02%	1.56%	1.31%	0.41%	0.78%	0.29%
\$300,000 to \$499,999	0.27%	0.49%	0.19%	0.20%	0.19%	0.10%
\$500,000 >	0.09%	0.13%	0.06%	0.02%	0.06%	0.02%
Total Owner-Occ. Housing Units	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
2002 Owner-Occ. Housing Units	7,209	255,650	28,163	5,277	2,458	5,413
By Value (\$)						
Undefined Value	6,498	222,319	23,396	789	2,248	4,964
< \$50,000	711	33,331	4,767	488	210	449
\$50,000 to \$74,999	388	24,150	2,158	978	60	360
\$75,000 to \$99,999	1,257	45,929	4,860	1,852	210	1,180
\$100,000 to \$149,999	1,582	47,422	4,954	910	459	1,464
\$150,000 to \$199,999	1,718	61,338	6,797	685	1,025	1,400
\$200,000 to \$299,999	630	22,814	2,440	188	328	383
\$300,000 to \$499,999	649	14,517	1,663	134	123	139
\$500,000 >	220	4,842	465	30	39	31
Total Owner-Occ. Housing Units	7,209	255,650	28,163	5,277	2,458	5,413
2002 Owner-Occ. Housing Units						
By Value (%)						
Undefined Value	9.86%	13.04%	16.93%	9.25%	8.54%	8.29%
< \$50,000	5.38%	9.45%	7.66%	18.53%	2.44%	6.65%
\$50,000 to \$74,999	17.44%	17.97%	17.26%	35.10%	8.54%	21.80%
\$75,000 to \$99,999	21.94%	18.55%	17.59%	17.24%	18.67%	27.05%
\$100,000 to \$149,999	23.83%	23.99%	24.13%	12.98%	14.70%	25.86%
\$150,000 to \$199,999	8.74%	8.92%	8.66%	3.56%	13.34%	7.08%
\$200,000 to \$299,999	9.00%	5.68%	5.90%	2.54%	5.00%	2.57%
\$300,000 to \$499,999	3.05%	1.89%	1.65%	0.57%	1.59%	0.57%
\$500,000 >	0.75%	0.51%	0.21%	0.23%	0.16%	0.13%
Total Owner-Occ. Housing Units	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Demographic Measure	CITY OF TROY, OHIO MARKET STUDY OWNER-OCCUPIED HOUSING SEGMENTED BY MARKET VALUE					
	Area					
	Concord Twp.	Dayton MSA	Miami County	Piqua City	Tipp City	Troy City
2007 Owner-Occ. Housing Units						
By Value (\$)						
Undefined Value	740	34,413	4,997	498	249	486
< \$50,000	467	449	403	258	-15	-45
\$50,000 to \$74,999	959	38,275	4,163	2,086	68	912
\$75,000 to \$99,999	1,811	50,290	5,310	1,139	474	1,739
\$100,000 to \$149,999	2,108	75,792	8,494	889	1,383	1,808
\$150,000 to \$199,999	763	29,131	3,125	241	453	524
\$200,000 to \$299,999	866	19,013	2,218	181	169	191
\$300,000 to \$499,999	305	6,374	639	38	54	42
\$500,000 >	74	1,727	77	17	5	10
Total Owner-Occ. Housing Units	7,578	262,464	29,425	5,347	2,841	5,666
2007 Owner-Occ. Housing Units						
By Value (%)						
Undefined Value	9.76%	13.11%	16.98%	9.32%	8.77%	8.57%
< \$50,000	-0.60%	2.84%	1.37%	4.82%	-0.54%	-0.79%
\$50,000 to \$74,999	12.65%	14.58%	14.15%	39.01%	2.38%	16.09%
\$75,000 to \$99,999	23.89%	19.16%	18.05%	21.30%	16.70%	30.70%
\$100,000 to \$149,999	27.81%	28.88%	28.87%	16.63%	48.69%	31.90%
\$150,000 to \$199,999	10.06%	11.10%	10.62%	4.51%	15.96%	9.25%
\$200,000 to \$299,999	11.43%	7.24%	7.54%	3.39%	5.96%	3.37%
\$300,000 to \$499,999	4.02%	2.43%	2.17%	0.72%	1.90%	0.74%
\$500,000 >	0.98%	0.66%	0.26%	0.31%	0.18%	0.17%
Total Owner-Occ. Housing Units	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Table 16., details the housing inventory changes that could be anticipated between now and 2007, based on the data analyzed. As has been suggested above, approximately 75% of the new housing that may be introduced in the next five years is comprised of free-standing, single-family residences. Note that the percentage of freestanding residences that could be introduced is in excess of the owner-occupancy percentage

of the current City market. Occupancy style projections indicate that a percentage of existing, freestanding, single-family, owner-occupied homes will be transitioned into the rental housing market in the next five years. Therefore, while three quarters of the new housing introduced to the City between now and 2007 may be free-standing, single family homes, the percentage of owner-occupied housing units in the City is still projected to decline.

TABLE 16.	CITY OF TROY, OHIO MARKET STUDY					
	2002-2007 HOUSING INVENTORY CHANGE PROJECTIONS					
	Area					
Demographic Measure	Concord Twp.	Dayton MSA	Miami County	Piqua City	Tipp City	Troy City
2002 - 2007						
New Owner - Occ. Housing						
By Value (\$)						
Undefined Value	29	1,082	230	10	39	37
<\$50,000	- 434	- 16,701	- 1,755	-720	-75	-405
\$50,000 to \$74,999	-2 98	-7 ,654	- 697	234	- 143	-2 68
\$75,000 to \$99,999	229	2,868	356	229	15	275
\$100,000 to \$149,999	390	14,454	1,697	204	358	408
\$150,000 to \$199,999	133	6,317	685	53	125	141
\$200,000 to \$299,999	217	4,496	555	47	46	52
\$300,000 to \$499,999	85	1,532	174	8	15	11
\$500,000 >	20	420	18	5	1	3
Total New Owner - Occ. Housing Units	369	6,814	1,262	70	383	253
2002 - 2007						
New Owner - Occ. Housing						
By Value (%)						
Undefined Value	7.79%	15.88%	18.19%	14.79%	10.23%	14.50%
<\$50,000	- 117.49%	-2 45.09%	- 139.09%	- 1022.49%	- 19.70%	- 160.13%
\$50,000 to \$74,999	- 80.81%	- 112.32%	- 55.23%	332.54%	- 37.21%	- 106.10%
\$75,000 to \$99,999	61.96%	42.09%	28.19%	324.85%	4.03%	108.90%
\$100,000 to \$149,999	105.53%	212.12%	134.43%	289.94%	93.58%	161.12%
\$150,000 to \$199,999	35.89%	92.70%	54.24%	75.15%	32.75%	55.85%
\$200,000 to \$299,999	58.80%	65.98%	44.01%	66.86%	12.08%	20.59%
\$300,000 to \$499,999	22.91%	22.48%	13.80%	11.83%	3.92%	4.28%
\$500,000 >	5.42%	6.16%	1.45%	6.51%	0.33%	0.99%
Total Owner - Occ. Housing Units	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
2002 - 2007						
New Housing Units						
By Units in Structure (#)						
Single Detached Unit	618	8,151	1,676	310	363	493
Single Attached Unit	10	135	- 4	0	13	12
Structures w/ 2 Units	- 5	- 120	68	20	33	- 6
Structures w/ 3- 4 Units	40	117	145	13	68	40
Structures w/ 5- 9 Units	72	510	128	22	34	72
Structures w/ 10- 19 Units	29	205	40	8	7	29
Structures w/ 20- 49 Units	3	157	0	-8	-1	3
Structures w/ 50+ Units	0	-28	-8	0	-8	0
Mobile Homes/ Trailers or Other	10	473	763	1	8	13
Total Housing Units	777	9,602	2,122	394	517	656
2002 - 2007						
New Housing Units						
By Units in Structure (%)						
Single Detached Unit	79.61%	84.89%	78.97%	78.65%	70.32%	75.22%
Single Attached Unit	1.29%	1.41%	-0 .20%	0.11%	2.58%	1.84%
Structures w/ 2 Units	-0 .70%	- 1.25%	3.22%	4.97%	6.29%	-0 .89%
Structures w/ 3- 4 Units	5.10%	1.22%	6.83%	3.17%	13.15%	6.04%
Structures w/ 5- 9 Units	9.28%	5.32%	6.03%	5.50%	6.61%	10.99%
Structures w/ 10- 19 Units	3.70%	2.14%	1.88%	1.90%	1.29%	4.38%
Structures w/ 20- 49 Units	0.43%	1.64%	0.02%	-2 .11%	-0 .24%	0.51%
Structures w/ 50+ Units	0.00%	-0 .29%	-0 .35%	0.00%	- 1.45%	0.00%
Mobile Homes/ Trailers or Other	1.29%	4.93%	3.59%	7.82%	1.45%	1.91%
Total Housing Units	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
2002 - 2007						
Total Housing Unit Change						
Owner - Occupied Housing Units	369	6,814	1,262	70	383	253
Renter - Occupied Housing Units	318	- 323	562	175	134	309
Vacant Housing Units	90	3,111	298	145	0	94
Total Housing Units	777	9,602	2,122	390	517	656

TABLE 16. (CONTINUED)	CITY OF TROY, OHIO MARKET STUDY					
	2002-2007 HOUSING INVENTORY CHANGE PROJECTIONS					
Demographic Measure	Area					
	Concord Twp.	Dayton MSA	Miami County	Piqua City	Tipp City	Troy City
2002 - 2007 (Lower Limit)						
Total Household Change	367	1,746	1,404	235	207	236
Owner-Occupied Housing Units	197	1,833	971	67	153	106
Renter-Occupied Housing Units	170	-87	433	168	54	130
Vacant Housing Units	48	837	229	139	0	40
Total Housing Units	415	2,583	1,633	374	207	276
2002 - 2007 (Lower Limit)						
New Owner-Occ. Housing	197	1,833	971	67	153	106
By Value (#)						
Undefined Value	15	291	177	10	16	15
< \$50,000	-232	-4,492	-1,351	-689	-30	-170
\$50,000 to \$74,999	-159	-2,059	-537	224	-57	-113
\$75,000 to \$99,999	122	772	274	219	6	16
\$100,000 to \$149,999	208	3,888	1,306	96	143	171
\$150,000 to \$199,999	71	1,699	527	51	50	59
\$200,000 to \$299,999	116	209	427	45	19	22
\$300,000 to \$499,999	45	412	134	8	6	5
\$500,000 >	11	113	14	4	1	1
Total Owner-Occ. Housing Units	197	1,833	971	67	153	106
2002 - 2007 (Lower Limit)						
New Housing Units	415	2,583	1,633	374	207	276
By Units in Structure (%)						
Single Detached Unit	330	2,193	1,290	294	145	207
Single Attached Unit	5	36	3	0	5	5
Structures w/ 2 Units	-3	-32	53	19	13	-2
Structures w/ 3-4 Units	21	31	112	12	27	17
Structures w/ 5-9 Units	39	137	98	21	14	30
Structures w/ 10-19 Units	15	55	31	7	3	12
Structures w/ 20-49 Units	2	42	0	-8	-1	1
Structures w/ 50+ Units	0	-7	-60		-3	0
Mobile Homes/Trailers or Other	5	127	59	29	3	5
Total Housing Units	415	2,583	1,633	374	207	276

D. Competitive Supply

Table 17. through Table 20., detail the historical and current mobility of the resident households in the City of Troy and its environs along with future projections. Table 20., analyzes the estimated annual housing market in numbers of units of owner-occupied and rental housing that may enter the market on an annual basis given the mobility of resident households in the past. Approximately 19% of the resident households are projected to move in any given twelve-month period. The actual numbers of households that will move in any given twelve-month period fluctuates based on housing availability, interest rates, rental rates, and general economic conditions. Regardless, of periodic fluctuations of mobility, the annual market for housing in the City of Troy is projected to be slightly less than 1,800 units per year.

The rental housing market is projected to comprise approximately 85% of the total annual housing volume. The remaining 15% of annual housing volume is projected to come from sales of owner-occupied residences. Based on the number of housing units that comprise the housing market in the City of Troy, approximately 39% of the rental units and 4% of the owner-occupied units will enter the market on an annual basis. Another way of stating the household mobility in the marketplace is that rental households stay in one place for approximately two and one-half years while owner-occupants stay in one place for approximately twenty-five years. All indications are that the owner-occupied segment of the local housing market is comprised of relatively stable, long-term, residents. The velocity of the rental market appears to be comparable to the general market in the region and may be less transient than some sub-markets in the Dayton-Springfield MSA.

TABLE 17.	CITY OF TROY, OHIO MARKET STUDY									
	1990 HOUSEHOLD MOBILITY									
Geographic Area	Concord Township		Dayton-Springfield MSA		Miami County		Piqua City		Tipp City	
1990 Households	9,319		364,300		34,559		7,753		2,470	
Years in Unit	Households	HH Percent	Households	HH Percent	Households	HH Percent	Households	HH Percent	Households	HH Percent
1	1,708	18.3%	70,552	19.4%	5,394	15.6%	1,390	17.9%	513	20.8%
2										
3										
4										
5	2,715	29.1%	102,633	28.2%	9,397	27.2%	2,097	27.0%	812	32.9%
Cumulative %		47.5%		47.5%		42.8%		45.0%		53.6%
6										
7										
8										
9										
10	1,234	13.2%	46,308	12.7%	4,237	12.3%	937	12.1%	316	12.8%
Cumulative %		60.7%		60.3%		55.1%		57.1%		66.4%
11										
12										
13										
14										
15										
16										
17										
18										
19										
20	1,735	18.6%	71,308	19.6%	7,543	21.8%	1,552	20.0%	371	15.0%
Cumulative %		79.3%		79.8%		76.9%		77.1%		81.5%
21										
22										
23										
24										
25										
26										
27										
28										
29										
30	1,927	20.7%	73,499	20.2%	7,898	22.9%	1,777	22.9%	458	18.5%
Cumulative %	9,319	100.0%	364,300	100.0%	34,469	99.7%	7,753	100.0%	2,470	100.0%

TABLE 18.		CITY OF TROY, OHIO MARKET STUDY							
		2002 HOUSEHOLD MOBILITY							
Geographic Area	Concord Township		Dayton–Springfield MSA		Miami County		Piqua City		Tipp City
2002 Households	10,967		379,879		38,937		8,351		3,711
Years in Unit	Households	HH Percent	Households	HH Percent	Households	HH Percent	Households	HH Percent	Households
1	1,941	17.7%	72,722	19.1%	6,028	15.5%	1,447	17.3%	760
2									
3									
4									
5	3,303	30.1%	108,461	28.6%	10,713	27.5%	2,245	26.9%	1,189
Cumulative %		47.8%		47.7%		43.0%		44.2%	
6									
7									
8									
9									
10	1,503	13.7%	48,179	12.7%	4,933	12.7%	1,003	12.0%	487
Cumulative %		61.5%		60.4%		55.7%		56.2%	
11									
12									
13									
14									
15									
16									
17									
18									
19									
20	2,061	18.8%	75,110	19.8%	8,594	22.1%	1,728	20.7%	668
Cumulative %		80.3%		80.1%		77.7%		76.9%	
21									
22									
23									
24									
25									
26									
27									
28									
29									
30	2,159	19.7%	75,407	19.9%	8,669	22.3%	1,928	23.1%	607
Cumulative %	10,967	100.0%	379,879	100.0%	38,937	100.0%	8,351	100.0%	3,711

TABLE 19.		CITY OF TROY, OHIO MARKET STUDY						
FIVE-YEAR HOUSEHOLD MOBILITY PROJECTIONS								
Concord Township								
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH	
1990	9,341				47.50%			
2002	10,967	1,626	17.41%	1.1741	47.80%	40.71%		
2007	11,293	326	2.97%	1.0297	47.65%	46.27%		
02-'07							5,226	
Dayton-Springfield MSA								
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH	
1990	364,304				47.50%			
2002	379,879	15,575	4.28%	1.0428	47.70%	45.74%		
2007	381,625	1,746	0.46%	1.0046	47.60%	47.38%		
02-'07							180,822	
Miami County								
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH	
1990	34,566				42.80%			
2002	38,937	4,371	12.65%	1.1265	43.00%	38.17%		
2007	40,341	1,404	3.61%	1.0361	42.90%	41.41%		
02-'07							16,704	
Piqua City								
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH	
1990	7,955				45.00%			
2002	8,351	396	4.98%	1.0498	44.20%	42.10%		
2007	8,586	235	2.81%	1.0281	44.60%	43.38%		
02-'07							3,725	
Tipp City								
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH	
1990	2,773				53.60%			
2002	3,711	938	33.83%	1.3383	52.50%	39.23%		
2007	3,918	207	5.58%	1.0558	53.05%	50.25%		
02-'07							1,969	
Troy City								
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH	
1990	7,819				47.80%			
2002	8,997	1,178	15.07%	1.1507	48.10%	41.80%		
2007	9,233	236	2.62%	1.0262	47.95%	46.72%		
02-'07							4,314	

TABLE 20. CITY OF TROY, OHIO MARKET STUDY							
ANNUAL HOUSEHOLD MOBILITY PROJECTIONS							
Concord Township							
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH
1990	9,341				18.33%		
2002	10,967	1,626	17.41%	1.1741	17.70%	17.45%	
2007	11,293	3262	29.7%	1.0297	18.02%	17.91%	
Estimated Annual Housing Market							2,022
Owner	7,344						443
Renter	3,949						1,580
Dayton-Springfield MSA							
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH
1990	364,304				19.37%		
2002	379,879	15,575	4.28%	1.0428	19.14%	19.07%	
2007	381,625	1,746	0.46%	1.0046	19.26%	19.24%	
Estimated Annual Housing Market							73,414
Owner	259,238						24,460
Renter	122,387						48,955
Miami County							
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH
1990	34,566				15.61%		
2002	38,937	4,371	12.65%	1.1265	15.48%	15.32%	
2007	40,341	1,404	3.61%	1.0361	15.55%	15.43%	
Estimated Annual Housing Market							6,226
Owner	29,122						1,739
Renter	11,219						4,488
Piqua City							
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH
1990	7,955				17.93%		
2002	8,351	396	4.98%	1.0498	17.33%	17.26%	
2007	8,586	235	2.81%	1.0281	17.63%	17.53%	
Estimated Annual Housing Market							1,505
Owner	5,341						207
Renter	3,245						1,298
Tipp City							
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH
1990	2,773				20.77%		
2002	3,711	938	33.83%	1.3383	20.48%	19.92%	
2007	3,918	207	5.58%	1.0558	20.63%	20.40%	
Estimated Annual Housing Market							799
Owner	2,633						285
Renter	1,285						514
Troy City							
Year	Households	Change	Change %	Change Index	C.M. Factor	Adjusted C.M.F.	Mobile HH
1990	7,819				19.57%		
2002	8,997	1,178	15.07%	1.1507	19.04%	18.80%	
2007	9,233	236	2.62%	1.0262	19.31%	19.20%	
Estimated Annual Housing Market							1,773
Owner	5,473						269
Renter	3,760						1,504

E. Supply and Demand Balance

Current and projected vacancy rates suggest that the local housing market is in a relatively stable supply and demand balance. Vacancy rates are projected to increase by approximately 10% over the next five years from 6.09% to 6.62%. This increase is not extraordinary based on the data and appears to be reflective of the overall age composition of the housing inventory in the City of Troy. However, it must be noted that a projected increase in vacancies is indicated on the basis of current trends. All of the other jurisdictions that have been selected for context and comparison to the City of Troy are projected to experience increases in the number of vacant housing units in the inventory with the exception of Tipp City. The rate of change projected in the City of Troy exceeds the rate of change for Concord Township, including areas within the City of Troy, and is only slightly above the rate of change for Miami County, in general. As suggested above, the age of the inventory in the City of Troy is expected to contribute to the vacancy increase between now and 2007. Given the age com-

position of the housing inventory it is expected that some units will simply wear out, although they may not be demolished. Nuisance abatement and removal of abandoned housing units can be an effective way of removing uninhabitable housing from the landscape while helping to reduce the actual percentage of housing vacancy in the City. Proactive reductions of obsolete housing inventory can serve to preserve housing values in the affected neighborhoods and remove attractive nuisances that can harbor crime and delinquency. Additionally, the community can create sites for in-fill housing that can be used to enhance housing values and increase home ownership in the affected neighborhoods.

F. Market Share and Competition

The housing market in the City of Troy appears to be capable of continued growth in the future, based on the data analyzed. However, the availability of land for residential development may not enable the City to achieve the projected unit growth estimated above. While there

appears to be undeveloped land in the City, a number of natural and manmade constraints could make development of these land areas infeasible. The housing indicators discussed above suggest that the housing market in the City of Troy should continue to grow over the next several years. Should constraints preclude any significant housing growth in the future, the effects on the existing housing inventory and housing demand can represent both positive and negative indicators for the long-term. Among the positive effects in the near-term, assuming that housing demand follows the trends analyzed in the data, are increasing prices in real terms, and increased interest in older, established homes in the City. There could be several negative effects on the housing market as well. Increased prices could entice more home owners to sell and move than has been typical in past years. There would be limited opportunities to introduce fresh inventory to the overall composition of housing in the City increasing the average of the existing inventory. Younger home buyers may be unable to purchase homes in the City if prices escalate significantly.

Based on the data analyzed above, it appears that the City of Troy should be able to maintain its attractiveness in the local housing market in the future. However, this observation does assume that new inventory can be added to the overall mix of housing that is available in the City in the next several years. The percentage of rental households may present some concerns for overall housing values, especially in regard to the conversion freestanding, single-family housing units to rental occupancy in the future. The rental occupancy concern notwithstanding, it appears that the City of Troy can maintain its competitive position regarding housing over the next several years.

G. Observations Regarding the Study Area

The housing market in the City of Troy is projected to grow between now and 2007. The number of housing units that may be added to the City's inventory ranges between 276 units and 656 units depending on the data sources. This represents an increase ranging between 3% and 7% in the number of housing units in the City. The estimated housing inventory growth appears to outpace the projected population growth rate and household growth rate in the City.

The occupancy styles of the households in the City strongly suggests that a significant percentage of the freestanding, single family residences in the City may have been converted to rental housing. The percentage of conversions may be as high as 20% of the inventory. This appears to be indicative of a potential housing issue with regard to the preservation and enhancement of the current inventory of single-family homes. In addition, the percentage of households living in rental housing is expected to increase between now and 2007. Should this projection be realized, it is likely that more single-family homes will enter the rental market.

The majority of new units projected to be introduced to the housing market between now and 2007 are freestanding, single-family residences. Approximately 75% of the anticipated new inventory is expected to be sin-

gle-family homes. Of course, the City must have land that can accommodate housing growth in order for this projection to be realized.

Competitively, the market appears to be reasonably stable, now and in the future, regarding housing supply and demand. Housing values are projected to grow based on the continuation of current trends. Approximately 75% of the housing inventory is projected to be valued at \$75,000 or greater by 2007. Areas in close proximity to the City of Troy are projected to share in the housing growth in the future. These areas reflect similar characteristics to those of the City of Troy in the future. In general, the housing market in the City of Troy and its environs appears to be competitively well positioned for growth in the time period between now and 2007.

VIII. THE MARKET FOR OFFICE AND INDUSTRIAL SPACE

A. The Inventory

The inventory of office and industrial space in the City of Troy must be estimated anecdotally from employment indicators and judgment regarding the composition of businesses in the community. The Miami County Auditor's electronic records are incomplete with regard to the sizes of many buildings currently on the tax roles. There is no question that the lack of public record data precludes correlation of the analyst's estimates and weakens the overall quality of the analysis, but there is no other choice than to base the observations made in this section on the indirect indications of the magnitude of the existing space inventory.

Field observations suggest that employment data from the market will probably result in an underestimate of the office and industrial space on the landscape in the City of Troy. This observation is based on the number of apparently underutilized and obsolescent structures that have been observed. Most frequently these structures are older, multistory, buildings that do not appear to be occupied above the first floor, if occupied at all. These structures do not represent good, functional, inventory for the future, but may represent a redevelopment problem for the public sector to correct at some point in time. Redevelopment sites of this nature must be identified because their redevelopment may create the only inventory of developable sites for office and industrial uses in the City in the future.

For purposes of this analysis, the inventory of industrial and office space will be estimated in the aggregate and then split on the basis of categories of employment. Some categories of employment have been excluded from the basis of the calculations because the employment categories are not directly related to building space or because the categories are more properly grouped in the retail segment of the employment market. In this analysis employment in agriculture, construction, retail, and entertainment/recreation services have been excluded from the employment base. The basis of the initial space estimation will be predicated on the typical employment density experienced in mixed use industrial and office parks. This employment densi-

ty ranges between 2.1 persons and 2.4 persons per thousand square feet of gross floor space. This basis of estimation will tend to overestimate the actual square footage of office space in the inventory and underestimate the industrial/warehouse square footage in the market. The warehouse component is typically the most underestimated when correlating square footage of space to employment. This is due to the wide range of products that can be warehoused in any given community. High value - low volume products may take a relatively small amount of space as compared to employment while low value - high volume products may take extraordinary amounts of square footage to accommodate. The City of Troy has a large percentage of its employment base in the wholesale segment of industry. This concentration tends to accentuate the likelihood that employment underestimates the amount of industrial square footage in the local market.

Approximately 19,917 persons are employed in office and industrial space based businesses and industries located in the City of Troy, today. This compares to a resident workforce in the included categories of business and industry of approximately 8,097. Therefore, approximately 11,820 non-residents work in Troy based businesses. This makes Troy an employment hub relative to other communities in Miami County and in the Dayton-Springfield MSA. The relative magnitude of Troy as an employment center can be observed in Table 21., below. Troy exhibits an employment ratio of 1.69:1 relative to residents in the workforce. This concentration of employment directly influences the amount of office and industrial space that comprises the inventory in the City of Troy.

TABLE 21.		CITY OF TROY, OHIO MARKET STUDY				
SUMMARY EMPLOYMENT ANALYSIS						
JURISDICTION	Dayton MSA	Miami County	Troy City	Piqua City	Tipp City	
EMPLOYMENT						
All Industries	539,035	61,584	23,471	9,928		5,716
Employed Residents	446,181	49,208	10,805	9,498		4,790
Employed Non-Residents	92,854	12,376	12,666	430		926
Total/Resident Employment Ratio	1.21	1.25	2.17	1.05		1.19
Employed Residents	446,181	49,208	10,805	9,498		4,790
Total Population	944,298	99,343	22,003	20,725		9,388
Employment Percent	47.25%	49.53%	49.11%	45.83%		51.02%
Employed Residents	446,181	49,208	10,805	9,498		4,790
Total Households	379,879	38,937	8,997	8,351		3,711
Employment Ratio	1.17	1.26	1.20	1.14		1.29
EMPLOYMENT BASE						
All Industries	539,035	61,584	23,471	9,928		5,716
All Manufacturing	96,796	16,097	5,809	3,070		1,678
All Retailing	106,124	10,527	2,773	2,372		2,000
All Construction & Trades	20,708	2,333	413	415		170
Wholesale Non-Durable Goods	5,758	788	326	82		41
Wholesale Durable Goods	15,530	3,249	1,951	319		42
All Industries	100.00%	100.00%	100.00%	100.00%		100.00%
All Manufacturing	17.96%	26.14%	24.75%	30.92%		29.36%
All Retailing	19.69%	17.09%	11.81%	23.89%		34.99%
All Construction & Trades	3.84%	3.79%	1.76%	4.18%		2.97%
Wholesale Non-Durable Goods	1.07%	1.28%	1.39%	0.83%		0.72%
Wholesale Durable Goods	2.88%	5.28%	8.31%	3.21%		0.73%
EMPLOYER BASE						
All Industries	36,168	3,937	1,112	834		424
All Manufacturing	2,553	358	85	81		39
All Retailing	7,165	763	199	201		89
All Construction & Trades	2,346	352	59	64		22
Wholesale Non-Durable Goods	299	41	8	5		4
Wholesale Durable Goods	1,100	127	263	30		7
All Industries	100.00%	100.00%	100.00%	100.00%		100.00%
All Manufacturing	7.06%	9.09%	7.64%	9.71%		9.20%
All Retailing	19.81%	19.38%	17.90%	24.10%		20.99%
All Construction & Trades	6.49%	8.94%	5.31%	7.67%		5.19%
Wholesale Non-Durable Goods	0.83%	1.04%	0.72%	0.60%		0.94%
Wholesale Durable Goods	3.04%	3.23%	2.34%	3.60%		1.65%

Using the employment density ratios cited above, the inventory of office and industrial space estimated to comprise the inventory in the City of Troy ranges from 8,300,000 square feet to 9,500,000 square feet, rounded to the nearest 100,000 square feet. Of this space, approximately 4,500,000 square feet to approximately 5,100,000 square feet should comprise the office segment of the total space inventory. This may appear to be a large portion of the overall office and industrial space inventory, but it does include professional and related services, which include all of the medical, dental and optical professions. These categories of employment tend to require an atypically large amount of square footage per employee as a function of specialized space requirements and the volume of patients seen during the course of a normal business day. Note that the timing of the last Census of Business in 1997 may have included a hospital that is now closed. This adjustment has not been made in the data, but could alter the "Professional and Related Services" segment of employment in the City by a substantial amount. Unfortunately, the square footage needed to support the level of employment indicated in Table 22., below remains on the landscape in the City. For space estimation purposes, leaving the employment data as observed is more accurate regarding the space inventory.

By elimination, the amount of industrial/warehouse square footage in the City's inventory comprises approximately 3,800,000 square feet to 4,400,000 square feet. As stated above, the wholesale employment component of the City's overall employment base suggests that this inventory may be underestimated.

B. The Market

The market for office and industrial space is based on projections of employment growth and the nature of the businesses and industries that may be poised to expand. For purposes of the projections in this section, employment forecasted in the "Professional and Related Services" segment of the employment market will be excluded from consideration since the relocation of the hospital to a new campus outside of the City will blunt much of the projected growth resulting from this category of jobs in the City. Based on the specific exclusion cited herein and reminding the reader of the specific employment categories eliminated above, City based employment growth between now and 2007 is estimated to comprise approximately 602 office and industrial jobs. Of course, employment expansion may not be directly tied to space growth. However, the employment numbers observed were measured in a relatively strong economic period. It will be assumed that the economic conditions at the time of the last business census are correlated to the efficient use of facilities. Therefore, employment growth will be used to directly estimate a range of new space needed to accommodate the increased number of workers in Troy based businesses. There is one other significant caveat that must be observed before translating structural needs into potential land area needs in the market. Most employment expansions will originate from existing business expansions rather than new business introductions into the market. Expanding businesses may need to add to their buildings, but they probably already have enough land to enable expansion without the need

to add to their sites. Employment growth, estimated above, translates into additional office and industrial square footage ranging from 250,000 square feet to 290,000 square feet. Employment growth projections are contained in Table 22., on the following page.

C. Future Demand

Of the employment growth projected, only 88 jobs are forecasted for employment categories requiring office space, specifically excluding the "Professional and Related Services" fields. The estimated employment growth only indicates a need for between 35,000 square feet and 45,000 square feet of office space. Of total job growth forecasted above, approximately 514 jobs may be created in the industrial segment of the market. Through the process of elimination, industrial space growth is reduced to between 215,000 square feet and 245,000 square feet of additional space.

Calculating the estimated space growth needs between new businesses and industries versus growth among existing businesses and industries provides some indication of the need for industrial and office land for future growth. For purposes of this allocation, it is assumed that 85% of future employment growth will come from existing businesses and industries while 15% of future employment growth will come from new businesses and industries. Of course, the estimates contained herein assume that the trends suggested by the data analyzed will continue without significant changes in the future. In addition, the growth numbers estimated above are projected on the basis of existing employment sources in the marketplace today; in essence, 85% of projected future growth. Based on the assumptions stated above, new businesses requiring new office space may require space in an estimated range between 7,000 square feet and 8,000 square feet of space. New industries may require new industrial space in a range between 35,000 square feet and 40,000 square feet. New office land needs, based on a 4:1 land-to-building ratio, range between 0.65 acre and 0.75 acre, in round numbers. New industrial land needs, based on a 6:1 land-to-building ratio, range between 5.00 acres and 5.50 acres, in round numbers.

While there are indications that employment growth will occur in the City of Troy between now and 2007, there are always risks that will alter the eventual realization of these projections. Certainly, industry shifts to offshore sources of production have been significant in the local and national markets. These structural shifts along with the implementation of technological replacements for employees are two significant risks to employment growth. Some industries are better positioned to grow in the future while other segments of the industrial and office markets are likely to suffer employment reductions from the sources identified above. In general, precision manufacturing, advanced materials, high technology machinery and equipment, computer and electronic equipment manufacturers, and information technology based businesses are the most likely to see expansion in the future. The City of Troy appears to be well positioned to take advantage of growth in these industrial categories based on a review of the City's current sources of employment. Employment comparisons with the Dayton-Springfield MSA and selected subsets of the

metropolitan market suggest some of the differences in employment distribution in Troy versus the larger local market. Although not included in Table 23., below, a review of major industries grouped by SIC codes strongly suggests that Troy already has a core of employers in the SIC categories that fit the description of industry groups that should see significant growth as a result of the transition to a new economy.

a significant risk to the stability of the employment base in the future. In addition, the manufacturing segment of industry has been particularly sensitive to offshore production shifts and technological replacements for employees. These factors can influence future employment even if the manufacturing facilities themselves are relatively modern.

TABLE 23.		CITY OF TROY, OHIO MARKET STUDY				
METROPOLITAN MARKET SUMMARY EMPLOYMENT ANALYSIS						
JURISDICTION	Dayton-Springfield MSA	Miami County	Montgomery County	City of Dayton	City of Troy	
EMPLOYMENT						
All Industries	539,035	61,584	337,121	119,874	23,471	
Employed Residents	446,181	49,208	261,134	64,346	10,805	
Employed Non-Residents	92,854	12,376	75,987	55,528	12,666	
Total/Resident Employment Ratio	1.21	1.25	1.29	1.862.17		
Employed Residents	446,181	49,208	261,134	64,346	10,805	
Total Population	944,298	99,343	552,242	162,418	22,003	
Employment Percent	47.25%	49.53%	47.29%	39.62%	49.11%	
Employed Residents	446,181	49,208	261,134	64,346	10,805	
Total Households	379,879	38,937	228,031	66,242	8,997	
Employment Ratio	1.17	1.26	1.15	0.97	1.20	
EMPLOYMENT BASE (PEOPLE)						
All Industries	539,035	61,584	337,121	119,874	23,471	
All Manufacturing	96,796	16,097	56,987	18,167	5,809	
All Retailing	106,124	10,527	62,540	13,327	2,773	
All Construction & Trades	20,708	2,333	13,100	4,428	413	
Wholesale Non-Durable Goods	5,758	788	2,512	1,019	326	
Wholesale Durable Goods	15,530	3,249	10,497	3,316	1,951	
All Industries	100.00%	100.00%	100.00%	100.00%	100.00%	
All Manufacturing	17.96%	26.14%	16.90%	15.16%	24.75%	
All Retailing	19.69%	17.09%	18.55%	11.12%	11.81%	
All Construction & Trades	3.84%	3.79%	3.89%	3.69%	1.76%	
Wholesale Non-Durable Goods	1.07%	1.28%	0.75%	0.85%	1.39%	
Wholesale Durable Goods	2.88%	5.28%	3.11%	2.77%	8.31%	
EMPLOYER BASE (COMPANIES)						
All Industries	36,168	3,937	22,462	7,043	1,112	
All Manufacturing	2,553	358	1,617	613	85	
All Retailing	7,165	763	4,316	1,184	199	
All Construction & Trades	2,346	352	1,274	328	59	
Wholesale Non-Durable Goods	299	41	189	52	8	
Wholesale Durable Goods	1,100	127	762	212	26	
All Industries	100.00%	100.00%	100.00%	100.00%	100.00%	
All Manufacturing	7.06%	9.09%	7.20%	8.70%	7.64%	
All Retailing	19.81%	19.38%	19.21%	16.81%	17.90%	
All Construction & Trades	6.49%	8.94%	5.67%	4.66%	5.31%	
Wholesale Non-Durable Goods	0.83%	1.04%	0.84%	0.74%	0.72%	
Wholesale Durable Goods	3.04%	3.23%	3.39%	3.01%	2.34%	

Future employment growth is important, but real employment growth also says a great deal about employment retention. Much of Troy's employment base is located in relatively new quarters. However, there are some significant employers that are located in older facilities that appear to be underutilized. These employers are not locally controlled. The decision to retain these locations in the future may be made at a corporate headquarters in a remote location to Troy. Closure decisions will be made on the basis of relative costs of operation, exclusively. Employers that fit this general description should be regarded as "at risk". Efforts should be made to proactively determine these companies' future needs and reduce the burden of obsolescent infrastructure before its results in plant closures.

The observations, above, regarding industries that could be at risk are important considerations for the City of Troy. The employment base in the City and the employment concentration of City residents is significantly skewed to the manufacturing segments of industry. With the concentration of employment and the dependence of residents on the health of manufacturing industries, facilities obsolescence has to be treated as

D. Competitive Supply

The City of Troy does not have a significant amount of land for future industrial or office expansion. However, the general market appears to have more than ample alternatives for industrial and office growth. A relatively small inventory of land may not be a problem if holding costs are considered in the overall costs of industrial and office park development. The amount of land absorbed for industrial and office growth in recent years in the general marketplace has been a small fraction of the acreage offered for sale in numerous publicly and privately developed parks in the general vicinity. Thus, the holding costs to keep competitive alternatives in the marketplace have been significant.

Redevelopment opportunities could expand the inventory of office and industrial sites in the City of Troy, but there does not appear to be a current alternative on the landscape that could attract a large-scale user or, possibly, multiple users. The decision to develop such an industrial park is as much a function of public policy as it is a response to the market. Based on the estimates projected above there does not appear to be an immediate need for large amounts of office or industrial

ground. The exception to this statement is based on the amount of additional expansion that can be accommodated on the existing sites of the City's current businesses and industries. If many of the current sites cannot accommodate expansion, then a large office/industrial park may be needed to defend against the possible loss of businesses and industries as a function of their success and growth coupled with the City's inability to find sites, in the City, to accommodate growth.

E. Supply and Demand Balance

Observations regarding the supply and demand balance for office and industrial space are constrained by the lack of good, existing, space data from the public record. A general observation can be made, that modern, functional office and industrial space appears to be at or near a stabilized occupancy level in the local market. Current economic times can swell the inventory of vacant space in the short term, but there does not appear to be a glut of office or industrial space in the local market at this time. Older, obsolescent, office and industrial space does exist in the local marketplace today. However, much of this space appears to be under the control of corporate or business owners and not available in the general rental or sale markets today. Even if offered for sale or lease, much of this older, obsolescent space would not be a competitive factor for the majority of potential owners or renters in the office and industrial markets in Troy, now or in the future.

Essentially, the City of Troy does not have an extensive inventory of office or industrial land nor does it have an extensive inventory of existing, modern office or industrial space. The current market appears to be in balance, but the expansion of the economy in the future could leave the City in a condition of undersupply of land and existing, modern space for office and industrial growth.

F. Market Share and Competition

As stated above, an economic expansion could leave Troy in short supply of office and industrial land and existing, modern space. This could inhibit the City from retaining its competitive position in a local market in which competition appears to be intensifying. Competitive venues south of Troy located on Interstate Routes 70 and 75 have taken active steps to expand their inventories of market ready office and industrial land in recent years. Redevelopment of "brown field" sites in the City of Dayton is adding a new dimension to the competition for industrial companies in the general marketplace.

Projected improvements to I-75 and the I-70/75 interchange over the next several years will enhance a number of communities' access to this significant highway corridor. With highway improvements and the continued absorption of competitive office and industrial land areas south of Troy along the I-75 corridor, it must be assumed that locations north of Troy will enjoy an enhanced competitive position in the future.

Employment projections are included in Table 24., on the following page, that review the outlook for the Dayton-Springfield MSA and some selected subsets as compared to the City of Troy.

The conclusion with regard to the observations made above is that the City of Troy must expect to compete in a more intense competitive environment in the future. The City must form competitive strategies on two fronts. First, the City must develop and maintain strategies to retain and expand existing businesses and industries in the future. The best way to position the City to retain its existing businesses and industries is through communication and information. The two parts of the retention strategy mean that there should be a defined, ongoing business and industrial calling effort. Some communities lose opportunities to retain businesses because they do not communicate with their businesses and the business operators do not know the person to contact in government when they need help to expand. Knowing the person to contact when expansion or change is on the horizon is often a city's most critical prerequisite step to business retention. The information part of the strategy simply means that the City must know its businesses, their needs and their potential problems. The more information that the City has on file regarding its businesses and industries, the less that City officials will have to learn about a business or industry when a need arises. Response timelines could be short in the effort to retain a business or industry. This small amount of time cannot be consumed on research into a company's history and current operations; the time must be spent on formulating proposals to keep the company in town.

Second, the City must aggressively make it known that it wants more businesses and industries to locate in town. This strategy focuses on business attraction. Of the two strategic focuses, this strategy will probably be the most competitive and produce fewer visible rewards for the time and effort spent. Business attraction can take multiple forms. Some communities are focused on knowing the businesses and industries of neighboring communities better than these companies' home communities know them. Following this strategy, a city may be able to capture expanding companies from neighboring communities before the neighboring communities know that they have needs. Even if this strategy appears distasteful to the City of Troy, it must be a strategy that the City works to defend against (see the paragraph above). A second alternative business attraction strategy is to identify the "customer" companies that are already in town and explore the need to locate suppliers, subcontractors or related businesses in close proximity. Trends in business and industry suggest that growth of key industries in the future will demand that interrelated companies be located in close proximity to enhance overall efficiencies. Finally, a business attraction strategy can be delegated to an individual or entity that does nothing but look for possible business and industrial candidates that fit into the fabric of the labor pool and existing business and industrial base of the community. This strategy is not dissimilar to the strategy cited above. However, it delegates the function to an individual or entity that may not be a City employee. Essentially, a portion of the Economic Development function may be outsourced to an individual or entity that concentrates exclusively on matching companies to locations that can deliver operating efficiencies that translate into cost savings or market expansions, or both.

The point of the discussion above is that the City of Troy must be prepared to defend its existing business and industrial base from other competitive communities and it must focus on business attraction at the same time. The competitive is projected to intensify and several competitive communities may be better positioned regarding market ready inventories of land and existing, modern office and industrial structures.

G. Observations Regarding the Study Area

The data suggests that the City of Troy should experience employment growth of approximately 3% to 4% in the office and industrial segments of the market between now and 2007. Most of this growth is believed to originate from already existing businesses and industries.

While growth is suggested on the basis of historical trends, the City's employment and a very significant portion of the Troy, resident workforce is employed in the manufacturing segment of the City's industrial base. This segment of employment has shown susceptibility to structural displacement from offshore relocations as well as employment reductions from the introduction of automated technologies. The City of Troy must be aware of any possible weaknesses in its manufacturing industrial employment base.

The City's inventory of existing, modern office and industrial space appears to be at, or near, stabilized occupancy. Like many older cities, the City of Troy does have a significant component of older, functionally obsolescent, underutilized space. Much of this space is not currently available in the lease or sale markets. For most market participants this space would not represent a competitive alternative even if it were currently available for sale or lease. However, the sites occupied by these older spaces could represent redevelopment alternatives that could bolster the City's inventory of competitive office and industrial sites in the future.

The City of Troy does not appear to have market ready sites to attract large-scale users at this time. This has been a market segment in which the City has successfully competed in the past. While employment growth projections are modest relative to existing businesses and industries, the City cannot compete for major new companies without competitive, market ready sites.

Regardless of the City's policy decisions regarding redevelopment sites or major new industrial/office parks, the competitive environment is likely to become more intense in the future. With improvements to I-75 and the I-70/75 interchange, the attractiveness of locations along the interstate corridor is likely to improve. Troy is in a competitively advantageous location with multiple highway exits in, or in close proximity to, the city.

Based on a review of the SIC codes of the employers in the City of Troy, the City appears to have positioned itself well with regard to the segments of business and industry that should grow as a function of the new economy and the implementation of technology.

IX. THE MARKET FOR RETAIL SPACE

A. The Inventory

Similar to the method by which the inventory of current office and industrial space was estimated, the inventory of retail space will be estimated. Retail employment constitutes approximately 2,770 persons as derived from the data analyzed. Based on employment densities that range from 2.1 employees to 2.4 employees per thousand square feet of retail space, the current inventory of retail space in the City of Troy is estimated to range between 1,155,000 square feet and 1,320,000 square feet. To correlate this information, the total square footage of retail space in Miami County will be estimated similarly and corroborated to an estimate taken from another for a study of the market conducted in 2001. Based on the data analyzed for this study, the total retail square footage estimated for Miami County ranges from 4,385,000 square feet to 5,015,000 square feet. The previous estimate of total square footage in Miami County was concluded at 4,400,000 square feet. The current estimate and the previous estimate correlate almost exactly based on an employment density of 2.4 employees per thousand square feet of space. Applying the employment density of 2.4 persons per thousand square feet, the City of Troy's estimated retail square footage is concluded at 1,155,000 square feet.

An additional technique for estimating space is based on annual sales per square foot. The average sales per square foot for all multi-tenant, centers, nationwide ranges from \$150 to \$300, in round numbers. Taking the midpoint of the range and applying this number to the total sales of all retail stores in Troy results in a supportable square footage estimate of 1,288,859 square feet. The retail sales numbers include the sales of auto dealers. Dealerships generate extraordinary sales figures relative to the building square footage of typical dealerships. As a result the overall estimate of retail square footage is probably overestimated. Performing the same calculation without the auto dealers sales numbers results in an estimate of approximately 1,025,000 square feet of retail space. This estimate appears to be less than actual square footage based on the employment density methodology and prior estimates. Turning the calculation around, the analyst will assume that the retail square footage is 1,155,000 square feet. Then what are average retail sales per square foot in the City of Troy? The estimate is concluded that \$200.00 represents the average retail sales per square foot, for all retail businesses in the City of Troy exclusive of auto dealers. This estimate does not appear unreasonable given the composition of the inventory including older, multi-story buildings around the square, older multi-tenant strip centers and new retail of various types adjacent to I-75. Several of the older, central city venues along with the older multi-tenant strips appear to exhibit functional obsolescence, abnormal vacancy and deferred maintenance.

Essentially, the inventory is estimated to include approximately 1,155,00 square feet of retail storeroom space.

B. The Market

Sales of retail businesses in the City of Troy total \$290,000,000 including \$59,000,000 generated by automobile dealers. The retail sales volume of both Piqua and Tipp City exceeds the sales volume of the retail merchants in the City of Troy, although there are specific companies in Piqua and Tipp City that create this disparity in the sales statistics. Based on estimates of indigenous market potential, merchants in the City of Troy sell approximately 107.7% of the local market demand. Given the merchants that have concentrated near the interchange of S.R. 41 and I-75 this is not an unexpected analytical outcome. Wal Mart and Meijer are expected to draw a sizeable portion of their consumer bases from beyond the City of Troy. In some ways the City of Troy can be regarded as the "big box retail hub" of Miami County.

Table 25., below, details the magnitude of the local market and examines the magnitude of other retail markets in Miami County along with the overall magnitude of the retail market in the Dayton-Springfield MSA.

The retail epicenter of the City of Troy appears to be at the interchange of S.R. 41 and I-75. This location works well for Troy residents, but also serves a market well beyond the city limits of Troy.

C. Future Demand

The demographics projected in Table 6., earlier in this report suggest that average household incomes will grow in Troy in real terms of approximately 4.00% between now and 2007. Assuming that merchants in the City of Troy continue to capture approximately 107.7% of the indigenous market potential and this real growth rate is applied to the retail sales of merchants in the City of Troy then retail sales should grow to approximately \$301,600,000 in real terms. Note that it is assumed that nominal growth will not result in any expansion of the local retail market. However, the real growth of the market and retention of the indicated market penetration will result in a real increase of retail trade of \$21,600,000 between now and 2007. Based on the average retail sales per square foot calculated to be \$200 per square foot, an additional 108,000 square feet of retail space

TABLE 25.		CITY OF TROY, OHIO MARKET STUDY				
SUMMARY RETAIL BUSINESS ANALYSIS						
JURISDICTION	Dayton-Springfield MSA	Miami County	Troy City	Piqua City	Tipp City	
2002 Households	379,879	38,937	8,997	8,351	3,711	
Average HH Income	\$57,401	\$59,018	\$49,668	\$47,799	\$58,413	
2002 Total Income	\$21,805,434,479	\$2,297,983,866	\$446,862,996	\$399,169,449	\$216,770,643	
Expenditure Percentage	48.00%	48.00%	48.00%	48.00%	48.00%	
Expenditure Potential	\$10,466,608,550	\$1,103,032,256	\$214,494,238	\$191,601,336	\$104,049,909	
52 - Bldg. Mat'rl/Garden/Mbl. Homes	\$1,047,000,000	\$278,000,000	\$29,000,000	\$22,000,000	\$176,000,000	
53 - General Merchandise Stores	\$1,102,000,000	\$64,000,000	\$29,000,000	\$17,000,000	\$0	
54 - Food Stores	\$2,612,000,000	\$152,000,000	\$56,000,000	\$42,000,000	\$24,000,000	
55 - Auto Dealers & Serv. Stations	\$3,245,000,000	\$508,000,000	\$59,000,000	\$178,000,000	\$73,000,000	
56 - Apparel and Accessory Stores	\$232,000,000	\$10,000,000	\$2,000,000	\$3,000,000	\$0	
57 - Home Furniture/Equip.	\$1,497,000,000	\$239,000,000	\$14,000,000	\$18,000,000	\$5,000,000	
58 - Eating and Drinking Places	\$1,749,000,000	\$164,000,000	\$63,000,000	\$34,000,000	\$21,000,000	
59 - Miscellaneous Retail	\$1,910,000,000	\$108,000,000	\$38,000,000	\$24,000,000	\$14,000,000	
Total Retail Sales	\$13,394,000,000	\$1,523,000,000	\$290,000,000	\$338,000,000	\$313,000,000	
Market Capture	127.97%	138.07%	135.20%	176.41%	300.82%	
Market Capture W/O SIC 55	96.97%	92.02%	107.70%	83.51%	230.66%	
52 - Bldg. Mat'rl/Garden/Mbl. Homes	7,040	1,718	211	144	1,032	
53 - General Merchandise Stores	10,107	595	267	165	4	
54 - Food Stores	15,581	899	337	256	143	
55 - Auto Dealers & Serv. Stations	11,086	1,741	222	666	202	
56 - Apparel and Accessory Stores	3,101	137	33	460		
57 - Home Furniture/Equip.	7,324	1,010	87	118	25	
58 - Eating and Drinking Places	35,832	3,355	1,283	718	445	
59 - Miscellaneous Retail	16,053	1,072	330	255	147	
Total Retail Employment	106,124	10,527	2,770	2,368	1,998	
52 - Bldg. Mat'rl/Garden/Mbl. Homes	39655		13	13	4	
53 - General Merchandise Stores	221	162		5	1	
54 - Food Stores	552	54	1615		5	
55 - Auto Dealers & Serv. Stations	888	115	24	31	10	
56 - Apparel and Accessory Stores	40625		8	7	0	
57 - Home Furniture/Equip.	788	78	17	22	5	
58 - Eating and Drinking Places	1,743	174	54	47	20	
59 - Miscellaneous Retail	2,171	245	61	57	42	
Total Retail Establishments	7,165	763	195	198	87	
Average Annual Sales per Square Foot	\$225.00	\$225.00	\$225.00	\$225.00	\$225.00	
Supportable Square Footage	59,528,889	6,768,889	1,288,889	1,502,222	1,391,111	

Piqua has a "regional mall" including the anchor tenants that are typical in a mall type of venue. There does not appear to be a market for an additional regional mall in Miami County at this time. However, the mall location in Piqua offers limited opportunities for peripheral developments. This appears to be the market niche of the City of Troy's retail base. Additionally, market support for Troy's retail business base is bolstered by highway service businesses and hospitality enterprises.

will be needed between now and 2007. This growth estimate is based on only the income trends for the population of the City of Troy. Real income growth statistics for Miami County, Concord Township, Piqua and Tipp City are all indicative of stronger real growth than the City of Troy. Therefore, projected growth of 108,000 square feet of retail space by 2007 must be regarded as a lower limit of projected potential growth.

A more detailed analysis of the market trading area is beyond the scope of this study. However, it could be expected to indicate that the gravity of the retail trade center located at the interchange of S.R. 41 and I-75 will increase over the next several years. Growth should be anticipated and efforts should be made to accommodate this growth. Efforts should also be made to redirect the land uses in other former trade centers in the City of Troy that are no longer able to capture and retain a share of the consumer market. It is the obsolescent centers on the landscape that are no longer capable of efficient use that create problems for local officials to resolve. Prohibiting the development of new, modern retail locations in a community may only serve to hasten the demise of current generation venues. It may be better to encourage the development of a single, high gravity location than to dilute the trading base over a more widespread set of destinations.

D. Competitive Supply

The supply of retail space in the Troy market appears adequate to serve the retail needs of the citizens of Troy and beyond. Certainly, the supply of space appears to be super-adequate when including the space in and near the town square and the older strip centers located near the center of town. However, these older, functionally obsolescent retail centers no longer command the attention of the major retailers in the local marketplace. Reuse and/or redevelopment of these older retail strip centers must be considered as an alternative to allowing them to languish on the landscape for the foreseeable future.

The current generation of retail space on the landscape in the local market appears adequate to serve the needs and wants of Troy consumers and consumers from outside the City. The supply of older, obsolescent retail space in the market appears to be super-adequate to serve the needs of the consumer market in Troy. This is not an uncommon imbalance between supply and demand. However, government has only recently begun to address the need to redirect underperforming retail centers before they become a blighting influence on the landscape. Often it is the public sector that acts to bring the supply of retail space into balance with the demand for current generation retail venues.

E. Supply and Demand Balance

The supply and demand for current generation retail space appears to be in balance. In fact, projections suggest that more new retail space may be needed to satisfy real disposable income growth between now and 2007.

Unfortunately, the supply of older, existing retail space is super-adequate to meet the need of consumers in the community. In several cases the centers have lost the anchor tenants that drew consumers in the past. In other cases the centers have not been maintained and have lost their appeal to consumers. Regardless of the causal factors, several older, existing centers are in their declining years with little likelihood of regaining their attractiveness and importance to the consumers in the community. A similar situation exists at the heart of town on the square. However, initiatives have been

launched to retain the historic character of the square and to promote the return of the local merchant. These efforts are always risky and the potential turnover of merchants may be high. Nevertheless, there is a niche for the local merchant to provide unique goods and services to the local population and a venue like the historic town square has proven to be the best choice for merchants that fit the unique, local market niche in Troy and other small Mid-western cities. The space in the town square comprises part of the retail space on the landscape, but it would not be considered inventory to regional or national mass merchandisers. Unfortunately, it is the early generations of shopping centers that are hard pressed to find market segments in which to compete. Many of these centers languish because their owners find it difficult to grasp that their centers no longer meet the demands of the consumer population and that the tenants who once competed for space in their centers now turn their backs on these properties. These are the retail properties that are the best candidates for adaptive reuse or redevelopment. There are two significant older centers that appear to be candidates for reuse and/or redevelopment in Troy. The first of these centers is adjacent to the interchange of S.R. 41 and I-75, and is comprised of a multiple building, multiple tenant strip center. The land area appears large enough to support a current generation retail use, but the site is cluttered with obsolete retail improvements. This center appears to be a redevelopment candidate for a current generation retail use. The second obsolete center on the landscape in Troy is north of the center of town. This center is on a local thoroughfare some distance from I-75. This center appears to be a candidate for an alternative land use. The retail market in this location has dwindled to a neighborhood convenience type of base. It appears improbable that major retail tenants will ever occupy this center again. Redevelopment alternatives should be examined that allow for neighborhood convenience needs while freeing up most of the land occupied by the center for alternative uses.

F. Market Share and the Competition

The retail merchants located in the City of Troy appear to serve the needs and wants of consumers beyond the population of Troy itself. It appears that Troy has become the “big box” retail epicenter, or hub, of Miami County. Given income projections for Troy and its environs, the gravity of this retail hub, at the interchange of S.R. 41 and I-75 will probably intensify in the coming years. It is likely that Troy's share of the retail market in Miami County will increase in the future as the result of this epicenter's intensification.

Older centers will continue to languish as a function of location and/or functionally obsolete improvements. This space does not represent competitive inventory nor does it provide enough interest to find a niche market that it can accommodate.

The historic town square has found a niche in the local merchant based, specialty marketplace. The buildings around the square and in the immediate vicinity offer local merchants a clean, interesting, pedestrian friendly shopping and dining environment that even “mall shop-

pers" can enjoy, even if it is only a diversion from their normal shopping routine. This segment of the market draws its demand from that segment of the population seeking alternative shopping and dining experiences. The merchants occupying the spaces in and around the town square are as much a form of entertainment as they are shopping locations. It is the overall experience that many shoppers enjoy not just the merchandise or the food. This group of merchants is relatively safe from the front line regional or national chains located at S.R. 41 and I-75 as long as they can retain the ambience of the total experience of a visit to the square.

G. Observations Regarding the Study Area

Troy appears to be at the heart of a strengthening retail hub at the interchange of S.R. 41 and I-75. This retail hub is projected to grow in significance in the future. Currently the area serves a population well beyond the city limits of Troy. In the future, this hub should serve a broader market geographically and capture a larger share of the consumers' dollars who shop there than is captured today.

While the retail hub at S.R. 41 and I-75 gains strength, older venues on local thoroughfares in the City will find it increasingly difficult to compete. In fact, some current, older retail venues will be better off redeveloped for another land use or mix of uses than to remain as retail locations in the future.

The historic downtown should retain its unique market niche as long as the overall theme of the historic town square continues to grow. This unique market niche will be the home of a variety of local merchants in the future.

X. OBSERVATIONS AND CONCLUSIONS

The City of Troy is poised to undergo a transition as a city over the next several years. The County Seat of Miami County, Troy has historically enjoyed a reputation of being a pleasant place to live and work. The City has historically had more than a proportionate share of successful companies located in town. The lifestyles of residents were comfortable based on stable employment, social and cultural amenities, and a variety of locally based merchants that offered high quality goods and services to consumers. Troy has offered a blend of urban and rural living that has been somewhat unique in the region. However, the City of Troy is confronting change. Some of this change has emanated from within, but much of the change that has occurred in recent years has been a function of increasing urbanization of the unincorporated areas around Troy coupled with economic development along the I-75 corridor north of Dayton.

Troy may evolve into more of a core city surrounded by suburban townships in the near future. Some of the demographic data analyzed during the course of this study suggests that the City of Troy may be undergoing a transition to a community with more urban characteristics. The age makeup of the population, income levels, the percentage of rental housing, the age of the housing inventory, aging industrial infrastructure, and newer alternative retail outlets on the fringe of town, all speak to the potential for the City of Troy to exhibit more urban, core, city characteristics.

A. Housing Market Observations

The housing market in the City of Troy is projected to grow between now and 2007. The number of housing units that may be added to the City's inventory ranges between 276 units and 656 units depending on the data sources. This represents an increase ranging between 3% and 7% in the number of housing units in the City. The estimated housing inventory growth appears to outpace the projected population growth rate and household growth rate in the City.

The occupancy styles of the households in the City strongly suggests that a significant percentage of the freestanding, single family residences in the City may have been converted to rental housing. The percentage of conversions may be as high as 20% of the inventory. This appears to be indicative of a potential housing issue with regard to the preservation and enhancement of the current inventory of single-family homes. In addition, the percentage of households living in rental housing is expected to increase between now and 2007. Should this projection be realized, it is likely that more single-family homes will enter the rental market.

The majority of new units projected to be introduced to the housing market between now and 2007 are free-standing, single-family residences. Approximately 75% of the anticipated new inventory is expected to be single-family homes. Of course, the City must have land that can accommodate housing growth in order for this projection to be realized.

Competitively, the market appears to be reasonably stable, now and in the future, regarding housing supply and demand. Housing values are projected to grow based on the continuation of current trends. Approximately 75% of the housing inventory is projected to be valued at \$75,000 or greater by 2007. Areas in close proximity to the City of Troy are projected to share in the housing growth in the future. These areas reflect similar characteristics to those of the City of Troy in the future. In general, the housing market in the City of Troy and its environs appears to be competitively well positioned for growth in the time period between now and 2007.

B. Office and Industrial Market Observations

The data suggests that the City of Troy should experience employment growth of approximately 3% to 4% in the office and industrial segments of the market between now and 2007. Most of this growth is believed to originate from already existing businesses and industries.

While growth is suggested on the basis of historical trends, the City's employment and a very significant portion of the Troy, resident workforce is employed in the manufacturing segment of the City's industrial base. This segment of employment has shown susceptibility to structural displacement from offshore relocations as well as employment reductions from the introduction of automated technologies. The City of Troy must be aware of any possible weaknesses in its manufacturing industrial employment base.

The City's inventory of existing, modern office and industrial space appears to be at, or near, stabilized occupancy. Like many older cities, the City of Troy does have a significant component of older, functionally obsolescent, underutilized space. Much of this space is not currently available in the lease or sale markets. For most market participants this space would not represent a competitive alternative even if it were currently available for sale or lease. However, the sites occupied by these older spaces could represent redevelopment alternatives that could bolster the City's inventory of competitive office and industrial sites in the future.

The City of Troy does not appear to have market ready sites to attract large-scale users at this time. This has been a market segment in which the City has successfully competed in the past. While employment growth projections are modest relative to existing businesses and industries, the City cannot compete for major new companies without competitive, market ready sites.

Regardless of the City's policy decisions regarding redevelopment sites or major new industrial/office parks, the competitive environment is likely to become more intense in the future. With improvements to I-75 and the I-70/75 interchange, the attractiveness of locations along the interstate corridor is likely to improve. Troy is in a competitively advantageous location with multiple highway exits in, or in close proximity to, the city.

Based on a review of the SIC codes of the employers in the City of Troy, the City appears to have positioned itself well with regard to the segments of business and industry that should grow as a function of the new economy and the implementation of technology.

C. Retail Market Observations

Troy appears to be at the heart of a strengthening retail hub at the interchange of S.R. 41 and I-75. This retail hub is projected to grow in significance in the future. Currently the area serves a population well beyond the city limits of Troy. In the future, this hub should serve a broader market geographically and capture a larger share of the consumers' dollars who shop there than is captured today.

While the retail hub at S.R. 41 and I-75 gains strength, older venues on local thoroughfares in the City will find it increasingly difficult to compete. In fact, some current, older retail venues will be better off redeveloped for another land use or mix of uses than to remain as retail locations in the future.

The historic downtown should retain its unique market niche as long as the overall theme of the historic, town square continues to grow. This unique market niche will be the home of a variety of local merchants in the future.

D. General Recommendations

There are several strategic measures that the City of Troy can take that may serve to delay or eliminate any potential degradation of the City's built environment and its image over the next several years. Of course, the built environment will continue to age. However, the City of Troy should regard its inventory of all land use types

as perishable commodities. Structures of all types have economic and physical lives. Often the economic life of an improvement is shorter than the physical life. The difference between these two life cycles is the origin of restoration, rehabilitation, and reuse projects. The point of this discussion is that the City of Troy must recognize when properties are in their declining economic years and work to find feasible alternatives for the improvements or clear the existing improvements from the landscape and make sites ready for redevelopment.

The housing inventory is of particular concern because of the rental component of the market. Landlords make improvement decisions on the basis of economics not aesthetics. While the curb appeal of a property may improve its overall marketability, there may not be a direct payback for a cosmetic upgrade. Homeowners will expend money on cosmetic improvements because of the pride of ownership and the statement that a good-looking property makes. Minimum maintenance standards are essential for homeowners and landlords. Landlord registration may be a prudent move on the part of the City. This can be especially useful if a property becomes a nuisance because of maintenance issues or because of the occupancy. Presale inspections are another means of making sure that the housing inventory is at least being upgraded to a minimum standard on a periodic basis. Making smoke detectors a requirement in all rental housing units can afford the Fire Department the opportunity to inspect rental units periodically for compliance and to observe general conditions in rental properties. Incentives for home improvements in the form of low interest loans, and possibly loans convertible to grants for significant renovation or restoration projects, can help to maintain the housing inventory. The City could consider buying properties in the marketplace that have been converted from owner-occupied housing and returning the properties to the market with restrictions that preclude rental occupancies. The City may also want to consider restoring single-family homes that have been converted to multiple family units, recognizing that the end values may be less than the City's purchase prices. This is not an exhaustive list of potential tools. Some of the recommendations may not be acceptable for a variety of community reasons. The point is that proactive steps to preserve and enhance the housing inventory are far better than allowing the inventory to decline.

Specific strategies have been identified in the preceding text with regard to the office and industrial segments of the market. Typically, less can be done to counteract the effects of aging industrial infrastructure than other land uses because of the decision-making processes of corporate owners. Communication and information are the best tools to work with businesses and industries. If a business or industry elects to relocate and close their local facilities, the City must be able to assert itself with regard to all of the steps that the company can take to make sure that the site and its improvements do not languish on the landscape for decades. Industrial properties, in particular, are of such significance that they can negatively influence adjacent neighborhoods for years if they are shuttered and allowed to deteriorate. An aggressive stance with regard to industrial closures is very important to the overall health, appearance, and perceptions that a community creates.

Retail uses are perhaps the most fluid among the four primary land-use categories. Retailers must be responsive to changes in style reflecting consumer preferences and changing lifestyles. Market share is critical to the retailers' success. Typically, the market moves at a much faster pace than the rate of change in a retail property. It is the pace of change of consumer desires that makes existing retail establishments obsolete in a relatively short time. It is unlikely that the pace of change will slow significantly in the retail markets in the future. The City of Troy must be attentive to the pace and direction(s) of housing growth in the future. Businesses follow people and growing residential areas offer the best opportunities for retailers to capture a market share and expand this share as the community develops. Once an area is fully developed, shopping center developers and their primary retail tenants may look for the next location to build a new center in an expanding market area. Unfortunately, once an existing center is left behind as a community grows, it may continue to erode as a trading center until it contributes virtually nothing to the economic health of the community. There are few tools that can be used to stop the nomadic behavior of retailers and a moratorium on new retail development may actually harm a community if it becomes inconvenient for residents to shop. Tools that prevent retail properties from deteriorating over extended periods are gaining momentum in other parts of the country. Perhaps the most definitive public measure is a demolition bond requirement that requires a developer to demolish an existing center if it falls below some established minimum occupancy level or loses a primary, anchor tenant. Measures like this may seem arbitrary, but they do prevent a community being burdened with unproductive former retail sites that could be put to good alternative reuses.



APPENDIX C

Excerpts from

TROY FIRE DEPARTMENT STRATEGIC STUDY

Conducted by Architectural Resources Corporation

EXECUTIVE SUMMARY

Introduction

In the presentation of the Troy Fire Department Strategic Plan to City Council, an effort was made to stress the fact that this Strategic Plan focused on the Fire District of Troy not just the City of Troy. The plan is also based on long term needs, trends and high risk areas of the community, and the Fire Department's ability to respond effectively to emergency calls. As such, it is also necessary to say that our specific recommendations are also based on full-time service being provided from each facility evaluated in this plan. This is more than an assumption or for the convenience of analysis for the report. It is a necessity of the fire services in any urban community to be able to maintain an effective response time throughout its Fire District twenty-four hours per day, seven days per week for every week of the year.

Fire District

The legal fire district of the City of Troy is the legal city limits of Troy, Concord Township, Staunton Township and EMS only to Casstown. Mutual aid is provided to the many communities and townships across a very large area around Troy, including Tipp City and Piqua.

Existing Fire Station Facilities

With the exception of the west side station (#3), the existing stations are undersized and lack appropriate configuration, resources and quarters for full-time operations and crews.

Infrastructure (Roads and Utilities)

Plans to continue road and other utility improvements should be aggressive and continuously pursued. Good, effective and redundant roadways improve all emergency safety and response times for fire and police, and good water distribution throughout the city and high risk areas of the overall fire district provides an effective extinguishing agent for the Department's use in fighting fires.

Growth

Since this strategic plan focuses on long-term needs, the anticipated growth of the community is important to the decision making involved in locating fire and EMS facilities in the community. Almost all types of building use groups are represented in all directions around the city. This development pattern of the Troy Fire District is already well established. The rapid growth and future configuration of the area is clearly indicated in the City's Comprehensive Plan.

Response Evaluation

Although the Department works very hard at maintaining the best response possible, it is physically impossible to cover significant parts of the City, let alone the Fire District, within critical response times due to the location of and number of stations, equipment and crews.

Recommendations

It is our recommendation that the improvements that should be made with the Troy Fire District be phased in over time, and balanced with the available resources of the communities, since the need already exists. A sequence of station changes would provide continued improvements from the existing configuration to a six station configuration. With anticipated long term growth, additional stations should be added. The sequence of phases depends on which areas develop most aggressively and when the overpass and connector roads are done.

Generally, we expect the far northeast station (Site #203) to be the last in the sequence. This is primarily due to the extent of underdeveloped land in this section. The relocation of Station #2 is first. It will locate east to Site #208. Three other stations are also identified. They serve existing development as well as growth areas. Because of this, these additional stations should be put into service as soon as the growth and funding justifies it. These station sites are north central (Site #302), south (Site #402) and southwest (Site #103).

Once the south station is in place, the existing Station #1 can be converted to a support facility. This would house headquarters, training center, reserve and specialty equipment.

The full sequence of the Fire Department's development, the estimated cost, and options are described in Parts 2 and 3 of this report.

PART 1 - ORIENTATION

For Part 1, please refer to the full report on file at Fire Department Headquarters.

PART 2 - EVALUATION & STRATEGY

Fire Station Location

The general axiom for fire station location issues is: the smaller the service area, the better the coverage. The ISO, which considers only fire issues, recommends an optimum service area of 7.4 to 9 square miles, which roughly corresponds to a 1.5 mile radius area. Specific physical characteristics and infrastructure configurations of most communities make these references ineffective in optimizing station locations. Consequently, actual response times and distances are simulated based on future characteristics for this study. Stations located at or very near the recommended sites best accommodate the planning objectives that we follow for all communities. The objectives are as follows:

1. Cover most of the city within an average six (6) minute area for fire protection.
2. Cover the entire city with an average eight (8) minute area for advance life support (ALS) coverage.
3. Cover as much of the city's core and high-risk (life, property and business) area within an average four (4) minute area for basic life support (BLS) and fire.
4. Cover as much of the city's core (high and large structures) with the ladder truck and related equipment within the ISO recommended two and one-half (2 1/2) mile radius.
5. Locate stations to provide response area overlap in the highest risk area to provide efficient access from multiple directions, and provide the best redundant coverage for getting large numbers of equipment and personnel to a site in the least amount of time.
6. Use of automatic mutual aid (AMA) to enhance response times and to enhance redundant capabilities throughout, where possible.

One important consideration in determining the number of facilities necessary in providing fire and EMS protection within the community is the overall cost of each of the facilities. As indicated in Figure 9, the initial building construction cost is a small percentage of the total 25-year life cycle cost of the facility. The facility construction is often less than 20% of the total cost spent on equipment for that facility, and can be less than 4% of the cost of manpower for the facility over the total life span of the facility. Although these percentages are representational, the availability of part-time or volunteer crews and labor negotiations can have a significant effect on the actual cost for any community. Regardless of the specifics, the ongoing equipment and operational cost are high, and they continue to escalate. Because of this significant long-term cost for each facility, it is

important to distribute the facilities in a way to obtain the largest and best service coverage with the least number of facilities while minimizing overlap between these stations.

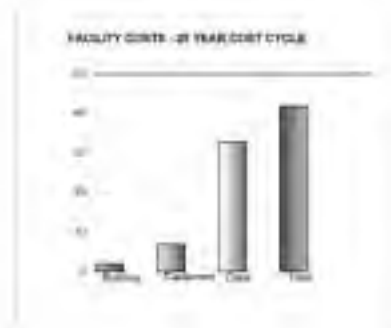


Figure 9

To establish accurate response areas, a computer simulation program was used. A series of routes, identified by our office, were used by the Fire Department to identify existing travel times. This data was then used to calibrate this simulation. The maps generated by the computer simulation are all in the same format. The current fire district of Troy is highlighted with a heavy dashed red line. The roads shown on the map are color coded based on their time distance from a station. Each station site is given a unique number and is circled in black to highlight its location. The color coding on the road represents three (3) different time distances. The roads that are rendered in green are within a four (4) minute response time, roads rendered in brown are from four to six (4-6) minutes, and red from six to eight (6-8) minutes. Roads shown as a black line are outside of the eight (8) minute limit on the travel time calculations. Other map features also show purple lines representing railroads and blue lines representing water ways. The maps show distances and time data based on average conditions. The day of the week, time of day, seasons, road and utility work, and special events in the area can all have significant effect on the actual response time and distance.

Consequently, the base map (titled: "1" in Figure 10) created from the calibration data, shows the distance under average conditions that can be covered in four (4) minutes travel time from Station #1. Similar maps were developed for Stations #2 and #3. It is important to note two issues with this map.



Figure 10

First, the irregular shaped "bubble" defined by the heavy black line around the green street colors at Station Site, shown on the Figure 10 map is actually a very dynamic element. This bubble is dynamic in the sense that during daily, weekly, and seasonal cycles, the bubble can collapse to a very small area around the station, and it can expand to an area significantly large than what is shown on this map. The smallest area may represent rush hour traffic during bad weather conditions. The largest coverage area may be represented by responses made in the middle of the night during good weather conditions.

Second, Figure 10 illustrates the four (4) minute "travel distance", without adjustments for dispatch and scramble delays. This Figure 10 map also shows the four (4) minute travel distance based on the Department's current operational practice of travel speeds and stops. Since most urban communities are adopting operational rules to prohibit travel over the speed limit under normal conditions we have also included the necessary adjustments to reduce speeds to the actual posted speed limits in the community. Since the total "response time" is what is considered for four (4), six (6) and eight (8) minute response times, we must consider the dispatch and scramble delays in calculating the response areas. The resulting travel time and response area is consequently reduced by approximately one and one-half (1 1/2) minutes in addition to the speed change.

The resulting response area, after being adjusted for the dispatch and scramble delay, is shown on the Figure 11 map. This map, although illustrating a significantly smaller response area, is the critical base data map for this study. This map most accurately represents the normal response area within four (4), six (6) and eight (8) minutes from the existing Station #1. Figure 12 illustrates the combined areas of all three existing stations. This combined response area is based on normal dispatch and scramble delays, with emergency apparatus traveling at normal, acceptable speeds, as the community continues to grow with increasing traffic and congestion.



Figure 11

The other maps enclosed in this report illustrate existing conditions and response areas, as well as proposed station configurations and their respective response areas. The site numbers noted on the maps are not intended to represent station numbers, but to identify discreet separate station sites for this study.

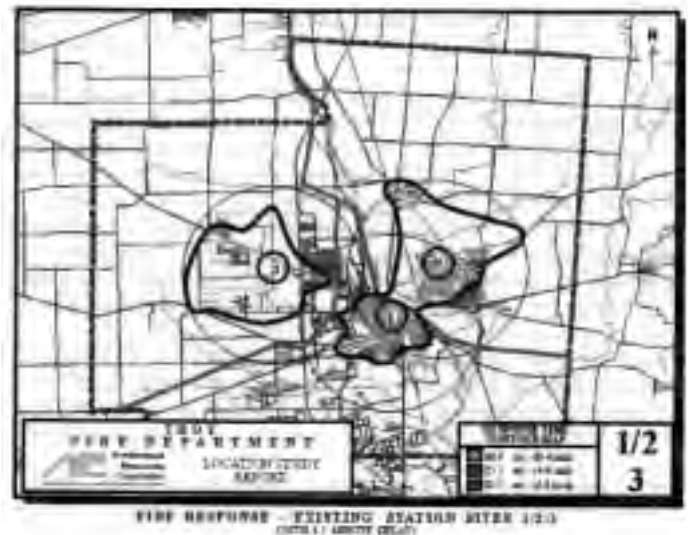


Figure 12

Connector Roads

Many rural areas of communities are often developed with an initial radial pattern of street and roads. As the community grows and develops, areas are in-filled between these roads, but are often not interconnected or not connected in an effective way. Development of connectors is important for effective traffic flow around a community and to minimize problems of congestion in core areas. Although we have yet to find a situation where connector roads eliminated the need for the basic number of fire stations in the community, they do play a very significant role minimizing the need for additional or redundant stations due to barriers, and they do provide redundant travel options to get to an emergency scene.

As various site and site combinations are studied and simulated, consideration is given to the effect of suggested connectors which can affect the overall response effectiveness from any given site. In review of the simulation studies that we performed, most existing developments have redundant connectors. There is, however, one new development in the southwest area of Troy that lacks this backup.

Strategy

The strategy used in the development of this plan is based on improving self sufficiency in fire and EMS services within the community first. It is also to look at how, over time, the service can be maintained and improved. The strategy is also to enhance the community's ability to participate in mutual aid and automatic mutual aid to surrounding communities as appropriate, or as formally and legally agreed to between the communities with minimum impact on your Fire District. This strategy considers ISO and NFPA guidelines as well as other risk management techniques in the community. Maintaining controls on the existing housing stock and code compliance with business facility development in the area will result in a minimal degradation from multiple calls. These other risk management techniques include public and crew education and training, zoning, building and inspections which include the Fire Department's fire prevention services.

Other elements that affect the station location strategy are the off-station-recycle-time, redundancies, and dynamics of each station's district response areas. The time it takes equipment and crews to return from a call to be on station and ready for the next call is an important consideration. This off-station-recycle-time is the duration of time that a station cannot respond with a specific service or equipment due to its being on a current call. Two things will affect the recycle time in this community. One is industry trends that affect the way in which services are provided in the field and the time it takes to perform these services. The other is a change in the type of calls that are received that can also affect the time off-station. Changes in emergency medical care delivery and redistribution of health care facilities may increase the off-station time for emergency medical services.

Redundancy of capability is the means available to respond to extensive off-station-recycle-time, multiple simultaneous calls or high levels of activity involving mutual aid or automatic mutual aid. The redundancy of facilities, equipment and manpower helps to maintain the desired response times within the community. The response dynamics in the area also affect the decisions of where facilities are to be located.

The travel time within any station's response area is significantly affected by time cycles. The daily cycles of traffic and congestion, weekly cycles of business and leisure activities and the seasonal cycles affecting weather conditions all work together to change the areas that can be covered within target times. In fact, the degradation of a normal, four (4) minute response area can be severe during rush hour traffic in poor weather conditions. This, unfortunately, is also when calls for emergency services often increase.

For the remainder of the text about the strategy for this fire station location study, please refer to the full report on file at Fire Department Headquarters.

Evaluations

For the specific details and the analysis and ranking of twenty-one (21) possible and existing fire station locations, please refer to the full report on file at Fire Department Headquarters.

PART 3 - RECOMMENDATIONS

For the complete text of Part 3, including Plan Implementation, Training, Budget Program, and Time Sequence, please refer to the full report on file at Fire Department Headquarters.

CONCLUSION

It is appropriate to reiterate several points. First, the assumption of basing this Strategic Plan on full-time crews is not prejudice or bias. This assumption is based on the social and lifestyle changes, and the enormous demands being placed on the crews for training and ongoing education.

Second, we have not elaborated on the significance of mutual aid in this report. This should not be interpreted as unimportant. The need for communities to rely on assistance from their neighbors will continue. This provides critical backup and redundancy to your operations and often covers parts of communities that can otherwise be difficult to access. The increasing number of redundant calls can leave an area unprotected for hours at a time without mutual aid backup. Mutual aid and automatic mutual aid will remain a key element to good operations for all Fire Departments and all communities.

The recommendations of this report provide substantial and effective long-term fire and EMS service capabilities to the Troy community. As indicated, the Fire Department can be expanded in a cost effective way over time. Implementation of new, modified or replacement facilities can be coordinated with funding resources and growth needs. As stated in our public presentation of this information, Architectural Resources Corporation brought a knowledge base and experience to Troy to analyze these long-term community Fire Department needs. We also provided the community with appropriate budgets and time relationships for development. It is, however, the responsibility of the City's leadership to identify the risk level acceptable for the Troy community and identify the scope of service it is willing and able to provide. With this, it is the City's leadership that will establish the funding limits of the projects and identify actual implementation dates for the time line sequence. Balancing the community needs and community resources over time is an interactive process. The use of the information in this report will help the Troy community prioritize its needs and phase in appropriate solutions with the demand and growth in the area.



APPENDIX D

TROY CITY SCHOOLS

THE 2002-2003 ACADEMIC, FINANCIAL, AND FACILITIES REPORT,

FROM THE TROY CITY SCHOOLS “In Pursuit of Excellence”

Greetings:

These are exciting times in the Troy City Schools. Student achievement continues to improve, the district enjoys a solid financial standing, and we are in the beginning stages of a study of our facilities. As a citizen of this community, you have a vested interest in this district's success, so it is important that we keep you informed.

As a public school we have two primary responsibilities to taxpayers. One is to provide quality educational programs for our students. The other is to responsibly manage the tax dollars you give to us. Later in this newsletter we will show you that we are performing well in both areas.

The facilities' study that we are currently undertaking will have ramifications for years to come. It is our duty to engage in this comprehensive evaluation of our aging buildings in an effort to determine what the future holds for them. To not do so at a time when other districts in the area are surpassing us in the area of facilities would be irresponsible.

Please read the following information carefully. If you have any questions, feel free to call the Board of Education at 332-6700. We will be glad to discuss any questions you may have in greater detail.

ACADEMIC GROWTH CONTINUES

During each of the last two years we have shared our performance on state academic expectations in a special mailing to the taxpayers of Troy. What follows is the latest academic information to be included in the district's 2003 State Report Card, published by the Ohio Department of Education (ODE).

We are pleased to have achieved 17 of the 22 standards considered most important by the state. This

places us in the “Effective District” category, which is the highest rating we've earned since the state implemented its rating system.

Please carefully study the chart that follows. You will see that the district's overall academic achievement has steadily, and in some cases dramatically, improved since the 2000 report card was issued. In nearly every academic category, Troy's results far exceed the state average. This continual improvement is a result of the concentrated efforts of staff members, students, and parents alike

This improvement has not been by accident. During each of the last four years, test results have been closely studied, weaknesses in student achievement, curriculum, and instruction have been identified, and improved teaching strategies and intervention programs have been implemented. The results are obvious. While we are pleased with our improvement, we are not content. We pledge to you continue to develop even better instructional and intervention practices based on student results in an effort to earn all twenty-two state standards.

The academic data that has been collected over these last four years has enabled us to perform meaningful evaluation of our instructional practices and to make improvements when necessary. Unfortunately, in response to President Bush's “No Child Left Behind” initiative, the state of Ohio may be forced to change the data by which schools will be judged in the future. For example, special education students and students who are new to the country and who may not speak English are supposed to be tested in the future and their scores are to be factored into districts' final testing results. This is a change in policy. If this change in reporting does take place, districts' results will undoubtedly be negatively impacted. This could well give the illusion that academic achievement has regressed when the real culprit may be nothing more than a change in reporting of test scores.

A new graduation test is also in our future. This test will be significantly more difficult than the ninth grade proficiency tests that we have been administering for the last few years, making the comparison of data impossible.

Regardless of what the future holds, however, the fact remains that our students' academic achievement has steadily improved, and we will continue to work towards excellence in all areas. We are very proud that we will be considered an “Effective District” on the 2003 State Report Card.

	State's required standard	Troy's % for 2000 report card	Troy's % for 2001 report card	Troy's % for 2002 report card	Troy's % for 2003 report card	State Average %	+ (Improved) - (Didn't im- prove from 2002)	Did Troy meet 2003 standard?
4th grade proficiency tests								
Citizenship	75%	79.1%	71.2%	62.9%	78.1%	67.3%	+15.2%	YES
Math	75%	47.8%	49.3%	57.4%	67.0%	62.7%	+9.6%	NO
Reading	75%	63.9%	63.9%	60.8%	76.5%	67.1%	+15.7%	YES
Writing	75%	58.1%	67.7%	82.3%	83.5%	80.3%	+1.2%	YES
Science	75%	59.3%	54.2%	59.4%	75.0%	64.2%	+15.6%	YES
6th grade proficiency tests								
Citizenship	75%	72.8%	76.6%	80.1%	79.0%	71.3%	-1.1%	YES
Math	75%	53.0%	56.9%	62.0%	66.6%	61.6%	+4.6%	NO
Reading	75%	52.7%	60.4%	68.0%	65.3%	58.1%	-2.7%	NO
Writing	75%	79.3%	76.4%	82.6%	86.7%	87.1%	+4.1%	YES
Science	75%	51.1%	61.5%	65.8%	69.6%	60.4%	+3.8%	NO
9th grade proficiency tests								
Citizenship	75%	76.0%	82.2%	81.9%	90.5%	83.6%	+8.6%	YES
Math	75%	76.2%	75.9%	76.8%	77.5%	73.2%	+0.7%	YES
Reading	75%	88.6%	89.8%	91.9%	95.7%	91.2%	+3.8%	YES
Writing	75%	91.9%	93.6%	93.4%	92.2%	89.5%	-1.2%	YES
Science	75%	75.7%	82.2%	79.4%	82.2%	77.2%	+2.8%	YES
9th grade proficiency tests (for 10th graders)								
Citizenship	85%	88.4%	89.0%	90.7%	93.4%	92.4%	+2.7%	YES
Math	85%	83.9%	84.8%	87.4%	90.8%	85.2%	+3.4%	YES
Reading	85%	95.1%	95.6%	96.1%	97.2%	96.3%	+1.1%	YES
Writing	85%	96.1%	95.4%	95.9%	97.2%	95.8%	+1.3%	YES
Science	85%	87.7%	87.8%	92.8%	92.0%	88.1%	-0.8%	YES
12th grade proficiency tests								
Citizenship	N/A	62.6%	79.3%	79.0%	These	These	N/A	N/A
Math	N/A	53.6%	72.1%	67.7%	tests	tests	N/A	N/A
Reading	N/A	64.9%	75.9%	75.3%	no	no	N/A	N/A
Writing	N/A	83.1%	90.4%	93.1%	longer	longer	N/A	N/A
Science	N/A	57.3%	72.8%	73.9%	administered	administered	N/A	N/A
Students Attendance %	93%	94.0%	94.5%	95.1%	94.7%	94.3%	-0.4	YES
Graduation %	90%	78.2%	80.9%	79.2%	85.8%	82.6%	+6.6	NO

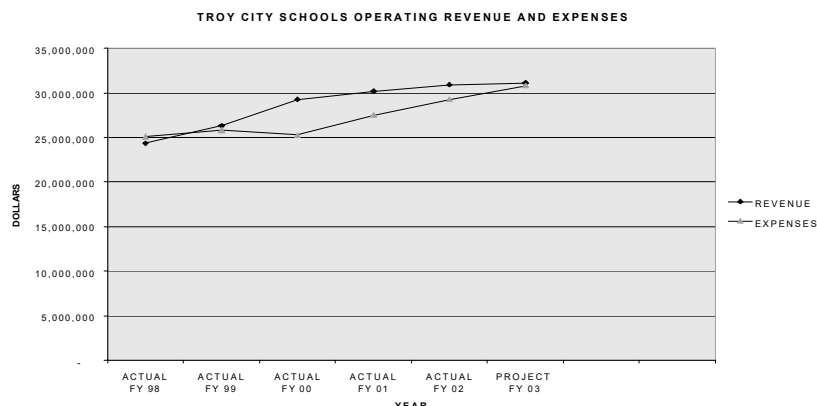
Note: Percents refer to the percent of students being successful in each category. To put these percentages in perspective, one percent in Troy represents approximately three to four students. Data is that which was posted by the Ohio Department of Education on October 31, 2002.

SCHOOLS FISCALLY SOUND FOR NEXT THREE YEARS... FUTURE LESS CLEAR

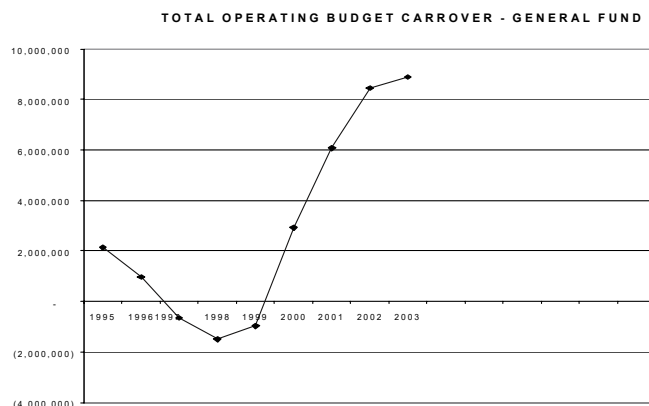
At the September 9, 2002, Board of Education meeting, Don Pence, Treasurer of Troy schools, presented to the board the district's Fiscal Year 2003 appropriations as well as the five-year financial plan, as required by law. While the intricacies of school finance and the volatility of our state's precarious financial position demand cautious optimism, Mr. Pence reported that the district currently enjoys a solid fiscal standing.

This year operating expenses are projected to be approximately \$31 million with revenues projected to be slightly more than \$32 million. Fiscal year 2003 will mark the fifth consecutive year that annual revenue exceeds projected expenses (see "Troy City Schools Operating Revenue and Expenses" graph). So, despite unprecedented increases in health care, insurance, and special education costs the district, continues to be financially strong and should remain so for atleast the next three years, assuming the following occurs...

- 1) The 5.9 mill, 5.8 mill and 4.5 mill operating levies (or dollars equivalent to the amount they generate) will be renewed with no interruption in revenue collections.
- 2) Replacement of the 1.1 mill permanent improvement levy, so general fund resources don't get diverted to fund capital maintenance needs.
- 3) There will be a continuation of the business taxes as currently legislated with no additional exemptions.
- 4) Funding from the state foundation will continue at the projected amounts for each of our students.
- 5) The Troy schools will maintain current levels of student enrollment.
- 6) The population of special needs students remains constant.
- 7) The cost of health care does not exceed projections.
- 8) Current inflationary trends will continue.
- 9) There will be no new unfunded mandates that require expenditure of resources designated to maintain operations.



Carefully monitoring our expenses over these last five years has enabled us to accumulate a healthy cash reserve as illustrated in the graph below. This reserve amounts to approximately four months of operating revenue.



The board is very cognizant of controlling costs while offering a solid academic product to our students. The table below shows just how responsible we are with your tax dollars. You can see that Troy's level of state foundation funding is less than similar districts and

much less than the state average. At the same time, Trojans pay a significantly greater local share of educational costs than similar districts and the state average. The Troy schools educate students for approximately \$600 less per pupil than similar districts and nearly \$800 less per pupil than the state average. With an enrollment of nearly 4,000 students, this amounts to a difference of between \$2 and \$3 million annually.

Of the per pupil dollars we do spend, the greater percentage goes for the instruction of students (64.6%), while less money is spent on administrative costs (9.8%) and building operations (17.5%). In other words, the bulk of your tax dollars goes towards instructing students, which is as it should be. Considering this financial data and the academic success of our students, Trojan taxpayers are indeed receiving a good return on their tax dollar investment.

Unfortunately, our optimism is tempered as we look further into the future. Using the data that is available to us at this time, the years beyond fiscal year 2005 do not look as good. Beginning in fiscal year 2004, expenses are expected to exceed revenue, a fact that we first mentioned in our Road to Fiscal Recovery Part II newsletter that we mailed to the taxpayers of Troy in 2000. This is illustrated in the "Troy Schools Operating Revenue and Expenses" graph on the previous page. Assuming that the expense and revenues rates stay constant with the past three years, it is obvious that expenses will exceed revenue in the years to come unless new revenue is generated.

This means that beginning in fiscal year 2004 the carry-over balance that we have worked so hard to accumulate will have to begin supplementing annual revenue. You can see on the "Total Operating Budget Carryover - General Fund" graph how the cash balance begins to flatten out this year. The district is projected to reach a budget deficit in fiscal year 2007 unless the Ohio legislature does as it has been told by the Ohio Supreme Court and fixes school funding.

This is obviously a concern. But, does it mean that the schools are being mismanaged? Absolutely not! What it **does** mean is that the funding system implemented by

EDUCATIONAL REVENUES AND EXPENDITURES PER PUPIL (TROY, SIMILAR DISTRICTS, AND STATE AVERAGE)

2001-2002		Amount for:			% of Total		
		TROY (\$)	SIMILAR DIST (\$)	STATE AVG. (\$)	YOUR DIST (%)	SIMILAR DIST (%)	STATE AVG. (%)
REVENUE SOURCES	Local Funds	4883	4533	3863.9	63.6	59.8	48
	State Funds	2525	2734	3705.9	32.9	36.1	46
	Federal Funds	274	312	485.3	3.6	4.1	6
EXPENDITURES	Administration	706	847	972	9.8	10.8	12
	Bldg. Operations	1265	1537	1538	17.5	19.6	19
	Staff Support	57	146	206	0.8	1.9	2.5
	Pupil Support	523	872	905	7.2	11.1	11.2
	Instruction	4664	4423	4473	64.6	56.5	55.3
	Total Exp.	7215	7826	8094			

Data taken from the Ohio Department of Education's District Trend Report on October 31, 2002.

the Ohio legislature is inadequate. How else can one explain the fact that 168 districts in Ohio had a levy (in some cases, more than one) on the ballot on November 5th? The state funding mechanism literally forces districts to repeatedly return to the voters for additional funds to operate, which is exactly why the Ohio Supreme Court has ordered it changed. Lawmakers have not obeyed this directive.

We are not ignoring this trend, however. We are maintaining our costs as much as possible while still trying to provide quality services for our students. For example, since our financial crunch of the late '90's...

- Many of the original \$1.6 million in cuts that were implemented during our crisis have not been reinstated allowing us to educate our students at a far lesser cost per pupil than similar districts and the state average.
- The pay-to-participate program continues to be in place to help defray costs associated with extra-curricular activities.
- As older staff members retire, inexperienced teachers are hired in their place in an effort to control payroll costs.
- In recent years, staff has accepted a smaller percentage of pay increase than many neighboring districts. While this bodes well for the district financially, the fact is that it has hurt us in attracting new staff in a competitive environment. For the last couple of years, this has come to light as we have lost talented staff to other districts that can offer more attractive financial packages.
- The district is working with employees to address rising health care costs, which are impacting the district, as they are all employers.
- Discretionary spending will be closely monitored, as it has been for the last several years.
- District representatives will continue to work in Columbus to bring attention to school funding concerns.

However, the fact remains that there are not enough excess expenses in the budget to make the cuts that would be necessary to eliminate this future deficit without devastating our educational programs. The legislature must address this issue.

TAKING CARE OF YOUR FACILITIES

During the last couple of years, the state of Ohio has earmarked tax dollars for the construction of new schools. Districts all around Ohio have begun evaluating their facilities, whether they are scheduled to receive this state assistance or not. In fact, several local districts have either just undertaken facility initiatives (Piqua, Newton, and Bradford) or are in the process of doing so (Miami East and Tipp City). In many cases, districts have received a significant percentage of the construction costs from the state (Bradford, for example). Others have received little or no assistance (Tipp City). The percentage of state assistance is determined by the district's local wealth.

The fact is that the Troy school's facilities are fast becoming some of the oldest in the area. Considering that our newest building, Troy Junior High, is thirty years old and other buildings are in excess of fifty years of age, it is our duty to evaluate their condition and determine the best course for future action. We are, after all, in a competitive environment, and to continue to attract quality families to our community, we must maintain standards equal to or better than others in our area. We owe it not only to our students, but to you, the taxpayer, to undertake this project. After all, this district is comprised of nearly \$65 million in facilities, and it is our duty to care for them to the greatest extent possible.

With this in mind, last June, school district personnel met with representatives of the community to begin discussing development of a long-range plan for the district's facilities. Follow-up meetings were held on October 10th and 11th. Their purpose was to solicit suggestions from as many constituents as possible about what to do with our aging buildings. An open invitation to all members of the community was extended to attend these meetings. So far, between fifty and one hundred residents have participated. We have received the following feedback as a result of these meetings:

1. Remaining status quo with the district's facilities is unacceptable.
2. Concerns to take into consideration include:
 - inadequate space
 - aging buildings and infrastructure
 - safety and security
3. Future decisions should result in:
 - building expansion/or replacement
 - community relations and support
 - building renovations
 - improved energy efficiency, infrastructure, and utilities
 - upgrades to science facilities
 - improved technology infrastructure

Suggestions have ranged from building new buildings to renovating and/or adding on to existing ones. We are in the preliminary stages of this discussion and much more community feedback will be solicited before any decisions are made. These buildings are, in fact, your buildings, and we intend to be responsive to community support.

When considering what to do with our facilities, a couple of important factors must be considered. These include:

- the state's contribution to any building project that we may consider would be approximately 17%. To put this in perspective, the Northmont schools are eligible for 40% contribution from the state. These numbers have a tendency to fluctuate as time progresses.
- it looks as if Troy would not be eligible to receive state dollars until at least 2008.

Stay tuned as discussions about our facilities continue in the months to come. Please consider participating in these discussions.



APPENDIX E

THE TROY CITY SCHOOLS FIVE-YEAR STRATEGIC PLAN

Progress Report 2004

Beginning in January of 2000, staff members of the Troy City Schools and community members met to develop a blueprint for success for the district for the next five years. The result, a five-year Strategic Plan, is the basis for the decisions that are made that impact the schools. The district's recent academic and financial improvements are due in large part to the implementation of this plan.

It is common in many organizations for documents like this to sit on shelves collecting dust once they are developed. However, as can be seen by the progress report that follows, this is a working document used to drive the direction of this district.

Please take a moment and review the progress we have made towards implementation of our Strategic Plan. Remember that this is a five-year plan and full implementation is not expected after just three years. The strategies not addressed in the following pages are targeted for implementation at some point during the life of the plan. The fact that they are not addressed yet is not an indication of failure. Rather, it is an indication that that particular strategy is yet to be addressed or has already been addressed. As you will see, the district has made great strides towards implementation of this plan.

GOAL #1: The Troy City Schools will promote, facilitate, and expand its partnerships among students, parents, staff, and community.

STRATEGIES:

1. The Action Planning Team will review and evaluate the current and potential level of parental involvement in all schools and make recommendations for improvement.

Parental participation in parent-teacher conferences in the elementary schools approaches 100%. All six elementary buildings have active PTO's as well as a Clear Channel Committee, which is a communication bridge between parents and the school. The percentage of conference participation drops at the secondary levels, but Clear Channel participation and participation in parent organizations is good. Parents routinely volunteer to assist in the day-to-day operations of our buildings. Our biggest challenge is better engaging parents of students who are not being as successful in school as we would want.

2. The Action Planning Team will review and evaluate current and potential corporate partnerships, program sponsorships, and foundations' support, and make recommendations for improvement.

3. The Action Planning Team will develop a plan to actively promote volunteerism in our schools.

Melissa Kleptz of the Troy Foundation has organized Volunteer Days for Make A Difference Day during which community members, staff members, and students cleaned up the grounds of the schools. Mrs. Kleptz has also organized a Volunteer Fair at the junior high during which students learned about local organizations and as a result many have signed on as volunteers with various agencies. The schools have many adults volunteer in them on a regular basis. Students throughout the district volunteered to help with community projects like the United Way and the Cancer Walk-a-Thon. Seniors must also donate time to community service as part of their graduation requirement.

4. The Action Planning Team will review and evaluate the current and potential levels of service to students by community agencies.

Community agencies support the schools through volunteerism and donations. The schools also utilize DARE officers and an Attendance Officer for students with attendance problems and through the generosity of the City of Troy, Troy High School has a Resource Officer on staff.

5. The Action Planning Team will evaluate current and potential methods of communication between the school and community for their effectiveness and make recommendations for improvement, if necessary.

Starting with the 2000-2001 school year, parents were provided a more comprehensive district calendar. Use of Channel 10, the school district television station has been increased as a means of relaying important calendar information as well as posting job opportunities within the district, publicizing awards won by district employees and students. A district informational piece on the State Report Card has also been distributed to registered voters. This piece also contained financial and facilities information as well. During the 2002-2003 school year, for the first time, the City of Troy and the Troy City

Schools have partnered to distribute a quarterly newsletter that has been sent to Troy citizens. The district web site usage, located at www.troy.k12.oh.us, has been increased dramatically as a communication tool and has gained national recognition for its effectiveness. The district's five-year Strategic Plan is posted on the web site in an effort to keep community and staff members reminded of the goals and objectives of the district.

GOAL #2: The Troy City Schools will strive to become an effective school district while providing a diverse instructional program to promote high achievement and prepare students to be lifelong learners.

The Troy City Schools achieved "Effective District" according to the 2003 State Report Card. This is the first time the district achieved "Effective District" status after three years of steady, and in some cases, dramatic academic growth as measured by the Ohio Department of Education.

STRATEGIES:

1. The staff will teach the written curriculum. As the state releases its Academic Content Standards, teachers are familiarizing themselves with these standards, working to align our Courses of Study with them, and developing teaching strategies to address them.
2. Students will apply learning to problem-solving situations.
3. The District will foster relationships with the Upper Valley Joint Vocational School and Miami County Educational Service Center. During the 2002-2003 school year, 240 Troy High School students attended the Upper Valley Joint Vocation School on a full-time basis. This is the most that have attended on a full-time basis.
4. The District will provide more opportunities for non-college bound students.
5. The staff will teach test-taking skills. This is being done not only in before and after-school intervention programs, but also as part of the regular instructional practice in many classrooms.
6. The District will provide intervention opportunities to students not demonstrating proficiency in academic skills. The district has provided extra assistance to academically deficient students in before-school, after-school, and in-school programs as well as in summer school. The district has also implemented Access and Passage programs at Troy High School in an effort to provide students who have experienced difficulties earning credits a greater possibility of doing so. Statistics indicate that the programs have indeed increased these students academic performance.
7. The District will structure building and classroom organization to allow for easily accessible collaboration, staff development, assessment, and use of materials.

8. The District will provide resources for support in the preschool and primary grades.
9. The staff will study effective teaching models. Ongoing staff development will be offered to the staff by the district during the 2003-2004 school year.

GOAL #3: The Troy City Schools will pursue a stable source of funding while efficiently managing the school's budget to responsibly provide for our quality educational programs.

STRATEGIES:

1. The Action Planning Team will continue to examine the feasibility of a school district income tax.

The School District Income Tax Task Force, comprised of Troy citizens, studied the school district income tax for over two years and recommended to the Board of Education at a January 2001 meeting that while they felt a school district income tax would help alleviate some of the school funding issues that currently exist, they did not feel they could recommend it because of the impact it would have on taxpayers.
2. The Action Planning Team will study ways to restructure the revenues realized from Enterprise Zone abatements.
3. The District will advance the relationship with the Development Department of the City to become active in recruitment of incoming business.
4. The Action Planning Team will work together with the Facilities Action Team to realize improved operating efficiency through better utilization of facilities.

Upon request, the State of Ohio, through the Ohio Facilities Commission, provides to districts at no charge a team of architects to evaluate district facilities and make recommendations for improved utilization. The Troy schools have requested this service, the architects have visited the district's facilities and conducted the appropriate interviews, and the district has used the results in its own study of its facilities. This study continues.

5. The Action Planning Team will proactively monitor and influence the legislative policies regarding education funding.

The Superintendent of Schools, Dr. David Dolph, is a member of the Buckeye Association of School Administrators State Department Committee. School Treasurer, Don Pence, is a member of the legislative committee for the Ohio Association of School Business Officials. This committee's purpose is to monitor legislation and to offer expertise to the legislators that represent this district. Central Office administrators also regularly receive updates from professional organizations on the most current legislative issues and make appropriate contacts with state legislators when funding issues arise.

GOAL #4: The Troy City Schools will continually upgrade facilities and study building utilization.

STRATEGIES:

1. The Action Planning Team will review enrollment projections and enrollment patterns.

Ten-year enrollment projections are maintained. Communication with the appropriate city personnel exists with regard to projected housing developments in an effort to determine what impact they may have on the enrollment in certain buildings. Enrollment figures in each building are updated and monitored continuously. Currently, the enrollment figures in all buildings are acceptable. However, the actual and proposed growth in housing on the district's southwest side make it imperative to monitor the impact it may have on Concord school.

2. The Action Planning team will study the current educational programming and the space needs for successful implementation.

See Strategy #3 under Goal #3. In addition to that strategy, in June of 2001 the district purchased property adjacent to the high school to be used with any future need for expansion of those facilities.

3. The Action Planning Team will study current trends in technology use and trends in facilities and make on-sight visits as deemed necessary.

The district, in conjunction with all of the other Miami County schools, has received grant money to implement Video Distance Learning in Troy High School. Teachers have implemented an electronic grade reporting system. The district is utilizing its web site to communicate school events to members of this community and beyond, and interested parties must utilize the web site to apply for posted positions. Fiber optic cabling has been installed to enhance the district's technology capabilities.

4. The Action Planning Team will explore alternative organizational structures and make recommendations to the Superintendent of Schools and the Board of Education

During the 2002-2003 school year, the district held several meetings during which community input was solicited in an attempt to generate ideas as to determine how best to meet the needs of the students from a facilities perspective. This will be an ongoing process and citizens are encouraged to submit their ideas to the Board of Education.

“In Pursuit of Excellence”



APPENDIX F

CITY OF TROY

2000 DOWNTOWN DEVELOPMENT PLAN

Resolution R-50-2000
September 5, 2000

Introduction

The Troy Public Square was first laid out by Andrew Wallace in 1807, and was later chosen as the location of Miami County's first courthouse in 1815. It rapidly became the economic center for not only Troy, but also much of Miami County. The Public Square was often the focus of community activities, such as the National Centennial. A Liberty Pole was erected then, and was later replaced by a miniature Eiffel Tower during the Spanish-American War. In the Twentieth Century, many changes came to the Public Square, including an electric interurban railway, paved streets, and the automobile. The park in the center of the Public Square was rebuilt during the National Bicentennial, and many other improvements were made in the Central Business District during the last twenty-five years.

The Public Square and the surrounding Central Business District continue to this day as an important part of the community. For these reasons, the Troy City Council has initiated a multi-faceted Downtown Revitalization Project to continue to improve the vitality of the area into the Twenty-First Century.

Early Planning Efforts

With the increased pace of community growth all through America after The Great War in the early part of the Twentieth Century, there was a realization that city planning was needed to avoid some of the ills of crowded cities. A Comprehensive Plan was prepared in 1931 and an early form of Zoning Code was adopted in 1932. After the social upheavals of the Great Depression and World War II, the sudden growth of the "Baby-Boom" years and their attendant economic upswing created pressure for improved community planning efforts. In 1961, a more thorough Comprehensive Plan was prepared for Troy, which included reports on the local economy, housing, public facilities, schools, parks, streets, land development, land use, and zoning. Since most of the public and commercial infrastructure of the time was located in the Central Business District, the Comprehensive Plan included a first coordinated study of downtown parking, retail development, and new plans for the city and county government facilities needed by the expanding population.

The thinking in 1961 suggested that Troy's commercial growth would continue to occur in the downtown area, expanding somewhat beyond its previous size into nearby residential areas. This was in spite of the newly emerging trend for commercial development along the main arteries of Old US 25 (Market Street) and Main Street. The Public Square still had the highest automobile traffic volume, even though the New US 25 (now I-75) had been built just beyond the western city limits. As one of the first segments of the new limited-access highways, it didn't have as much traffic as in-town streets and was viewed locally as a by-pass. Troy's street network was still basically a radial plan, centered on the Public Square. Parking was considered adequate, but a need for additional parking was seen for the next twenty years (to about 1980). The intent was to create parking lots by tearing down some nearby residences, especially on either side of Market Street between Water Street and the Great Miami River. These new lots were intended to serve employees in the stores and the growing government center. The City Hall was to be replaced by a new city government complex east of the Courthouse and expanded County Government offices would be provided west of the Courthouse. Short Street was to be vacated in the vicinity, to form a pedestrian plaza.

During the next decade, much of the 1961 plans were realized, although in modified forms. A new Comprehensive Plan in the early 1970s pointed out improvements such as the Courthouse remodeling and construction of the County Safety Building (east of the Courthouse instead of west). The former Lollis Hotel was renovated as the Morris House, for senior citizen housing (Building # 43 on the Target Area Map). Troy had also built a central fire station on Race Street, freeing room in City Hall for expanded police offices, so the new City Government Center wasn't needed. Concern was mounting, however, for the future of the downtown. There were vacant buildings, and two department stores had moved out. All of the automobile dealers had relocated to the unincorporated areas at the edge of the city. A disastrous fire destroyed the Uhlman's Department Store at the northeast corner of the Public Square, and no building took its place. (The site is still an open green space, now known as Prouty Plaza.) There was no full service grocery store in the immediate area and small shops were losing customers to larger stores in the shopping centers at Sherwood and Troy Plaza. Even with a decline in the retail sector, parking had become a problem downtown, as predicted. The number of office workers had grown, few of them could walk to work, and only a few of the proposed new off-street parking lots had been built. Although the Downtown was still very active, there were warning signs of future economic decline.

The Last Quarter-Century

The rebuilding of the Public Square in the 1970s began with a series of improvements based on the historic character of the area. The immediate area of the Public Square was listed on the National Register of Historic Places, and a local historic district designation was made for the entire Central Business District and some nearby residences. Property Tax Abatement was also authorized for the historic district. These actions helped encourage some new property owners to tackle major renovation projects. A notable example was the Dye Building, remodeled on its first floor as a bookstore, and later converted to Taggart's Restaurant (Building # 37 on the Target Area Map).

A special Downtown Action plan was prepared in 1972, which suggested rebuilding the Public Square as a pedestrian mall. The idea was for the Public Square to compete with the shopping centers by becoming one. Automobile traffic would be rerouted to one-way streets a block away in each direction. More parking would be provided in the former street areas. In addition to the mall, streetscape and entryway construction, the plan included important elements such as recruiting new business, organizing merchants, encouraging community participation, and developing innovative financing such as special assessments. Although this type of downtown revitalization was tried in some other communities and was later abandoned, we were fortunate that in Troy only parts of that plan were put into effect.

With the general public sentiment for historic preservation being encouraged by the approaching National Bicentennial, Troy accomplished Phase 1 of the mall plan, which included streetscape improvements in the Public Square and the four approaching blocks. These included brick pavers, improved lighting, extensive landscaping, and buried utility wires. The major focus was a new fountain in the middle of the Public Square, which was dedicated on July 4, 1976. One aspect of this street work that was very well received was the increase in parking spaces it produced in the Public Square, itself.

Following the successes of the 1970s, Troy continued to rebuild in the Downtown. Several buildings were extensively renovated, and there continued to be a mix of offices, retailers, and services. Decline also continued, however. Another building was lost to fire in 1979 (Gallencamp Shoes) and was replaced by a lawn space at the southwest corner of Main and Walnut. Penney's Department Store closed in the 1980s, the last grocer closed in the early 1990s, and later the last remaining small department store, Uhlman's moved out to the newest shopping center west of I-75. Shortly afterward, the downtown drugstore closed, and its shopping center branches were bought by a larger chain, that was later bought by and even larger chain.

Current Efforts

Fortunately, there were also very positive forces at work. The Troy Main Street, Inc. organization was formed in the early 1990s, and helped to promote the downtown. The City of Troy also continued to remodel and expand its facilities, including a new Police Station

at main and Mulberry Streets. This again freed space in the City Hall, which was remodeled twice in the 1990s. Miami County completely restored the exterior of the Courthouse, which was a major project, and was followed by the purchase of the former Hobart Brothers building at Main and Adams. The new Hobart Center became the new home for several departments that had been in the Safety Building. An added bonus for Downtown from this move was the off-street parking that was freed for others. The remaining County operations in the Courthouse/Safety Building complex are mostly related to the courts, so they still have a need for parking, particularly when the courts are in session. This was one of the recommendations included in the new Downtown Parking Study completed in 1996. During the next two years, a new Historic District Survey was conducted, including architects' evaluations and recommendations for each building in the district. That survey recommended improvements to the regulations and review process, as well as indicating the need for a coordinated streetscape project.

Goals and Objectives

Following up on those studies in the 1990's the City Council assigned extra importance to revitalization of Downtown Troy in the late 1990s. Major efforts include a thorough renovation of the City Hall, Phase 1 of the Downtown Streetscape, adoption of an entirely new Zoning Code, initiation of a Historic District Home Repair Revolving Loan Program, and support for a reorganization of Troy Main Street, Inc., and creation of this updated Downtown Development Plan. The principal goal of the revitalization efforts is to extend the life of the Historic Troy Architectural District and to increase the economic viability of the commercial enterprises in Downtown Troy. This will be accomplished through a mix of public and private actions. Public investment will include renovation of the streets, sidewalks, public utilities, and public buildings in the area. This work is already well under way. Other public actions include modernization of regulations that affect the reuse and repair of the private buildings. Public and private promotional activities will be continued, expanded, and strengthened. To encourage private investment in the oldest buildings in the community, financial assistance will be provided and property tax increments on the value of the improvements will be forgiven. The objective is to provide not only an improved physical environment, but also an improved economic climate, so the mix of quality services can continue to be found in Downtown Troy.

Elements of the Plan

The major elements of the 2000 Downtown Development Plan are Phases 2 and 3 of the Downtown Streetscape, continuance of the home repair loan program, creation of a revolving loan fund for commercial building renovation, and extension of the Streetscape project. Also included are commitments for continued financial support of the Troy Main Street program, and proposed reorganization to streamline the historic district review process. These elements are described in the following sections.

Downtown Streetscape Phase 1

The City Council authorized design of a new Downtown Streetscape in the late 1990s, and contracted with Poggemeyer Design Group to survey the area and provide suggested designs. After extensive review, the design was finalized and was taken to bid. Unfortunately, the design was quite ambitious and complex, so the bids came in significantly higher than the City Council had expected. The importance of the project was again considered, and the City Council decided to continue, but with a phased approach.

Phase 1 was designed to include only the Public Square, itself. For rebidding, it was further divided into a prime contract for the electrical utility work and a prime contract for the sidewalk and streetscape work. Repaving of the asphalt street surfaces was eliminated from this stage of the work. The bids came in at approximately \$1,200,000, and work began in late 1999. (See photographs in Exhibit I of the progress made to date.)

The cooperation of a great number of people has been received during Phase 1. The designers, contractors, and City of Troy staff have worked with the adjacent businesses and property owners to make the project work as well as possible. The business and property owners have been very understanding and have helped make the project a success. Public reaction to the work completed so far has been very positive. The final work is expected to be completed in time for the Christmas shopping season.

Downtown Streetscape Phase 2

With the positive experiences of Phase 1, City Council authorized the design of Phase 2, the streetscape work for the one-block sections leading into the Public Square. These will be very similar to phase 1, but are expected to include additional challenges because of numerous below grade building elements such as coal chutes, sidewalk elevators, and basements under sidewalks. The designers are proceeding very carefully with their construction plans.

The City Council has already allocated funding for Phase 2, similar to the actual construction contracts for Phase 1. Once the plans are completed and bids are received, the decision will be made to include or delete various parts of the work. The major item in question is whether to include the asphalt paving of the streets in the Phase 1 and Phase 2 area, or to delay that work to a third phase, which would likely be more advantageous for bidding purposes. That decision will not be made until late 2000 or early 2001. Nevertheless, the City Council has committed to Phase 2.

Downtown Streetscape Phase 3

A third area of the Downtown Streetscape is now being considered in conceptual terms. If the asphalt repaving is accomplished as a separate Phase 3, this next area of streetscape work will be designated as Phase 4, instead of Phase 3. The area will include the Market Street blocks between Water and the bridge, and between Franklin and Canal. Also included will be the Main Street block between Walnut and Mulberry, and an undecided distance along West Main, starting from

Cherry. The actual streetscape design will probably be simplified, compared to the design of Phase 1. Design work has not yet begun in these areas, although preliminary budgeting is now in progress, based on the actual experience gained during Phase 1. Preliminary discussions have also begun regarding further extensions of the streetscape design for additional blocks to the edges of the historic district.

Historic District Home Repair Program

A pilot program for home repair loans in the historic district was initiated in late 1999. The first two loans were made in 2000, and work is expected to be completed by December 2000. The program is designed to aid low/moderate income persons to make necessary repair to their homes, to bring them up to current codes and to allow them to stay in their homes rather than be forced to move. The program has already been reauthorized by the City Council for a second year, beginning in May 2001. With the high number of single family homes in the Downtown and the immediate vicinity, this program is expected to be a positive benefit that will counter the extra responsibility of living with the regulations of the historic district. The loans are designed with low interest and indefinite payoff dates, being deferred until the house is sold or transferred. This aspect of the Downtown Development Plan is intended to help preserve the older single-family homes in the area.

Downtown Commercial Building Repair Program

Like the older homes in the Downtown, the commercial buildings also represent district challenges to modern day usage. Although much of the first floor area of the buildings are in productive use, many of the second and third floors are vacant either because of lack of appropriate access or because of substandard facilities. In addition, although most storefronts are useable, many are not in keeping with the historic design of the building. Finally, many back and side walls of buildings are not in as good a condition as the front facades. It is often difficult for a struggling business owner to invest in the less visible parts of the building.

To help encourage upgrading to current codes, repair of facades, basic building structural components, and upper floors, the City Council has decided to create a loan program similar to the very successful ED RLF and the above described Home Repair Program. Funds would be made available on a matching basis, for qualified repairs to commercial buildings in the Downtown. As part of the program, architectural assistance would be provided for each project, to ensure that the historic nature of the building is that the repairs meet current codes and safety standards. Troy Main Street, Inc. will also provide assistance in selecting appropriate projects and developing proposals.

Support for Troy Main Street, Inc.

The City Council has supported the Troy Main Street program for the past ten years, but always intended to see it become self-supporting. During a major reorganization earlier this year, Troy Main Street requested additional funding and commitments to future years' assistance. In reviewing the organization's strategic

plan and goals, the City Council discussed the funding request. After initial disagreement with the long-term funding concept, the City Council agreed to continue support, but with annual reporting of the organization's accomplishments. The change was made when the Councilmembers compared their expectations of results from the Main Street program to their expectations for the long-standing Troy Development Council. TDC is responsible for economic development and job creation efforts, and has never been expected to be self-sufficient, although it does receive significant private support. Similarly, for Downtown, Troy Main Street is not merely a business association, but is expected to play an important role in community development and business retention and expansion. The City Council committed to long term financial support, in return for the commitment from Troy Main Street to assume a higher profile promotion and marketing role, and to annually report progress. The funding decision had an immediate encouraging effect on Downtown business owners. Membership in Troy Main Street has increased and new staff has been hired. Working committees are now being formed to carry out the different goals in the strategic plan.

Streamlining the Historic Review Process

The City Council adopted a new Zoning Code effective January 1, 2000. As part of the process of writing those regulations, they also suggested streamlining the historic review process to help address the concerns expressed by Downtown business and property owners. The former process included two appointed public boards, and the goal is to reduce this to one, and to provide additional preapplication guidance. Drafting of new regulations has been authorized by the city Council, and new guidelines will be prepared. Troy Main Street has already produced a basic guideline for building owners, to assist them in the process. That set of guidelines will be expanded and revised to fit the new regulations, along with the recommendation in the final report of the architects in the Historic District Survey. The new regulations and guidelines are both expected to be presented to the City Council for review and adoption well before the next summer construction season begins.

Standard Components of a Comprehensive Development Plan

In addition to the specific elements that have been individually prepared for this 2000 Downtown Development Plan, there are several elements that are classically part of any comprehensive development plan. These include a housing component, a public facilities plan, a land use plan, a traffic plan, a parking plan, and a signage plan. Most of these are contained in the other elements, or in the last Comprehensive Plan Update. For clarity, they are summarized as follows:

Housing - The existing single-family housing stock within the Central Business District is considered nonconforming within the context of the Zoning Code, but the buildings are designated for protection because of their historic significance. Because the best way to preserve them is to keep them in continuous use, they are actively encouraged to be repaired through the efforts of the

Historic District Home Repair Program. Additional housing units in the Central Business District are permitted by the Zoning Code, particularly on second or third floors. The intent is to encourage their creation through improved access. A mix of residential, retail, office, and service uses is viewed as the most effective way to preserve the vitality of the downtown, and is being supported. One of the Board of Trustee positions for Troy Main Street is held by a resident of Downtown.

Public Facilities - The major public facilities in the Central Business District include city and county office facilities, the non-profit Troy Rec (for children's day-care, after-school care, and recreational programs), several churches and other institutions including museums and the Family Abuse Shelter. These facilities are fully occupied and are continuously maintained. City Hall is currently undergoing a major renovation, and an additional small phase will complete modernization in some areas that had previously been remodeled within the past ten years. The Miami County Safety Building has recently lost several departments as tenants, allowing expansion of the remaining programs, mostly court-related. The other departments relocated several blocks west of the Courthouse, just outside the traditional Central Business District. The new location has an adequate supply of free, off-street parking. This change alone has helped relieve some of the immediate parking problems and much of the perception of a lack of local government support for parking concerns of Downtown merchants.

Land Use Plan - Troy's Comprehensive Land Use Plan was most recently updated in 1989. At that time, the plan for the Central Business District was to avoid expansion of the commercial areas, in favor of protecting the nearby historic residential neighborhoods. This plan is still in effect, and is actively followed. The new Zoning Code allows for rezonings or conversions of uses, but the basic zoning plan follows the existing separation from residential neighborhoods. The mix of uses is permitted, and is encouraged, however, within the Central Business District. The historic designation acts to discourage, but does not actually prohibit demolition or new construction. Preservation of existing buildings is preferred, so their smaller sizes effectively eliminate some otherwise permitted uses, such as today's much larger department or grocery stores.

Thoroughfare and Traffic Plan - The survey and design work in preparation of the Public Square Streetscape included a review of the traffic in the Downtown. The existing routes were reaffirmed, but the proposed timing of traffic signals is scheduled for adjustment after the streetscape is completed. The arterial routes through the Public Square will retain their highway designations (SR 41 and SR 55), and bypass routes are not planned. New arterial thoroughfares much farther out from the CBD are proposed, however. These are eventually expected to provide alternate routes for cross-town traffic, instead of concentrating all of it in the Public Square. One-way streets near the Public Square were again considered, but were eliminated from the final plan.

Parking Plan - The 1996 Downtown Parking Study included several suggested actions. Most have not been implemented, because of their impact on some segment of the populace or another. In particular, the fees for use of the municipal public parking lots have not been increased. Likewise, the cost at metered spaces has not been changed. With the retirement of the long-time parking control officer, the City Council considered whether to change the program, and chose to let it remain as it has been. The intent is to again review the remaining concerns after the effect of the Miami County office relocation and the streetscape improvements can be measured. Anecdotal evidence suggests the improvement is significant. As was true with the first downtown parking study in 1959, the major complaints are at specific, separate locations. The problems do not seem to be general throughout the Downtown. This could change, however, if efforts to utilize more second and third floor areas is successful. Increasing the number of downtown residents and office employees will create more demand for parking spaces. For this reason, one of the goals of building repair is to reorganize or pave rear off-street parking lots that are now under-utilized or are unpaved. Construction of a public parking garage is still a popular topic of conversation, but its need and its cost have not been justified.

Signage Plan - As part of the new Zoning Code, new sign standards were adopted for businesses. In the Central Business District, they favor wall signs. Troy Main Street's design guidelines suggest compatible sign types, which business owners are encouraged to use. For public signs, such as "No Parking" and traffic signs, the Streetscape includes new, modern regulatory and directional signage. The traffic signals are being mounted on "mast-arms" that match the style and color of other streetscape furnishings. The existing fixtures will be removed and reused at other location in Troy.

Administration of the Downtown Development Plan

The major responsibility for day-to-day administration of this plan is with the Troy Planning and Development Department. Permits and application are processed through Planning, and administration of loan programs is through Development. Implementation of public works construction is supervised by the Troy Engineering Department. City government policy and budgeting decisions are made by the City Council. All of these actions are public, and subject to examination by any person. Downtown Business owners and operators also have the benefit of the liaison work of Troy Main Street, Inc. Because of the high profile of the Public Square Streetscape project, and the location of two newspaper offices and one TV office in the downtown, there is also continuing interest and news coverage by local reporters.



APPENDIX G

CITY OF TROY

DOWNTOWN OPINION SURVEY 2003

The survey form was delivered to each Downtown Troy business. Responses are collated on the following pages.

DOWNTOWN OPINION SURVEY

Question #1 - What do you like best about Downtown Troy?

- Very nice & beautiful - 1
- Small town feeling with large atmosphere - 3
- Appearance - 5
- Atmosphere & Safety - 3
- Wide streets & accessibility - 1
- Small - convenient to get to places - 2
- Historical aspect - 3
- Specialty shops - 3
- Personal & Friendly - 1
- The square & fountain area - 1

Question #2 - What do your customers like best?

- Complain of parking - 1
- Atmosphere & Safety
- Shops - 5
- Small & convenient to get to - 6
- The square - 1

Question #3 - What does Downtown need more of?

- Parking - 8
- Outside dining - 2
- Variety of retail (drug store, shoe store, quality retail, etc.) - 13
- Community involvement - 1
- Establishments open past 9:00 pm - 2
- Ground floor info center - 1

Question #4 - What does Downtown need less of?

- Non-retail business - 1
- Kids on skateboards - 2
- Absentee property owners - 1
- Temporary tenants - 1
- Restaurants - 3
- Lawyers - 1
- Non-cooperation between private entities & government - 1
- Cars - 1

- Cheap retail - 2
- Can't think of anything - 2
- Offices - 1
- Parking complaints - 1
- Comprehensive planning

Question #5 - Did the streetscape improvements help Downtown?

- Yes - 17
- No - 3
- Half/Half - 4
- Visually but not in retail - 1

Question #6 - Should the City consider doing more streetscape improvements?

- Yes - 12
- No - 9
- Yes - extend further out - 2

Question #7 - Did the changes to the parking regulations help free up more parking?

- Yes - 2
- No - 13
- Maybe - 5

Question #8 - Is another parking lot needed?

- Yes - 19
- No - 2
- Need more free parking - 1

Where?

- Close to courthouse - 3
- Behind La piazza - 4
- Get County to park employees out of Downtown - 2
- Off Water Street towards St. Patrick's - 1
- Near K's restaurant - 1
- Within 2 blocks of square - 2
- Need employee parking with yearly sticker - 1
- East & West Main - 1

Question #9 - Where do you park?

- In back of store - 6
- Non-metered spaces - 1
- On side street - 6
- Two blocks away - 1
- Wherever can find a space - 2
- Metered lot - 6
- Private lot - 2

Question #10 - Where do your employees park?

- On side street - 7
- Where can find a space - 4
- Behind building - 1
- Walk - 1
- Non-metered - 1
- Metered lot - 7
- Private lot - 2
- Front of store - 1

Question #11 - Where do your customers park?

- Front of store - 9
- Wherever - 7
- Square - 1
- On street - 3
- Private lot - 1

Question # 12 - Do you participate in Troy Main Street promotions?

- Yes - 11
- No - 5
- Sometimes - 7
- Never been asked - 1

Question #13 - What kinds of promotions help your business?

- Anything to get people downtown - 7
- Concerts/Activities - 3
- Ones initiated by business owner themselves - 2
- None - 3
- Sidewalk Sale - 5
- Ones that don't close down the square - 1

Questions #14 - What kinds of promotions help other Downtown businesses?

- Image building - 2
- Don't know - 3
- Sidewalk sales - 3
- Open house events - 1
- Activities on square - 1
- Entertainment - 1
- Christmas display - 1
- Horse & buggy rides - 1

Question #15 - What kinds of promotions should be encouraged?

- Anything to get people downtown - 5
- Art - 2
- Activity driven - 1
- Quality stores - 1
- Themed - 1
- Entertainment - 2
- Held on court plaza - 1
- Historical Home tour - 1
- Bring Les Wexner in for an afternoon - 1

Question #16 - What kinds of promotions should be discouraged?

- Carnival atmosphere (bed race night) - 2
- Anything that takes people out of downtown - 2
- Anything that closes the streets downtown - 1
- Cheesy/low budget - too commercial - 2
- No alcohol Downtown - 1
- Trick/Treat, Easter - 1

APPENDIX H

CITY OF TROY QUALITY OF LIFE OPINION SURVEY 2003

The survey was conducted over the internet. A very large percentage of respondents responded they were either satisfied or very satisfied with each listed aspect of life in Troy.

Comments from Troy Survey

Comments from Surveys which were included in the final count:

1. Kathy Kaiser of Sterling Drive

Troy is a good community - we've only been here a little under a year but like it very much. A couple of things could be improved:

- a) the condition and appearance of homes in and near downtown
- b) the shopping/dining opportunities
- c) develop and communicate overall city/land use plan

One of the reasons we moved here is because of the small-town/in the country feel - don't lost that, also consider preserving/enhancing historic downtown area.

2. Joan Peterson of Sterling Drive

I have lived in Troy for 5 years and plan on staying here. I really love it here and think it is a safe place for raising my family. The only thing I have a very strong objection to is the building off Route 75 that says "adult." It is very offensive and very difficult to explain to my children what it is and why it is there. I think it introduces out town to our visitors and guests in a way that the rest of the town is not about. The first impression of our town is marred by that being the first thing people see when exiting or entering Route 75. It needs to be removed, now that it is closed (which I am thankful for!)

3. Alex Gonter-Dray of North Dorset Road

Need more restaurants and shopping in the city. Downtown is coming along well and so is 41/75 junction. However I question why Grismer Tire and Goodwill were permitted to build where they did. Very much an inappropriate use of the land. SR 55 needs to be built up more, especially the old K-Mart store. Just my opinions. Overall I am satisfied with the city, but would like to see more development.

4. Unknown - Surrey Rd.

Troy is a great community. We have to STOP putting up more and more housing. We need our green space and our farm fields.

5. Adam Wilgus of Maplecrest Drive

The price of the new houses being built is too high for the average family to be able to afford one.

6. Les Irely of Maplecrest Drive

The City frenzy to spend money for growth at any cost is alarming. I do not approve of tax abatements, but if you are going to use them, the business must be required to abide by their commitments. The city position to forgive the business responsibilities because the "economy has been bad" is poor rational. The economy has been bad for the citizens and seniors as well, and that's the folks you are shifting the tax burden to.

7. Sally Snell of Forrest Lane

City recreation for adults: target marketing would be in the best interest for the City of Troy and the market segment in terms of city recreation. Please explain.

Job Opportunities: Job opportunities for many of City of Troy opportunities: appear to be pre-positioned, and friends of friends or relatives: are the considered few. Please explain.

Housing choices/affordability: Housing costs are higher in Troy than in many other cities of similar or larger size. This may be good for the City of Troy in the short run in terms of taxes, but in the long run, taxpayers may turn to other communities for housing. Please explain.

Shopping opportunities are limited at this time. What is the culture? What influence at your trying to intice? Please explain.

Street Maintenance: my street is one of the last streets to be maintained in terms of snow plowing and leaf removal. Furthermore, I was cited earlier this year to replace a sidewalk which had sunk. This segment of the sidewalk is contiguous to a new replaced sewer gutter. It appears this gutter replacement was pulling down the sidewalk. Also, there was no expansion joint placed between the newer gutter and the existing sidewalk, which make little engineering sense. Please explain.

The city should revisit if they are in compliance with ADA compliance regarding the handicap ramps. Typically, dumping people into the intersection is no longer acceptable if federal money is utilized. Also

new standards typically require truncated domes to be in place at the curb ramps, if federal money is utilized. This information can easily be found on the Internet. Please investigate for economic purposes.

Thank you for this opportunity to comment.

8. Unknown - Dorset

Things are good now.... But will probably get worse when Beamish becomes mayor.

9. Paula Williams of Fleet Road

Please do not allow the area over the interstate to become like Huber Heights or Springfield. Urban sprawl is a blight. We do not need a bunch of restaurants. People can drive 10 minutes to eat. Why can't we get a new high school like Tipp? Our schools are terribly overcrowded. If you don't have good schools you don't have anything. We will not attract industry without good schools.

10. William Lutz of East Franklin Street

Hey, Troy is a great place to live!! I guess I am blessed since I have lived here all my life, but I really like it!!

If there was one thing I would change, I would like to see more community activities and more pedestrian friendly walking areas downtown (the alley work will help wonders). Also, some type of small art museum or art center would be cool!! I know we have the Hayner Center, but I don't see that as a museum, just an overdone meeting hall.

11. Unknown - Crestview Drive

Most jobs in town are low paying while the housing is overvalued. If I want a job paying over \$10/hr I'll have to drive to Dayton. I suspect many people do that now and that is the chief difference between us and some of our impoverished low wage/low rent neighbors to the north. By living in Troy and working in Dayton I can achieve higher wage/higher rent w/quality life status, as compared to high wage/higher rent w/low quality life status that permeates most of Dayton middle class neighborhoods. We are already little more than a North Dayton Suburb. I used to frequent the old North Dayton Suburbs but refuse to do so now that they look like ghettos from downtown Dayton to Needmore Road. It's a shame we ought to avoid but may find difficult the way American Merchandising Business operates. Already you can see the way all new business is concentrated at the 75/41 interstate interchange. This despite booming real estate on the city's south side and, to a lesser extent, the northeast side. Just as the downtown has been abandoned, so will eventually the 75/41 area. Ten to twenty years from now all retail/restaurant business will abandon that area and move like a herd of locusts to some other "hot" area. Maybe this hot area will not even be in Troy, as the expanding ring of new builds emanating from Dayton will widen again in a never-ending cycle of mercantile jungle birth/death.

12. Mary Kay Heintz of Waterbury Place

I filled in "satisfied" under entrances to the community. I am satisfied, but, it would be nice to make par-

ticular effort to landscape these areas. It would be better to log "very satisfied" This sidewalk project is certainly being drawn out!! Just how long ago did we see the first red "x's" in Westbrook?? And, it still isn't near finished.

13. Elizabeth Bell of S. Oxford

I would never have to leave Troy if there was a Target store and a shoe store. Dining you need more choices instead of meat/potato and fast food. The downtown needs more specialty shops (flower, antique). Overall I am very proud to say I live in Troy. Everyone who comes to visit loves the atmosphere and look of Troy. We have no children at home anymore so I am not qualified to comment on the schools and recreation.

14. Unknown -McKaig Avenue

Police dept needs to activate bike patrol again and we need more variety in restaurants...no more gas stations, pizza or Chinese places.

15. Martin Hobart - Kings Chapel Drive

Troy needs to keep looking to the future while at the same time maintaining our past. Troy is a very historic town and should keep that attitude. I would like to see downtown storefronts full with a variety of shops. Annexation of industrial property should be a high priority along with reuse of vacant buildings (K-mart, Friendly's, Pharm). I do realize that they city does not have ownership of certain vacant properties, but any avenues that they city can pursue to get those buildings in use should be followed. I have heard that high tech companies may not want to locate here due to concerns regarding the communications infrastructure (high speed internet access, T1 lines, fiber optics, etc.....none of which I am experienced with, just passing on comments I have heard) I do have some concerns regarding the quality of the school system. I am a life long resident of Troy and appreciate all the things that Troy offers. Many of my business contracts from outside of the area frequently mention how nice Troy is and how much they enjoy coming to Troy. They especially appreciate the downtown.

16. Unknown - Woodbury Court

As the WEST end of Troy develops, attention needs to be given to plenty of green space, playgrounds and parks. (Willow Creek area has none). More aggressive advertising (on TV, radio, storefront posters) for community events such as concerts, etc., not just a small article in the Troy Daily News (which a lot of people have discontinued due to its decline of quality)

17. Sharon Mathes - Stonyridge Avenue

I have lived in Troy all my life and am proud to be known as a Trojan. However it seems that we are always trying to keep up with the Joneses. First of all it seems that housing for the ordinary person is rather high. Good clean well maintained rentals are hard to find at reasonable rent and now they are building a huge apartment complex with rent starting over \$600 to \$800. I can't say enough good things about the fire and rescue but why if we are going to

have 3 firehouses, aren't they manned so that ambulances and fire trucks don't have to go all the way across town to cover an emergency. All and all I love Troy. I wouldn't want to live anywhere else. Let's just hope that it doesn't get so big that serious crime starts coming to our back door.

18. Jean Melvin - N. Walnut Street

Coming into Troy from the east end of town is the best way to enter Troy. It would certainly be an asset to Troy if property owners would be required to maintain their rentals.

19. Unknown

Ohio's local taxes rank third highest in the United States and what are we getting for it? Reckless housing, depletion of aquifers in and around west Troy, overweight trucks that tear up the roads in and around Troy without any monitoring of their weight. A water system that we paid for that can service 3 cities. (of course this was the plan all along) Flooding issues that are never addressed, houses that look like dumps in and around the city of Troy that the Safety Dir. does nothing about and the list goes on. These are a few things you people (that we pay) should be taking care of, but you don't. You let local influence take you over and they get what ever they want. If you are planning for the next 20 years we are in big trouble, because you guys can't even take care of what you have gotten into now.

This city must adopt an impact fee program on developers who develop in Troy. The State of Ohio is 3rd highest in local taxes for a reason. Infrastructure cost to maintain new housing developments x the number of developments put on the city books are astronomical.

Your 20-year plan should include an impact fee to cover the cost it creates, and lower my taxes for God sakes.

20. Unknown - Surrey Road

Concentrate on maintaining greenspace, parks, etc. Work on the flooding situation surrounding Miami Shores Golf Course. Hold the line on building projects, which do not enhance the quality of life in Troy. Builders are notorious for justifying almost any kind of project for any kind of open space.

21. Cheryl Stiefel-Francis - N. Casstown-Sidney Road

Troy and Miami County is a great place to live. We are fortunate.

22. Ron Hirth - Branford Road

I think capital expenditures are excessive. There seems to be a never-ending list of multi-million dollar projects, many of which I think we could do without or less costly. I.e., did the stadium update really have to be that extensive just for high school sports? Do the streets have to be paved so often when they are still in good condition? Do we really need a \$3.6 million pool, which can't pay its own way? Pick any number of past, expensive projects, which could have been economized or not done in the first place without adversely affecting community quality.

A better use of high tax dollars would be better-

served if retained by the citizens in the form of any income tax reduction.

Hold down expenditures! I think you people are out of control! This can continue to be a well-run city with restrained spending.

23. Arnold Baker - Stephenson Drive

I think Troy is a great place to live right now, but if it keeps growing the way it is its not going to be, there seems to be no proper planning. The traffic is getting worse and we keep building and the bigger we get the more my taxes go up. I don't understand seems to me if they city gets bigger there should be more revenues for the city, meaning that they need less from me. I have a house payment right now of \$434 per month the way I see it by the time I retire in about 20-25 years I 'll be paying that in property taxes.

24. Unknown - Robinhood Lane

Seems that a lot of money could be better spent (memorial stadium for one, better marketing of the arena, trips to Japan, etc.)

25. Unknown - Meadow

First pertaining to downtown beautiful - but no parking spaces. Also upsetting that so much green space is being depleted in Troy for housing and developments. Lets use old buildings - the Pharm and Kmart, old Ace Hardware - get in something like Hobby Lobby or Michaels Craft Stores - Troy does not need another pharmacy or lumbar yard. My biggest complaint is the lack of green space and letting old buildings set for years empty. Also need to keep businesses like Total Xposure out of our community - should have never opened in the first place.

26. Unknown - Salem Court

Schools are too crowded and ambulance service is too expensive.

27. Robert Borgerding - Wayne

The build up of the 41/75 area need to be held in check. New dining, Super Wal-Mart, new access roads and a new tire store (just what we needed), make traffic intolerable. I go elsewhere, even if I have to spend more money, just to avoid the area.

28. Cheryl - Skylark Drive

We need to really slow down growth. It is becoming out of control. We are losing the small community feel. We came from a town in California that started growing like this and now it is in really bad shape. The downtown area is all but empty, crime is up, and it lost all the quaint small town atmosphere. It's just a big city now. It really is a shame. And Troy is heading that way...fast.

29. Unknown - Mulberry

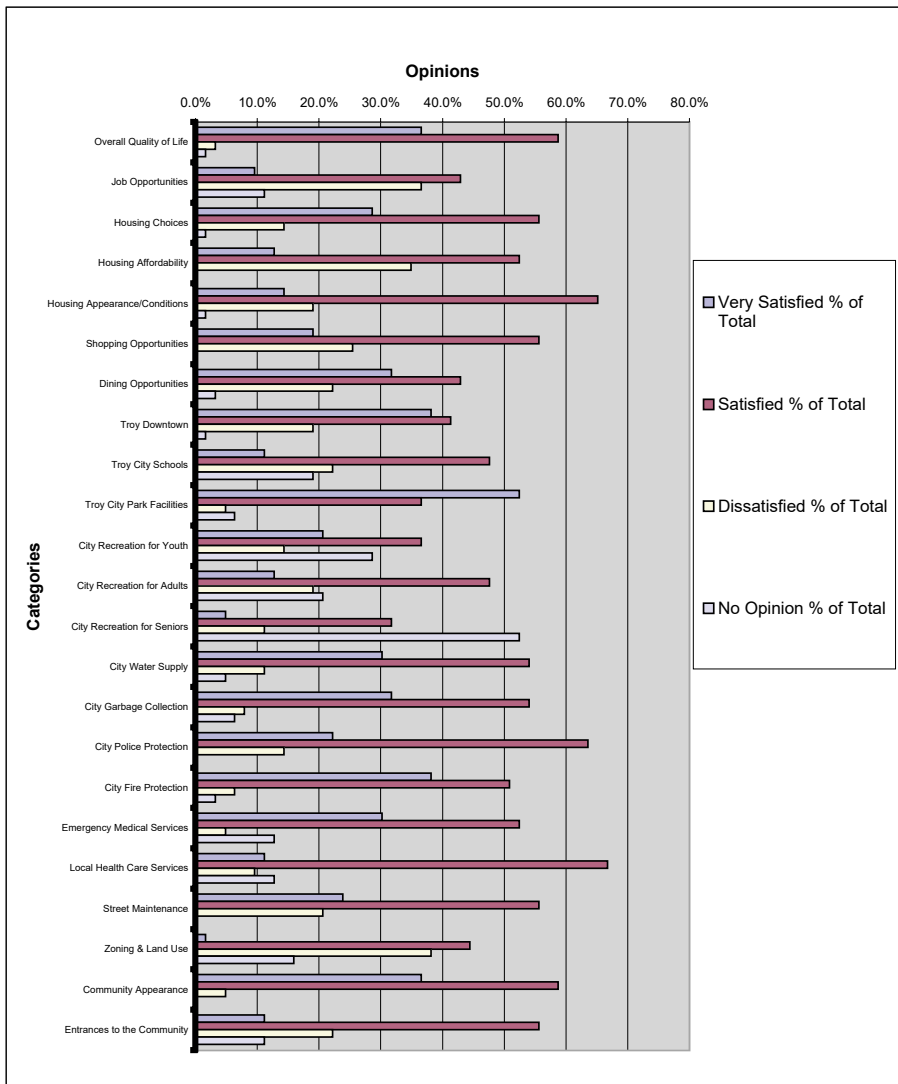
Some houses are left to deteriorate & the landlords aren't held responsible. I feel like a lot of other people in this end of town...we are the "red-headed stepchildren" of Troy and are treated accordingly. If we have problems they're left to flounder forever. If we lived in other areas (the more expensive suburbs), things would be addressed ASAP. Thank you for your time.

Quality of Life in the City of Troy

The following questions address "quality of life" issues. Please check the box that best reflects your thoughts on each of the following statements.

	Very Satisfied	Satisfied	Dissatisfied	No Opinion
Overall Quality of Life				
Job Opportunities				
Housing Choices				
Housing Affordability				
Housing Appearance/Conditions				
Shopping Opportunities				
Dining Opportunities				
Troy Downtown				
Troy City Schools				
Troy City Park Facilities				
City Recreation for Youth				
City Recreation for Adults				
City Recreation for Seniors				
City Water Supply				
City Garbage Collection				
City Police Protection				
City Fire Protection				
Emergency Medical Services				
Local Health Care Services				
Street Maintenance				
Zoning & Land Use				
Community Appearance				
Entrances to the Community				

City of Troy Quality of Life Survey Results





TROY
OHIO

APPENDIX I

VISIONING REPORT

This is a report on the community visioning meetings held at the Troy High School cafeteria in Fall 2003. These were conducted by the Poggemeyer Design Group and the Troy Planning & Development Department.

Visioning Report

City of Troy, Ohio Comprehensive Plan Update

November 2003

City Visioning

As part of a larger process to update the City of Troy's Comprehensive Plan, community visioning sessions were conducted. This document provides a report on the results of this process.



The Comprehensive Planning Process

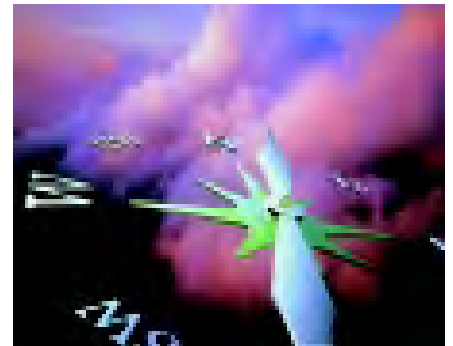
The City, through the Planning and Development Department, initiated a process to update the City's 1989 comprehensive plan. By the fall of 2003, considerable information had been gathered by the Planning and Development Department and by the Miami Valley Regional Planning Commission (MVRPC). Private entities such as GEM Real Estate Group, Inc. had also been hired to examine relevant economic market trends in the city. Information in the following areas have been compiled: demographic, housing, transportation, economic, land use, community facility, recreation/open space, utility and natural resources/physical characteristics.

Given the large assembly of data and information on the City, the next step in the comprehensive planning process involved reaching out to residents to help define and shape a new vision for the City. This step was taken in two public meetings which sought to involve participants in thoughtful discussions about how to shape the future of the City. The first visioning session was held on Thursday, September 25, and the second session was held on Tuesday, October 28.

First Visioning Session

The City of Troy convened a visioning session at the Troy Senior High School on Thursday, September 25. Planning & Development Director Jim Dando welcomed everyone and convened the meeting at 7 PM. Mr. Dando introduced Gregg Harris of his staff, other city department representatives and Poggemeyer Design Group consultants, Randy Mielnik and Paul Tecpanecatl.

The stated purpose of the meeting was to solicit public input into the future vision of the City of Troy. This vision would lay the groundwork for the establishment of future goals, strategies, and objectives for the new updated comprehensive plan. As this evening conflicted with an evening football pep rally, and other events, turnout was lower than expected and original plans to break into groups were set aside in favor of a large group presentation and discussion. Attendance was approximately 20 people and Mr. Dando began the evening with a powerpoint presentation on the information and trends compiled by city planning staff, the Miami Valley Regional Planning Commission and others. Afterwards, Mr. Dando opened the meeting for comments and questions. The following material provides an overview of issues raised and discussed:



Prepared by:





Community Aesthetics

One participant opened the session with the statement that as a recent transplant from Pasadena, California he liked what that city had done, which was burying underground all of the overhead utility wiring. It was a major undertaking, but well worth it. He suggested that Troy should look into this.

Transportation Issues

In regards to transportation issues, the following comments and suggestions were made:

- More thoroughfares were needed given the crowded conditions of Main Street
- More east/west roadway connections were needed
- More bikepaths/recreational trails were needed to connect Troy to Piqua, Tipp City and Concord Twp.
- More paths/trails were needed along the River as well as connections to recreational areas
- Downtown merchants should consider discounts to bikers
- It is somewhat dangerous to ride your bike downtown, more safety measures should be instituted
- Emulate what Dayton has done, allowing bikers on buses and having storage capabilities on the bus for the bikes
- City should pursue purchasing unused railroad right-of-ways for recreational trails

Greenspace and Farmland

Current zoning and rezoning cases troubled some residents in that development was occurring at the expense of greenspace and farmland. With the loss of agricultural land for development, this would cause more run-off problems.

Wetlands and Drainage

In a related issue, a resident inquired what the City's role should be in the protection of the watershed. Mr. Dando responded that the sole function of the Miami Conservancy District was to protect the watershed from a regional perspective. Troy has initiated a well-head protection ordinance and a clean water initiative.

The issue of storm water run-off has been a growing problem for some in Troy. The City has looked at dry basins, detention basins and other mechanisms to address run-off problems. Currently, the City requires larger corridor areas with natural or man-made swales through voluntary participation from developers to address drainage issues, run-off problems and flooding. Annexation adjacent to Concord Twp. has also caused run off problems with newer development. This has caused some flooding along McKay, 718 and Wilson.

Mr. Dando added that in 1998, Miami County updated their comprehensive plan, which excluded the cities but that the plan covered drainage issues and storm run-off problems. Better cooperation between the county and city was seen as needed to better address these run-off and flooding problems.

Issues Raised at Visioning Session #1

Troy should focus on aesthetic issues such as burying utility lines and preserving trees.



Greenspace and Farmland preservation is important, along with wetlands and drainage.



There are a wide range of transportation matters to attend to, including the need to make Troy more walkable.



There is a growing concern over the supply of affordable housing and the level of housing choices that exist.



Developing better relationships with local developers was noted as a means to achieve community goals.



Pedestrian Connections

The issue of sidewalk condition and the need for new sidewalks was noted. Specifically, it was pointed out that some City sidewalks needed repair and some areas needed connecting with new sidewalks.

Tree Preservation

Troy, being a tree city, has an ordinance that requires review of all tree removals that have a diameter of 4" or more.

Affordable Housing

Next, the issue of affordable housing was briefly discussed. There seemed to be a growing need for it, but most new single-family residential development involved large lots and big houses. Mr. Dando mentioned that GEM Realty was preparing a market study for the City and hopes to use the findings in the City's comprehensive plan update. A couple people asked what the City was doing to attract more residents into the City. Mr. Dando stated that apart from the Miami Co. CHIP program, not much else. A local builder suggested that the City should cultivate relationships with local developers in that it would be of mutual benefit to both. Local builders have more of a community interest than out-of-town ones. A question about housing values was asked. Mr. Dando stated that the average selling price in Troy was about \$98,000 and that new homes in the area start at about \$200,000.

Plan Updates

A question as to how often the City's plan should be updated was responded by Mr. Dando. Every five years was seen as appropriate. As with any plan, not all of the recommendations get carried out and some are just plain ignored because of changing attitudes. Troy being a statutory community must follow the Ohio Revised Code. This becomes troublesome in regards to property acquisitions, dispositions, leases, etc. To become a charter community, the initiative must go before the electorate for approval.

With no other comments, the meeting was adjourned at 9:15 PM.



Second Visioning Session

The City of Troy convened a second visioning session at the Troy Senior High School on Tuesday, October 28. Planning & Development Director Jim Dando welcomed everyone and began the meeting at 7 PM. Mr. Dando introduced Gregg Harris of his staff, City elected officials, other city department representatives, and PDG consultants, Randy Mielnik and Paul Tecpanecatl.

With almost seventy people in attendance at the October 28th meeting, Mr. Dando stated that the purpose of the meeting was to solicit public input into formulating a vision for the future of the City of Troy. This vision would lay the groundwork for the establishment of goals, strategies, and objectives for the new updated plan. Mr. Dando next asked Gregg Harris to give a short presentation of some of the relevant data and trends occurring in Troy and Miami County. Mr. Mielnik followed with a brief overview of the purposes for having a good vision statement for a comprehensive plan, the importance of public engagement, and the need for consensus. Next, Mr. Tecpanecatl explained the small-group process. Each of the 8 groups (one for each topic area) would need to assign a recorder and presenter. For no more than one hour, each group would have to identify three attributes, in priority order, of what the City should include in its Vision Statement for that particular topic. Further, each group needed to formulate applicable benchmarks to gauge progress in attainment of those attributes. At the end of the hour, the entire audience would be reconvened and each small group would make a presentation on their recommendations.



The eight topic areas were:

1. Neighborhoods/Housing
2. Economic Development
3. Downtown
4. Landscaping/Historic Preservation/Gateways & Signage
5. Urban Design
6. Transportation
7. Environment/Open Space/Parks
8. Public Facilities & Services

The products of the group discussions were as follows:

1. NEIGHBORHOODS/HOUSING

The top three attributes and relevant benchmarks in priority order from this group were:

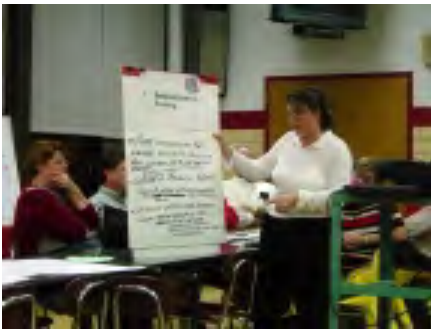
1. To close the gap between the haves and have nots in regards to housing, there should be more economic incentives for those Troy households in the lower 25% of the housing market to become home owners.

Benchmark(s):

- 1.1.1 1% increase in owner-occupied housing
- 1.1.2 Revitalization of neighborhoods

2. Develop a balance of renovated/rehabilitated housing in the central city neighborhoods and new construction in the outlying areas. This would maintain and strengthen Troy's tax base.





Benchmark(s):

- 1.2.1 Number and type of housing units available
- 1.2.2 Number of revitalized central city neighborhoods and number of new residential developments in the outlying areas.

- 3. Develop policies that encourages balanced residential growth taking into account conservation design principles and new urbanism concepts.

Benchmark(s):

- 1.3.1 Adoption of conservation design principles in subdivision regulations
- 1.3.2 Allowance for smaller residential lot sizes
- 1.3.3 Blending of lot sizes in residential zoning classifications to accommodate different land conditions

Following is the listing of the other attributes formulated by the Neighborhoods/Housing group.

- A. There is a growing housing gap between the haves and have nots.
- B. Land Price versus House Price.
- C. Inner City quality of homes versus suburbs of Troy (important regarding the future tax base of the City).
- D. How much housing does Troy want?
- E. Revitalization of central city housing is important.
- F. Mentality of lot size, bigger is not always what consumers want.
- G. Conservation development is important.
- H. Encourage smaller lot sizes per land quality.
- I. Blending of various lot size requirements in each residential zoning classification (within each zoning classification there should be some latitude regarding lot sizes given the type of land conditions, e.g., flood plains, hillsides, wetlands, wooded areas, etc.)
- J. Develop criteria together for positive long-term health of Troy.
- K. Environment counts.
- L. Concerns raised for PMI buildings.
- M. Focus on older neighborhoods versus Downtown businesses.
- N. More incentives needed for owner-occupied housing for lower 25% of housing market.
- O. Create a balance between old and new development.

2. ECONOMIC DEVELOPMENT

Following are the priority attributes and benchmarks under this category.

- 1. Improve telephone communications within Troy.

Benchmark(s):

- 2.1.1 Improved reliability
- 2.1.2 Better cell connections



- 2.1.3 Reduced cost of telephone lines
- 2.1.4 High-speed fiber optic communications
- 2.1.5 Local bandwidth capacity and cost

2. Focus education on emerging technologies from elementary school through college.

Benchmark(s):

- 2.2.1 Diversity of courses offered
- 2.2.2 Funding captured from 3rd Frontier Program and from other State and Federal sources

3. Expand partnerships with businesses, educational institutions, and governmental sectors to diversify the economic base and to ensure the availability of a highly qualified, skilled, and trained workforce.

Benchmark(s):

- 2.3.1 Raise in median income
- 2.3.2 Job creation
- 2.3.3 Money funded from the public and private sectors

Following is the listing of other attributes from the Economic Development Group.

- A. Improve telephone communications within Troy.
- B. Expand partnerships with businesses, education, and government to diversify the economic base and ensure highly qualified, skilled, trained workforce.
- C. Retain existing business by surveying local companies for needs and expansion.
- D. Improved Training Facilities/Conference Center.
- E. Allowing for global collaboration.
- F. Consider marketing Troy as a “Destination” in addition to a High Quality of Life area.

3. DOWNTOWN

Following are the priority attributes and benchmarks for Downtown Troy.

1. Have Downtown Troy be a destination place.

Benchmark(s):

- 3.1.1 Increase in retail sales
- 3.1.2 Reduced store vacancies
- 3.1.3 Increase in number of stores
- 3.1.4 Increased vitality of Downtown
- 3.1.5 Increased foot traffic

2. Preservation and utilization of historic structures.

Benchmark(s):

- 3.2.1 Reduced vacancy rates
- 3.2.2 Number of historic buildings renovated and occupied

3. Upgrade services and public facilities in the Downtown.

Benchmark(s):

- 3.3.1 Increased retail sales
- 3.3.2 Number and type of improvements made Downtown

4. LANDSCAPING, HISTORIC PRESERVATION, GATEWAYS, & SIGNAGE

Following are the top three attributes and benchmarks in prioritized order.

1. Create a horticulture master plan for the City of Troy

Benchmark(s):

- 4.1.1 City tree nursery/arboretum established
- 4.1.2 City Department of Forestry established
- 4.1.3 Flower gardens planted throughout the City
- 4.1.4 Proliferation of tree-lined streets

2. Support Historic Preservation and not allow chain retailers from razing significant City structures.

Benchmark(s):

- 4.2.1 Creation of user friendly historic design standards
- 4.2.2 Better government/property owner cooperation
- 4.2.3 Better design controls of new construction in historic areas
- 4.2.4 Improved maintenance of historic structures by property owners
- 4.2.5 Additional resources for preservation activities obtained

3. Create a unique image to Troy from Interstate I-75.

Benchmark(s):

- 4.3.1 Improved landscaping along the I-75 gateway to Downtown
- 4.3.2 Improved signage along I-75 gateway corridor
- 4.3.3 Building controls instituted along I-75 corridor

5. URBAN DESIGN

Below are the prioritized attributes and benchmarks.

1. Preserve the City's existing architecturally and historically significant structures to make Troy a better tourist attraction and encourage in-fill development in the older sections of Troy.

Benchmark(s):

- 5.1.1 Number of properties improved by absentee landlords
- 5.1.2 New programs/economic incentives created to renovate historic properties for adaptive reuse
- 5.1.3 Tourism will be treated as an important economic development strategy
- 5.1.4 City's canal area will be targeted for improvement





5.1.5 Improve parking Downtown to accommodate redevelopment and reuse of historic buildings

2. Encourage annexation of Township land into the City to accommodate reasonable planned growth for residential and industrial land uses.

Benchmark(s):

5.2.1 Number of acres annexed by City

5.2.2 Annexation complemented by suitable infrastructure

3. Improve all gateways to Troy, and encourage property owners to beautify their businesses with exterior improvements to their buildings, landscaping, and aesthetically-pleasing signage

Benchmark(s):

5.3.1 Improved maintenance of buildings and grounds by property owners

5.3.2 Improved signage throughout the City

5.3.3 Acreage of land developed for public open space

6. TRANSPORTATION

Following are the prioritized attributes and benchmarks from the transportation group.

1. Troy will have an integrated transportation plan encompassing non-motorized, motorized, air, and pedestrian means of travel.

Benchmark(s):

6.1.1 Satisfaction samplings

6.1.2 Congestion studies

2. Troy will have non-motorized access with links to parks, services, and neighborhoods.

Benchmark(s):

6.2.1 Miles of diversified access

3. Troy will have public transit connections to sites of public interest (e.g., Dayton Airport, downtown Dayton) that will be cost effective, efficient, and have growth potential.

Benchmark(s):

6.3.1 Number of established routes

6.3.2 Increase volume of usage

4. Troy will have high technology transportation.

Benchmark(s):

6.4.1 Troy will have access to light rail routes and connectors



7. ENVIRONMENT, OPEN SPACE, AND PARKS

Below are the prioritized attributes and benchmarks.

1. Troy will have an abundance of public open space, greenspace, and numerous pieces of public art throughout the City.



Benchmark(s):

- 7.1.1 Increased acreage of greenspace and open space throughout City
- 7.1.2 Dedicated land for greenspace established by the City
- 7.1.3 Increased number of public art displays such as sculptors, statues, and fountains will be developed

- 2. There will be an extensive system of recreational trails throughout the City with connections to parks and other significant activity centers.

Benchmark(s):

- 7.2.1 Number of miles developed on a yearly basis
- 7.2.2 Development of suitable services and retail along the trails (e.g., snack bars, ice cream stands, etc.)
- 7.2.3 Development of interactive play areas along the trails
- 7.2.4 Development of an aquatic center along the trail area

- 3. The City will build a serpentine wall, an amphitheater, a promenade, waterfront parks, and trails along the Great Miami River.

Benchmark(s):

- 7.3.1 Number of miles of wall and trails built
- 7.3.2 Increase acreage of parkland near the river
- 7.3.3 Amphitheater built

Below are other attributes mentioned by the group.

- A. Higher Density Development with Greenspace Required and legislated park space (Planned Greenspace).
- B. Developers should stick to the rules requiring open space and park space designations. There should be no parkland buy outs.
- C. City should consider environmental impact statements for large developments.
- D. City should consider instituting development impact fees.

8. PUBLIC FACILITIES AND SERVICES

Following are the prioritized attributes and benchmarks. The group, however, felt that all three attributes were of equal importance.

- 1. City will maintain safety forces at suitable levels.

Benchmark(s):

- 8.1.1 Police
- 8.1.2 Fire
- 8.1.3 EMS

- 2. City will maintain and/or expand its public works facilities/infrastructure to serve existing residents and businesses and accommodate nominal growth.

Benchmark(s):

- 8.2.1 Streets



8.2.2 Utilities

8.2.3 Solid waste

3. The City will provide suitable recreational facilities and amenities.

Benchmark(s):

8.3.1 MSGC

8.3.2 Arena

8.3.3 Pool

8.3.4 TMS

Mr. Dando thanked the participants for their hard work and stated that a written report would be prepared by Poggemeyer Design Group. The material and information generated by the small groups will be utilized in the City's Comprehensive Plan Update. The meeting adjourned at 9:20 PM.



TROY
OHIO

APPENDIX J

Excerpts from

**FINAL REPORT ON THE WALKABLE
COMMUNITIES WORKSHOPS**

This is a report on the design charette held in Troy on June 17, 2004. The Troy Walkable Communities Workshop was held by the Miami Valley Regional Planning Commission with assistance from the Troy Planning & Development Department and the Troy Engineering Division. Similar workshops were held in several other communities in the region.



One Step at a Time

Final Report on the Walkable Communities Workshops in the Miami Valley Region

**Dayton, Ohio
2004**

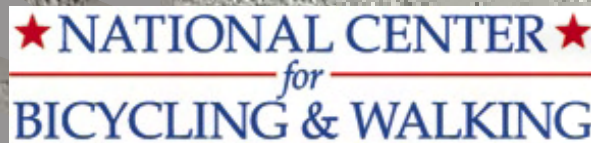


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Miami County Health Plan
Montgomery County Health Plan

APPENDIX B

Long Range Transportation Plan Maps



mvrpc

★ NATIONAL CENTER ★
for
BICYCLING & WALKING

THE
ROBERT WOOD
JOHNSON
FOUNDATION.

Letter from the MVRPC Executive Director

Every transportation trip begins and ends with the most basic mode of travel - your feet. Communities in our region were originally developed around the pedestrian and grew by way of transit and railroads. They have subsequently expanded in area and decreased in density due in part to auto travel and trucking becoming the dominant and sometimes only viable travel modes. Over the last fifty years, our communities have seen their sense of place slip away as the urban area homogenizes and spreads outward.

One of the ways our region can promote economic development and attract a skilled workforce is by building upon the quality of life it has to offer. Providing our citizens a variety of mobility options and a safe environment in which to walk or bike is vital to this effort. Creating a sense of place to our built environment is also important.

We have included pedestrian and bicycle modes in our long-range transportation plan, funded a number of pedestrian and bicycle projects and supported similar efforts by others. Participation in the Walkable Communities Workshop Program this summer has given us an opportunity to build on such efforts through a hands-on examination of our built environment and analyzing the benefits of making it more pedestrian and bike friendly once again. This report highlights the efforts of MVRPC and eight communities in our region to examine where improving walkability can make a difference and form action plans.

I want to take this opportunity to thank our eight participating local jurisdictions, the Robert Wood Johnson Foundation, the National Center for Bicycling and Walking, and our two facilitators, Charlie Gandy and Kristin Bennett for allowing MVRPC to provide this service.

We must continue to act to humanize our built environment and offer our citizens a choice of transportation options.

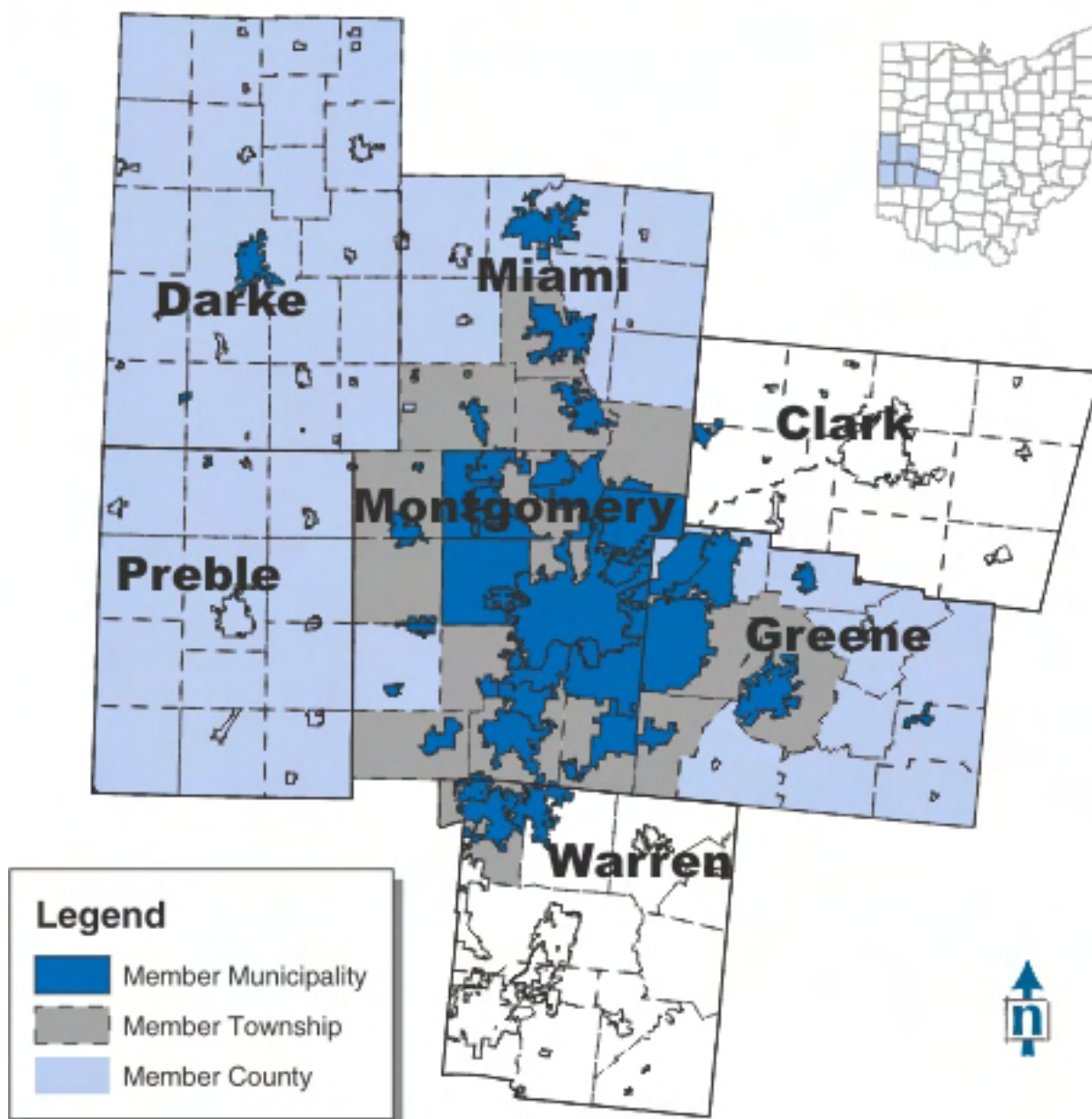
A handwritten signature in black ink, reading "P. Michael Robinette". The signature is fluid and cursive, with the first name "P. Michael" and last name "Robinette" clearly legible.

P. Michael Robinette
Executive Director

About MVRPC

The Miami Valley Regional Planning Commission (MVRPC) serves as the Metropolitan Planning Organization (MPO) for the Miami Valley Region in west-central Ohio. As the designated MPO, MVRPC is responsible for developing, implementing, monitoring, and updating a variety of transportation plans that are designed to enhance the Region's competitive position, promote regional growth, improve personal mobility, and preserve the environment. MVRPC also provides community, land use, and environmental planning assistance, GIS services, aerial photography services, and serves as a data and demographics clearinghouse for the region. MVRPC currently has 50 governmental and 13 non-governmental members that constitute the full Commission. From this group, an 18 member Board of Directors is also chosen. Each governmental member pays a per capita assessment to join MVRPC. Non-governmental members, since they do not receive agency services as a member benefit, pay a flat rate to cover associated agency expenses. The Executive Director of MVRPC is Michael Robinette.

2004 MVRPC Members

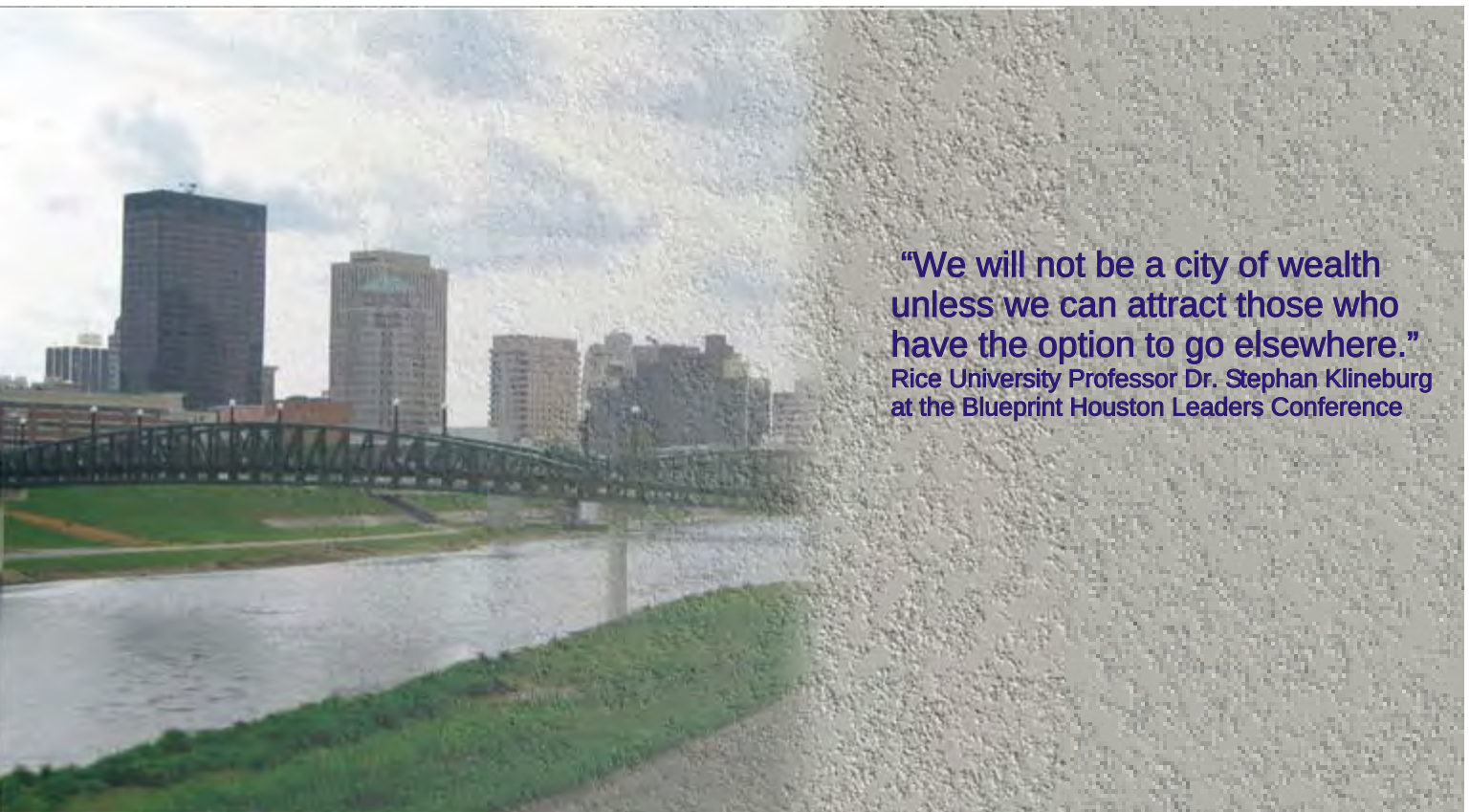


Description of the Region

There are approximately 822,000 residents in the Miami Valley Region (defined using the MPO boundaries) which includes Greene, Miami, and Montgomery Counties, and the communities of Carlisle and Franklin in northern Warren County. Dayton is the largest city in the region with approximately 166,000 residents and is situated roughly 50 miles north of Cincinnati, 70 miles west of Columbus, and 90 miles east of Indianapolis. The region covers 1,300 square miles and has 81 units of county, city, village, and township governments. Wright-Patterson Air Force Base, the largest single-site employer in Ohio, is also located within the region.

One feature of the Miami Valley that sets it apart from other regions is the extensive bike and pedestrian system. The region has over 200 miles of bike/pedestrian paths and many more paths are planned for the future or already have funding secured for construction.

The Ohio Department of Development projects the population of the region to decrease 0.7 percent by the year 2030, while employment is expected to increase by 4.2 percent. The population in the suburban and predominately rural areas of the counties is projected to increase by more than five percent by 2030. The population density of urban areas within the region is expected to decrease from 7.15 persons per acre to 6.48 by 2030. These figures are consistent with the current trend of population leaving the urban core and expanding into the undeveloped areas of the counties, resulting in low-density development (Source: MVRPC 2030 Long Range Transportation Plan).



**"We will not be a city of wealth
unless we can attract those who
have the option to go elsewhere."
Rice University Professor Dr. Stephan Klineburg
at the Blueprint Houston Leaders Conference**



One Step at a Time

Relation to MVRPC Strategic Plan

Walkable Communities Workshops is a key program related to implementation of MVRPC's strategic plan. The program relates directly to the following elements of the plan:

- **Livable Communities:** We will create vibrant community centers where housing, employment, schools, places of worship, parks and services are located together, all linked by transit and other alternatives to driving alone.
- **Transportation:** We will continue to address regional transportation needs in order to support existing businesses and to enhance the region's attractiveness for future economic development opportunities.
- **Efficient Land Re-Use:** We will grow inward, not sprawl, maintain a distinct edge between developed land and open space, and protect our investment in existing cities and infrastructure.
- **Arts, Culture and Recreation:** We will provide opportunities that enhance our residents' lives and are integral to quality communities.

Walkability in the Region

The early development pattern of the region included very small settlements along the natural waterways. With the opening of canals in the early 1800s and railroads in the mid-1800s, settlements at strategic locations along those transportation routes began to grow. Given their small size and the limited transportation options of those days, these early towns were platted in a pedestrian-friendly manner. Employment and everyday services were available within a short distance. The advent of the interurban lines



in the late 1800s offered residents increased opportunities for inter-community travel, but still guided development into compact centers oriented around rail stops. Community transit service in the early 1900s reinforced this development pattern and many distinct neighborhood business districts were maintained.

Communities began to spread outward along an improved highway network in the middle of the 20th century, as auto travel became more popular and convenient. This dispersion of

land use, assisted by zoning laws originally passed to protect residential uses from noxious industrial processes, gradually isolated uses to the point auto travel became the most (and sometimes only) feasible travel mode. Beginning in the 1950s, construction of the interstate highway system accelerated the dispersal and isolation of uses. Since that time, almost all non-residential land uses have continued to consolidate and trend toward the “big box” concept, including those formerly accessed by a walk or bike ride - grocery stores, drug stores, hardware stores, book stores, schools, post offices, libraries and even churches. Retail uses left neighborhood-scaled business districts for shopping centers and left many shopping centers for malls and “big boxes” in power centers.

Today, the declining walkability is slowly beginning to reverse. Revitalization of the urban centers of the region is occurring and low-density suburban areas are beginning to provide their citizens with walkable neighborhoods and connecting paths.



Walkable Community Concept

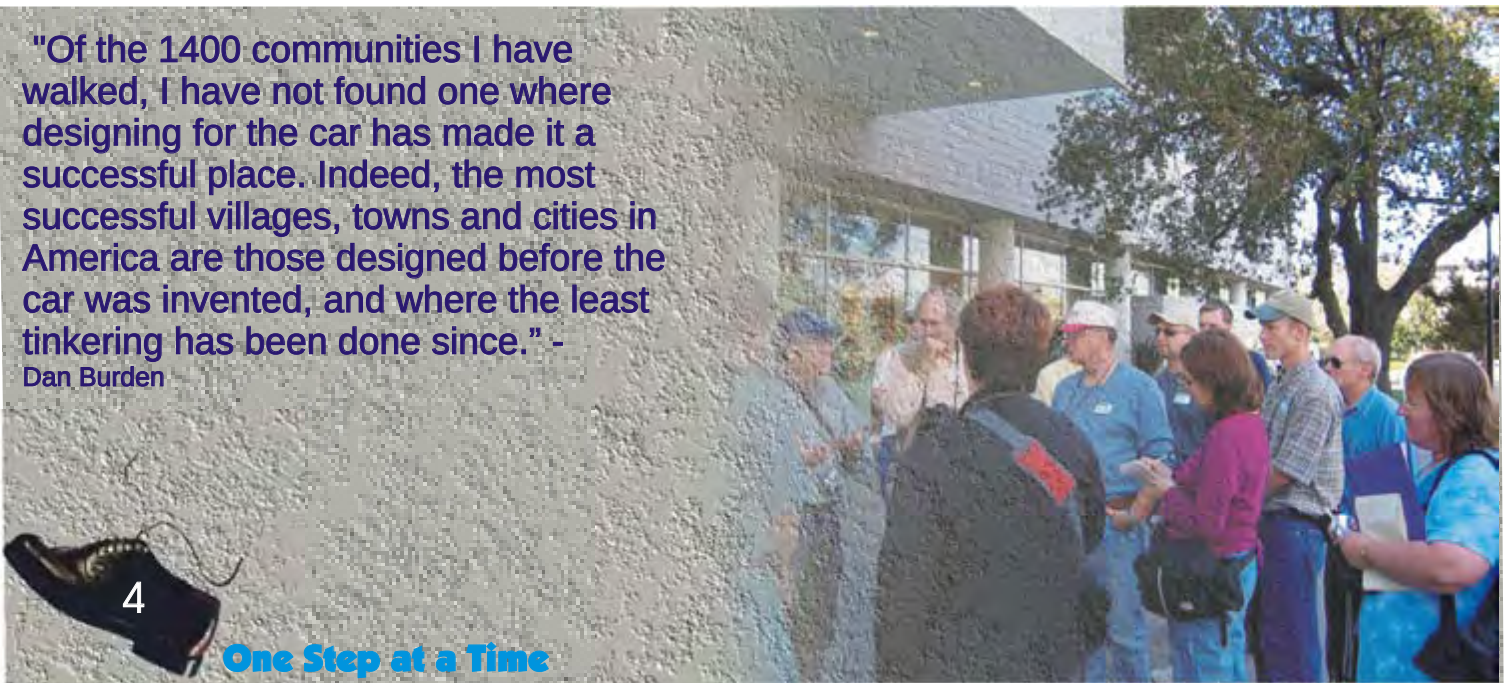
The Walkable Community Workshops program is the centerpiece of the National Center for Biking and Walking's (NCBW) community outreach and assistance efforts. The series of eight, half-day workshops bring together planners, engineers, elected officials, advocates, public health practitioners, public agency staff, and local residents to help enlighten and present ideas on how to make their community more walkable and bikeable. The workshops encourage active living by combining presentations on the latest thinking in traffic operations and community design with a walking audit where participants apply what they are learning. The Walkable Communities Workshop program carries the endorsement of the Association of Metropolitan Planning Organizations (AMPO).

Twelve Metropolitan Planning Organizations (MPOs) were selected in September, 2003 to take part in Round II of the workshop program. The 12 MPO regions selected were Albuquerque, New Mexico, Birmingham, Alabama, Cincinnati, Ohio, Dayton, Ohio, Eugene, Oregon, Lexington, Kentucky, Louisville, Kentucky, Minneapolis-St. Paul, Minnesota, Providence, Rhode Island, San Antonio, Texas, Vancouver, Washington, and Washington, DC. A staff member from each MPO attended a three-day training course in San Jose, California in October, 2003. The staff member then coordinated his or her respective workshop program for their region. A team of two NCBW facilitators was assigned to each region for five days to present the eight workshops. MVRPC staff members Ken LeBlanc, and Eric Fredericks coordinated MVRPC's Walkable Community Workshops. The two NCBW facilitators assigned to the Miami Valley Region were Charlie Gandy and Kristin Bennett.

The Walkable Community Workshops program is a shared-cost project. Each MPO selected to host the workshops is required to pay an \$8,000 fee to NCBW and also is to provide staff and logistical support. In return, the NCBW provides around \$20,000 of training, direct support, and technical assistance to each selected MPO. Funding assistance for the NCBW portion of the costs is provided by the Robert Wood Johnson Foundation, a national philanthropy that focuses on improving health and health care of all Americans. It provides grants to organizations who promote healthy communities and lifestyles.

"Of the 1400 communities I have walked, I have not found one where designing for the car has made it a successful place. Indeed, the most successful villages, towns and cities in America are those designed before the car was invented, and where the least tinkering has been done since." -

Dan Burden



Walkable Communities Facilitator Biographies

Charlie Gandy

Charlie Gandy is a recognized expert in community design, trail planning/design and bicycle and pedestrian advocacy. Gandy started his current consulting practice, Livable Communities, Inc., in 1998. Since then he has consulted with government agencies, communities, and is often enlisted by other design firms as an expert in government policies in this area.

Gandy regularly appears on television and radio commentating on government policy and legislation as it relates to pedestrian and bicycling issues. In 1998, he was named "America's #1 Bike Advocate" by Velo Business Magazine. In 1997, he was one of the "30 Most Influential People in the Bike Industry" by Bicycle Dealer Showcase Magazine.

From 1994 to 1998, Gandy was Director of Advocacy Programs for the Bicycle Federation of America. He organized and launched citizen-based advocacy groups for walking and cycling in thirty states and metropolitan areas. Gandy coached and trained advocates in all 50 states. Gandy developed and launched the Pedestrian Safety Road Shows, which have traveled to more than 250 communities. Gandy also founded and served as the first Executive Director of the Texas Bicycle Coalition (TBC) from 1990 to 1994.

Gandy served as a Member of the Texas House of Representatives for Dallas, Texas from 1983 to 1985. As a house member he passed several bills improving public safety and was a leader in Texas Education Reform. In 1985, Governor Mark White appointed Mr. Gandy to manage the Office of State/Federal Relations in Austin. Gandy has served on the National Board of American Youth Hostels and was appointed to the Austin Parks and Recreation Board. Mr. Gandy graduated from the University of Texas at Austin in 1980 with a B.A. Degree in Political Science. He has traveled extensively around the world, and enjoys hiking, cycling, and camping. He lives in Austin, Texas and has two children.



Walkable Communities Facilitator Biographies

Kristin Bennett

Kristin Bennett, AICP, is a specialist in bicycle and pedestrian transportation and trail planning and development with nearly 10 years of experience. Presently, Kristin works for the Metropolitan Planning Organization (MPO) in the Rochester, New York region, where she has been providing her specialized expertise and support to the region's 200 municipalities for the past seven years. Prior to moving to Upstate New York, she worked in a similar capacity at the MPO in the Grand Rapids, Michigan area. Additionally, she is a Board member of the New York State Bicycling Coalition (NYBC) and the Genesee Valley Bicycle Dealers Association as well as an active member of the Association of Pedestrian and Bicycle Professionals (APBP). Kristin lives with her husband and five pets in a walkable neighborhood in the City of Rochester where she travels by bicycle, on foot, or by bus to most places.



Local Community Workshop Coordinators

MVRPC

Ken LeBlanc Director of Community and Regional Planning

Eric Fredericks Regional Planner

Local Community Workshop Leaders

Xenia

Nimfa Simpson, AICP
City Planner

Centerville/Washington Township

Ryan Lee
Planner

Kettering

Tom Robillard, AICP
Planning and Development Director

Dayton

Gregory Gaines, AICP
Director, Planning and Business Development, Downtown Dayton Partnership

Gregory DeLong
Planner, City of Dayton

West Carrollton

David Humphreys, AICP
Director, Planning and Economic Development

Piqua

Tom Zechman
Public Works Director

Troy

Gregg Harris, AICP
Assistant Development Director

Brookville

Jeff Sewert
Assistant Municipal Manager

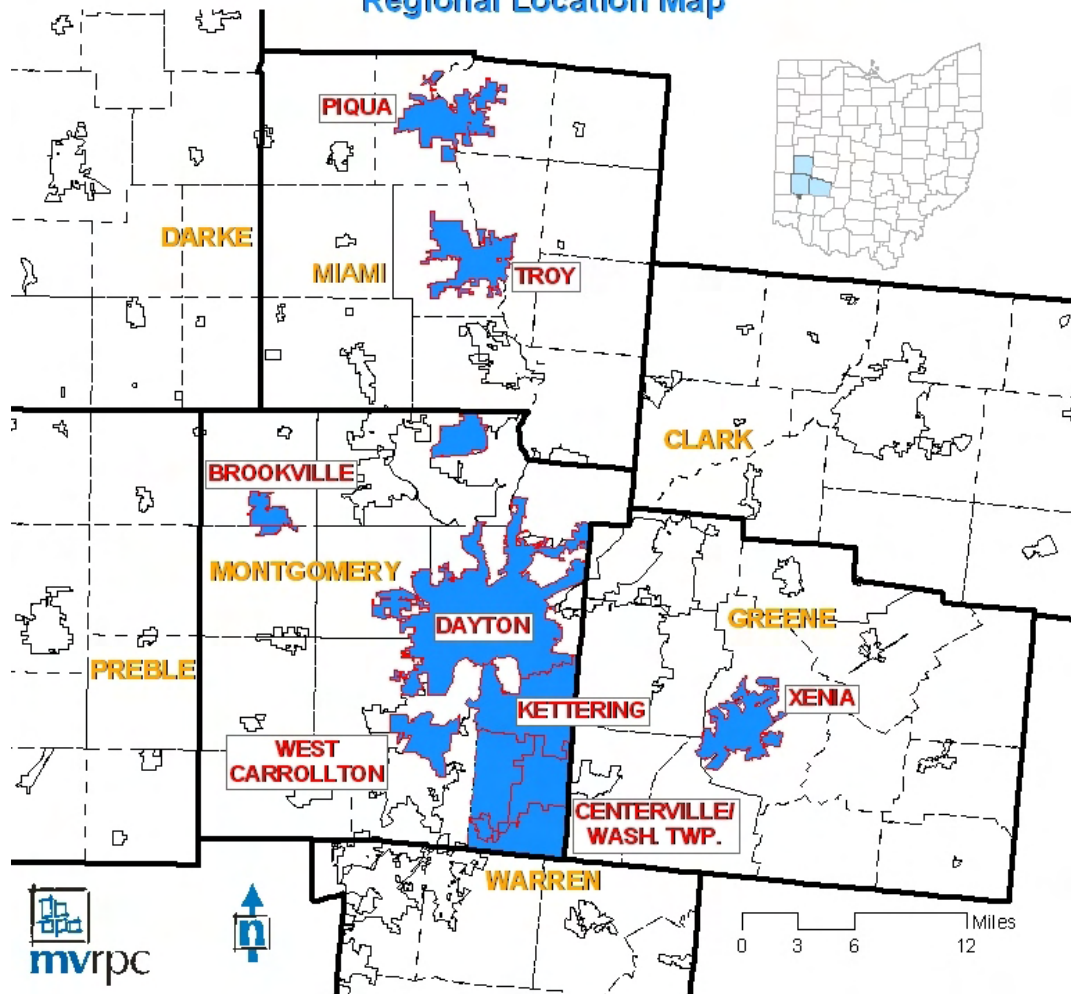


Workshop Schedule and Locations

June 14-18, 2004

Xenia	Monday, June 14	1pm
Centerville/Washington Twp	Tuesday, June 15	8am
Kettering	Tuesday, June 15	1pm
Dayton	Wednesday, June 16	8am
West Carrollton	Wednesday, June 16	1pm
Piqua	Thursday, June 17	8am
Troy	Thursday, June 17	1pm
Brookville	Friday, June 18	8am

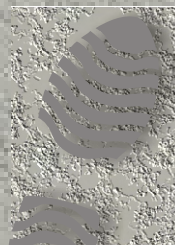
2004 Walkable Communities Workshops
Regional Location Map



One Step at a Time

Troy

Thursday, June 17, 2004 1pm
Hayner Cultural Center
Population: 21,999 (2000 Census)



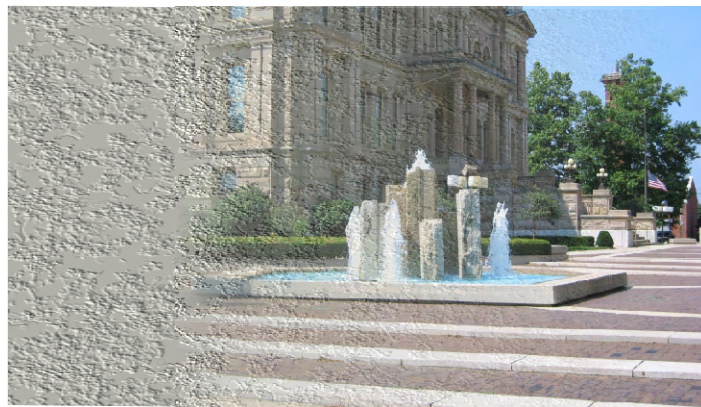
TROY
OHIO

Area Background

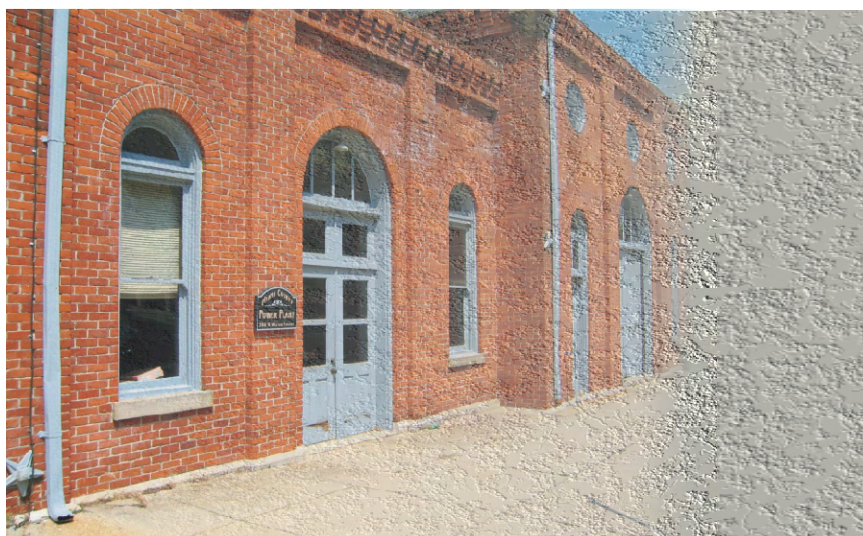
The City of Troy also chose the downtown as its workshop focus area, particularly along Water and Main Streets and the Public Square. Water Street runs west to east along the south bank of the Great Miami River.

Many large historic homes line the street, with commercial and public buildings mixed into the neighborhood. The buildings on the street have little or no setback. There are also several parking lots for county and city employees, some with river overlooks. Other uses on the street include a historic power station, a historic county courthouse, law offices, the “WE”

sculpture (a memorial of the 1913 flood), Hayner Cultural Center, the Historical Museum, Hayner Distillery Building, The Brewery, and several civic buildings including the public library. Main Street serves as the main east-west arterial of Troy and runs through the Public Square and traffic circle downtown. There is a 'European feel' in the downtown as building fronts edge the sidewalks with streetscape heights of 25 to 40 feet. Numerous variety shops, cafés, bars, and restaurants, many with outdoor seating, can be seen on all corners of the Square. There are public open and green spaces decorated with art, landscaping, benches, pavers, and decorative lighting, and in the center of the traffic circle is a large landscaped fountain.



Workshop Focus



The focus of Troy's workshop was to find ways to improve the marketability of the Water Street corridor and tie it in with the other sections of downtown and the river corridor. Other issues that the workshop addressed included:

- ☐ Creating an Arts District along West and East Water Street, capitalizing on historically unique features, buildings and existing businesses
- ☐ Exploring ways to improve the walkability of the Public Square
- ☐ Creating a downtown bike loop connecting existing paths on the north end of the river

Workshop Attendees

- | | | |
|-----|-------------------|--|
| 1. | Mike Beamish | Mayor of Troy |
| 2. | Tonya Compton | MVRPC |
| 3. | Karen Purke | Troy Historical Society |
| 4. | Diane House | Miami County Health Department |
| 5. | Marty Baker | Troy City Council |
| 6. | Mark Cundiff | Troy Personnel Director |
| 7. | Lloyd Blankenship | Troy Senior Citizens Center |
| 8. | Ben Sutherly | Dayton Daily News |
| 9. | James Dando | Troy Planning & Development Director |
| 10. | Hans Landefeld | Miami Conservancy District |
| 11. | Linda Lee Jolly | Troy-Hayner Cultural Center |
| 12. | Stan Kegley | Troy Assistant City Engineer |
| 13. | Doug Wenning | Troy Planning and Development Director |
| 14. | Christy Herman | City of Troy Management Analyst |
| 15. | David Anderson | Troy Director of Public Services & Safety |
| 16. | Rosaleen Rayman | Business owner & Beautification Committee |
| 17. | Carole Kerber | Artist/Hayner Center/Downtown homeowner |
| 18. | Chuck Fox | Troy Main Street |
| 19. | Dan Brandewie | Miami County Planning Dept. |
| 20. | Bob Shook | Concord Twp/Miami Co Bike Trail Taskforce |
| 21. | Deborah Swan | Troy City Engineer |
| 22. | Ron Osburn | Troy Daily News |
| 23. | Steve McLain | Bakehouse Bread Co./Dtown Bus. Partnership |
| 24. | Tim Davis | Troy Intern |
| 25. | Kyle Hinkelman | Troy Intern |
| 26. | Tony Bergman | Troy Intern |
| 27. | Gregg Harris | Troy Assistant Development Director |
| 28. | Eric Fredericks | MVRPC |
| 29. | Ken LeBlanc | MVRPC |



44

Troy
One Step at a Time

TROY
OHIO

Ideas Generated

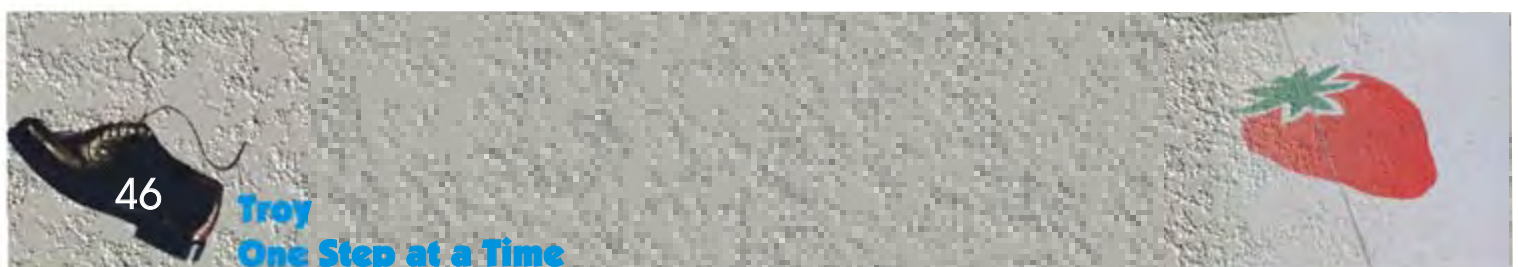
- ☐ Create a bike loop along Water Street from Market to Adams Street
- ☐ Create a boardwalk along the south bank of the Great Miami River
- ☐ Create a pedestrian bridge across the Great Miami from the “WE” sculpture
- ☐ Create a pedestrian promenade along the east side of the courthouse out to the river and “WE” sculpture while retaining the existing fountains
- ☐ Redevelop the homes on Pearson Court along the river
- ☐ Add a patio deck at The Brewery facing the river
- ☐ Create an arts district along Water St. (like the Short North in Columbus) with gateways at the ending points of the district
- ☐ Add public access points to the river for aquatic or passive recreation
- ☐ Use the previous hardware store building and The Brewery as art galleries
- ☐ Re-open the power plant building as a historic building
- ☐ Turn Water Street into a bike boulevard or a one-way street
- ☐ Add landscaping and way-finding signs to the parking lots along Water Street
- ☐ Make improvements to the Market Street and Adams Street bridges for safer and better accessibility for walkers and bikers
- ☐ Add benches along the waterfront near the Pearson homes
- ☐ At the traffic circle: remove the stoplights, move pedestrian crosswalks out away from the circle with a distance buffer for vehicles leaving the circle. Use raised speed humps for the pedestrian crossing (This will reduce decision making for motorists and pedestrians)



Walking Route



The decision to walk or bike usually takes into account the distance of the trip, perceived safety of the route, and the comfort and convenience of walking or biking versus an alternative mode. *AASHTO Guide for Planning Design, and Operation of Pedestrian Facilities, August 2001*



Workshop Evaluation

The most useful part of this workshop was:

- (9) Discussion, map work, ideas generated after the walk
- (4) Walking audit and ideas generated
- (2) PowerPoint, great presentation on traffic planning
- (1) Interaction with city planners and citizens
- (1) Skills

The least useful part of the workshop was:

- (3) Not applicable/nothing
- (1) Walking audit
- (1) Introduction

What specific next steps you would like the community to take?

- (7) Action on ideas from workshop: strategic planning, design and implementation
- (1) Use all empty spaces
- (1) Water Street improvements
- (1) Activities on the water
- (1) Downtown - evaluate the traffic circle
- (1) Continue the sidewalk program
- (1) Connect Troy, Tipp City, Piqua

What specific next steps are you willing to take?

- ☐ "Coalition."
- ☐ "Set up meetings, forums."
- ☐ "Hammer away at city hall."
- ☐ "Working with the planning (department) to finish."
- ☐ "Whatever it takes."
- ☐ "The city is ready to give ideas to Council."
- ☐ "Would participate if asked."
- ☐ "Work with community as a community stakeholder."
- ☐ "Participate in implementation."
- ☐ "Give my input."
- ☐ "Miami County bikepath chairman."
- ☐ "Be involved in any steering committee or focus groups working on plan."

Additional Comments:

- ☐ "Good job!" (Resident)
- ☐ "Thank you for inviting me." (Local business employee)
- ☐ "I think, if time permitted, it would be useful to include cameras in the walkabout by the participants." (Regional agency employee)

74% of Americans are not regularly physically active, including 28% who do not get any physical activity at all. - National Center for Chronic Disease Prevention and Health Promotion. 2000. "Physical Activity Levels for U.S. Overall."



Troy seeks more 'walkable' downtown

Workshop looks at ways to make area more pedestrian- and bike-friendly

By BEN SUTHERLY
bsutherly@DaytonDailyNews.com

TROY—The city's network of recreational trails may be growing, but runners and bicyclists often must take a back seat to motorists if they venture downtown.

During a four-hour workshop June 17 at the Troy-Hayner Cultural Center, more than 25 people representing local governments and various walks of life discussed ways to make Troy's downtown a more pedestrian-friendly, "walkable" place — and, in doing so, perhaps even spur more business

for merchants.

The Miami Valley Regional Planning Commission received a \$40,000 grant from the National Center of Bicycling and Walking and the Robert Wood Johnson Foundation to conduct the Troy workshop, as well as seven others held in Brookville, Centerville/Washington Twp., Dayton, Kettering, Piqua, West Carrollton and Xenia.

Kristin Bennett of the Genesee Transportation Council in

Rochester, N.Y., said walkable communities are key in fostering a community where residents can get fit, where senior citizens can maintain a measure of independence, and where children younger than 16 can get around.

Bennett said, nationwide, only 13 percent of trips to school are now made on foot or by bike.

The workshop included an hour-long walk along Oxford and Water streets, Pearson Court and Mulberry and Main streets in an

effort to identify ways to make the downtown more pedestrian-friendly.

Steve McLain, co-owner of Bakehouse Bread and Cookie Co., wants to encourage bicycle and pedestrian traffic in the Great Miami River corridor to cross the river and visit Troy's downtown business district.

Otherwise, McLain fears, a big marketing opportunity could

PLEASE SEE TROY ON 11

TROY

Seeking way to make city bike friendly

CONTINUED FROM 1

bypass downtown Troy, especially when bicyclists from the Dayton area begin traveling through Troy via a Miami County bike path now under construction.

"I think everyone is going to be surprised how much traffic materializes when these connections are made," McLain said.

Charlie Gandy, a bicycle and pedestrian advocate from Austin, Texas, who specializes in community design, said adding a bike lane to the North Market Street bridge might be one way to bring more bicyclists downtown.

Adding a bike lane also would create a buffer for high school

students and other pedestrians crossing the bridge, and would encourage motorists to slow down as they approach the Public Square, he said.

Workshop participants also discussed the possibility of placing islands and bollards along Main and Market streets within a block of the Public Square to slow traffic and make the square more pedestrian-friendly. Such a move might allow for the removal of traffic signals in the square.

David Anderson, the city's public service and safety director, said administrators had been considering those changes. Given the enthusiasm at the workshop for such a move, he said he may bring the proposed changes before the City Council sooner than he had intended.

Other ideas mentioned at the workshop include:

► Transforming Water Street into a boulevard, designating the area an art district, and making better use of the county's former power plant.

► Better landscaping around county-owned parking lots to soften their appearance.

► Placing additional signs in the downtown area to help visitors find their way.

► Putting public restrooms downtown.

► Encouraging additional use of Prouty Plaza.

► Creating more parking for bicyclists.

► Installing crosswalks where Oxford and Short streets intersect with West Main Street.

► Installing crosswalk signals whose "count-down" displays give pedestrians a better idea of how much time they have to cross the street.

City officials said a new Adams Street bridge, which likely will be built within a decade, also would be more pedestrian- and bike-friendly.

Anderson said he will relay the workshop discussions to the council for possible action.

Contact Ben Sutherly at 335-0509.



Local Media Coverage

Troy Daily News
June 19, 2004

Daily ^{Troy} News

Saturday, June 19, 2004

Volume 96, Number 263

Home made since 1909

WWW.TDN.NET.COM

50 cents

an award-winning Brown Publishing Co. newspaper

'Walkability' commendable Group explores city's pedestrian accessibility

BY RON OSBURN

Staff Writer

rosburn@tdnpublishing.com

Charles Gandy paused at the northeast corner of Public Square and smiled.

"This is what other communities want to become," he said.

Gandy, of Austin, Texas, is a nationally known expert in community design and bicycle and pedestrian advocacy. He made his comments on a warm, muggy Thursday

afternoon as he led a "walking audit" of the downtown Troy area.

Gandy said Troy rates high on the "walkability" scale, which measures how accessible and safe a community is for cyclists and pedestrians.

"I commend the city on their efforts so far," he said.

Gandy's first-ever visit to Troy was part of a one-day Walkable Communities

Workshop, presented by the Miami Valley Regional Planning Commission and the National Center for Bicycling and Walking. It was coordinated by the Troy Planning and

■ CONTINUED ON PAGE A2

At right, Stan Kegley, assistant city engineer, Linda Lee Jolly, of the Troy-Hayner Cultural Center, and Deborah Swan, city engineer, stroll down West Water Street Thursday during the Walkable Communities Workshop.



STAFF PHOTO/RON OSBURN

'Walkability' commendable

■ CONTINUED FROM A1

Development Department and the Troy-Hayner Cultural Center.

The workshop began with a presentation inside a Hayner meeting room by Gandy and Kristan Bennett, a Walkable Communities Workshop instructor from Rochester, N.Y., on challenges associated with walking in Troy and what constitutes a walkable community.

After the presentation, a group of about 30 community members and local government leaders joined Gandy and Bennett on a one-mile looping jaunt from the Hayner Cultural Center on West Main Street, down Water Street to North Mulberry Street, then west back down Main Street to the Hayner.

"(Troy) is similar to Rochester. Nice, wide sidewalks; large shade trees and the great, old buildings. It's obvious there's been a lot of work done on the streetscape," Bennett said, during one of several stops along the way.

"I'm also impressed with the wide range of community members who are represented (at the workshop) today," Bennett said.

At a stop on the North Market Street Bridge, Gandy said the city should continue working toward developing a recreational trail along the levee on the south side of the river. Farther east, at Pearson Court — a one-block row of large, white,

older duplexes facing the river — Gandy noted that, "If you had a trail running along here, it would significantly change the value of these homes."

Pausing at Prouty Plaza, with Aka Percyma's multi-colored "Sunrise, Sunset" mural along the Mayflower Theater's eastern outer wall as a backdrop, Gandy said he also advocated artwork throughout a community.

"Art defines what is unique and special about a town," he said.

Following the walking audit, attendees assembled back at Hayner and broke into small groups to prioritize walkability problems and barriers they observed, and develop possible strategies and solutions.

Funding assistance for Thursday's workshop was provided by the Robert Wood Johnson Foundation.

Something is always happening at:

The Avalanche Lounge

1375 ST. RT. 55, Troy, OH
Located at The Hometown Inn
(Formerly Holiday Inn)
Open Daily at 4:00pm
440-6448
MON: \$1.00 Draft Night

Troy

One Step at a Time



Walkable Communities Workshop Wrap-up



★ NATIONAL CENTER ★
for
BICYCLING & WALKING

THE
ROBERT WOOD
JOHNSON
FOUNDATION®

Regional Media Coverage

Dayton Daily News

July 1, 2004

MVRPC plans walkable cities

Downtown designs encourage pedestrian traffic

By Nicole Lark

Dayton Daily News

DAYTON | The Miami Valley Regional Planning Commission is guiding local cities to step up to a new Walkable Communities program, which will help promote downtown business.

After a series of workshops in June in Xenia, Centerville, Kettering, Dayton, West Carrollton, Piqua, Troy and Brookville, the MVRPC is keeping in close contact with city planning officials to plan new sidewalks and trails.

Charlie Gandy of Livable Communities Inc., an Austin, Texas-based consulting firm, and Kristin Bennett, a transportation planner from Rochester, N.Y., spoke at sessions attended by city planners. Plans call for eventually linking the eight communities to the Great Miami River Corridor trail.

The trail now links Xenia, Dayton and West Carrollton, and will include Kettering. Brookville will be linked by the Wolf Creek Bikeway. By developing trails, the MVRPC wants to encourage commerce in historic downtowns.

"The downtowns are the heart and soul of the community," Gandy said. "They're often neglected, but never abandoned."

By improving the quality of established trails, businesses are able to provide amenities to walkers, which could attract more sales.

Bennett spoke in particular about the aesthetic aspects of connecting trails to a downtown area. Her recommendations included signage to indicate where a trail might lead, and mile markers for those who choose walking as a fitness alternative.

In downtown areas, Bennett focused on making sidewalks more appealing to the community. Drawing from examples in several towns in New York state, including Rochester and Seneca Falls, Bennett proposed specific lighting, crosswalk design and planters to promote a visually pleasing walkway.

In towns like Centerville, the downtown district is almost inaccessible to walkers because of heavy traffic. "We're going to paint crosswalks to join neighborhoods where people can cross into downtown," said Centerville city planner Ryan Lee.

The MVRPC is compiling final reports that should be finished within the next few weeks.

In Piqua, where pedestrian-friendly places like the Linear Park already exist, it's a matter of connecting established walkways to business districts.



Walkable Communities Evaluation

At the end of each workshop, participants were asked to fill out an evaluation form. The first five questions on the form asked participants to rate the workshops on certain aspects, and the remaining questions were open-ended. The results of the evaluation forms are listed below.

The PowerPoint presentation was:

	Excellent	Good	Fair	Poor
Xenia	70%	30%	0%	0%
Centerville	70%	30%	0%	0%
Kettering	63%	37%	0%	0%
Dayton	70%	30%	0%	0%
West Carrollton	100%	0%	0%	0%
Piqua	70%	30%	0%	0%
Troy	29%	71%	0%	0%
Brookville	53%	1%	6%	0%
TOTAL	62%	38%	1%	0%

The walking audit/walkabout was:

	Excellent	Good	Fair	Poor
Xenia	60%	40%	0%	0%
Centerville	67%	33%	0%	0%
Kettering	37%	63%	0%	0%
Dayton (heavy rain)	22%	33%	44%	0%
West Carrollton	67%	33%	0%	0%
Piqua	74%	26%	0%	0%
Troy	33%	67%	0%	0%
Brookville	76%	24%	0%	0%
TOTAL	55%	41%	4%	0%



Walkable Communities Evaluation

The discussion of possible local strategies and next steps was:

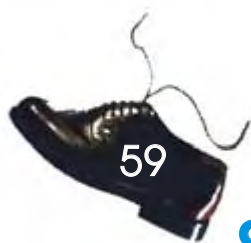
	Excellent	Good	Fair	Poor
Xenia	60%	40%	0%	0%
Centerville	70%	30%	0%	0%
Kettering	42%	53%	5%	0%
Dayton	20%	70%	10%	0%
West Carrollton	80%	20%	0%	0%
Piqua	65%	35%	0%	0%
Troy	53%	41%	6%	0%
Brookville	53%	47%	0%	0%
TOTAL	54%	43%	3%	0%

Overall, how useful was this workshop to you?

	Very	Somewhat	A Little	Not at all
Xenia	56%	44%	0%	0%
Centerville	90%	10%	0%	0%
Kettering	74%	26%	0%	0%
Dayton	90%	10%	0%	0%
West Carrollton	83%	17%	0%	0%
Piqua	96%	4%	0%	0%
Troy	78%	17%	6%	0%
Brookville	94%	6%	0%	0%
TOTAL	84%	15%	1%	0%

Overall, how useful do you think this workshop was or will be to this community?

	Very	Somewhat	A Little	Not at all
Xenia	60%	30%	10%	0%
Centerville	100%	0%	0%	0%
Kettering	67%	33%	0%	0%
Dayton	70%	20%	10%	0%
West Carrollton	83%	17%	0%	0%
Piqua	96%	4%	0%	0%
Troy	72%	28%	0%	0%
Brookville	88%	13%	0%	0%
TOTAL	80%	18%	2%	0%



Lessons Learned

A common theme frequently stressed during the workshops was that communities considered successful often have a “heart and soul,” a physical place that defines the community and provides it with a sense of direction. This place often functions as a stimulus for community development; that is, the community will often reflect the area that serves as its centerpiece (such as a downtown or a regional shopping district). In smaller towns, the original downtown can serve as the catalyst. In larger cities, there may be several places that can act as the “heart and soul,” but ultimately the downtown will serve as the main focus point.

Richard Florida, author of *The Rise of the Creative Class*, writes about “Generica,” American communities that are all alike on the surface and have few features to distinguish them from other communities. Such communities rely on attracting big-box retail stores, strip-shopping centers, and similar development to increase their economic revenues. Unfortunately, what often happens to these communities is that they are confronted by problems when these developments decide to locate in competing communities, or the community's economy is undermined when the same business opens a second location nearby. Several experts have recently noted that highly skilled workers and businesses in the U.S. are seeking areas that give them a “sense of place,” an area with a distinctive identity or character. The types of strip malls, large-scale retail developments and generic housing subdivisions built over the last fifty years usually fail to accomplish this, and more communities are starting to realize the importance of creating a sense of place to be competitive in the market.

For the local workshop program, eight communities each chose a location to focus on and, surprisingly, each community chose to explore the area considered to be its downtown. Community leaders recognized the importance of engaging people with the ideas presented at the workshops, and that the best community asset to address is its unique downtown. The ideas presented at the workshops not only relate to making those areas more walkable and bikeable, but also apply to creating a welcoming and enjoyable environment, and creating a marketable place that enhances the economic vitality of the community. Presentations by the facilitators demonstrated these concepts very well and many of the ideas were embraced by participating communities.

Perhaps the most important lesson learned from the program is that the workshop and walking audit offer a great opportunity to open the eyes of participants with a hands-on educational experience. Actually experiencing the interaction of pedestrian, bike, and automobile traffic, as well as the consequences of design details, is valuable. The workshops result in participants thinking about specific solutions for improving their community by reclaiming streets for safe walking and biking, and changing the philosophies of those able to affect major change. The Miami Valley Region and MVRPC highly recommend the Walkable Community Workshops to any region looking to find ways to improve the quality of life, economic vitality, and overall livability of communities in their region.



Suggestions for Future Workshops

Suggestions for Workshop Program Improvements

- ❑ Have the workshop facilitators submit their preferences to the MPO coordinators before the workshop. This would apply to the room layout, the agenda (including starting times and lengths of time for each segment), and whatever else the facilitator feels is necessary. The layout of the room and the agendas available on the website were not the preferred methods of our facilitators and we changed them right before each workshop.
- ❑ Shorten the local community coordinator's presentation to no more than five minutes. Let the facilitators have that extra time for their presentations or the walking audit. This should be mentioned to the local coordinators as well.
- ❑ Stress to the MPO coordinators that the workshops will take a lot of coordination effort for several months beforehand, and that on the week of the workshops all of their (working hours) time must be devoted to the workshops. If the region is very spread out, MPO coordinators should expect very little free time. They will need to arrive at least 30 minutes prior to the workshops for setup.

Suggestions for Future Workshop Coordinators

- ❑ Have MPO coordinators stress the importance of the workshops to the local coordinators. Make sure that they understand that in the weeks leading up to the workshop that the workshop should take the highest priority on their agendas. If they cannot commit this kind of time, then someone else should direct the effort. We found that the best workshops in our area directly reflected the enthusiasm and the amount of time and effort spent by the local coordinator on the workshop.
- ❑ The local coordinators must get the right people to attend the workshops. It is absolutely essential that at least some people from each category of the potential invitees list attend (the list is very helpful). And most importantly, get some people with decision-making and implementation power to the workshops (preferably people enthusiastic about walkability issues), because the workshops are far too valuable to not be attended.
- ❑ Have a person take the meeting minutes at each of the workshops. During the “generation of ideas” portion of the workshop, list the ideas generated by each group. This way you can see the consensus each group had with the others (See the Piqua Ideas Generated section for an example of this).
- ❑ Keep the walking audit route short but sweet, probably limited to around six blocks. There is a lot to discuss on each block and many of our workshops walking routes were too lengthy and we either did not get to focus on the main areas that we wanted to address, or we had to shorten the team consensus building at the end of the workshops.
- ❑ Take pictures of good practices of walkability/bikeability in your region for the facilitators to look at. This will give them a feel for the region and an idea of how you view your region.



What's Next

Based upon the success of the June 2004 workshops and the role walkable communities play in promoting alternative transportation strategies, MVRPC plans to continue and expand upon its Walkable Communities program. Several additional member jurisdictions have requested such workshops in their communities. MVRPC also plans to add more material to the Walkable Communities pages on its website, including program updates and best practices, both in our region and around the country. MVRPC will continue to coordinate with local jurisdictions on this effort and assist in any way possible. The following summarizes additional pedestrian planning activities that MVRPC anticipates undertaking during the current fiscal year:

- ❑ Coordinate “Walkable Communities Workshops” for member jurisdictions and integrate cycling information as well
- ❑ Encourage members to make their jurisdictions more walkable. In general, people will walk more to a destination if they are offered suitable facilities (i.e., sidewalks, curb cuts, marked crosswalks, etc.)
- ❑ Develop a pedestrian access plan in areas that staff identifies as high growth areas (i.e., Dayton Mall/Miami Township) to encourage walking to neighborhood facilities
- ❑ Coordinate with public health organizations (American Heart Association, etc.) to encourage walking to a destination as part of an overall daily exercise regimen
- ❑ Coordinate with area schools to encourage students to walk (or bike) to school
- ❑ Demonstrate some visual examples of how Sustainable Growth could positively impact their communities. Using software such as *CommunityViz*, a PowerPoint presentation could be created that features actual photographs of existing conditions that “morph” into a much more desirable plan (pedestrian-friendly designed streetscape, sheltered transit stop, etc.). This would depict a “before” and “after” visual that would be easily understandable



Information Sources

Government Sites

MVRPC Walkable Communities Program

<http://www.mvrpc.org/walkable/>

Ohio Department of Transportation

<http://www.dot.state.oh.us/bike>

USDOT National Transportation Library Pedestrians and Bicycles

<http://ntl.bts.gov/display.cfm?sub=e1&cat=5>

FHWA Pedestrian/Bicycle Safety

http://safety.fhwa.dot.gov/programs/ped_bike.htm

FHWA Bicycle & Pedestrian Program

<http://www.fhwa.dot.gov/environment/bikeped/>

Architectural & Transportation Barriers Compliance Board (US Access Board)

<http://access-board.gov/>

Other Sites

National Center for Bicycling and Walking

<http://www.bikewalk.org/>

Robert Wood Johnson Foundation

<http://www.rwjf.org/>

Bike Miami Valley

<http://www.bikemiamivalley.org/>

Miami Valley Rail Trails

<http://www.miamivalleytrails.org/>

Ohio Bicycle Federation

<http://www.ohiobike.org/>

America Bikes

<http://americabikes.org/>

America WALKs

<Http://www.americawalks.org/>



Information Sources (continued)

American Planning Association

<http://www.planning.org/>

American Trails

<http://americantrails.org/>

Association of Pedestrian & Bicycle Professionals

<http://apbp.org/>

Bicycling Life

<http://bicyclinglife.org/>

Bikes Belong Coalition

<http://bikesbelong.org/>

Center for Livable Communities

<http://www.lgc.org/center/>

International Walk to School

<http://www.iwalktoschool.org/>

League of American Bicyclists

<http://www.bikeleague.org/>

Livable Communities, Inc.

<http://www.livablecommunities.com/>

National Main Street Center

<http://www.mainstreet.org/>

Partners for Livable Communities

<http://www.livable.com/>

Partnership for a Walkable America

<http://www.walkableamerica.org/>

Pedestrian & Bicycle Information Center

<http://www.bicyclinginfo.com/>

Perils for Pedestrians

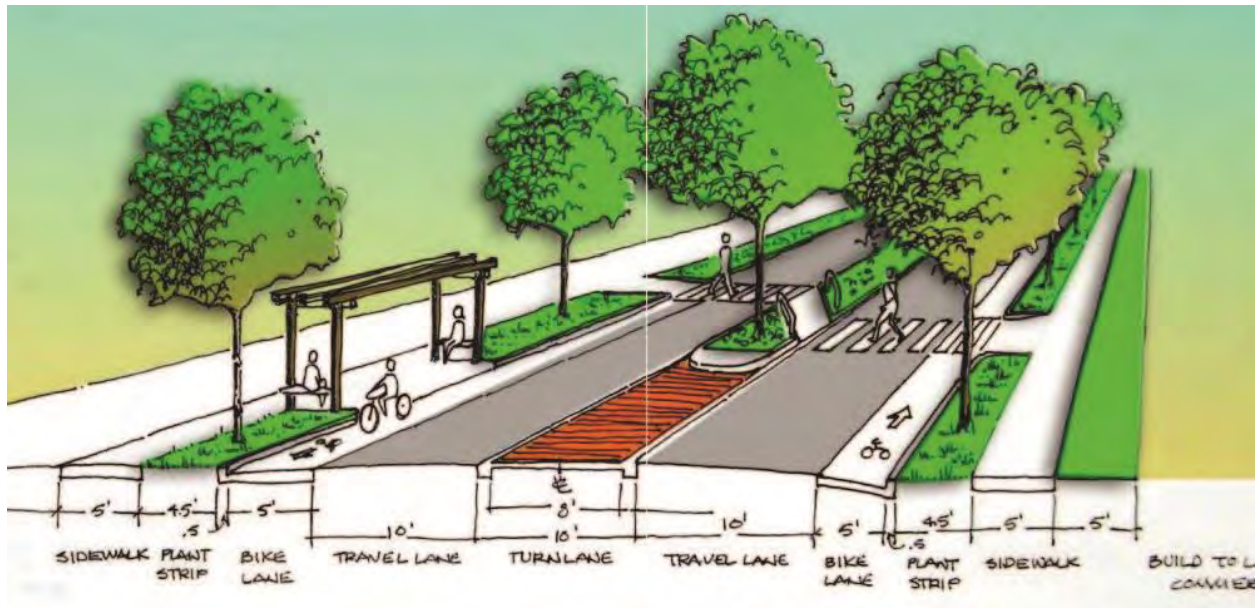
<http://www.pedestrians.org/>

Rails-to-Trails Conservancy

<Http://www.railtrails.org/>



APPENDIX K



City of Troy, Ohio Complete Streets Policy

Adopted April 17, 2017 by Resolution R-21-2017

Amended November 20, 2017 by Resolution R-50-2017

Vision

The vision of this Policy is to create a comprehensive, integrated, balanced, and connected transportation network where all users can travel safely and comfortably to promote a more livable community.

Definition

Complete streets are facilities designed and operated to safely and comfortably accommodate users of all ages, including, but not limited to motorists, cyclists, pedestrians, transit and school bus riders, and emergency responders to move along and cross the street. “User” includes people of all ages and abilities.

Purpose

This Policy is intended to incorporate the needs of all users through the planning, design, approval, and implementation processes for any construction, reconstruction, and retrofit of streets in the transportation network, including pavement resurfacing, restriping and signalization operations if the safety and convenience of users can be improved within the scope of the work. Providing various forms of transportation will increase public health, reduce demand for motor vehicles by contributing to walkable neighborhoods which can foster interaction, create a sense of community pride and improve quality of life.

It is intended that this Policy, located in the City of Troy Comprehensive Plan, ensures city projects conform to the Miami Valley Regional Planning Commission Complete Street Policy, which implies city projects will remain competitive when seeking federal and state funding administered through this agency.

Goals

1. Incorporate the vision, purpose and goals of this Policy into all aspects of the project development process for transportation projects within the City.
2. Create a balanced, interconnected transportation network consistent with the Comprehensive Plan and other relevant policies of the City.
3. Promote the use of the best design standards including AASHTO, MUTCD, ADAAG and others as related. Methods for providing flexibility within safe design parameters will be considered.
4. Increase transportation choices to avoid traffic congestion and increase the overall capacity of the transportation network.
5. Improve safety by the design and accommodation for cyclist and pedestrians.
6. Encourage walking and cycling by providing a safe network to help people of all ages and abilities to get physical activity.
7. Encourage businesses to provide bicycle parking for staff and patrons.

Applicability

This Policy applies to all projects, including new construction, rehabilitation, repair, resurfacing, and maintenance of transportation network facilities located within the Public right-of-way or on public or private land. Projects approved or designed before the adoption of this Policy are exempt. All other projects are subject to this Policy.

Review Process

All transportation projects within the public right-of-way, publicly owned land, or within Planned Developments and subdivisions shall be reviewed for conformity with this policy.

Exemptions

Exemptions to the Complete Streets Policy must be documented in writing by either the City Engineer or Planning & Zoning Manager with supporting data that indicates the reason for the decision and follows:

1. There is an absence of current and future need.
2. The cost of accommodations for a particular mode is excessively disproportionate to the need and potential benefit of a project.
3. The project involves minor ordinary maintenance activities, such as cleaning, sealing, patching and surface treatments.

Implementation

1. Develop Complete Streets master transportation plan.
2. Evaluate each street and provide a classification type.
3. Implement recommendations to a Safe Routes to School Travel Plan and maintain local Safe Routes to Schools Program.
4. A systems approach should be used in developing roadway projects to ensure one mode of transportation does not prevent safe use by another mode.
5. Adjust Capital Improvement Plan to reflect a higher prioritization given to those projects that advance the vision and goals of the Complete Streets Policy.
6. Continue to evaluate traffic control devices with modification when necessary.
7. Implement recommendations of intersection improvements when development occurs.
8. All improvements shall be informed by the principles, best practices, and design guidelines outlined in the most recent editions of the Guide for the Development of Bicycle Facilities, published by the American Association of State Highway and Transportation Officials (AASHTO) and the Urban Bikeway Design Guide, published by the National Association of City Transportation Officials (NACTO).

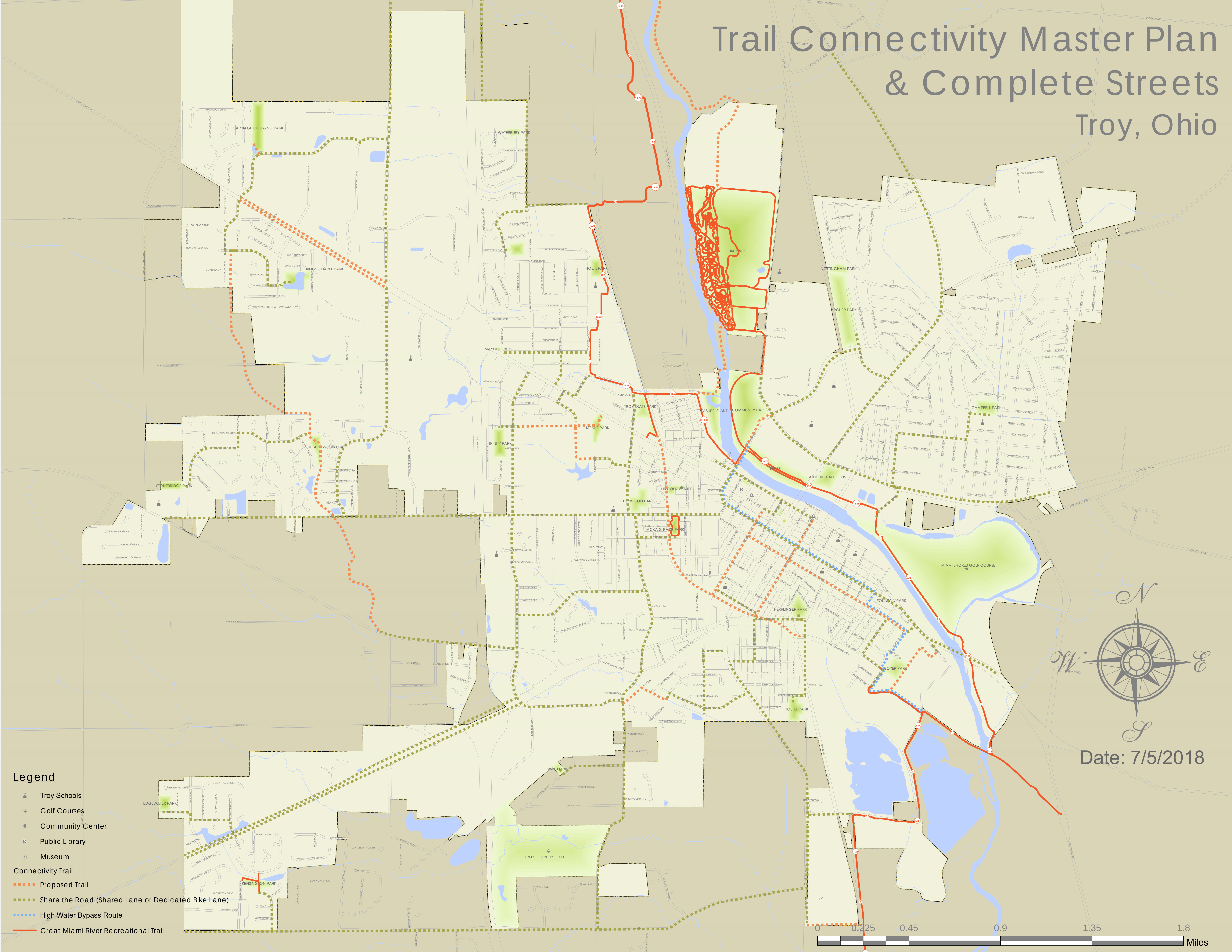
Performance Measures

1. Increase the number of miles of on-street bicycle routes with clearly marked accommodations.
2. Provide sidewalk connectivity throughout the city.
3. Increase the public and private development to install bicycle racks and other street furniture.
4. Provide training and education for staff, elected and appointed officials and citizens to continue to promote the goals included in this policy.

Evaluation

The City shall evaluate this policy and the documents associated with it every two years. The evaluation may include recommendations for amendments to the Complete Streets Policy.

Trail Connectivity Master Plan & Complete Streets Troy, Ohio

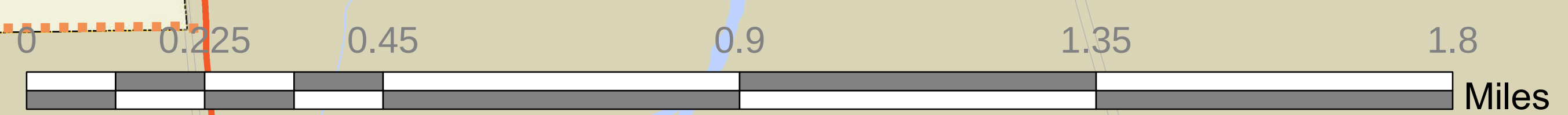


Legend

- Troy Schools
- Golf Courses
- Community Center
- Public Library
- Museum
- Connectivity Trail
 - Proposed Trail
 - Share the Road (Shared Lane or Dedicated Bike Lane)
 - High Water Bypass Route
 - Great Miami River Recreational Trail



Date: 7/5/2018

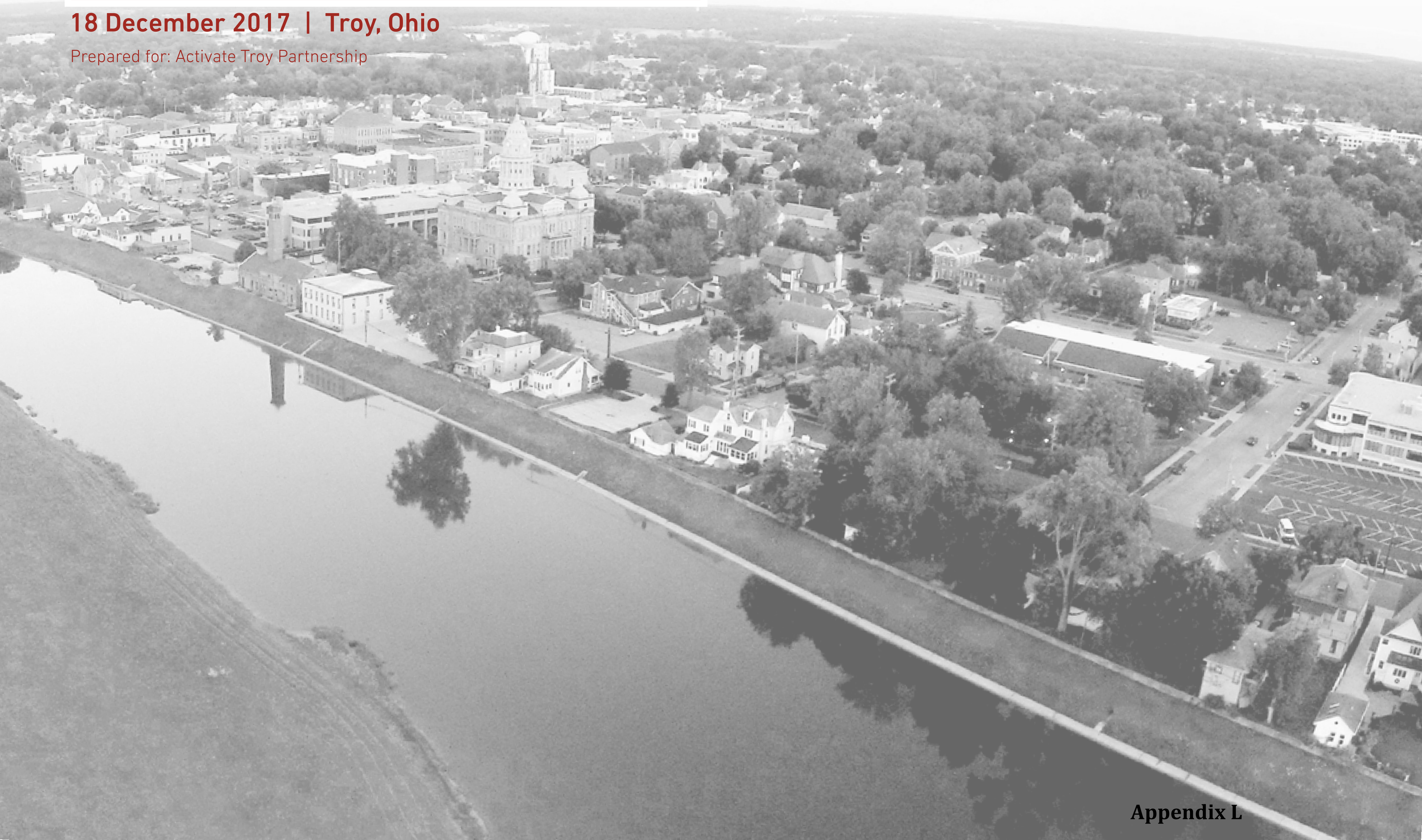


TROY DOWNTOWN RIVERFRONT

STRATEGIC DEVELOPMENT STUDY

18 December 2017 | Troy, Ohio

Prepared for: Activate Troy Partnership



ACKNOWLEDGEMENTS

A global economy, shifting demographics and the need for workforce development - these are just some of the issues facing Troy. The demand to stay competitive, not just with regional and neighboring cities, but also with cities from around the globe, is greater than at any other time in our history.

As more of our residents retire, more of our younger citizens are migrating to other communities that offer amenities and quality of life opportunities that they don't think they can find in Troy. The result is a shrinking population that could threaten our income base, reduce funding for city services and schools, negatively affect housing values, and place burden upon all residents.

In our region, more than 12,000 jobs, many of them high-paying, go unfilled each year thus threatening Troy's economic competitiveness and our ability to meet the needs of our largest employers. Without a sustainable commercial and industrial economy, we cannot assure the unique quality of life that residents have come to enjoy in Troy.

Our goal with this Study was to create and communicate a vision for Troy that drives economic growth, increased investment, and talent attraction/retention to help us meet head-on the challenges we face.

ACTIVATE TROY PARTNERSHIP:



WWW.ACTIVATETROY.COM

DESIGN TEAM:



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An aerial photograph of Troy, Michigan, featuring the city's skyline, a river, and surrounding greenery. The image is overlaid with a semi-transparent red filter. A white-bordered box in the lower-left corner contains the section title.

1 EXECUTIVE SUMMARY

Troy pulls together the work of many to do big things. We have the opportunity to attract the next wave of investment, talent, and amenities that will make our city's next generation even stronger and more vibrant than the last. To do it, we have crafted a community-driven, action-oriented strategic development study that will guide our efforts to achieve extraordinary results.

BACKGROUND & OVERVIEW



STREETS ALIVE, TROY, OH

The Troy Downtown Riverfront Strategic Development Study is a comprehensive study of Troy's historic downtown and riverfront corridor. The Study was commissioned by a group of private organizations, funders, the City of Troy, and interested stakeholders who came together to form the Activate Troy Partnership.

The Study resulted from the 2015 America's Best Communities (ABC) competition in which Troy placed as a quarter finalist. One of four key initiatives of the nomination called for a comprehensive plan to provide connectivity to Downtown and the riverfront, physically and functionally. The objective was to create new amenities, attractions, and economic opportunities to support the City in workforce attraction.

In late 2016, the Activate Troy Partnership contracted with the urban design and planning firm, MKSK, and its partners to lead the three-stage effort and provide recommendations for Downtown and the riverfront.

This Study was commissioned to help maintain and enhance the special character of Troy's downtown and riverfront corridor, protect its sense of place, encourage investments, and create a dynamic commercial and residential district that instills pride in all citizens.

THIS STUDY:

- Provides development, public space, infrastructure, programming, and policy recommendations
- Creates opportunities and roles for civic and business organizations and property owners to work together
- Intersects current and aspirational strengths
- Inspires programming, public investments

ACTIVATE TROY PARTNERSHIP:

The Activate Troy Partnership is a public-private partnership formed to study and coordinate key community efforts impacting quality of life for all Troy residents. It was originally formed as a Steering Committee to advise and direct efforts involving the Downtown Riverfront Strategic Development Study in order to assure a collaborative, well-rounded and realistic approach to development. Stakeholders include representatives from Troy Main Street, Troy Development Council, Troy Chamber of Commerce, Troy Community Works, The Troy Foundation, The Paul G. Duke Foundation, Troy Area Chamber of Commerce, the City of Troy, and private investors.

PLAN OBJECTIVES



1 TELL OUR STORY BETTER



2 INCREASE JOBS & RESIDENTS DOWNTOWN



3 STRENGTHEN CONNECTIONS TO AN ACTIVE RIVER & TRAIL NETWORK



4 LEVERAGE PARKING AS AN ECONOMIC DEVELOPMENT TOOL



5 CREATE AN ACCESSIBLE USER-FRIENDLY DEVELOPMENT TOOLKIT

VISION: TROY WILL...

- ▶▶ Be the most sought after city in which to live, work, learn, and play outside of the Dayton beltway and in Ohio.
- ▶▶ Be a place that people want to stay for a weekend, for the season, for a career, to grow up, and to retire.
- ▶▶ Be a powerful recruitment tool in helping area employers fill job vacancies.
- ▶▶ Attract and retain employers.
- ▶▶ Attract the talent and creativity that will spawn new innovation and the creation of new firms and industries.
- ▶▶ Make a place our sons and daughters want to come back to and our parents want to retire.
- ▶▶ Be where people want to visit regularly.
- ▶▶ Have higher property values that will make further investment possible.

The strategic investment planning process involved dozens of public meetings, stakeholder sessions, and interviews with hundreds of residents, business owners, institutional leaders, and land owners. It married this research with an existing conditions assessment, understanding of demographic trends, real estate market research, and competitive markets analysis.

Throughout the process, deeper challenges were uncovered: Troy households are getting smaller and older, Troy's youth are decamping for larger metros faster than new people are replacing them, and thousands of blue and white collar jobs are being left unfilled as people are increasingly choosing to pick a dynamic place to live first and find work second.

The jobs are following talent, not the other way around as it used to be. But Troy, unlike many of its peer cities, is operating from a position of tremendous strength. It sits along a storied river and one of the country's most robust bike trail networks. It has a historic urban core surrounded by beautiful neighborhoods. It has phenomenal corporate citizens, and it has committed public and private leadership that work together.

The primary objectives of this Study build on those strengths in response to some of Troy's deepest problems. Troy will tell its story better as an active and healthy river city that is rich in industrial and agricultural heritage. It will activate the latent demand for and increase the supply of residents

and creative, talented, and hardworking individuals downtown and in downtown-near neighborhoods. The value of the river and the city's adjacency along the Great Miami River Recreational Trail will be fully capitalized upon through easy and safe trail network connections from Downtown to its neighborhoods. With increased demand for downtown living and tourism, parking will flip from being a constraint to an economic development tool through intentional design and management. And to facilitate this growth, the Activate Troy Partnership should develop and promote a flexible development toolkit that leverages Troy's amazing built legacy and unlocks potential for sustainable growth and investment over the next ten years and beyond.

DEVELOPMENT PHASES 0-2 YEARS



SHORT-TERM PROTOTYPING, INFILL DEVELOPMENT & KEY PUBLIC SPACES

- » Activation and public space prototyping
- » Water Street Heritage Trail
- » Infill residential and commercial development
- » Prouty Plaza Upgrades
- » Clay Street Arts Walk
- » Troy "Truck Yard"



PROPOSED CANAL STREET LOFTS, TROY, OH



PROPOSED WATER STREET INFILL DEVELOPMENT



PROPOSED TROY TRUCK YARD



LINS BUILDING RENDERING, MT STUDIO

DEVELOPMENT PHASES 2-5 YEARS



RECRUIT & ATTRACT AMENITIES AND ANCHORS

- » Metallurgy Artist-in-Residency and Creative Lab
- » River District (Phase 1)
- » Troy Outdoor Climbing Center and Park
- » Condo Rental Program
- » East Water Street Redevelopment
- » High priority street modifications



RIVER DISTRICT DEVELOPMENT EXAMPLE



PROPOSED ARTIST-IN-RESIDENCY



PROPOSED RIVER DISTRICT PHASE 1



RIVERFRONT PROMENADE EXAMPLE

DEVELOPMENT PHASES 5-10 YEARS



INVEST AT EDGES, GROW AT HEART

- » Complete River District
- » Plum Street Pedestrian Bridge
- » Cherry Street Development
- » Street modifications and interconnected bike network



INFILL HOUSING EXAMPLE



PROPOSED RIVER DISTRICT PHASE 2 AND PEDESTRIAN BRIDGE



PEDESTRIAN BRIDGE EXAMPLE

DEVELOPMENT PHASES 10+ YEARS



BUILD ON SUCCESS

- » Rebuild Public Square
- » Active senior housing
- » Redevelop Ridge Avenue campus



PUBLIC SQUARE EXAMPLE



PROPOSED PUBLIC SQUARE



FORMER HOBART RIDGE AVENUE CAMPUS, TROY, OH

An aerial photograph of a city, likely Madison, Wisconsin, showing a river in the foreground, a large government building (the Wisconsin State Capitol) in the center, and a dense urban area with many trees and smaller buildings. The image is overlaid with a semi-transparent blue filter.

2

WHAT WE LEARNED

The first stage of work was analyzing the current physical conditions, ongoing planning and investment, relevant market forces, and the real people behind it all. The goal of the analysis is to provide a clear and concise picture of the job to be done by the Strategic Study that it supports.

PUBLIC ENGAGEMENT



STAKEHOLDER GROUPS



COMMUNITY SURVEY (SURVEYMONKEY.COM)



MEETINGS AND EVENTS

The strategic planning process included a wide variety of engagement methods ranging from focused meetings to online surveys that received hundreds of responses.

The public engagement for the Study began in December of 2016 with the creation of the Steering Committee and Operational Committee (see Appendix for make up of these Committees). This kick-off also set the course for the online community survey (see Appendix for full results) and focus groups. All of these audiences were convened in January of 2017 to understand the existing conditions, struggles, and aspirations of the community from a wide variety of perspectives.



MEETINGS AND EVENTS

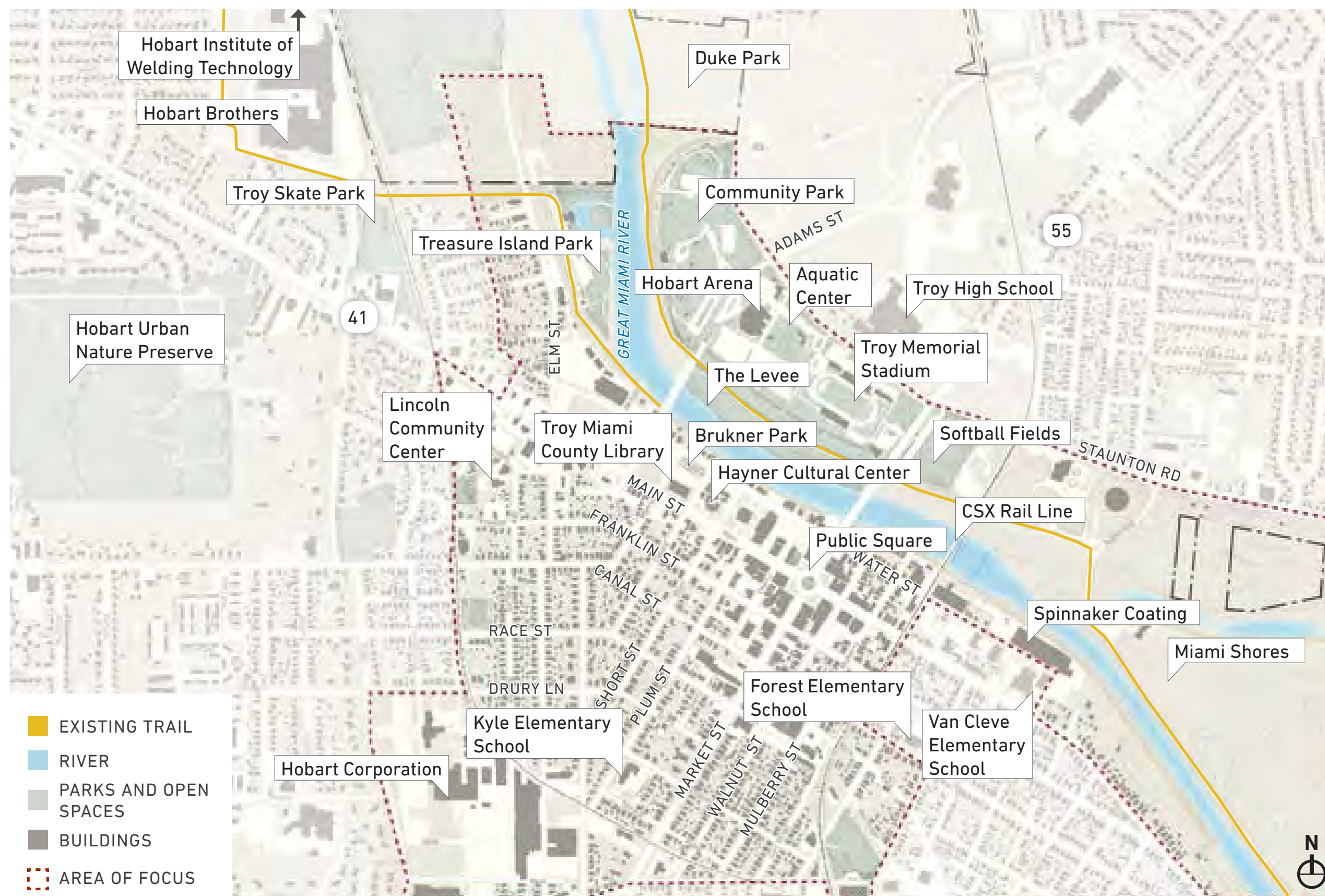
RECOMMENDED NEXT STEPS FOR ENGAGEMENT

1. Formalize and incorporate Activate Troy into a sustained urban development operation with staffing support to coordinate activities
2. Evaluate objectives programming with various entities on how Activate Troy can fulfill its role in the community
3. Create project website to describe Strategic Study, opportunities, and ways to stay informed and up-to-date or get involved
4. Develop a social media and marketing plan to market and celebrate downtown activities, business owners, and new development
5. Host regular events, site activations, seminars, roundtables, etc. with developers, property owners, and entrepreneurs to discuss and advocate for Downtown and its riverfront



MEETINGS AND EVENTS

DOWNTOWN TODAY

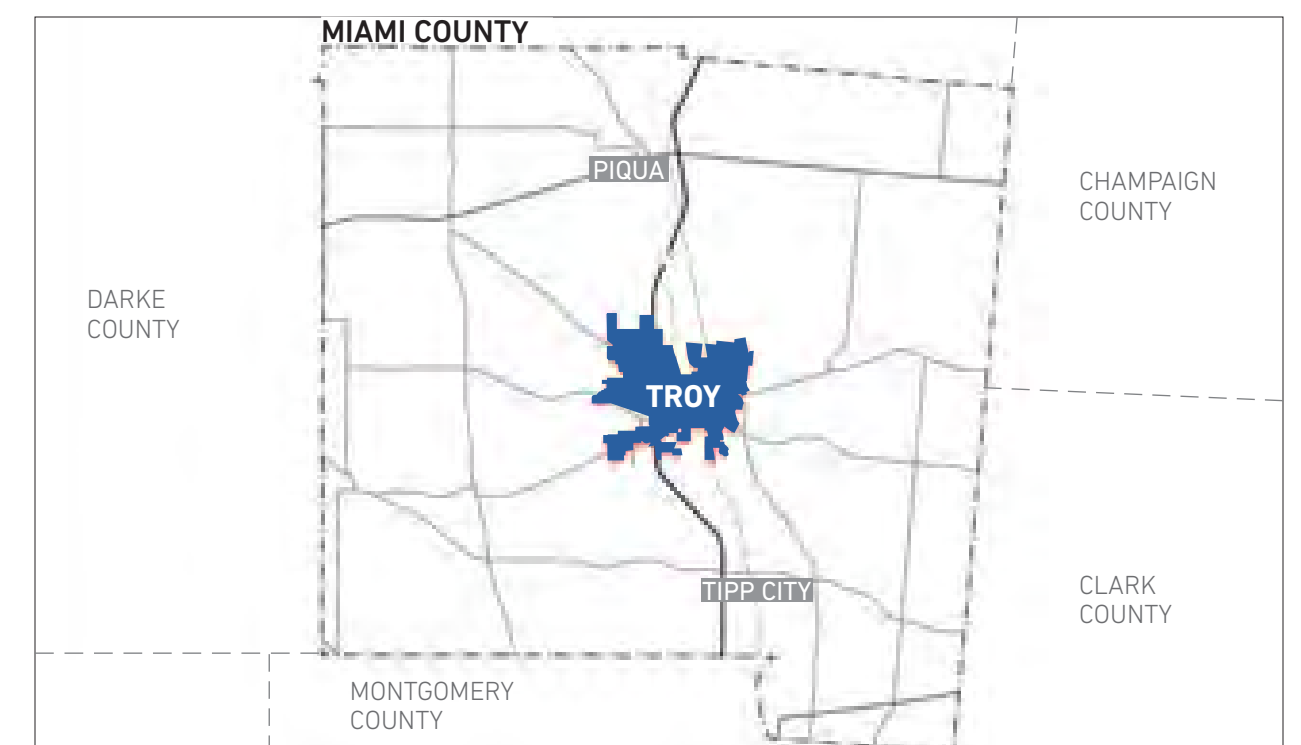


The Study Area is generally described as extending from Treasure Island Park in the northwest, to Miami Shores Golf Course to the southeast and from the former Hobart Corporate Campus in the southwest to Troy High School in the northeast. Troy, as the civic heart of Miami County, has a historic core anchored by the County Courthouse and iconic Public Square. Framing the Public Square and surrounding the Courthouse is a historic three-to-four story mixed-use core with active storefronts facing the streets. Historic, walkable neighborhoods surround this core with housing stock that ranges from large mansions to bungalows on small lots.

Downtown is separated into four quadrants by the intersection of State Routes 41 (Main Street) and 55 (Market Street). The city also sits along the Great Miami River Recreational Trail.

The historic core of Troy fronts the Great Miami River. Hobart Arena, Aquatic Center waterpark, and Troy Memorial Stadium all sit across from Downtown northeast of the river. They are connected to Downtown via two bridges at Adams Street and Market Street.

Troy is rich in agricultural and industrial heritage in addition to its role as the county seat. Therefore, in addition to a number of county-wide legal and social support uses, Troy's downtown and its adjacent



REGIONAL LOCATOR MAP



THE GREAT MIAMI RIVER AND DOWNTOWN TROY TODAY

districts are full of former and current industrial and agricultural uses. An active rail line courses through Downtown, somewhat separating the downtown core from the neighborhoods to the south and east.

A full set of analysis exhibits describing Downtown's attributes may be found in the Appendix.

DOT-MOCRACY



DOT-MOCRACY EXERCISE

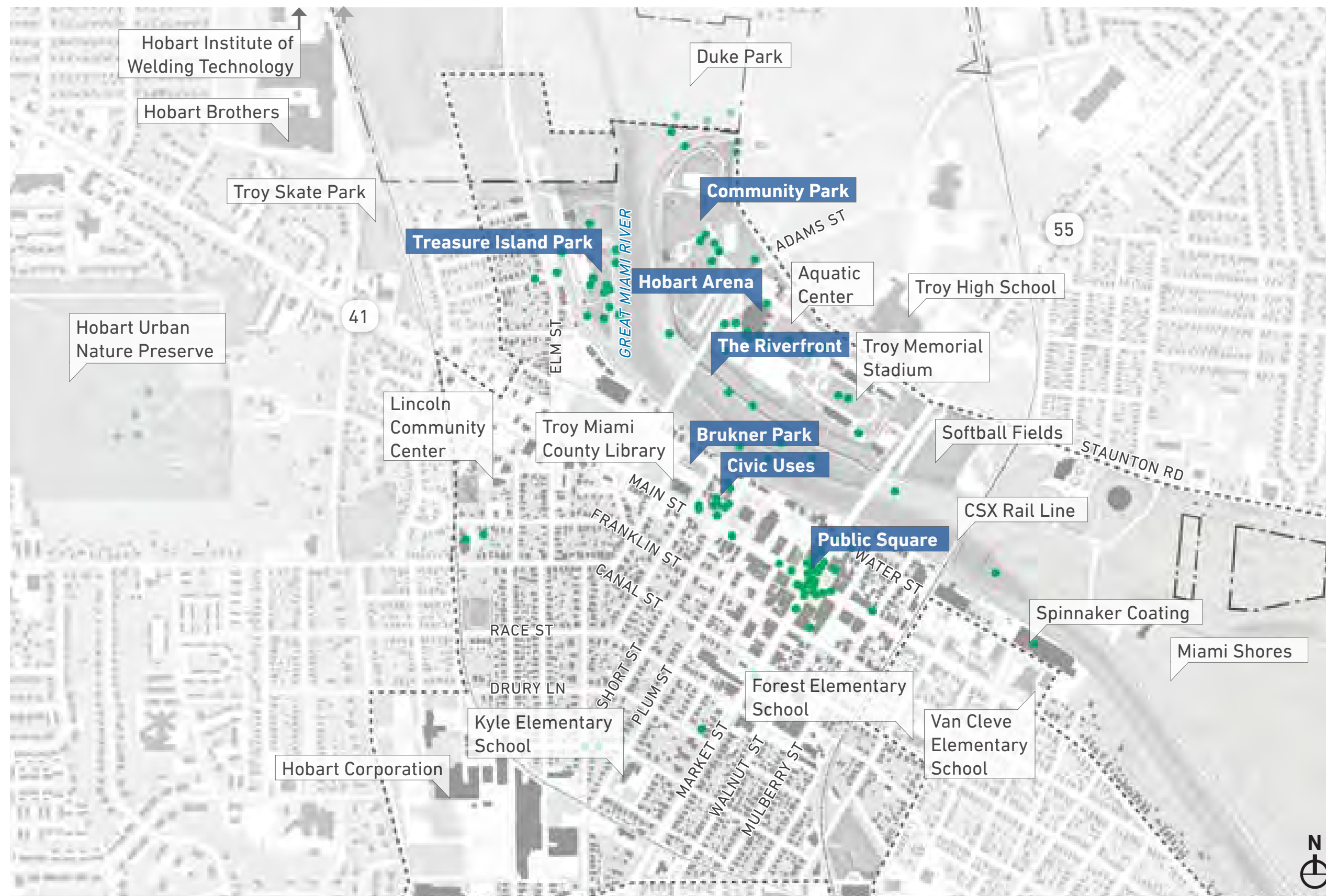
- STRENGTH
- WEAKNESS
- OPPORTUNITY
- PRIORITY

MEMBERS OF THE PUBLIC PLACING DOTS TO IDENTIFY TROY'S STRENGTHS, WEAKNESSES, OPPORTUNITIES, AND PRIORITIES.

A core part of the Study's intelligence gathering is understanding the strengths, weaknesses, opportunities, and priorities for Downtown and its riverfront. Every participant in the process was asked to share their perspective on these questions as well as place dots on a map to specifically pin down locations within Troy where these characterizations occur. From this wide-ranging subjective input, the analysis is able to create an objective visualization of the community's experience to generate insights about the core job to be done through this planning process. The following pages are a summary of these exercises conducted over the first three months of the effort.

DOT-MOCRACY

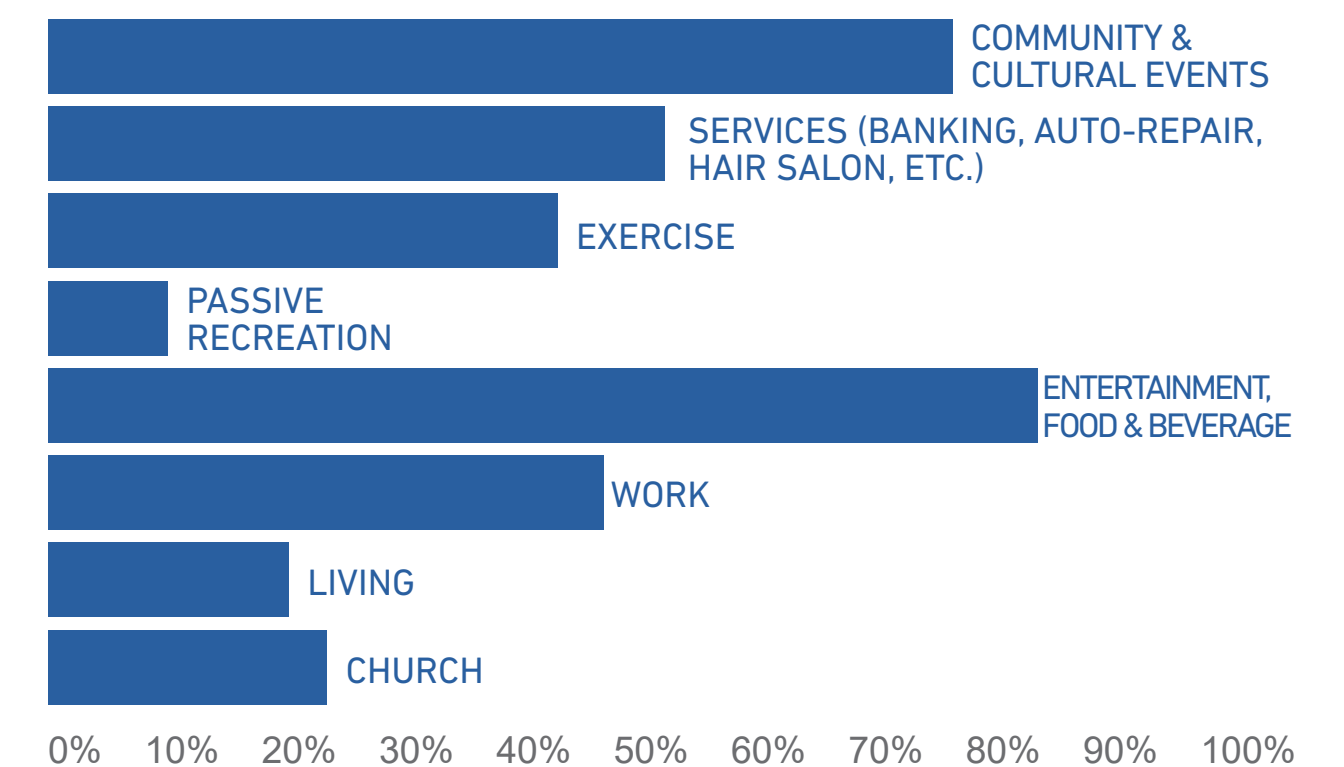
STRENGTHS



Downtown Troy's strength grows out of its rich heritage and diverse set of assets. Top strengths include:

- » The Miami County Courthouse serves as an iconic symbol.
- » The Public Square
- » A comprehensive parks system
- » Hobart Arena
- » The riverfront

What are the top everyday needs you meet in Downtown Troy?



TREASURE ISLAND PARK AND GREAT MIAMI RIVER

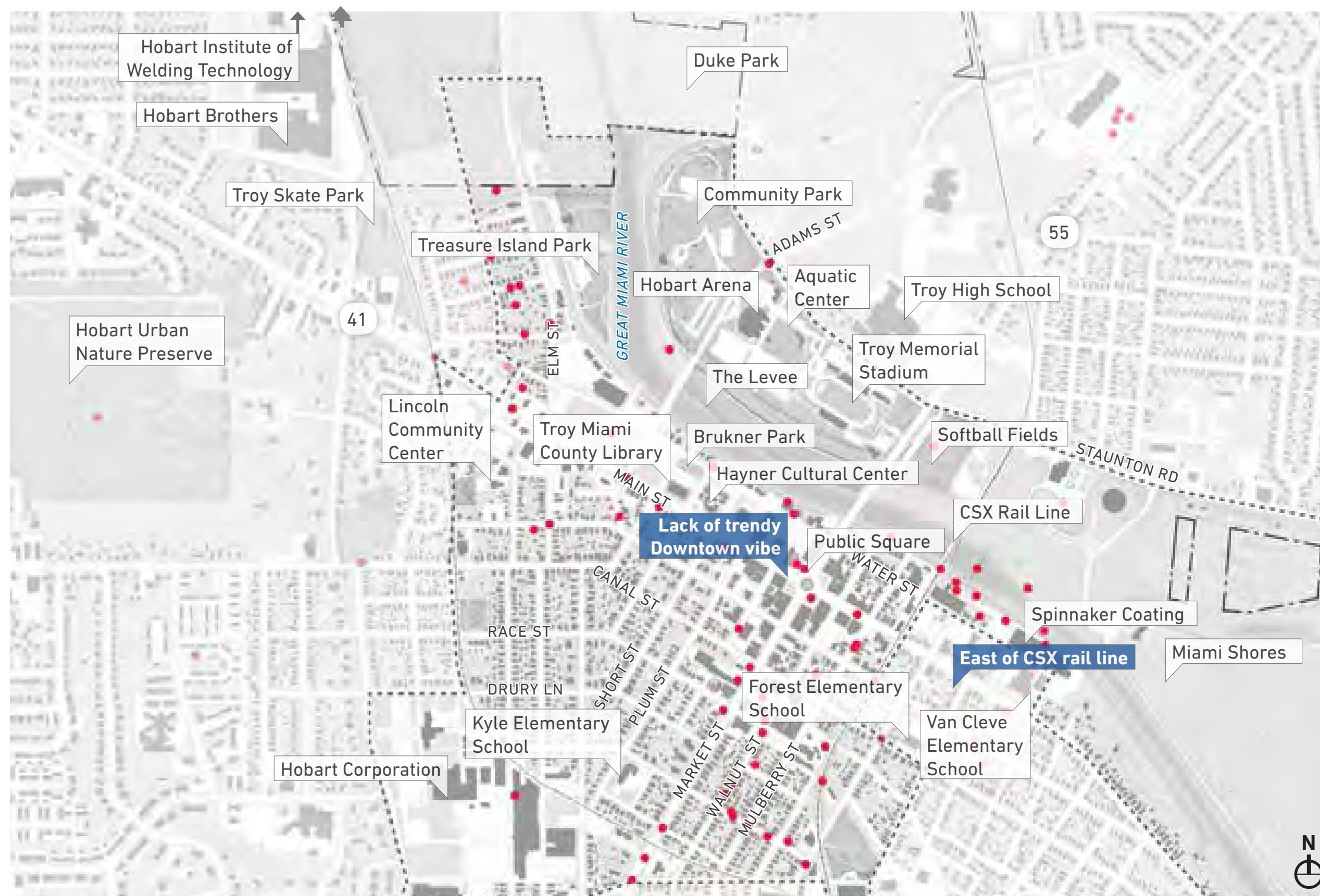


MIAMI COUNTY COURTHOUSE



PUBLIC SQUARE

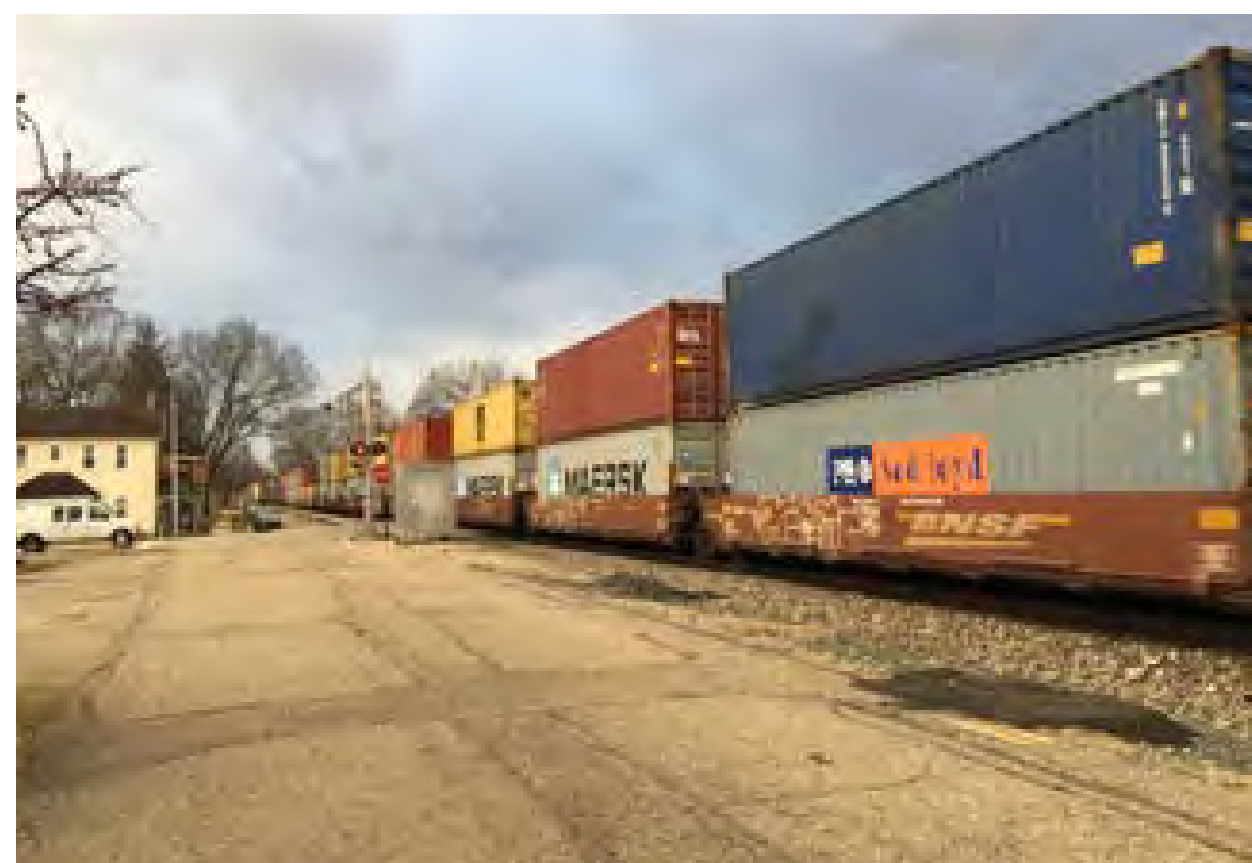
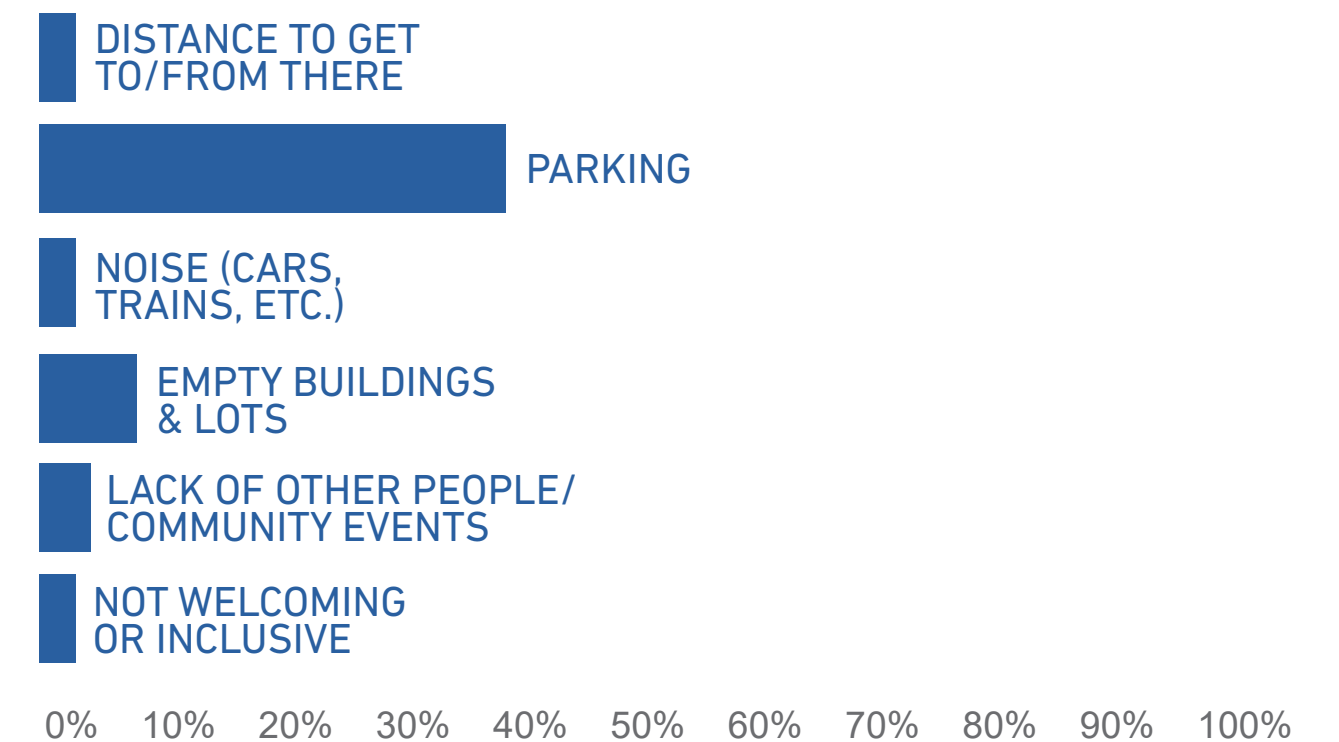
DOT-MOCRACY WEAKNESSES



Troy is generally starting from a position of strength. However, several issues need a response:

- » Lack of a trendy downtown vibe
- » Confused parking
- » Lack of riverfront connection
- » East of the CSX rail line: disinvestment, the perception of crime, and the condition of the industrial buildings along the riverfront

The top factors keeping people from spending more time and money Downtown:



CSX RAIL LINE

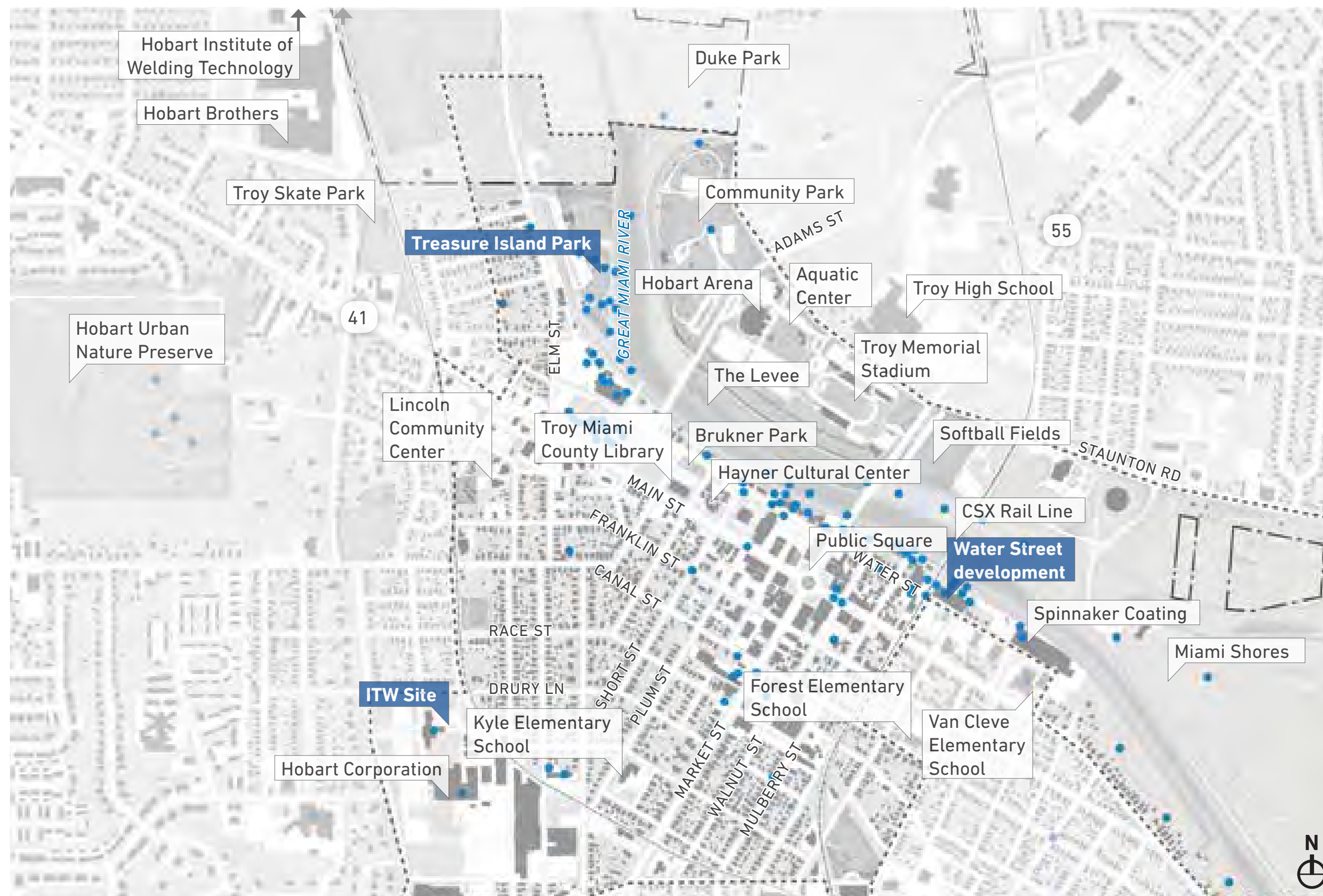


INDUSTRIAL BUILDINGS



LACK OF RIVERFRONT CONNECTIONS

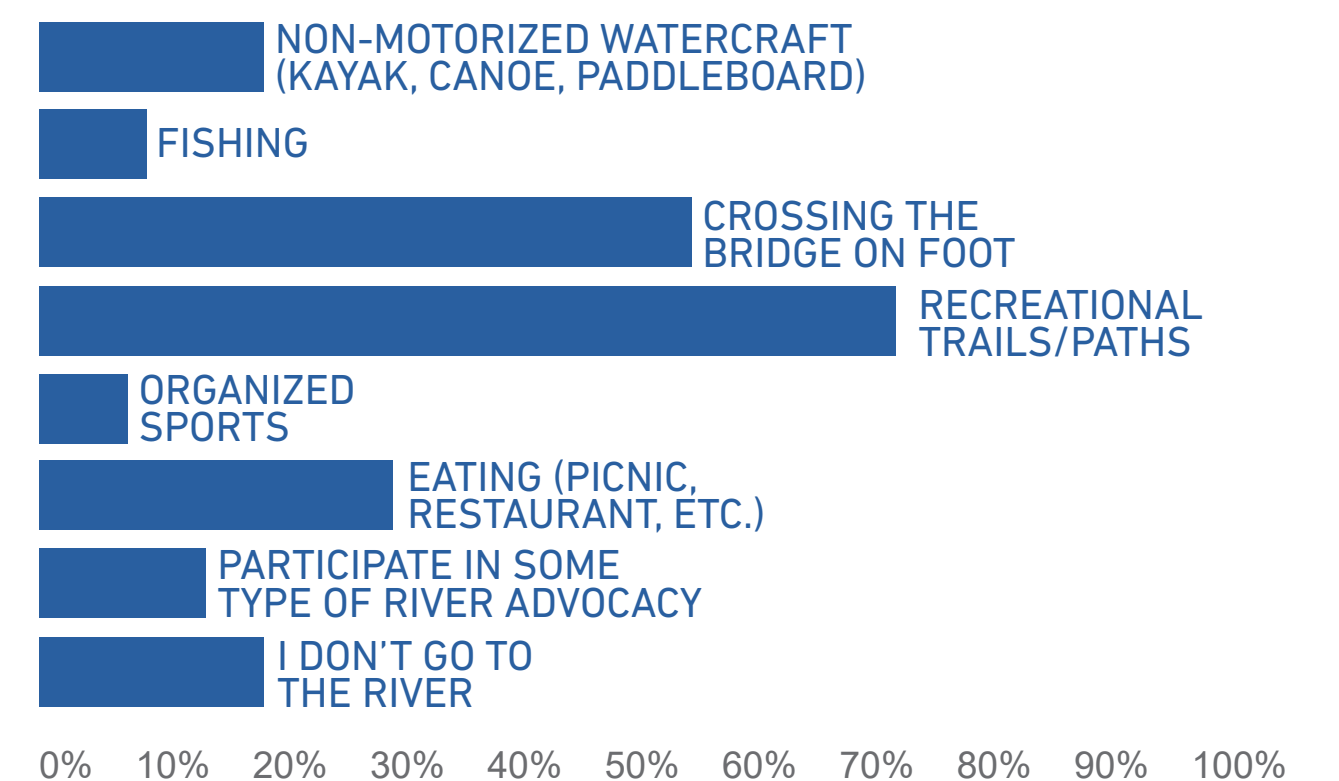
DOT-MOCRACY OPPORTUNITIES



There were four primary areas of opportunity identified, all along the riverfront:

- » Better use of and connection to Treasure Island
- » Redevelopment of ITW site
- » Waterfront development along Water Street
- » Redevelopment of industrial buildings on East Water Street

In which ways do you normally connect with the river and/or riverfront?



TOP OF THE LEVEE WALL ON THE SOUTH SIDE OF THE RIVER

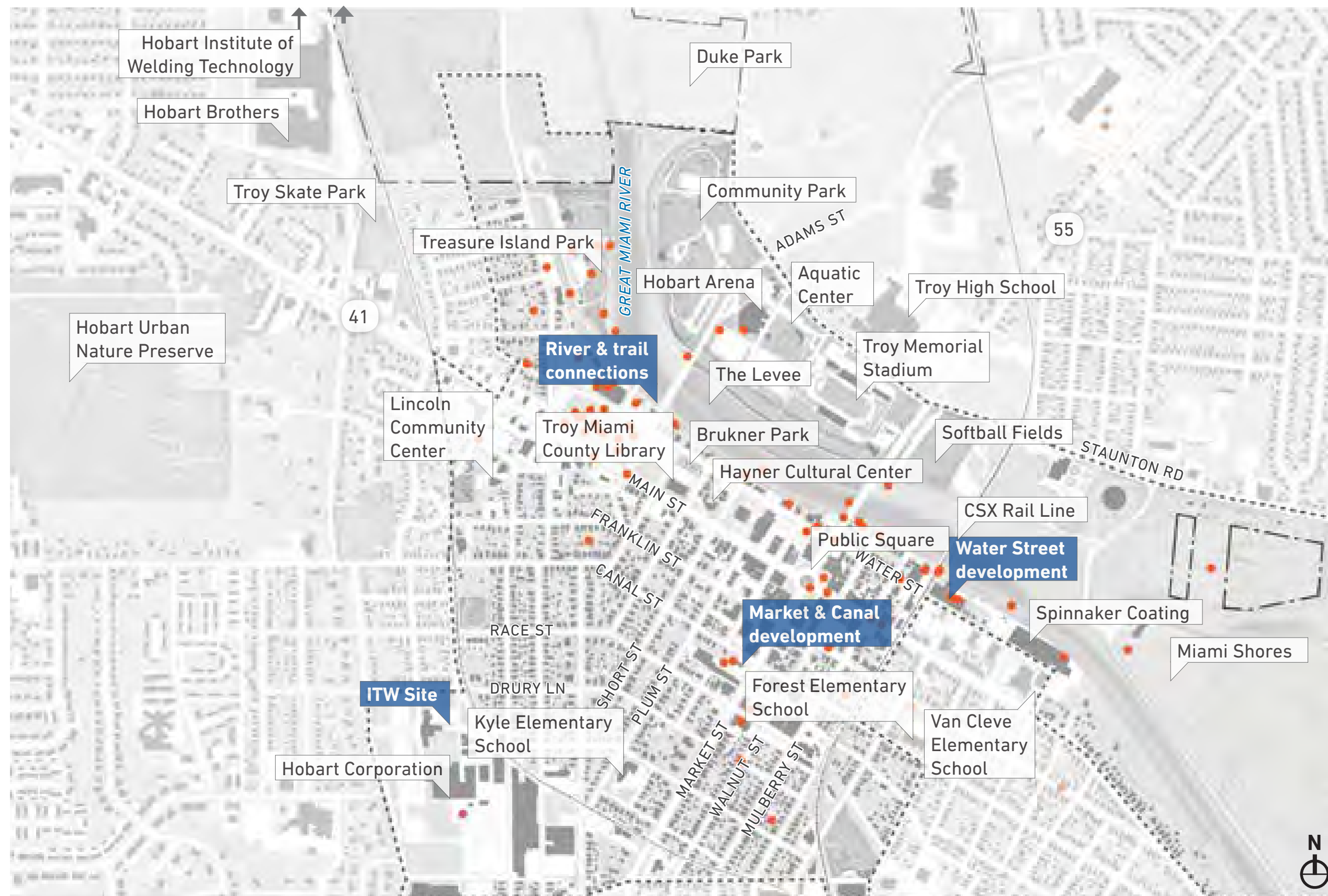


TROY LUMBER



DEVELOPMENT ALONG WATER STREET

DOT-MOCRACY PRIORITIES



Within the broad number of opportunities Troy has before it, several key areas have been identified as priorities:

- » Successful redevelopment of ITW site as an anchor to the Downtown's western end
- » Redevelop industrial buildings along East Water Street
- » Make Water Street more pedestrian and bike friendly to attract investment
- » Develop land at Market and Canal Streets
- » Address parking concerns
- » Form better connections to the river and trail systems

In the next 24 months, survey respondents regularly cited the many small wins that could make Downtown more of a destination, such as:

- » **IMPROVING BIKE AND PEDESTRIAN SAFETY**
- » **INCLUDING MORE INFRASTRUCTURE FOR BIKES**
- » **PARKING MANAGEMENT FIXES**
- » **BUILD OUT OF FUN AMENITIES THAT COULD START AS POP-UP AND GO TO PERMANENT**
- » **SUPPORTING EXISTING AND NEW SMALL BUSINESSES**



ITW SITE



RIVER AND TRAIL CONNECTIONS



INDUSTRIAL BUILDINGS

An aerial photograph of a city, likely Madison, Wisconsin, featuring a river in the foreground and a dense urban area with a prominent domed building in the center. The entire image is overlaid with a semi-transparent green filter.

3 MARKET SUMMARY

Constant and accelerating changes to our demographics, housing needs and preferences, shopping habits, and employment trends require a diligent examination of these forces. This allows a development strategy to be formed that identifies unique community strengths that can capitalize upon the current marketplace and critical gaps that must be addressed for the community to strengthen and grow.

MARKET SUMMARY

X-FACTORS FOR DOWNTOWN TROY



DEMOGRAPHIC SHIFTS

An aging population's needs must be balanced against attraction of younger households



SUPPLY SHORTAGE

New real estate demand will not be captured if there is not sufficient supply at the right price



DOWNTOWN & RIVERFRONT MOMENTUM

Troy should continue to build on the momentum of Downtown to attract new investment



REDEVELOPMENT OF KEY DOWNTOWN SITES

Limited infill sites should be leveraged to diversify and amplify demand for Troy's housing options and provide new commercial space

The above X-factors have the ability to change Troy's trajectory beyond the normal growth in demand. Those listed here are not comprehensive, but represent some of the largest opportunities or impediments that are likely to affect Downtown and the riverfront.

Downtown Troy is a great location to offer more housing options to more segments of Troy's population. Building off its momentum, Downtown Troy can be solidified as a play to live, work, and play. Troy is among many communities struggling to attract new working age residents due to a lack of entry level housing options, transportation, late night entertainment options, and local educational resources.

The following top factors could inform future workforce attraction and retention in Troy:

- » Millennials prefer to rent or buy smaller homes, but much of what Troy builds are larger, single-family detached homes.
- » Troy needs to offer a variety of apartments, including some that are affordable and located Downtown.
- » Land use regulations and lack of available land restrict developers' ability to build apartments and smaller single family attached and detached residential despite demand.



VAN CLEVE SCHOOL, TROY, OH

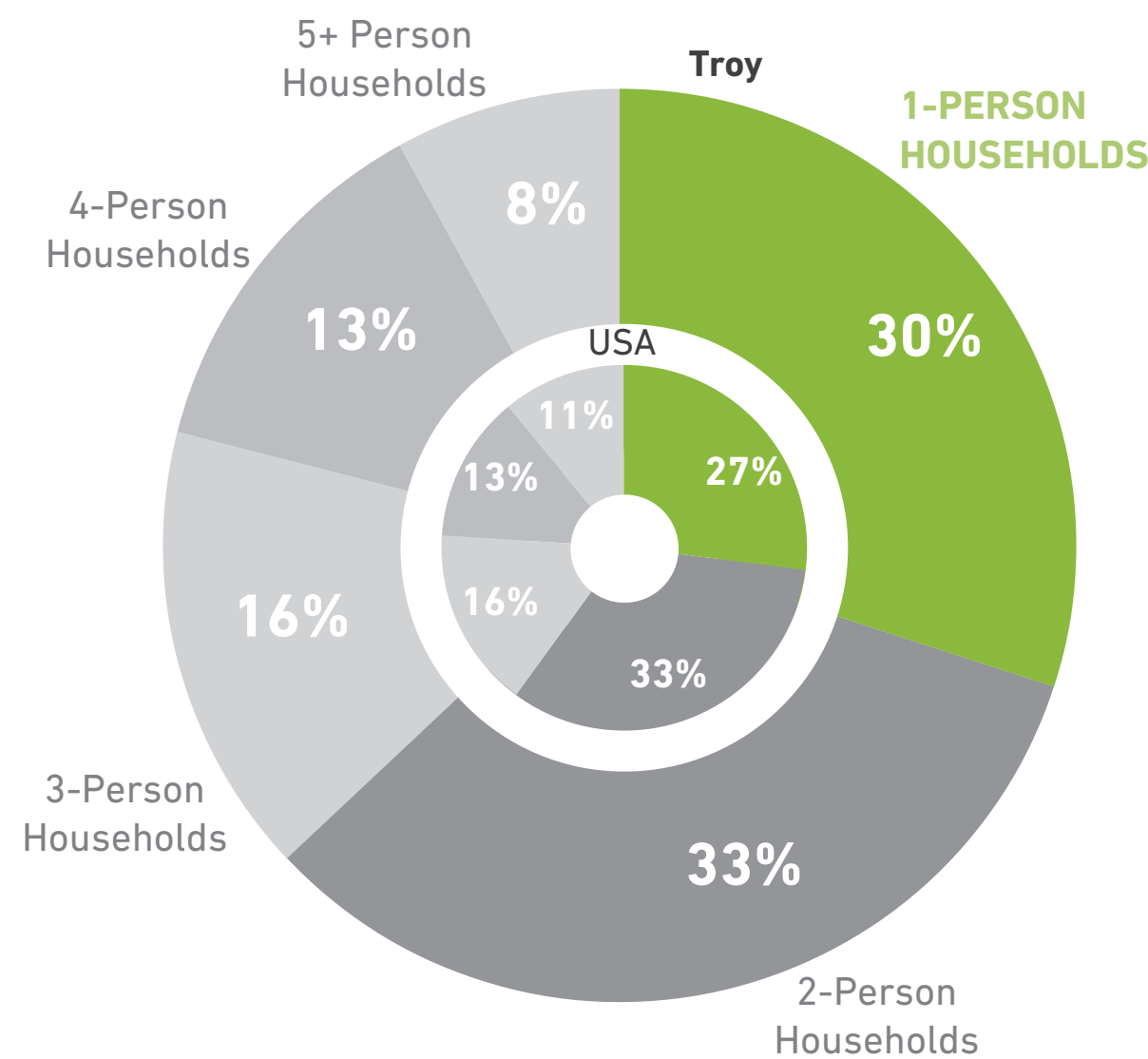


DOWNTOWN, TROY, OH

- » Despite the 12,000 available jobs in the seven-county region, employers are often not able to find potential employees with the necessary skills in advanced manufacturing.
- » Public transportation is insufficient for the transit-dependent (those without cars) living in Miami County and the counties to the north and east. In addition, Dayton's bus service does not come into Miami County.
- » Bicycle commuting is only available for the most advanced bicyclists, limiting bicycle mobility for younger, older, and more casual riders.

RESIDENTIAL

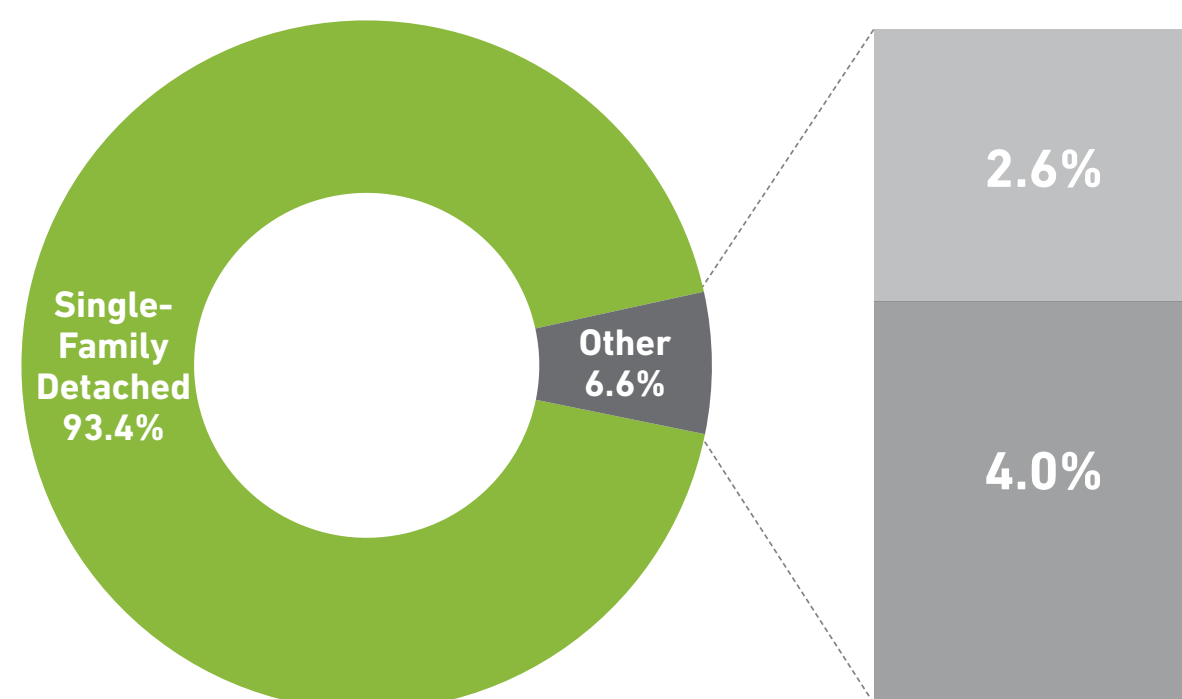
HOUSEHOLD SIZE 2010



CHANGE IN HOUSEHOLD SIZE



2015 HOUSING PERMITS



Source: U.S. Census & ESRI
Source: US Census, 2015 residential building construction; reflects Miami County, OH new construction in 2015

Age isn't the only factor in changing housing demand. Household size and make-up also affect what is needed. Over the next 15 years, half of all demand in the U.S. will be from single-person households.

Today, about 93 percent of what gets built in Troy is single-family detached. But only half of national consumers prefer that, leaving about a third of households wanting something else without a way to get it.

This undiversified housing stock limits Troy's ability to capture new, younger household growth, which is critical for its future. This can also limit the local labor force pipeline, potentially pressuring local employers to move elsewhere.



TOWNHOME EXAMPLE

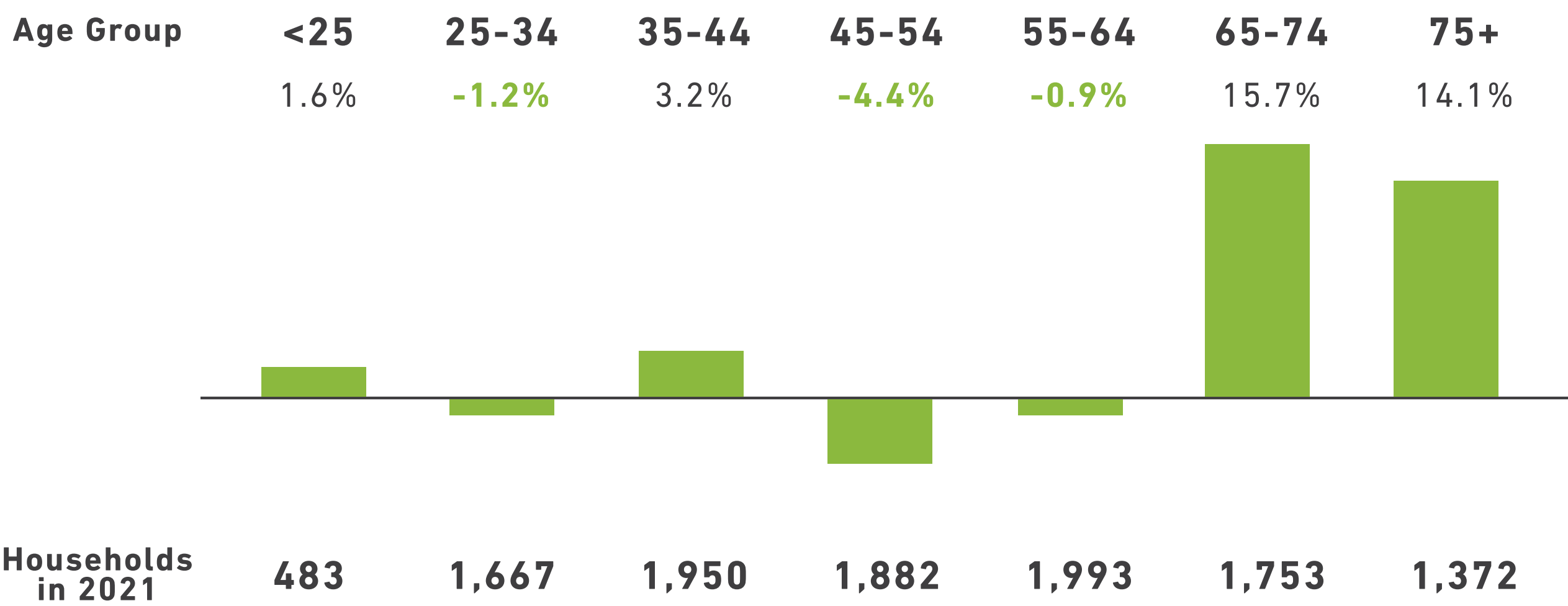


INFILL TOWNHOMES AND MULTI-FAMILY EXAMPLE



MULTI-FAMILY HOUSING EXAMPLE

CHANGE BY AGE OF HOUSEHOLDER (2016-2021)



Source: Esri

Troy’s changing demographics will drive new housing demand that does not match its current supply. Baby Boomers (born between 1946 and 1964) are no longer the largest generation, but their needs will continue to influence the economy. Based on current projections, over the next five years, Troy is expected to see the majority of its population growth in senior-led (Baby Boomer) households. This growth will cause a housing demand that exceeds the current supply that fits this group’s needs.

As today’s largest generation, Millennials (born between 1981 and 1999) will dominate the economy for the next 20 years. Troy is missing out on this other “bar bell” generation, with very slight growth in this age group.

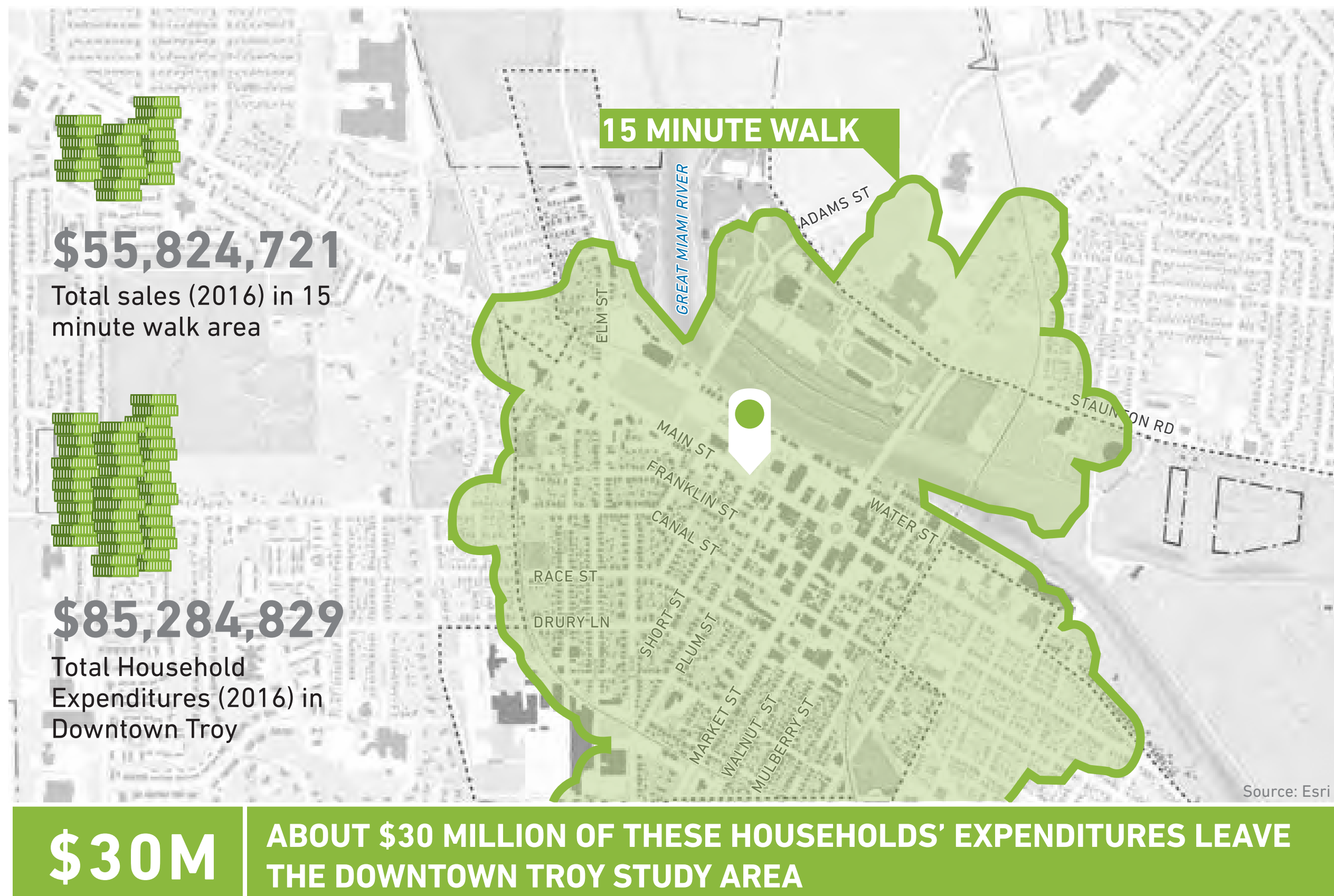
WHAT BABY BOOMERS WANT:

- ▶▶ Prefer suburbs, “safe urbanism,” or walkable communities with urban amenities
- ▶▶ Will downsize over the next five years
- ▶▶ Likely to change housing types between ages of 65-85 (nearly 60%)
- ▶▶ Desire “third places” outside of home or work for socializing, entertainment, and recreation

WHAT MILLENNIALS WANT:

- ▶▶ Diversity, walkability and proximity to jobs
- ▶▶ Prefer urban living, denser neighborhoods with smaller homes, and “car optional” places
- ▶▶ Emphasize design over size
- ▶▶ Expect to be living in attached single-family/townhomes in future

RETAIL



The above map shows the Downtown trade area—a 15 minute walk from the Public Square. About \$30 million of these households' expenditures leave the area.

Downtown Troy's continued success as a commercial and entertainment destination can continue to grow modestly for the foreseeable future. New visitor and employee spending could further increase demand.

Based on the current demand trajectory, Troy's new annual commercial retail demand of between 3,800 square feet and 6,400 square feet could be expected to come online for development each year.

The impact of the Internet is also influencing the composition of retail. Survey respondents were three times more likely to purchase non-food items online than Downtown. This will drive growth in non-commodity, experience-based retail opportunities Downtown.

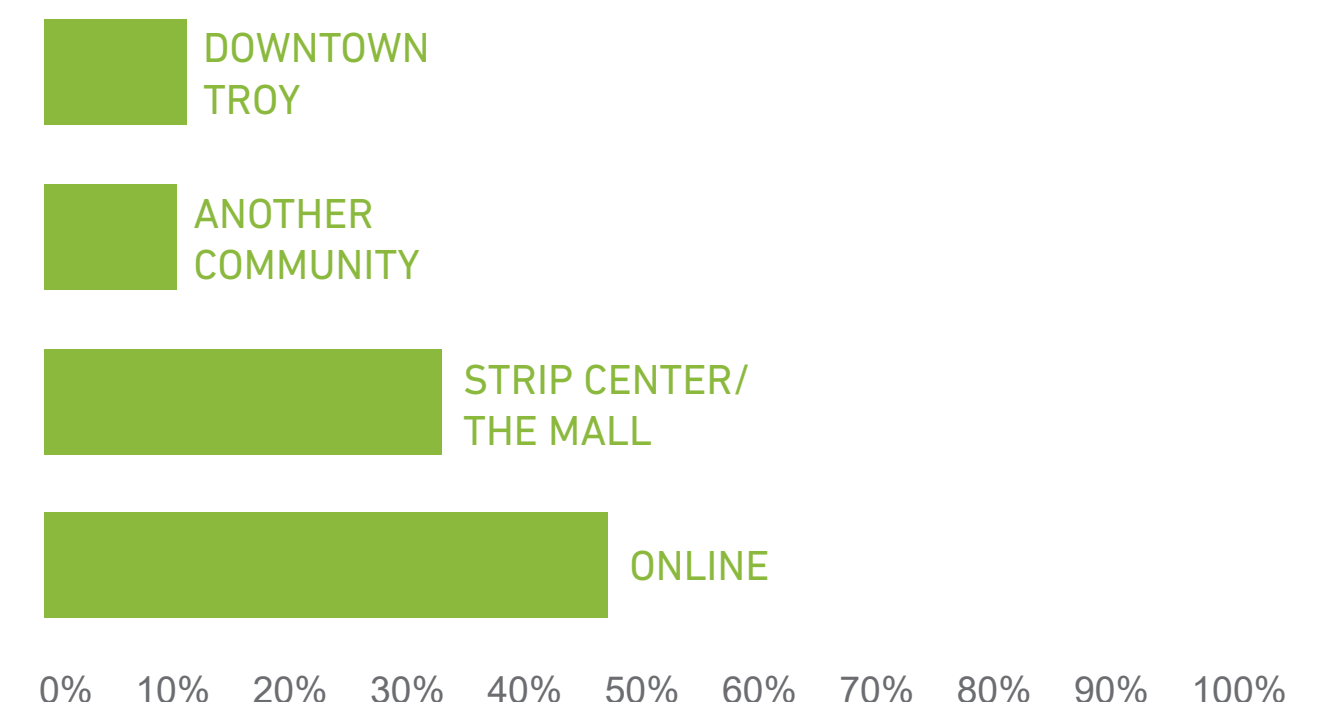


RETAIL STREET EXAMPLE



RETAIL STREET EXAMPLE

Where do you accomplish the bulk of your non-food shopping?



OFFICE



3,392

YOUNG WORKERS (AGE 29 OR YOUNGER) WHO WORK IN TROY BUT LIVE ELSEWHERE

Source: US Census On the Map 2014

Troy is located in Concord Township, which is an regional employment center. It is home to the county seat and many large employers, especially in the industrial sector. Only about 4,000 people both live and work within the Township, compared to over 14,000 commuting in daily. This in-commuting pattern is pronounced among younger workers, providing an important opportunity to provide affordable housing, and add younger population growth which Troy is currently missing.

From modest job growth and potentially attracting new businesses, Downtown Troy can expect to see some new office demand in the near future ranging from 2,800 square feet to 4,000 square feet.



REPURPOSED INDUSTRIAL OFFICE BUILDING



COWORKING STUDIO EXAMPLE



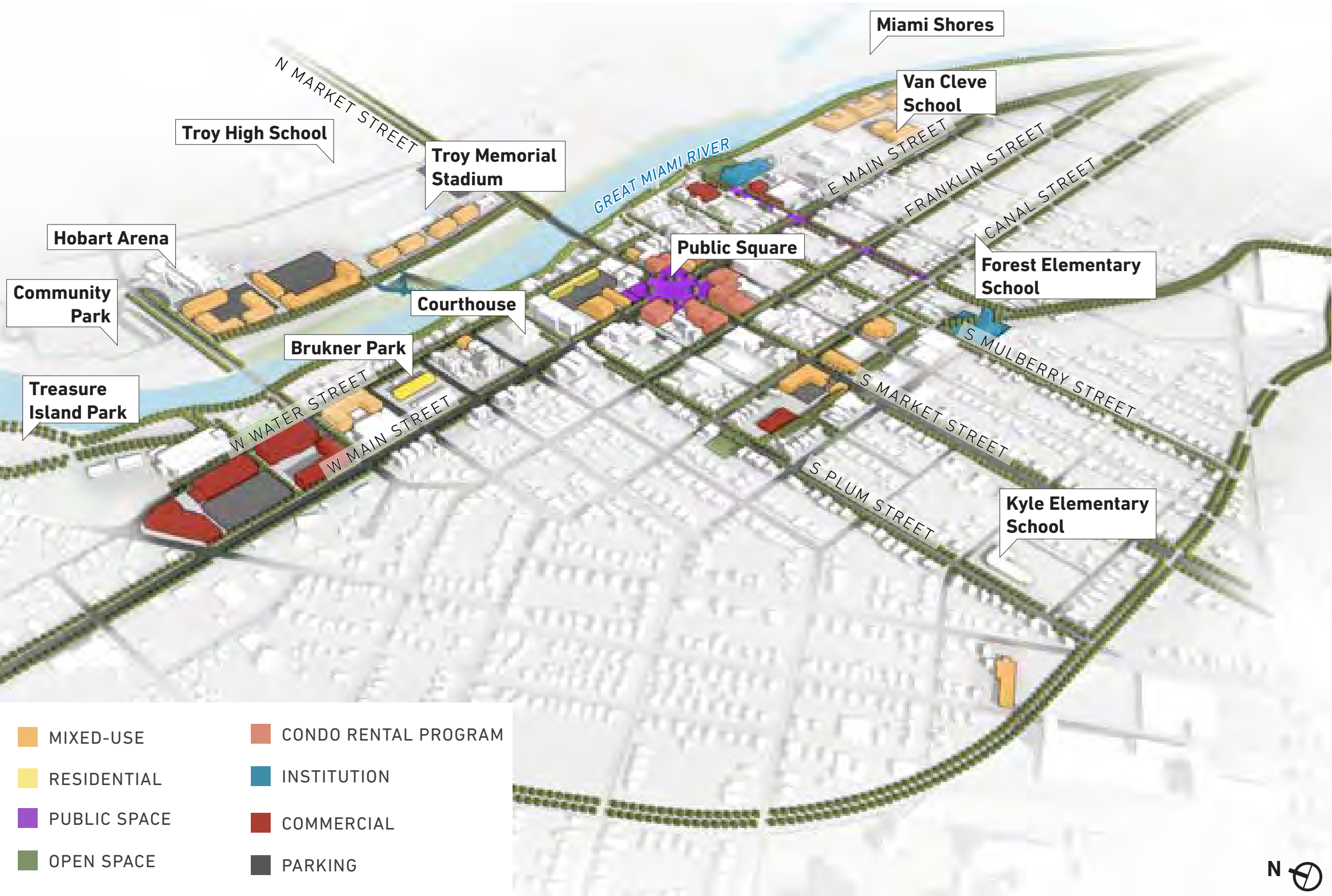
MIXED-USE BUILDING TYPES

An aerial photograph of a city, likely Madison, Wisconsin, featuring a river in the foreground and a dense urban area with a prominent domed building in the center. The entire image is overlaid with a semi-transparent teal color.

4 STRATEGIC INVESTMENTS

Over time, strategic investments in the built environment can uncover unmet demand that exists today in the near term and make sustained positive impacts to quality of life, job growth, fiscal and personal health, and greater access to opportunities over time. In this section, strategic investments are presented in 0-2, 2-5, 5-10, and 10 plus year time horizons such that each initiative presented sufficiently changes the context to allow subsequent, more substantial efforts to be realized. The following projects represent a shared set of opportunities between the private, public, and institutional or non-profit sectors.

STRATEGIC INVESTMENTS



The strategic vision for Troy is structured to incrementally move from taking advantage of current strengths and opportunities toward addressing several large gaps and shortfalls with key investments that may take a longer time horizon to realize.

The first stage of work has already begun through the short-term testing and prototyping of new connections and public spaces. Additionally over the next 24 months, the focus will be on high-impact infill development or “missing teeth” sites that either repurpose existing structures or fill in

empty sites. During this time, several overlooked or underperforming public spaces will be reactivated to create experiences for today’s residents and businesses and attract new ones.

The second stage of work will happen in the next two-to-five years. This stage will leverage the confidence and organizational capacity developed in the first two years to recruit and attract the types of amenities that are missing from Downtown today. These will serve as anchors that collectively will attract new talented and creative employees, new companies, and provide a wider spectrum of housing options than exist today.

DEVELOPMENT TIME HORIZONS:

0-2 YEARS:

Short-Term Prototyping
Infill Development & Key Public Spaces

2-5 YEARS:

Recruit & Attract Amenities and Anchors

5-10 YEARS:

Invest at Edges, Grow at Heart

10+ YEARS:

Future Initiatives

ANNUAL DEMAND PROJECTIONS

	LOW	HIGH
New Housing	40 Units	65 Units
New Commercial Retail	3,800 sq ft	6,400 sq ft
Commercial Office Space	2,800 sq ft	4,000 sq ft

As the anchors take hold, years five-to-ten may be focused on investing at the edges of Downtown while also thickening the density.

At each stage, these initiatives — many of which will likely be privately-led — will be supported by policy modifications, financing mechanisms, and public space and infrastructure investments to connect the individual initiatives to one another and increase value for everything in between.

0-2 YEARS SHORT-TERM PROTOTYPING



BIKE LANE TEST CONFIGURATION ON WEST WATER STREET



CHERRY STREET ACTIVATION

Starting in the summer of 2017, Activate Troy began acting on the preliminary recommendations of this Study through short-term prototyping of concepts. One concept intended to test demand for new food and beverage establishments while the other was the first phase of a larger effort to connect Troy to the Great Miami Recreational Trail.

CHERRY STREET COMMONS

A number of Troy's culinary entrepreneurs have left town to larger markets with more opportunities. In a concerted effort to bring them back and open up shop in Troy, a Farm-to-Family event was designed to curate an experience in an overlooked, high-character potential public space along Cherry Street. This event will also reconnect the city to its agricultural heritage through the sourcing of its ingredients. This

event is being planned in 2017 for a potential Spring 2018 launch. In anticipation of this event, additional programming was scheduled for the space with a June 2017 concert and an August 2017 movie night.

WATER STREET CULTURAL TRAIL

As part of a larger testing of Downtown street modifications, provisional test alignment was prototyped on-street connecting Adams Street to Cherry Street Commons. The pilot project was open for 21 days with over 2,330 riders using the provisional route. In the Spring of 2018, a revamped program using the lessons learned from the 2017 effort and encompassing a much more complete network should be pursued. For more, refer to the Bike Lane Roll Out Guide provided in the Appendix.

LESSONS LEARNED

- » Engage the community in planning and implementing prototype projects
- » Develop partnerships with public, private, institutional, and advocacy groups
- » Have clear, communicable goals for what the project is intending to achieve
- » Have a proactive broadcasting and marketing platform to communicate those goals and attract new collaboration
- » Track and evaluate outcomes to inform future modifications to the testing and prototyping

0-2 YEARS INFILL DEVELOPMENT & KEY PUBLIC SPACES



Key Policy Initiatives

- ▶▶▶ Perform a regulatory review of current policies and ordinances to identify barriers to private sector implementation of the strategic initiatives.
- ▶▶▶ Review and implement high priority initiatives of the Downtown Parking Study that support the goals of this Strategic Development Study.
- ▶▶▶ Review current development financing programs and their respective boundaries to ensure support of the initiatives in this Study. For complete list of tools, refer to the Development Toolkit in the Appendix.
- ▶▶▶ Create a CORE Fund-type program that will provide project gap financing.
- ▶▶▶ Expand partnership with proposed hospital to ensure quality design, strengthened connections with community, and expedited approvals for the first and subsequent phases of work.
- ▶▶▶ Acquire and stabilize key properties and buildings.
- ▶▶▶ Commission a Lowhead Dam Removal Feasibility Study that will evaluate the impacts of removing Troy's lowhead dam.
- ▶▶▶ Review existing inventory, programming, operations, and capital improvements of the current Parks and Recreation system.

The priorities laid out by Activate Troy and its public stakeholders were clear: address the negative perception of Troy's east side, improve connections to river, and take advantage of key development sites such as those near the new Lins Building and the former Hobart/ITW site on West Main Street.

Chief amongst the initiatives in this phase of work is commercial and residential infill development to build off momentum being created by the Lins development, the Kettering Hospital announcement, and the proposed redevelopment of the Coleman-Allen-Saidleman (CAS) Building. Wherever possible, infill development should come in the form of adaptive reuse of existing buildings or the development of parking lots and vacant land. Only when the

condition of a structure precludes its adaptive reuse should replacement structures be considered. New structures, both replacement and development on vacant land, should be built to accommodate any number of uses and reflect or reinterpret the diverse industrial and mercantile history of Troy's architecture. Potential infill opportunities along Water Street and Canal Street present the largest critical mass of this type of development although other opportunities throughout Downtown also exist.

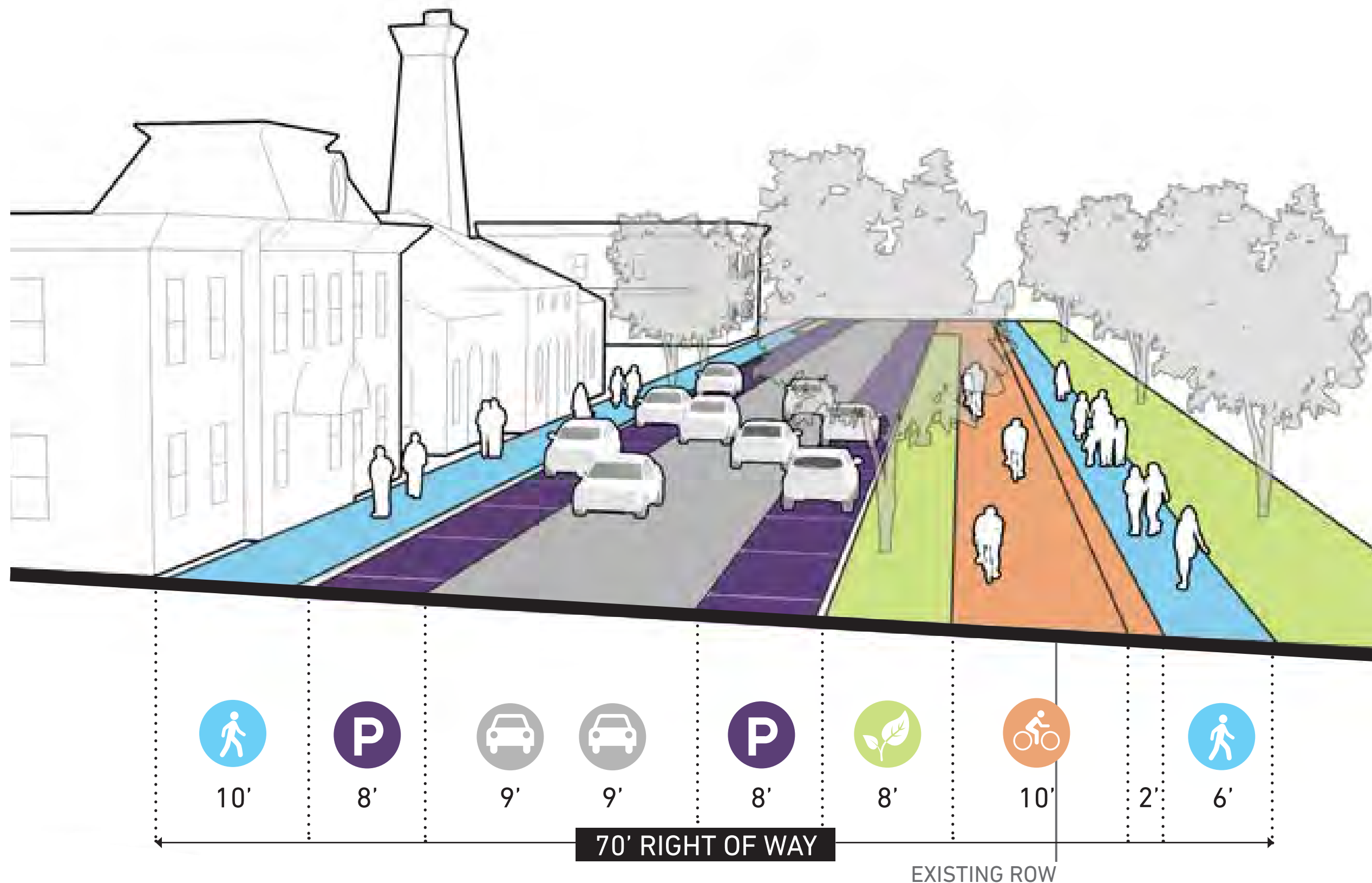
While infill opportunities are pursued, investments in public space can be made by both public and private interests. A community garden, upgrades to Prouty Plaza, an Arts Walk along Clay Street, and a Water Street Heritage Trail may be developed either by the

City or with non-profit and corporate partners. Public space along the river can also be created in places such as the proposed Troy Truck Yard on the river side of the former Hobart Cabinet building. Policies such as refining the Development Tools and auditing the zoning ordinances can further help accelerate and improve the quality of development.

POTENTIAL DEVELOPMENT SUMMARY

RESIDENTIAL	30+ units
RETAIL/COMMERCIAL	10,000 sq ft

0-2 YEARS | WATER STREET HERITAGE TRAIL



PROPOSED STREET SECTION

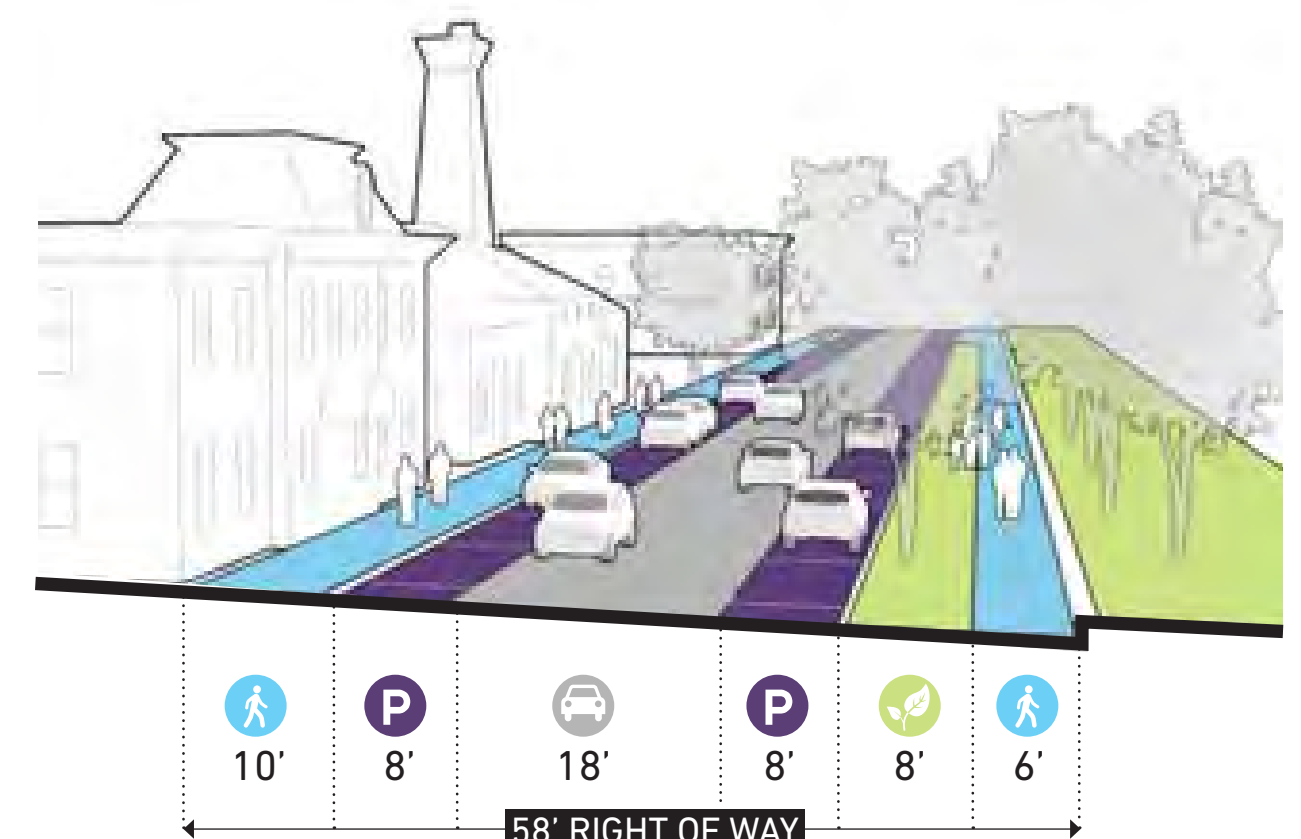
Based on collected public input, Water Street is widely considered one of Troy's best streets. It is also one of its oldest. Today, it is a narrow street (18 feet for two-way traffic in most cases) with an eclectic mix of houses, businesses, institutions, public spaces, and parking lots. In a couple locations, such as at Plum Street, parking lots also serve as vistas over the Great Miami River.

As one of Troy's best streets that also serves as a cultural spine, Water Street has the opportunity to be modestly upgraded to reinforce its role in the community. Without modifying the current traffic or parking configuration, a heritage trail is proposed to be built along the southern edge of the street,

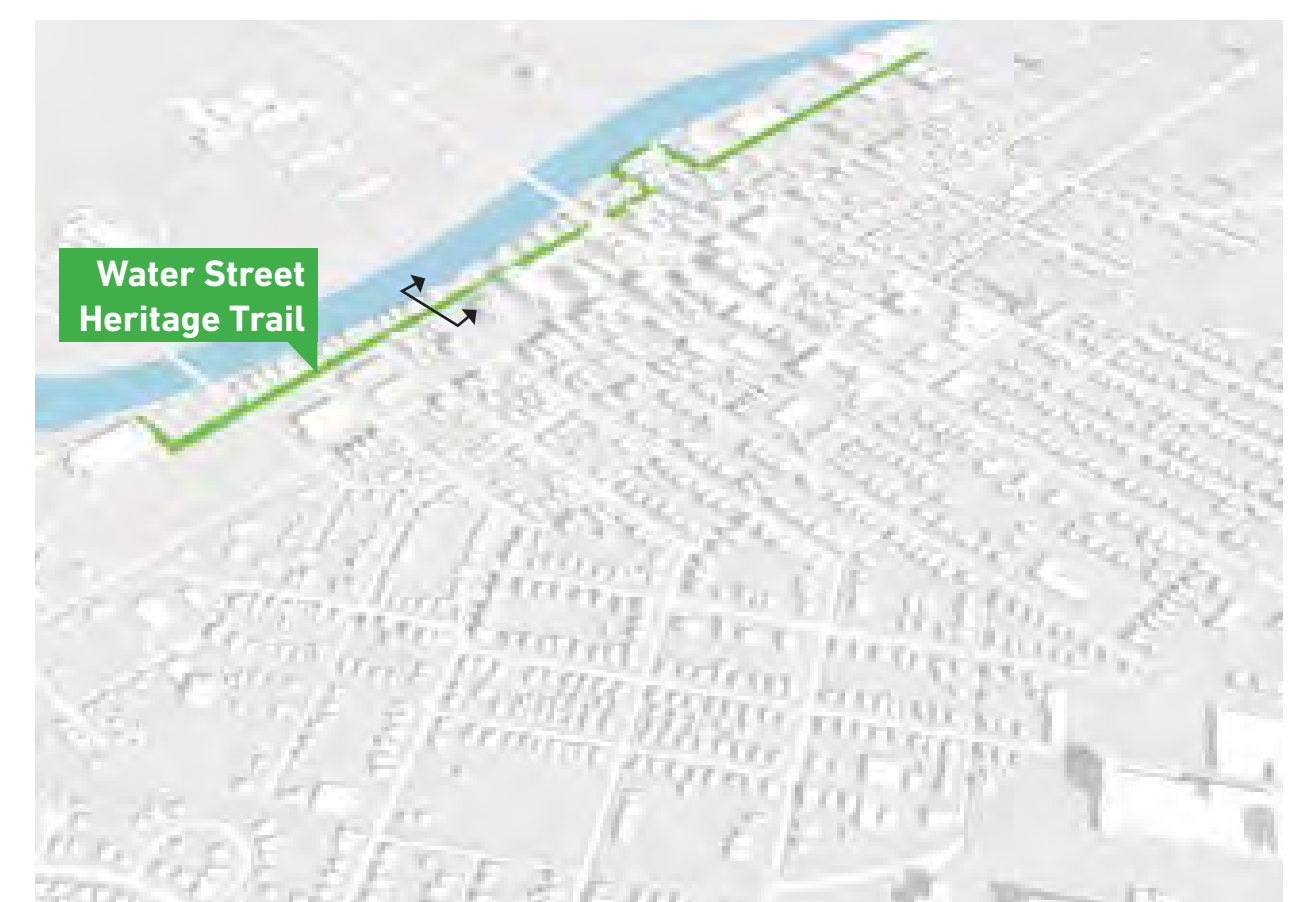
utilizing the setback that exists along most of the street corridor. The expanded right-of-way necessary to accomplish this will provide sufficient room for a dedicated multi-purpose path that can pull Great Miami Recreational Trail users directly into Downtown. It will also serve as an iconic piece of infrastructure that will attract new development and investment along it.



WATER STREET TODAY



EXISTING STREET SECTION



0-2 YEARS | INFILL DEVELOPMENT



PROPOSED INFILL DEVELOPMENT ALONG WEST WATER STREET

Infill development is the development of new buildings and structures on vacant land and the reuse of existing buildings. It is the primary way that Downtown's growth can economize the use of existing investments in urbanized land, utility infrastructure, and streets. This has proven in most cities to have a much better return on municipal capital investments than single-use, large lot development on a city's periphery while thickening the density of productive uses without drastically changing the character of a place.

Downtown has a number of empty parcels, underperforming buildings, and parking lots that would be much more productive as usable building space. These parcels may be better used as an eclectic mix of residential (both for rent and ownership), commercial space, retail, and light manufacturing uses.

Four such locations are identified here as high priority examples of a much larger opportunity in Downtown and in its near-in neighborhoods.



PROPOSED CANAL STREET LOFTS, TROY, OH



QUALITY INFILL DEVELOPMENT EXAMPLE



INFILL DEVELOPMENT - CONTINUED

PROJECT FEASIBILITY AND TOOLS

The economics of urban infill and reuse can be trickier than conventional greenfield development, with often inefficient parcels or building sizes and layouts, environmental concerns, and dated zoning not conducive to redevelopment. An experienced developer will need to have a high level of confidence in the offering to secure potential investors, and may need an incentive, (e.g. TIF), or other public support to make the project feasible.

New infill housing will also help to establish important comparable assets for other redevelopment investments to find financing. This can then bolster the resiliency of Troy by providing a wider range of housing by age, by price, and by product type. This variation in housing supply allows Troy to better weather changing demographics and housing preferences of households in the future.

Many of the properties along the Water Street corridor between the Adams Street and North Market Street intersections are owned by public agencies. Miami County owns several of these parcels, including Brukner Park, which may ultimately be candidates for infill development.

Utility Infrastructure:

- » Water – Water mains along Water Street are located just inside the south curb line and vary in size from 4-inch to 6-inch in diameter.
- » Sanitary Sewer – 8-inch sanitary sewer mains are located near the center of Water Street for the majority of the corridor. These mains vary between approximately 7 feet to 8 feet in depth.

- » Storm Sewer – Storm sewer infrastructure is very limited along the corridor and should be evaluated for upgrades as properties along the river are redeveloped with opportunities for additional easements to outlet public storm sewer to the river. The use of rain gardens and other green infrastructure techniques are encouraged with the redevelopment of the areas behind the curbs and on property sites to limit the amount of runoff that enters the storm sewer system.
- » Electric and Telecommunications – This corridor includes significant overhead electric and telecommunication facilities behind the curb line on the south side of the road. Coordination of the relocation or burying of these facilities should begin early to allow for consideration of the costs for this work to be distributed over several projects.

INFILL DEVELOPMENT TOOLS:

- » Tax Increment Finance (TIF)
- » Downtown Redevelopment District (DRD)
- » Community Development Block Grant if benefitting low-moderate income persons
- » HOME Investment Partnerships Program
- » Property Assessed Clean Energy
- » Historic Tax Preservation Credit (Federal/State)
- » Consortium for Ongoing Reinvestment Efforts
- » Troy Small Business Development Revolving Loan Fund

See Appendix for details on these tools.



RENDERING OF THE LINS BUILDING DEVELOPMENT (MT STUDIO)



MIXED-USE INFILL DEVELOPMENT EXAMPLE

0-2 YEARS | CLAY STREET ARTS WALK



ARTS WALK EXAMPLE

Clay Street, and Troy's east side in general, were often cited as an area of great concern and potential for future investment and growth. Today, Clay Street borders an active rail line with a row of small houses and commercial buildings. The street itself is narrow and inherently pedestrian friendly due to its size limiting the speed of cut through traffic. Clay Street is also a connection from the inland neighborhoods east of the railroad to the Great Miami Riverfront.

These attributes make the street ideal for creative placemaking to drive a new narrative for the corridor. Creative Placemaking is commonly associated with community- and artist-led initiatives in the public or semi-public realm that help beautify an area or tell

a community's story. The street, its intersections, and eventually even the properties along it can all become part of an immersive experience, connecting the neighborhoods to the south with Water Street and the river to the north. The cumulative effect of this effort will take what has been conventionally described as a difficult address along a busy rail corridor and transform it into another Downtown Troy destination not to be missed. The project will increase the visibility of the properties it serves, spurring incremental reinvestment in them. It will also shrink the perceived distance between the Public Square and significant parking resources east of it by having a landmark visual marker on the pathway connecting the square to its available parking.



ARTS WALK EXAMPLE



ARTIST HOUSING EXAMPLE



0-2 YEARS | TROY TRUCK YARD



PROPOSED TROY TRUCK YARD ON THE RIVERSIDE OF THE FORMER HOBART CABINET BUILDING

The Truck Yard will be a professionally operated public space that occupies the former truck loading zone of Hobart Cabinet along the river. It will be activated by exterior programming, food and beverage vendor(s), recreation, and public artwork. The activation of the Troy Truck Yard will accomplish three primary objectives. The first objective will serve to connect Troy to the riverfront in a dynamic, active way. The second objective will be to reverse negative perceptions of Downtown Troy's east side through creative uses encumbered by industrial neighbors and an active rail line. The final objective is to prove demand for additional investment in the area. Most specifically, this investment would be in the former Hobart Cabinet Building that sits adjacent to the

proposed Truck Yard, parcels to the south and west of it, and the riverfront itself.

The Truck Yard's program will include:

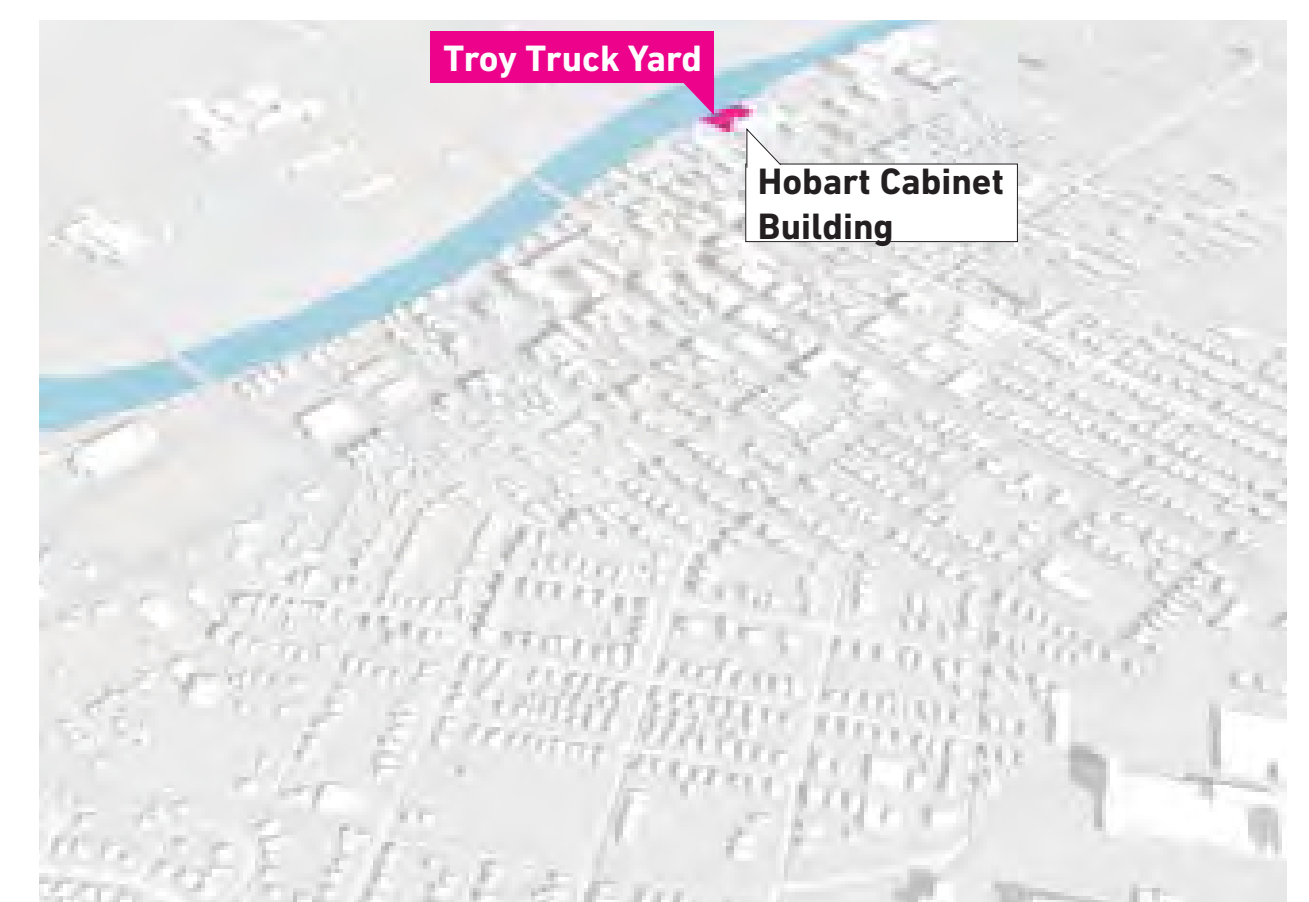
- » The existing loading docks utilized as a stage
- » A visual screen and buffer from the active railroad tracks
- » A multi-purpose patio for entertainment and dining
- » Pads for mobile food and drink vendors
- » Lighting for evening events
- » Sand volleyball courts for weekend and young professionals' leagues
- » Potted plants and small trees
- » Mural branding and wayfinding signage



FORMER HOBART CABINET BUILDING, TROY, OH



TRUCK YARD EXAMPLE



0-2 YEARS | PROUTY PLAZA



PROUTY PLAZA IS BEST USED TODAY AS AN ENTERTAINMENT VENUE.

Prouty Plaza is located atop a former building site on the northwest corner of Troy's Public Square. In addition to being home to an iconic mural and rotating public art sculptures, Prouty Plaza hosts regular events and concerts. It has become a well-known meeting place for visitors to Downtown.

While attitudes toward the Square are widely varied, it is consistently described as one of the cultural destinations within Troy. It is also in need of improvements and upgrades. Augmenting its current design and programming will improve its ability to serve more effectively as a part of Troy's cultural heart.

Recommended improvements include:

- » Public restrooms (for example, the Portland Loo)
- » Storage facility for tables, chairs, and production equipment
- » Permanent stage
- » Increased hard or semi-hardscape for outdoor dining and higher pedestrian traffic loads
- » Moveable chairs and tables
- » Redone natural or artificial turf panel
- » Temporary vendor infrastructure
- » Improved lighting, landscape, and signage
- » Edge treatment such as bollards or moveable planters



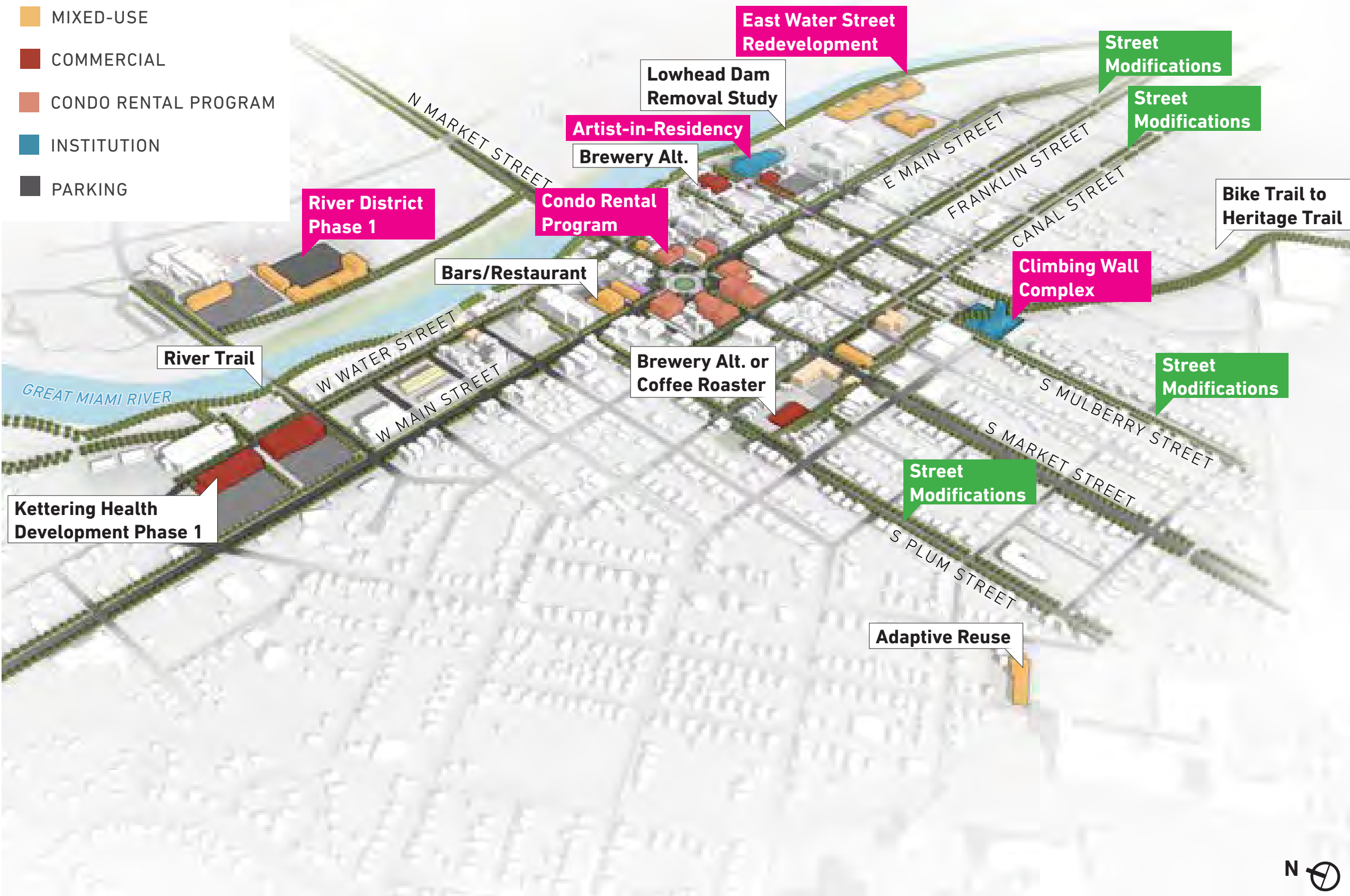
PROUTY PLAZA TODAY



PUBLIC PLAZA EXAMPLE



2-5 YEARS RECRUIT & ATTRACT AMENITIES AND ANCHORS



POTENTIAL DEVELOPMENT SUMMARY

RESIDENTIAL	450 units
RETAIL/COMMERCIAL	25,000 sq ft
OFFICE/FLEX	295,000 sq ft
COMMUNITY/INSTITUTIONAL	170,000 sq ft
PARKING	700 spaces

The second investment horizon for Downtown Troy is in the two-to-five year time frame. The work accomplished in the first phase will drive the successful recruitment and attraction of new amenities and anchors that start to scale up Troy’s ability to retain and attract residents, a talented and creative workforce, and employers.

Around this time, the new Kettering Health Network hospital will have its first phase of development complete. This will anchor Downtown’s west side with the proposed Water Street Heritage Trail (see 0-2 years) connecting it through the downtown core and eastward to the former Hobart Cabinet building where the Troy Truck Yard and Clay Street Arts Walk are proposed (see 0-2 years).

This barbell of initial investment will attract two-to-five year investments along and adjacent to it. This includes a metallurgical artist-in-residency and advanced coworking fabrication lab in the former Hobart Cabinet building, the potential redevelopment of Spinnaker Coatings east of the Cabinet building, and development of the Hobart Arena parking lots across the river. Additional amenities and demand drivers, such as the Downtown condo rental program and the reuse of the grain elevator building as a best-in-class indoor/outdoor climbing facility and view deck, can also be realized in this window of time. To connect it all, the Study proposes modifying select oversized downtown streets to improve their safety and economic performance while maintaining their current travel and parking functions.

2-5 YEARS | RIVER DISTRICT - PHASE 1



PROPOSED FIRST PHASE DEVELOPMENT ALONG THE GREAT MIAMI RIVER'S NORTH RIVERBANK

The north riverbank and levee is the home of Troy Memorial Stadium, Hobart Arena, and the Aquatic Center. It enjoys the best views of the river and Downtown and also hosts several large events each year. But on most days it sits as undefined leftover space, comprised of an underutilized parking lot and a public space atop the levee, in need of more investment and activity.

Many communities are re-assessing their riverfronts as the community living room, leveraging development to produce great public space that may be used for events big and small.

For Troy, the development of its north riverbank can:

- » Better utilize an underperforming asset
- » Better connect Hobart Arena to Downtown
- » Better utilize parking on both sides of the river
- » Create a complementary district to Downtown that combines residential and hospitality uses
- » Improve the levee and riverscape into a great public space



THE GREAT MIAMI RIVER TODAY



RIVERFRONT PARK EXAMPLE



RIVER DISTRICT - CONTINUED

PROJECT FEASIBILITY AND TOOLS

A prominent development on the north side of the Great Miami River could establish significant precedent for the future of Troy's riverfront. The use and designed "front" of the buildings will be crucial to leveraging the relationship with this signature Troy public space. To create a "River Room," a relatively high level of engagement with the greenspace and river will be necessary for this development to realize the potential of the site. A developer RFQ/P process should identify developers who have successfully delivered mixed-use product along prominent water or park frontage in a way that leverages and improves the public amenity space.

The successful value creation of the development is critical to justify the investment of a future bridge (see 5-10 year time frame). If this land is untaxable now, a base of zero value could provide significant increment to support the infrastructure improvements.

This project also could fill an important missing housing option: market-rate rental flats within walking distance of Downtown, Hobart Arena, and Duke Park. This proof-of-concept would likely spur continued downtown momentum and establish a new, favorable, and comparable asset for future housing development in Troy.

Development of the area north of the north levee of the Great Miami River and south of Hobart Arena, Troy Aquatic Park and Troy Memorial Stadium. Development along the levee will require coordination with the Miami Conservancy District (MCD) who owns the property that the levee is on, as well as modifications or accommodation of existing city water supply facilities.

Levee Modifications - Through preliminary coordination with the MCD, the development will have the opportunity to make structural modifications to the back (north side) of the levee to support the buildings and provide maximum parking capacity in the lower level. Structural evaluation of the exterior wall to support the remaining levee and resist flood forces for the MCD design flood will be a critical

element of that design. Preliminary considerations anticipate that these modifications are feasible, allowing the new developments to be elevated to the top of the levee.

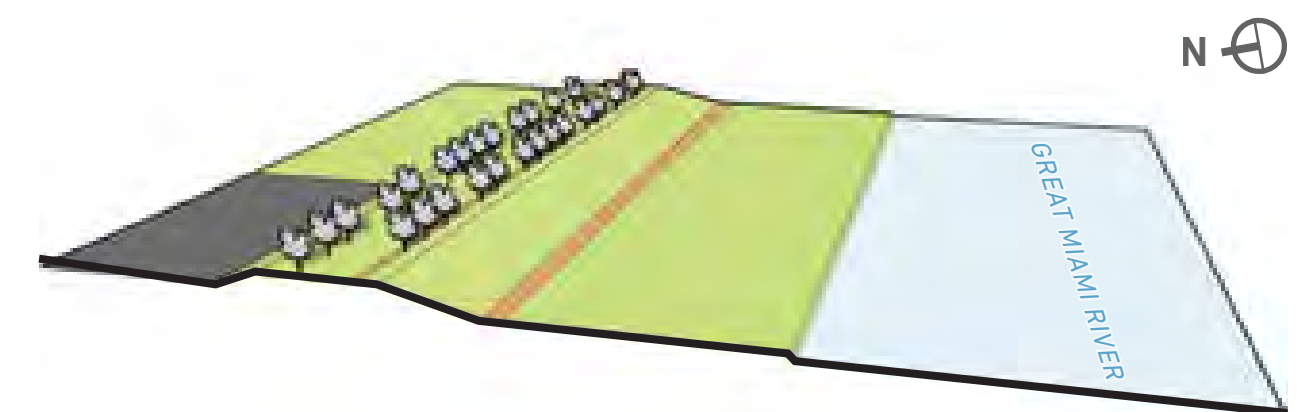
Utility Infrastructure:

- » **Raw Water Supply** - Development of the area south of Hobart Arena, the Aquatic Park, and Troy Memorial Stadium will need to be closely coordinated with the city's raw water supply infrastructure that exists in these areas. Raw water lines and above ground structures are located adjacent to the south edge of the parking areas east of Adams Street. Reservation and/or relocation of these areas and maintenance of access to the 12-inch and 16-inch pipes that supply the city's water plant will be critical to success of the development.
- » **Water** - Potable water is available in the river district vicinity in the form of a 16-inch main that runs parallel to the Great Miami Recreational Trail inside the floodplain as well as a 12-inch main that branches to feed a 6-inch line that runs near the top of the levee on the north side of the sidewalk. Modifications to this line are also likely as part of the development, but a supply of potable water is available to the site from this location as well as potentially from an 8-inch line that runs along the west side of Troy Memorial Stadium.
- » **Sanitary Sewer** - A 27-inch sanitary sewer trunk line that is approximately 6 feet to 7 feet deep located within the floodplain and south of the Great Miami Recreational Trail is the primary sanitary sewer facility in the vicinity.

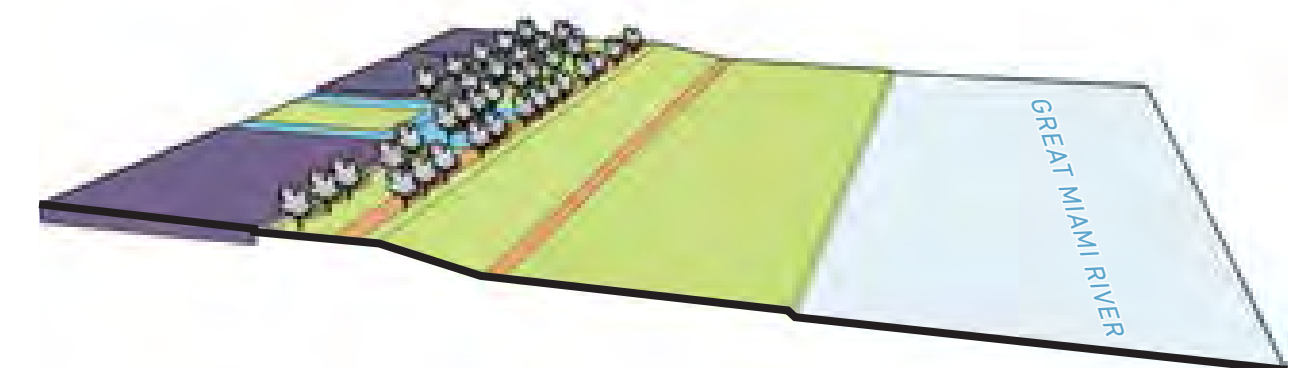
INFILL DEVELOPMENT TOOLS:

- » Special Improvement District
- » Tax Increment Finance (TIF)
- » Downtown Redevelopment District (DRD)
- » Community Development Block Grant if benefitting low-moderate income persons
- » HOME Investment Partnerships Program
- » Property Assessed Clean Energy
- » Consortium for Ongoing Reinvestment Efforts
- » Troy Small Business Development Revolving Loan Fund

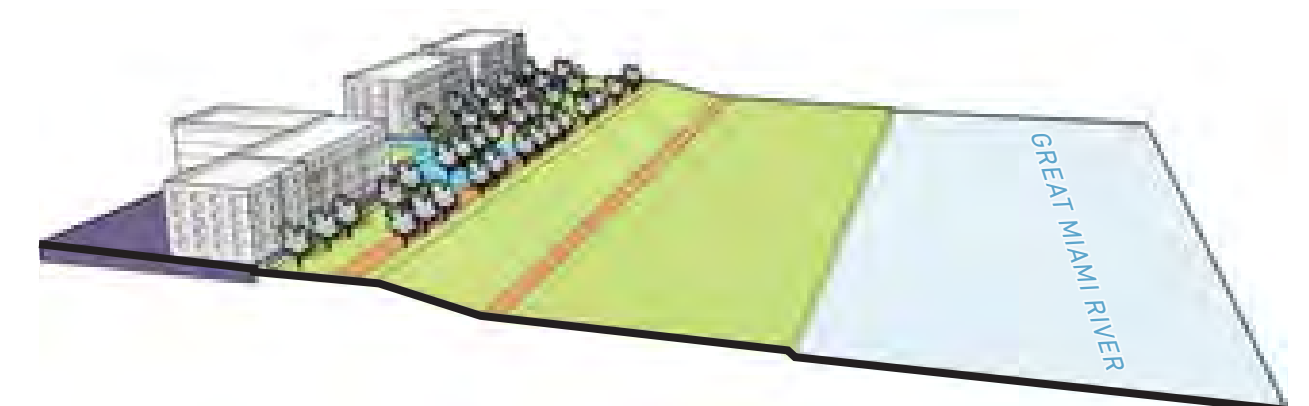
See Appendix for details on these tools.



EXISTING LEVEE AND RIVERFRONT



PARKING PODIUM ON NORTH SIDE OF LEVEE



PHASE 1 DEVELOPMENT OF RIVER DISTRICT AND TOP-OF-THE-LEVEE IMPROVEMENTS

2-5 YEARS | ARTIST-IN-RESIDENCY



PROPOSED ARTIST-IN-RESIDENCY DEVELOPMENT AND TROY TRUCK YARD

With Hobart's legacy, Troy is one of the premier metal working hubs in the world and has a history of making incredible products with the material. Troy and the seven counties around it also have approximately 12,000 unfilled, skilled, well-paying jobs due, in part, to a skills gap. Maintaining and growing its leading edge creativity, innovation, and workforce requires a shared investment in industrial and educational infrastructure with access to state-of-the-art technology. The former Hobart Cabinet building is ideally suited for such a hub.

Earlier investments in the Troy Truck Yard will launch more sophisticated efforts in raising the necessary awareness, partnerships, and funding to pursue the

repurposing of the former cabinet building into a blend of the following:

- » World-class artist-in-residency for name brand and emerging metallurgical sculptural and industrial design artists
- » Indoor revolving arts gallery and permanent outdoor sculpture garden along river
- » Studio and retail spaces for local artists
- » Applied manufacturing and fabrication lab
- » Meeting and lecture space
- » Co-working space with shared office infrastructure
- » Permanent "Truck Yard" culinary experience along the river



ARTIST STUDIO AND ART CENTER EXAMPLE



ARTIST-IN-RESIDENCY PROGRAM EXAMPLE



ARTIST-IN-RESIDENCY - CONTINUED

PROJECT FEASIBILITY AND TOOLS

Low-Income Housing Tax Credits have a set-aside for artist housing and programming that may support this funding gap. These have been used in St. Louis at The Arcade artist housing, for example. A new training institute or existing community college could master lease the entire building to share in the risk of leasing and financing for the redevelopment.

The program can help drive Downtown Troy visitor trips throughout the year as different artists and shows cycle through, upon which the Kohler program in Wisconsin capitalizes. This can help establish the culture and tourism draw for Troy based around metallurgy and metal arts. Much needed job training space would also support local employers with the skills gap in a shifting workforce environment.

On-site evaluation of the existing structure and evaluation of the applicability of its intended reuse are the next steps in the planning for the renovations of this site. Recommended steps include:

- » Code study of current state - Evaluate the ability of the structure to maintain much of its current use with renovations necessary to meet current codes.
- » Code study for its proposed use – Identify any gaps from the current state to the future state related to the items listed below.
 - » Structural – Designed as an industrial building with concrete structure, the structure will likely support the renovations depicted. Evaluation of the critical members and ability of the structure to carry the additional third story load are necessary next steps.
 - » Mechanical and Fire Suppression – Upgrades to the existing HVAC and plumbing infrastructure as well as fire suppression systems are likely for compliance with functional expectations and code requirements.

- » Electrical – While the existing supply to the site is likely sufficient to meet future demands, a condition assessment of the portions to remain and modifications to support the new use are required.
- » Building Envelope – In addition to the restoration of industrial glass to much of the structure, condition assessments of the roof, doors, and windows are necessary to meet expectations for the future use.
- » Accessibility for multiple floors – Evaluation of the accessibility within the building and modifications to the structure to allow for elevator(s) access to upper floors will be a part of the condition study.

Site Evaluation:

- » The proximity of the site to the CSX rail line is a challenge that should be investigated as an early step in the redevelopment of this property. A survey that accurately locates the CSX right of way line should be the first step in that process. Maintaining access to the rear of the parcel from the west side will be important for vendors and patrons alike. Screening from the tracks will increase safety and reduce disruption of trains passing the property. Improvements at this location must be coordinated with the buried fiber optic cable noted along the west boundary of the property. At-grade pedestrian crossings of the tracks will require close coordination with CSX. CSX's preferred scenario is to maintain pedestrian crossings at locations of existing roadway right of way suggesting crossings at Water Street. The dedication of public right of way along the top of the levee may be a required step in achieving a permit from CSX for the proposed crossing.

INFILL DEVELOPMENT TOOLS:

- » Special Improvement District
- » Tax Increment Finance (TIF)
- » Downtown Redevelopment District (DRD)
- » Community Development Block Grant
- » HOME Investment Partnerships Program
- » Property Assessed Clean Energy
- » Historic Tax Preservation Credit (Federal/State)
- » Consortium for Ongoing Reinvestment Efforts
- » Troy Small Business Development Revolving Loan Fund

See Appendix for details on these tools.

- » Public Utilities – The existing building is served by an 8" sanitary sewer with multiple lateral connections to the structure from the center of Water Street and a 4" waterline located in the south side of Water Street.
- » Levee modifications to allow a path along the river in the floodplain and access to the river are feasible at this location. Coordination of the modifications with the Miami Conservancy District may require a slight laying-back of the levee slope, but should maintain adequate area at the top of the slope for a walkway along the top of the levee and sufficient space for outdoor events. Safety considerations of the proximity of the lowhead dam may suggest that these improvements be evaluated if the dam is removed in the future.

2-5 YEARS | CLIMBING WALL COMPLEX



GRAIN SILO TODAY

The grain silo at the eastern terminus of Race Street is one of Troy's most visible landmarks and a bold symbol of its agricultural and industrial heritage. Only the County Courthouse rivals this structure's prominence.

The opportunity exists to transform this iconic piece of architecture into a multi-faceted indoor/outdoor climbing facility that would be a destination for climbers and for tourists interested in ascending the stairs (or elevator) to a viewing deck that looks over Downtown Troy, the Great Miami Riverfront, and the landscape beyond. It would be a center of recreational activity with a public park at its base that could sit at the intersection of the proposed

Great Miami Recreational Trail spur and the proposed on-street bike trail network. This facility could be operated privately or by a non-profit (such as the YMCA). Additional opportunities exist for healthy food operators, trainers, outfitters, and health and wellness providers to tenant space on the premises and nearby. It will be a powerful anchor for the southeast corner of Downtown.



SILO CLIMBING GYM EXAMPLE



GRAIN SILO'S PROMINENCE IN THE TROY LANDSCAPE



2-5 YEARS | EAST WATER STREET REDEVELOPMENT



PROPOSED DEVELOPMENT OF FORMER SPINNAKER AND VAN CLEVE SCHOOL SITES ALONG EAST WATER STREET

The Troy School District is considering consolidating its elementary schools into a location outside of town. Should this occur, the redevelopment of the former school buildings may become an option. The first option should be to reuse the buildings for office or residential uses. If this is not an option, a plan to redevelop the sites is the next best option.

The historic Van Cleve Elementary along East Main Street is one of these sites. Taken together with the Spinnaker Coatings industrial site, a significant riverfront development potential exists. A range of options, including adaptive reuse of both the school and part or all of the industrial buildings along the river, are possible.

The district should include:

- » Maintaining current street grid
- » Extending north and south streets to the river
- » Provisions for and connections to a riverfront trail
- » A transition of scale from the riverfront (tallest/ largest) to Main Street (mid-scale)
- » Mix of uses
- » Adaptive reuse where possible



VAN CLEVE ELEMENTARY SCHOOL, TROY, OH



RIVERFRONT DEVELOPMENT EXAMPLE



2-5 YEARS | CONDO RENTAL PROGRAM



DOWNTOWN TROY, OH

Historic Downtown Troy is, and will continue to be, a draw for downtown residents and visitors. However, fragmented property ownership and costly renovations of historic properties that fail to provide adequate return on that investment continue to hamper upper floor occupancy.

While promoting downtown residential and commercial development of upper floors and providing some of the necessary financial gap will continue to play a role, creating a new short - and medium-term rental market will help both developers and unit purchasers better offset their investment risk while meeting demand for accommodation downtown by visitors and corporate users.

A condo rental program is a way for individual building owners to adapt upper floors of buildings into condos and a way for the purchasers of the condos to opt into a professionally managed and operated condo rental program. This allows:

- » Incremental reuse development of upper floors
- » Expanded market for condo developer
- » The buyer to offset the cost of the condo purchase
- » The buyer to more easily travel while others rent
- » Corporate partners to have extended and short-term lease agreements
- » Increased number of residents downtown
- » Increased number of options for visitors to stay in Downtown without building a dedicated hotel



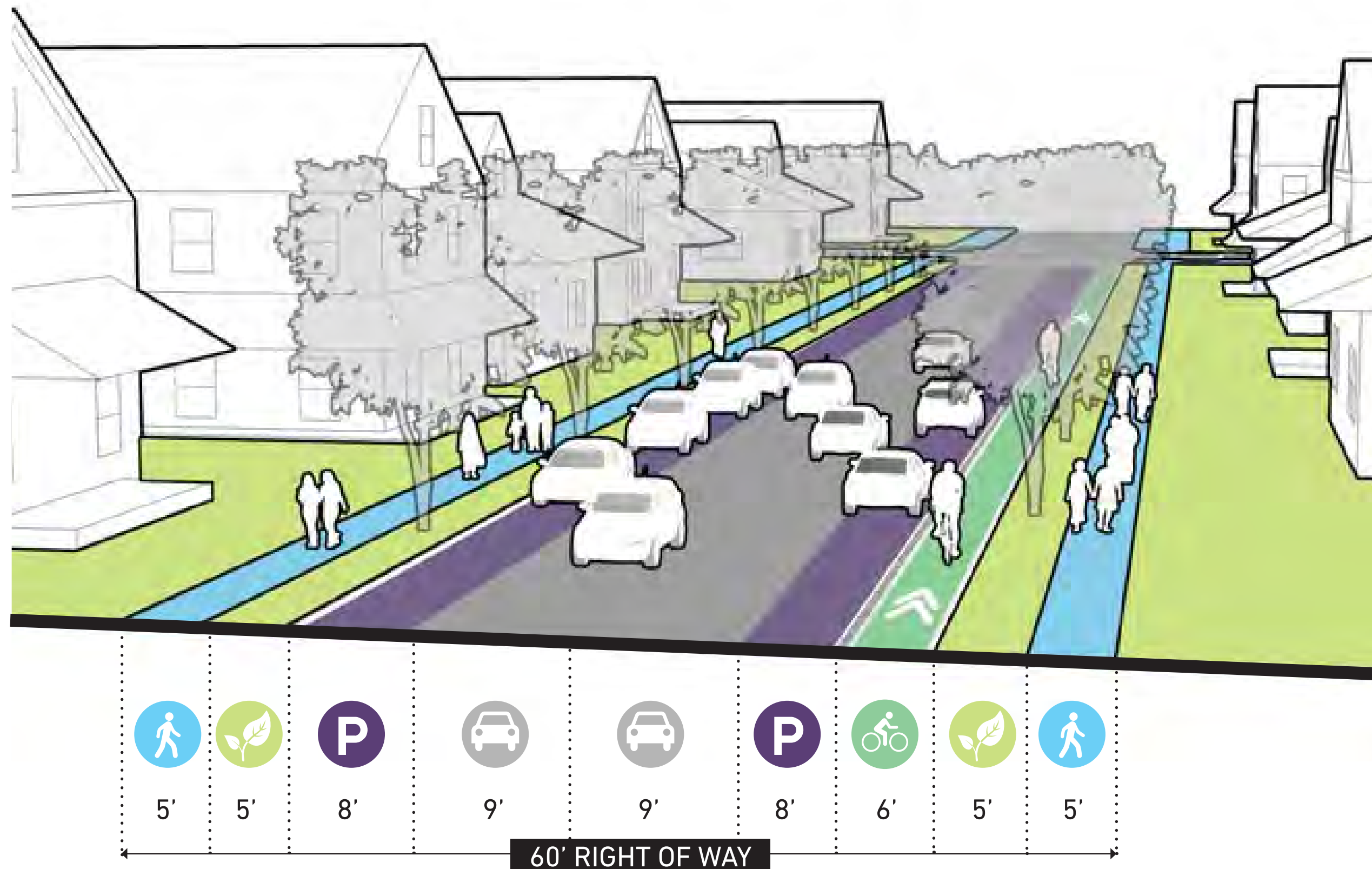
MIXED-USE HISTORIC DISTRICT EXAMPLE



DOWNTOWN LIVING EXAMPLE



2-5 YEARS | STREET MODIFICATIONS



PROPOSED STREET SECTION FOR PLUM STREET AND 60' STREETS

Several of Troy's streets are wider than they need to be to accommodate the two-way travel and on-street parking that they have today.

Overly wide streets have several unintended consequences:

- » Travel speeds that exceed the 25 MPH that is appropriate for Downtown and neighborhoods
- » Decreased safety for all users
- » Diminished visibility and economic performance for retail that faces these streets

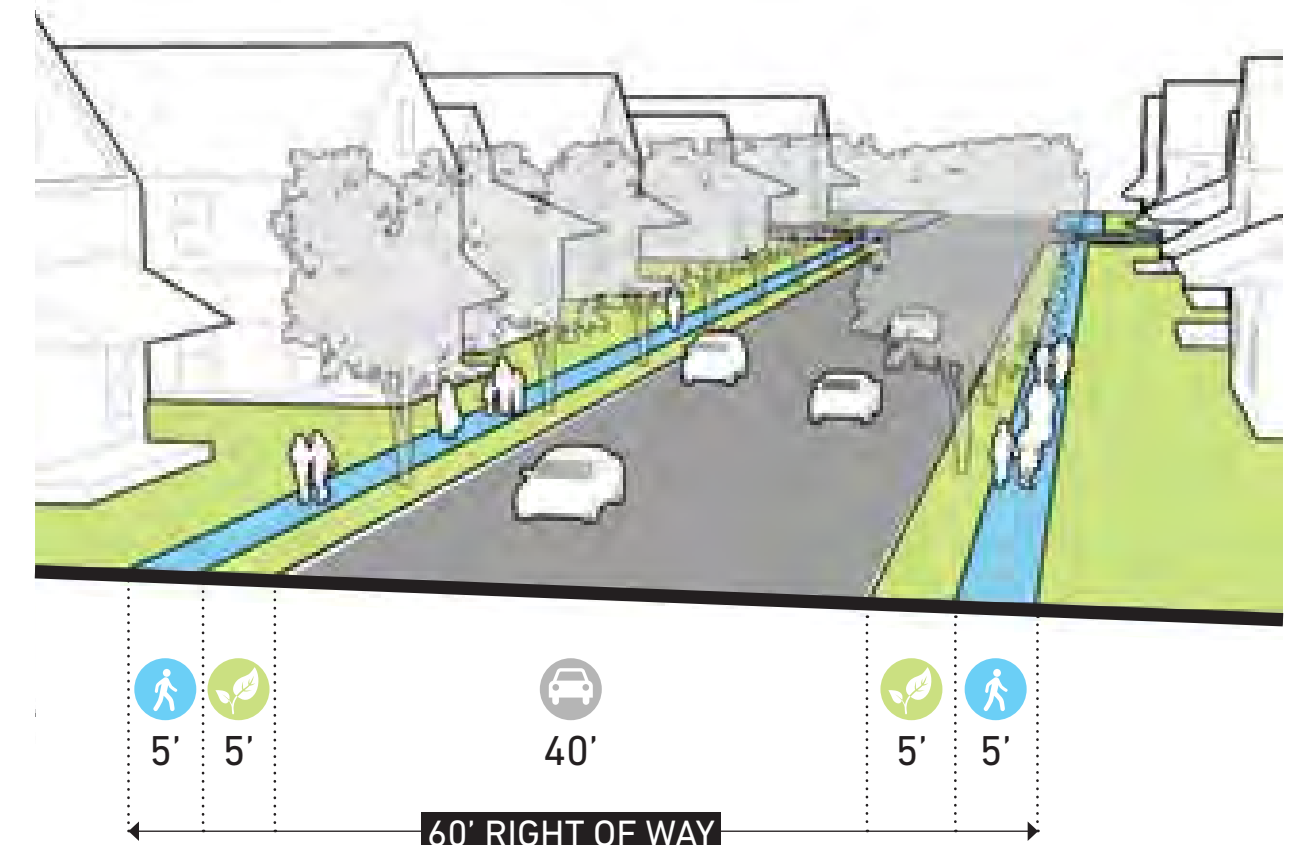
The Study proposes to utilize the current 40 feet of space between the curbs in a more efficient and safe way that will respond to speed, safety, and usability

concerns. By not moving the curb and gutter, these changes can be made economically, mostly with paint, signage, and enforcement.

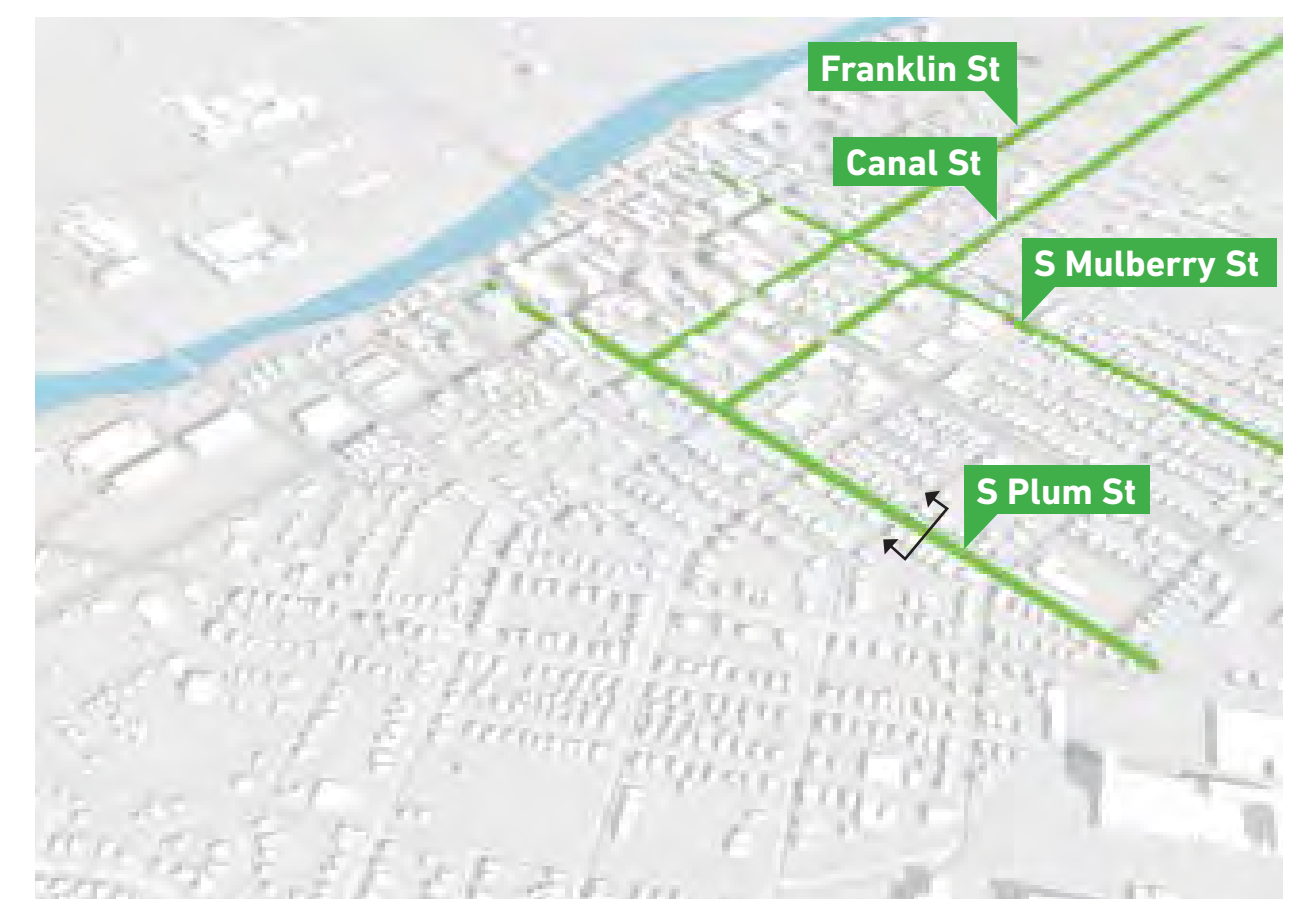
Several options were considered for how to address the future design of these streets. The ultimate recommendation maintains the current parking and two-way travel characteristics (essentially altering the design of these streets to a Water Street standard) and creating a one-way couplet system of dedicated and buffered bike lanes that will connect all of Downtown and downtown-near neighborhoods to the riverfront, the Great Miami Recreational Trail, and destinations throughout.



PLUM STREET TODAY



EXISTING STREET SECTION



5-10 YEARS INVEST AT EDGES, GROW AT HEART



DOWNTOWN TROY TODAY

POTENTIAL DEVELOPMENT SUMMARY

RESIDENTIAL	275 units
RETAIL/COMMERCIAL	5,000 sq ft
COMMUNITY/INSTITUTIONAL	30,000 sq ft
PARKING	300 spaces

Years zero-to-five set the stage for larger investment in the five-to-ten year window. These investments will be focused on growing the heart of Downtown while bringing online initiatives at the periphery of Downtown to expand the level of connectivity from surrounding neighborhoods to and from a growing downtown core.

In this window of time, the Kettering Health Network hospital campus is planned to be complete, the balance of the River District north of the Great Miami could be completed, large infill development sites around the Public Square and near the hospital might be realized, and a dedicated, iconic pedestrian bridge may be built to connect Downtown directly to its new River District.

5-10 YEARS | RIVER DISTRICT - PHASE 2



PROPOSED SECOND PHASE OF RIVER DISTRICT ALONG THE GREAT MIAMI RIVER

The second phase of the River District would complete the frontage along the river promenade with four or five story rental or condo buildings. As was the case for the first phase, these buildings could be elevated above the top-of-levee elevation with basement parking.

This phase will also serve to complete the River District's street network with a street connection to Market Street and one north to Staunton Road. Additional improvements to the levee, the riverfront park, and the promenade along the top of the levee may also be made at this time.



RIVERFRONT GREENWAY EXAMPLE



RIVERFRONT PROMENADE EXAMPLE



5-10 YEARS | PLUM STREET PEDESTRIAN BRIDGE



PROPOSED PEDESTRIAN BRIDGE CONNECTING PLUM STREET DOWNTOWN TO THE RIVER DISTRICT

The Plum Street Pedestrian Bridge may serve to connect Downtown Troy to the new River District, the Hobart Arena, Trojan Stadium and High School, and the Aquatic Park. It has the potential to be an additional gateway to Downtown from the Great Miami Recreational Trail and allow both sides of the river to share in parking for large events.

The architecture of the bridge should reflect the industrial heritage of Troy and its riverfront and be an active, comfortable space unto itself.



PEDESTRIAN BRIDGE EXAMPLE



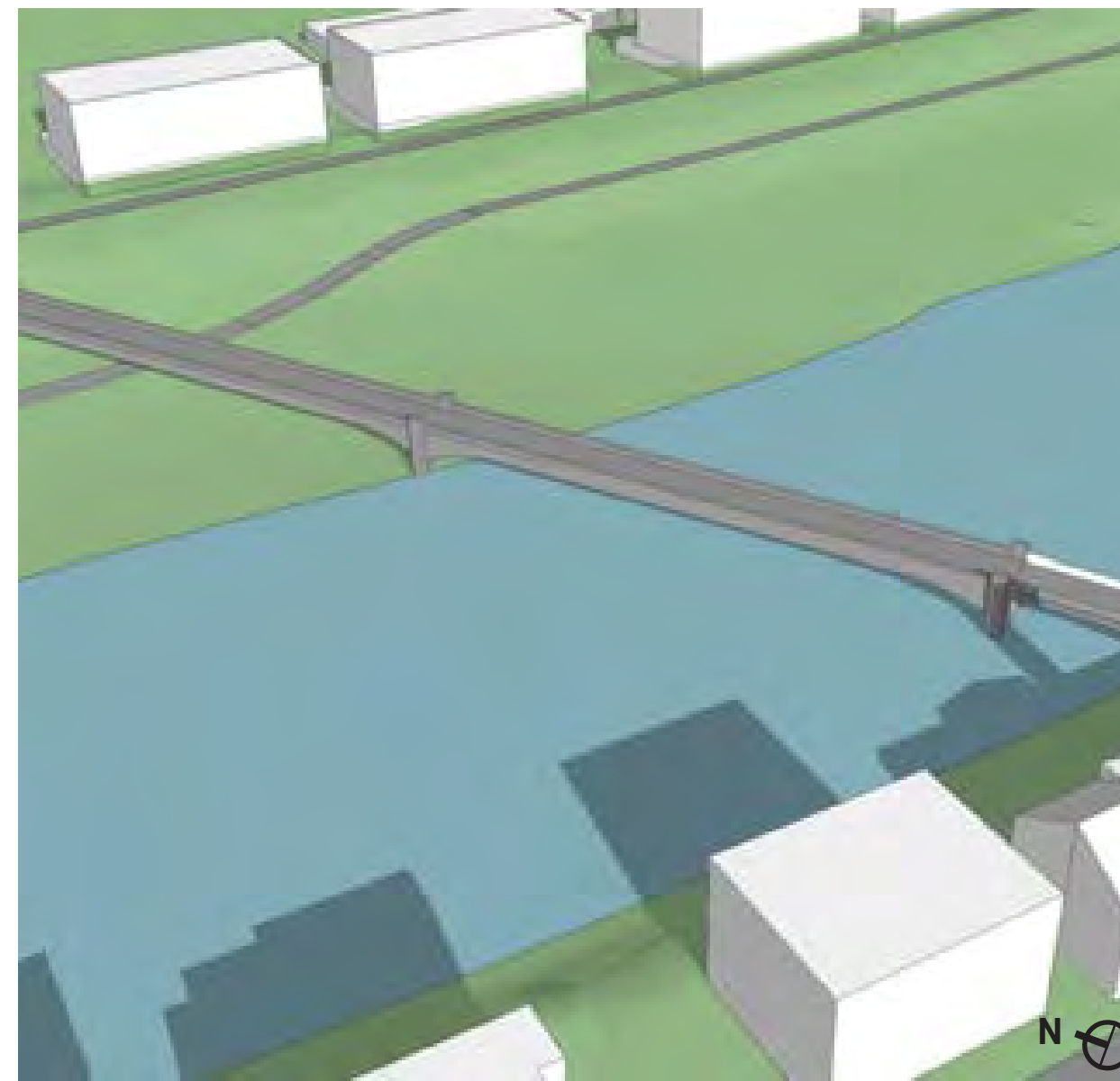
PEDESTRIAN BRIDGE EXAMPLE



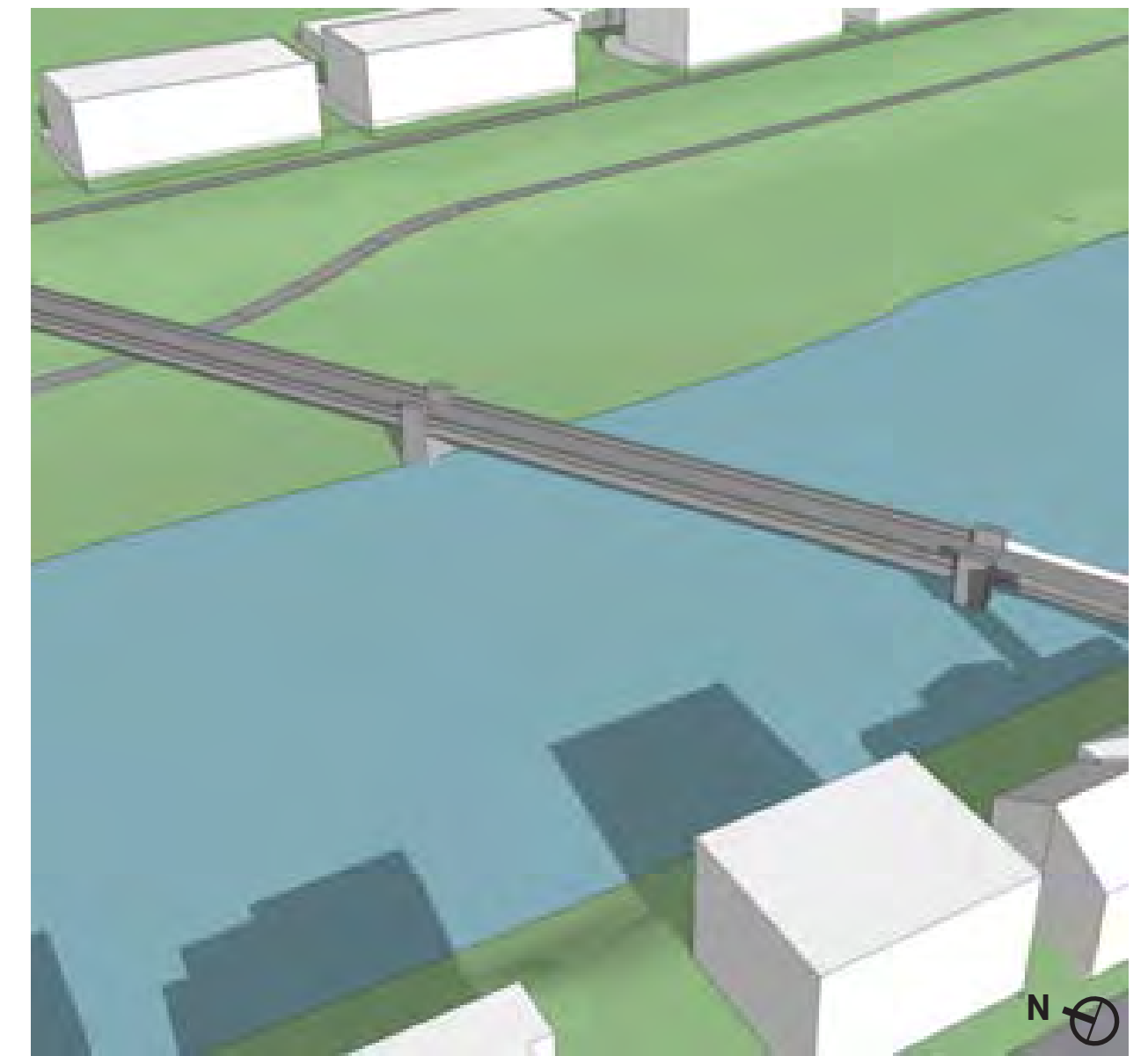
PLUM STREET PEDESTRIAN BRIDGE - CONTINUED



CABLE STAYED BRIDGE OPTION



HAUNCHED GIRDER BRIDGE OPTION



THROUGH GIRDER BRIDGE OPTION

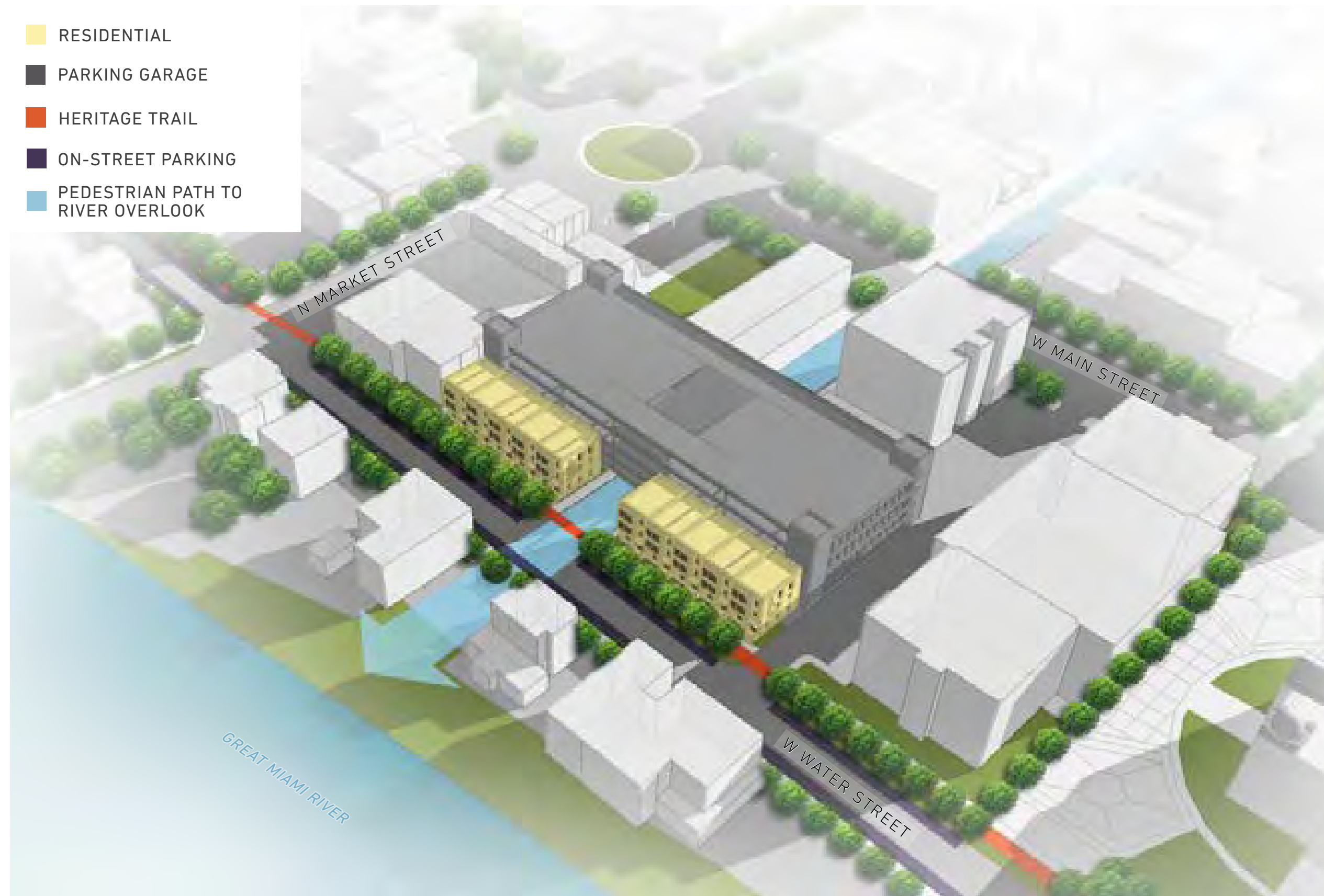
One of the primary goals of this Study was to improve connectivity between the River District, Hobart Arena, and the extensive regional trail network to residents and businesses in Downtown Troy. A new river crossing is necessary to increase connectivity, foster economic development, and create a landmark for the city. The new river crossing could create a park-once opportunity for residents, commuters, and visitors to the numerous destinations in the city.

While other alternatives exist and were evaluated during the preliminary engineering of this project, the new river crossing discussed in this Study best accomplishes each of the stated objectives. The Adams Street bridge includes wide sidewalks and brings the regional recreational trail network to the

city streets. However, the required travel distance from the parking at Hobart Arena to the Downtown destinations is too significant to encourage frequent use. The Market Street bridge currently includes only narrow sidewalks and recently had a new deck installed. The useful life of this structure is estimated at approximately 20 years, limiting the likelihood of additional investment in widening the structure to better accommodate pedestrian and bicycle modes of transportation in the near future. A new river crossing would shorten the distance and provide additional experiential opportunities that will encourage its use and allow the city to best leverage its assets to meet the objectives of this Study.

Three bridge alternatives were developed for evaluation (see Appendix for full evaluation report). The same span arrangement was used for each bridge alternative. Span lengths of 75 feet, 230 feet, 230 feet, and 75 feet create a total length of 610 feet from levee to levee. The span lengths were chosen to simplify the comparison between the alternative bridge types and provide cost-effective options for architectural impact. Shorter end spans reduce costs by using rolled steel beams and shorten the perceived length of the bridge by creating a distinct space separate from the main spans. The longer main spans can then optimize the efficiency of the selected structural options. All three bridge alternatives can be customized with the landscaping and lighting options.

5-10 YEARS | CHERRY STREET DEVELOPMENT



PROPOSED DEVELOPMENT OF CHERRY STREET

Northeast of the Public Square is a large surface parking lot bisected by Cherry Street south of Water Street. In the near term, this lot should be managed as an easy-to-use public parking lot that serves the downtown core workforce and customers in concert with changes made to the on-street parking program as recommended by the separate Downtown Parking Study.

Over time, however, demand for downtown residential and commercial development may necessitate additional parking via a parking structure. This location is the best suited downtown location for such a structure. The Study recommends the eventual redevelopment of these parcels with building frontage

along Water Street and a multi-purpose parking facility in the interior of the block spanning what is now Cherry Street to serve existing needs as well as future demand.

The parking garage should be screened from Water Street, Cherry Street, and the Public Square with habitable space along Water Street and, if not habitable space, architectural screening facing Main Street. Pedestrian rights of ways should be maintained through the development heading north from the current Prouty Plaza and along the current Cherry Street alignment.



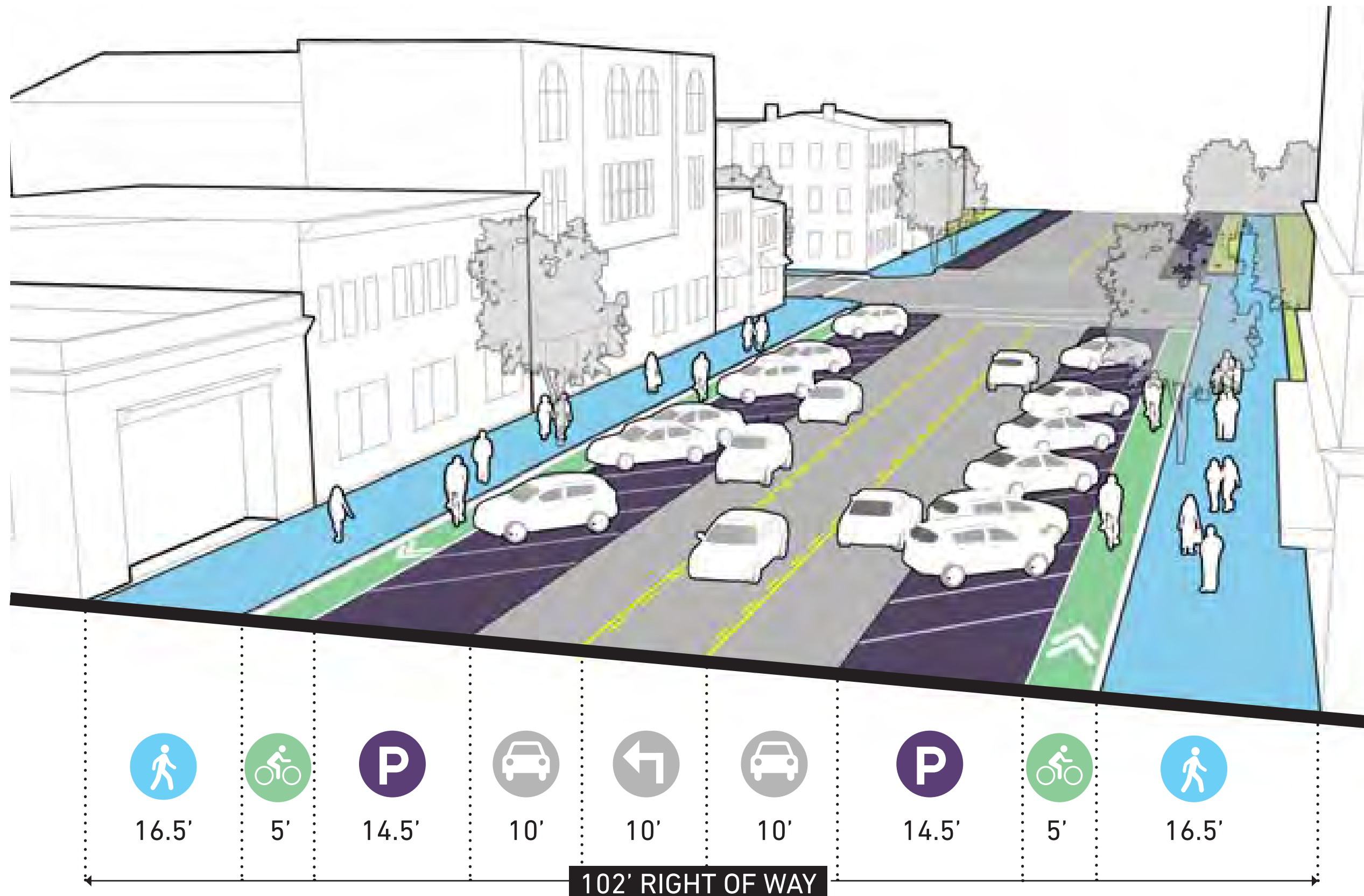
TOWNHOMES EXAMPLE



TOWNHOMES EXAMPLE



5-10 YEARS | STREET MODIFICATIONS



PROPOSED STREET SECTION FOR WEST MAIN STREET

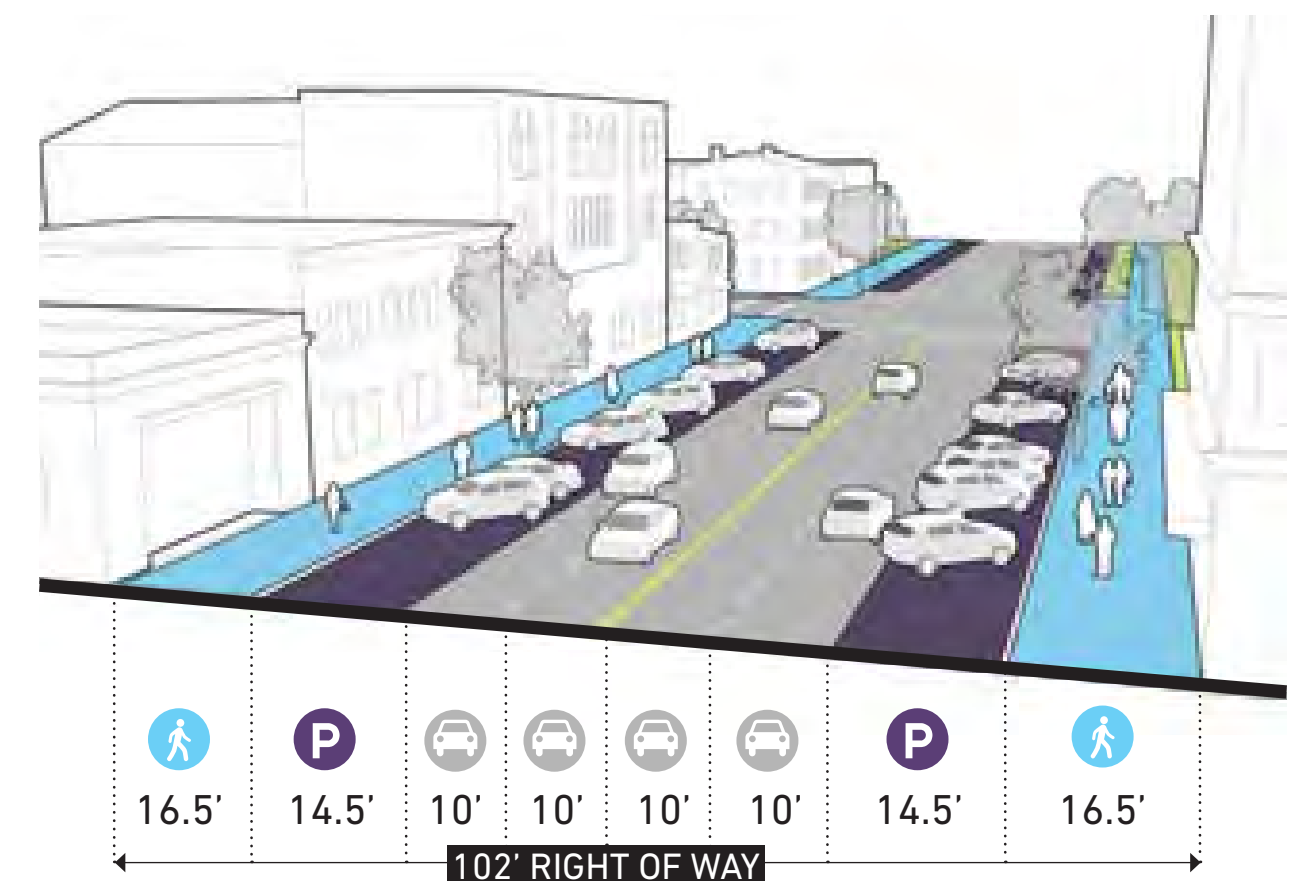
Three of the four streets radiating from Troy's Public Square are four lane streets with diagonal parking. Only East Main Street has been modified to two through lanes with a continuous turning lane.

Outside analysis suggests that the travel demands of the three-lane condition along East Main Street is feasible to repeat on the remaining legs of the intersection. This is preferable for a number of reasons as it slows down traffic and provides for more maneuverability around long vehicles that are parked diagonally. The continuous turn lane also allows turning vehicles to exit the through traffic allowing for easier movement.

This reconfiguring of the 70 feet between the curbs also allows five feet along the curb to be used for a dedicated bike lane that is buffered by the parked cars. This will require some modification of the curb at intersection bump outs but for most of the corridor requires no significant change to the existing curb and drainage.



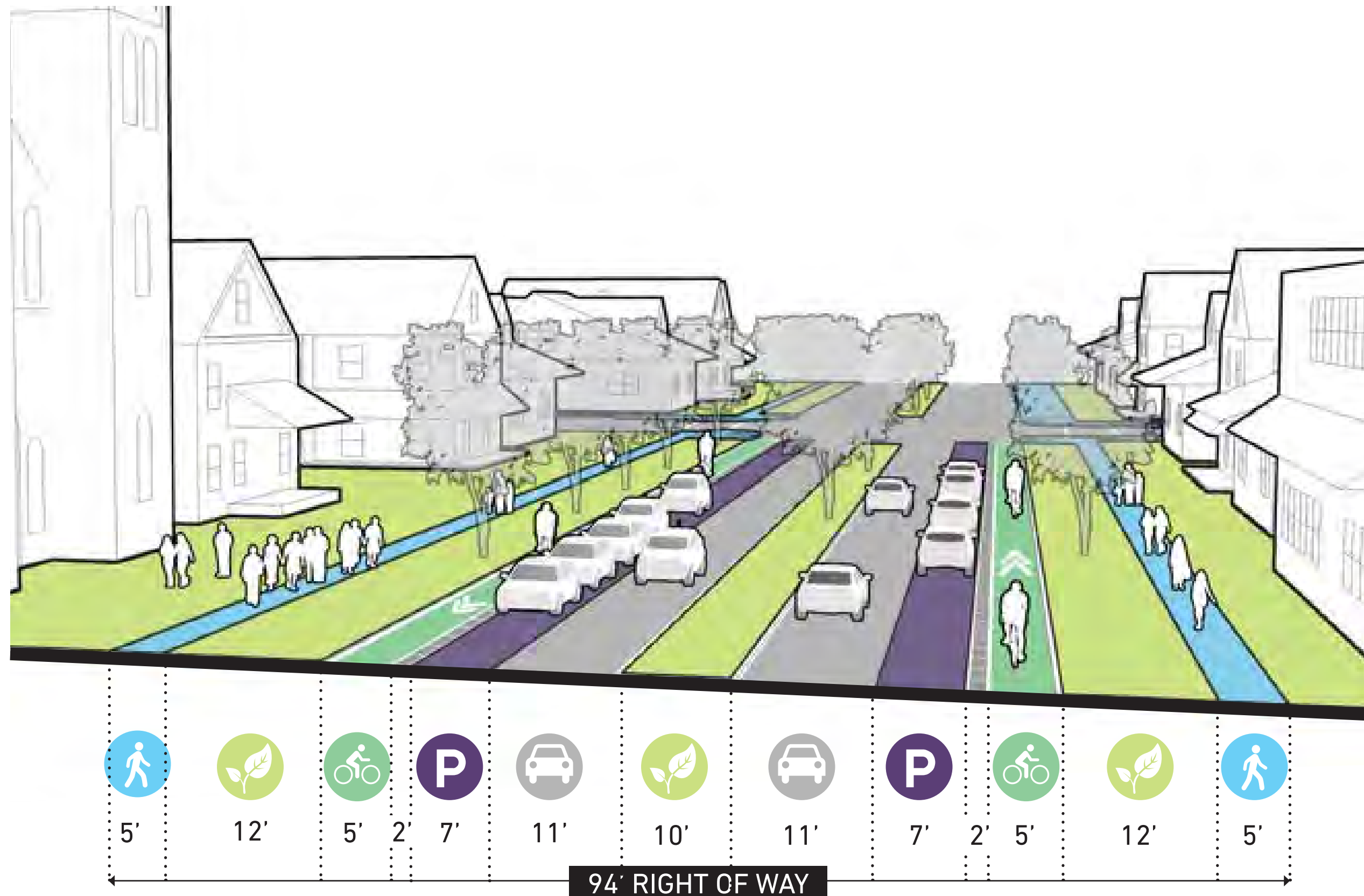
WEST MAIN STREET TODAY



EXISTING STREET SECTION



5-10 YEARS | STREET MODIFICATIONS



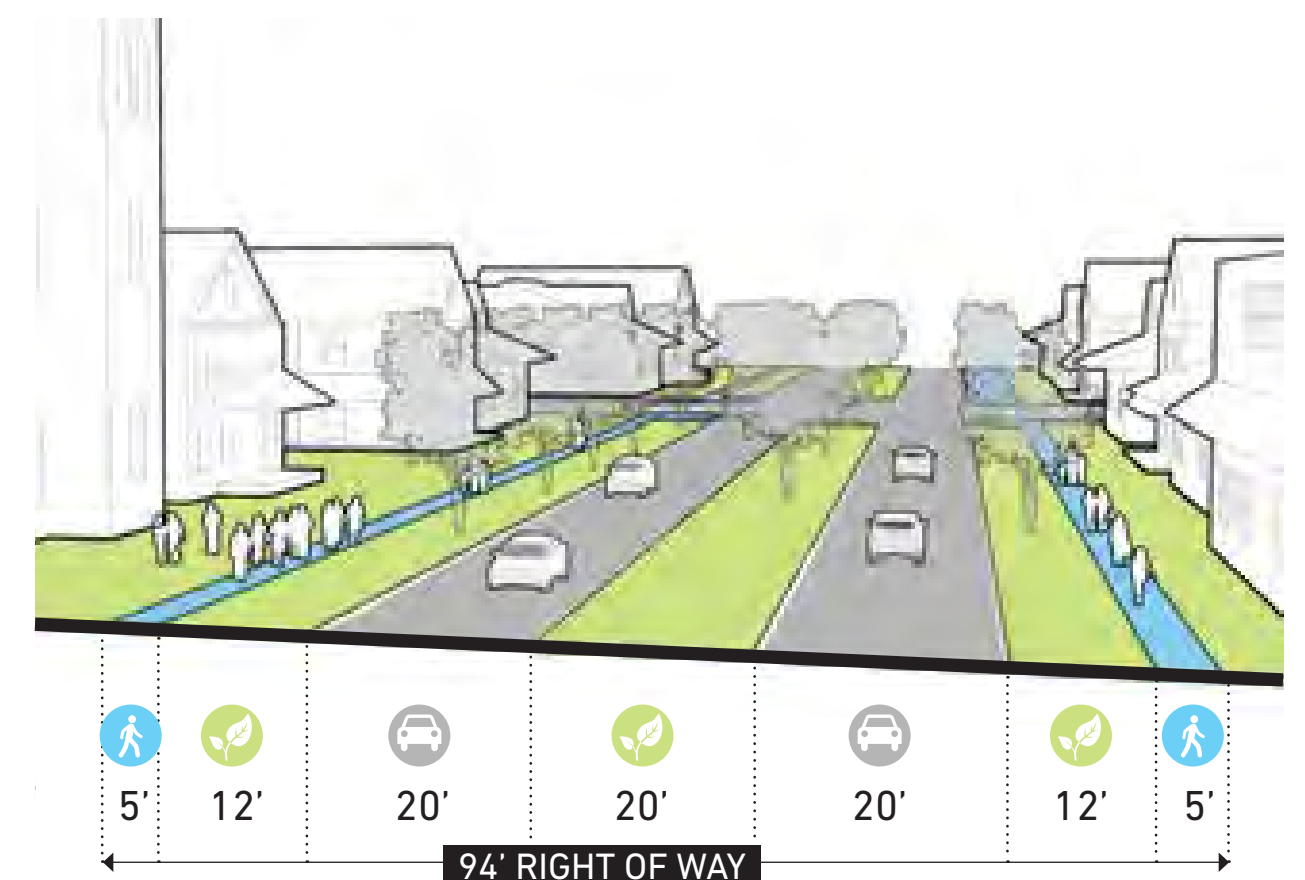
PROPOSED STREET SECTION FOR EAST MAIN STREET

Several blocks of East Main Street feature a boulevard that serves as an elegant entry into town from the east. However, given the way in which this stretch of street is articulated, car travel is encouraged to speed and few provisions are made for well defined parking or bicycle pathways.

A number of modifications to this section of street were explored with the final recommendation being to utilize a portion of the grass boulevard (still maintaining a healthy dimension for tree growth) to make room for dedicated on-street parking and a buffered bike lane outside of the parking. Increased tree planting in both the boulevard and in the planting strip that separates the bike lane from the sidewalk is recommended as well.



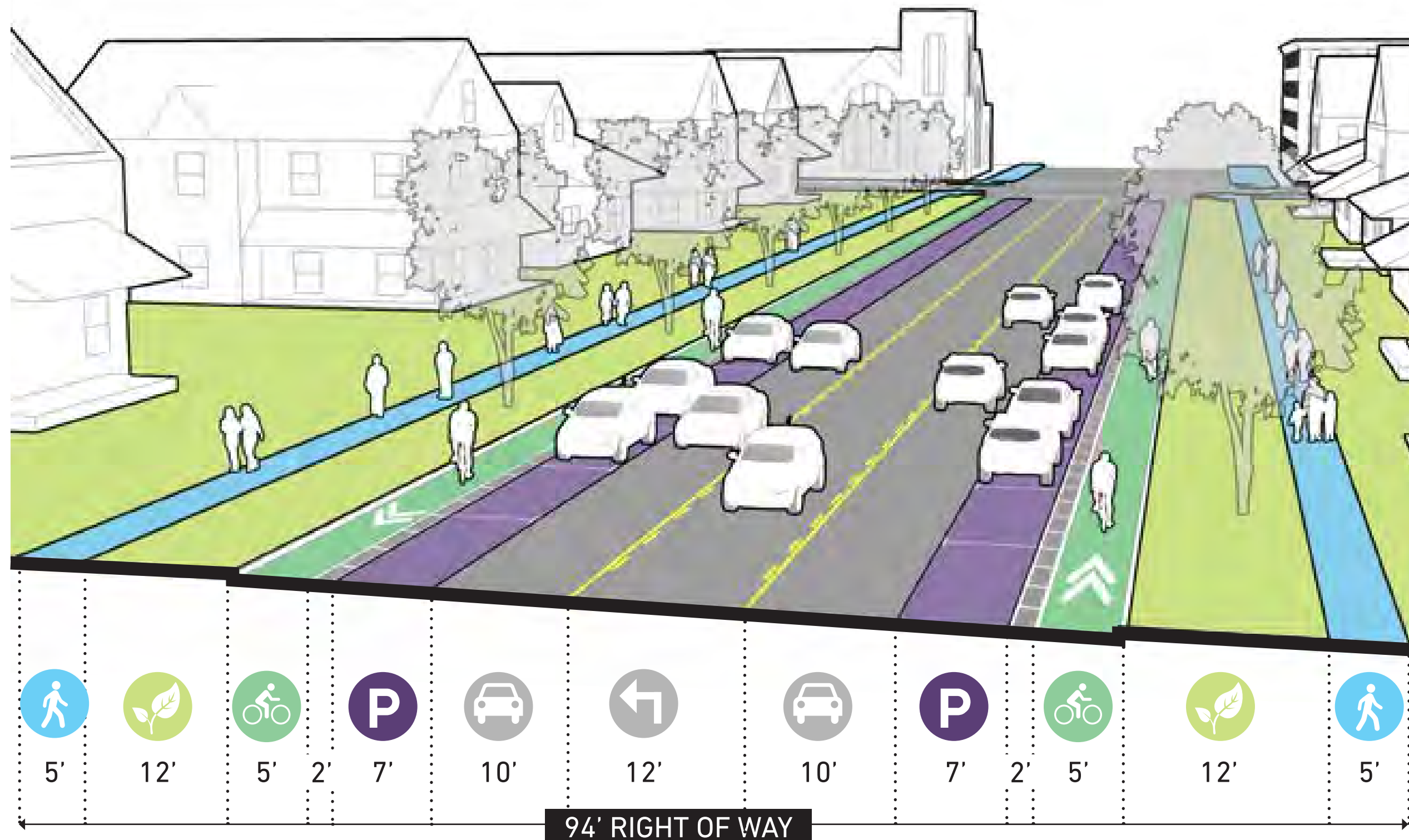
EAST MAIN STREET TODAY



EXISTING STREET SECTION



5-10 YEARS | STREET MODIFICATIONS



PROPOSED STREET SECTION FOR MARKET STREET (SOUTH OF CANAL ST)

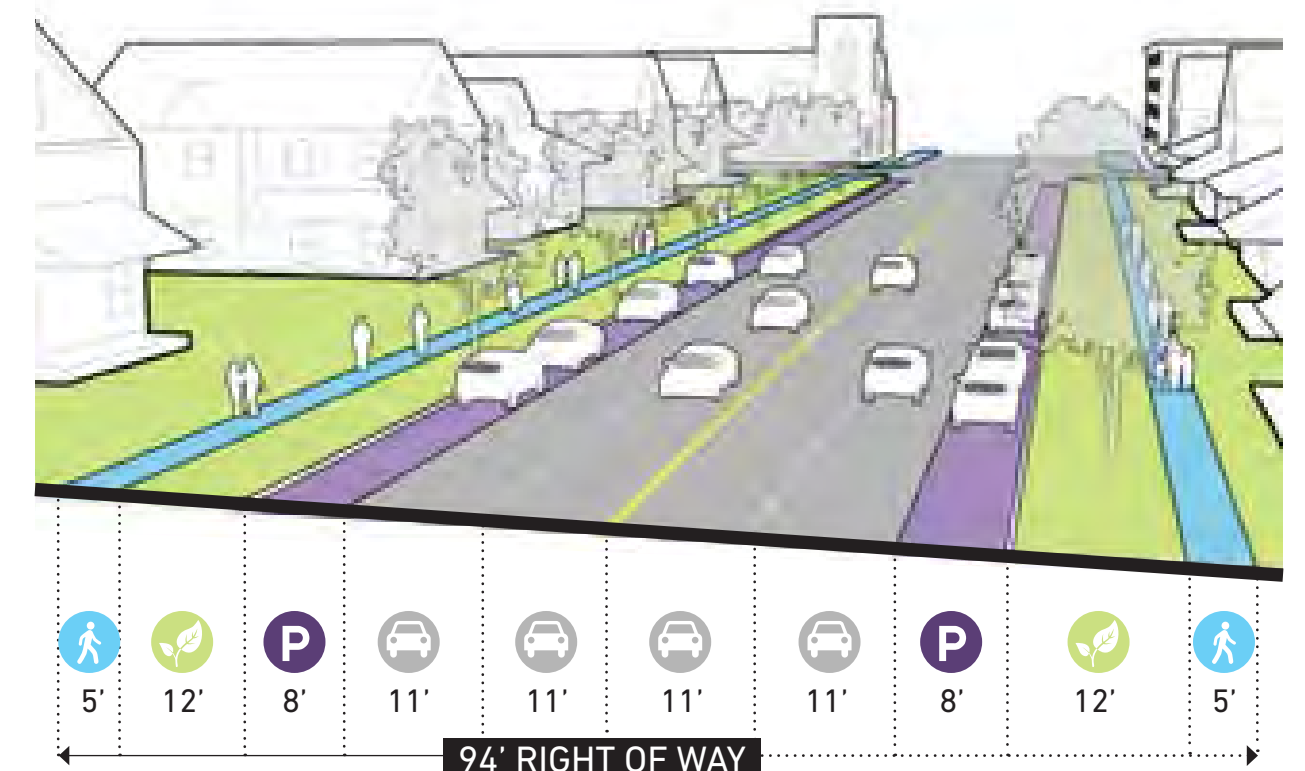
Several stretches of Main and Market Streets feature four fast moving lanes of cars with on-street parking. Desktop analysis suggests that this number of lanes is not warranted in Downtown Troy and is actually working against some of its more critical objectives in terms of safety and economic development.

This street condition, however, is amenable to cost-effective modifications by switching to a three-lane design with on-street parking and buffered bike lanes along the existing curb line. Without any significant alterations to the curb and gutter system,

these modifications will greatly reduce speeding and increase safety of bicyclists and pedestrians. It will also positively affect the visibility and visitability of the retailers and businesses along the corridors as slower speeds and greater pedestrian friendliness have been linked to the increased economic performance of adjacent properties.



MARKET STREET TODAY



EXISTING STREET SECTION



10+ YEARS FUTURE INITIATIVES



Key Policy Initiatives

- ▶▶ Study the possibility of launching a bike share program throughout Downtown and downtown-near neighborhoods.

POTENTIAL DEVELOPMENT SUMMARY

RESIDENTIAL	100+ units
--------------------	------------

The scope of this Study is primarily focused on the next ten years. The recommendations through each of those years are designed to build upon one another, each initiative setting the stage for the next. The initiatives range from surgical to the transformational and, in sum, allow Troy to incrementally transition into a more resilient, stronger version of itself.

With these recommendations as a platform, it is possible to identify potential initiatives that are likely to occur over a longer time horizon. The first is the reuse and redevelopment of portions of the Hobart campus along Ridge Avenue. The size of this parcel and its proximity to a vibrant downtown, historic neighborhoods, and state-wide bicycle trails

make it extremely marketable for a mix of uses that could include institutional, corporate and light industrial, and residential uses that complement the neighborhoods around it. Over time, the large site should build a street grid that connects to the streets around it, where possible, and address the trail corridor along the rail line.

The second initiative is the rebuilding of the Public Square to change it from a state highway-scaled, high-speed roundabout to a people-first, dynamic public space at the heart of town.

10+ YEARS | PUBLIC SQUARE



PROPOSED REDESIGN OF PUBLIC SQUARE

The current Public Square suffers from its nearly exclusive automobile orientation. Travel speeds around the circle not only are unsafe, but greatly hamper the visibility of retailers and the ease of parking despite the significant number of parking spaces provided. Upper floor businesses and residences are also encumbered from traffic noise and view.

Outside analysis suggests that traffic volumes and routing of trips no longer warrants this type of configuration and the potential exists to reimagine the square as a prominent civic space where both every day and more grand spectacles can occur. The redesigned square transforms the high-speed movements into a slow circulation near the

storefronts with on-street parking directly in front of the retail frontage. The slower travel speeds in conjunction with the short crossing distances allows for easy passage to the middle of the square where events, markets, outdoor seating, and direct routes from one edge of the square to the other may take place.

Transforming the square will increase the vitality of the ground floor tenants and accelerate the reinvestment in upper floors. It will widen the range of uses that can be accommodated in the square and increase the number of visitors. It will make pedestrian and bicycle activity through and around the square safer and more enjoyable and improve the safety of automobile traffic around it.



PUBLIC SQUARE TODAY



PUBLIC SQUARE EXAMPLE



PUBLIC SQUARE - CONTINUED

PROJECT FEASIBILITY AND TOOLS

Quality open space with active programming adds real estate value. Public investment in the Public Square can lead to further private investment adjacent and nearby through visual improvement and more regular visitor traffic. With an established identity around the Strawberry Festival, Gentlemen of the Road, and other downtown events, Troy has a strong foundation upon which it can build. This has all been accomplished without a particularly robust pedestrianized public space, leaving plenty of room for improvement. Prouty Plaza already hosts public events on what is merely an empty lot, and supportive infrastructure will allow for greater flexibility, more events, and better services.

The Public Square redesign includes modification of the current traffic circle to a one-lane one-way square-about with public space in the center and parallel parking along the outside of the square. These improvements suggest the re-routing of state routes through the city and offer a transformational change to the square including significant improvements in bicycle and pedestrian accommodations. Public utility infrastructure can accommodate these improvements with relatively minor modifications.

Multi-modal transportation in the Square:

Vehicles - The modification of the intersection control and discouragement of through vehicles at this intersection are accompanied by the recommendation to re-route State Route 41 and State Route 55 through Troy using a routing similar to that is used during the Strawberry Festival.

Curve radii are with mountable curbs established to accommodate standard semi-trucks that may pass through the square on an occasional basis at low speeds. For larger vehicles or the rare occurrence of the need to move large equipment through this intersection, bollards may be removed through the square and accommodate these vehicles around the center fountain. A redesign and/or relocation of the fountain would further ease these types of rare movements.

The accompanying street modifications recommended in years 5-10 are necessary to safely reduce the number of lanes to one entering and exiting the square from each direction and providing indication of the one-way operation of the square. The reduction of travel lane widths may allow for dedicated bike lanes on these approaches and/or additional sidewalk and public space in front of buildings.

Alternative pavement textures, such as bricks or cobblestones, will encourage lower vehicular speeds but should be pursued with the bicyclist and pedestrian experience in mind. Consider maintaining asphalt travel lanes while enhancing distinction of parking and sidewalk areas through these pavement textures.

During the planning of implementation of the square, collect feedback from the emergency service providers and first responders in the city. The proximity of the police station and hospital may indicate that this intersection will be more frequently traveled at higher speeds than other streets in the city. These improvements will encourage these emergency vehicles to use other routes.

Cyclists - The reduction of the operating speeds and use of one lane, one-way traffic enables cyclists to occupy the lane of travel. This will significantly improve the level of service for this mode of transportation provided a smooth pavement surface is maintained for the lane of travel.

Pedestrians - Pedestrian level of service is also significantly increased through these improvements. The reduced crossing widths and reduced travel speeds make the square a very pedestrian-friendly environment. Four additional points of conflict for pedestrians and vehicles are introduced as the crosswalks from the approach streets, parking areas and businesses enter the center of the square. For safety considerations, these crosswalks should be located on the left side of each of the entering approaches to place pedestrians in view of vehicles entering and exiting the square and to reduce the

INFILL DEVELOPMENT TOOLS:

- » Special Improvement District
- » Tax Increment Finance (TIF)
- » Downtown Redevelopment District (DRD)
- » Community Development Block Grant
- » Consortium for Ongoing Reinvestment Efforts
- » Troy Small Business Development Revolving Loan Fund

See Appendix for details on these tools.

number of vehicles with which the pedestrian movements conflict; however, pedestrian free flow should not be restricted.

Public Utility Infrastructure:

- » **Water** - The square is bisected by a 12" water main along the south curb line of Main Street and in North Market Street a 12" main south of the intersection and a 10" water main north of the intersection. These mains provide ample capacity for additional services to provide access to vendors or other sites to be established in the center of the square.
- » **Sanitary Sewer** - The square is bounded by sanitary sewer lines that vary in size from 8" to 10" and are approximately 10' deep. These mains provide opportunity for additional connections if needed from the locations in the center of the square.
- » **Storm Sewer** - The existing square drains from the center to the outside edges. This grading configuration simplifies much of the conversion of the pavement because significant grade changes are not anticipated. While the square-about concept is likely to marginally increase the amount of impervious area, we anticipate that the existing storm sewer system will have capacity to accept additional runoff and will not need significant modifications for these improvements.

10+ YEARS | COMPLETE BICYCLE NETWORK



Downtown Troy sits along one of the nation's most robust bicycle trail networks in the Great Miami Recreational Trail, yet it has very few direct connections from its downtown. While many of the streets are suitable for advanced or moderate riders, no dedicated bicycle infrastructure exists to connect riders of all abilities to and through Downtown from the surrounding neighborhoods. Letting this world-class trail system bypass Downtown without linking to an interconnected downtown trail system misses an enormous opportunity to capture the trail tourism and connect residents, commuters, and enthusiasts to an active and healthy way to get around town or the region. In addition, access to trails is quickly rising to the top of developers' site selection criteria.

Fortunately, Troy is able to incorporate this infrastructure into its existing street network without compromising existing traffic or parking capacity, nor is it necessary in most instances to change the curb and gutter of the streets, which avoids significant costs. Instead, the Study recognizes, as demonstrated in the Study's street initiatives, how to incrementally build out a dedicated and interconnected bicycle trail network utilizing the existing space between the curbs. The system will simultaneously make it safer to drive through town for drivers and, by slowing traffic down, will make it safer for bicyclists of all abilities and pedestrians of all ages to easily walk around Downtown as well as to and from the surrounding neighborhoods.



EXISTING BICYCLE NETWORK



TEMPORARY BICYCLE NETWORK

Studies have also shown a strong correlation between these types of street modifications and the economic performance of retail, commercial operations, and residential development.

Over time, the Study recommends building out this network to connect the Great Miami Recreational Trail through Downtown rather than simply around it. It recognizes the opportunity to develop a rails-to-trail or rail-and-trail network along the southern limits of Downtown to provide an alternative riding experience tied into the neighborhoods. To expand use of the system, a Troy-scaled bikeshare program is possible and recommended for further investigation.



A APPENDIX

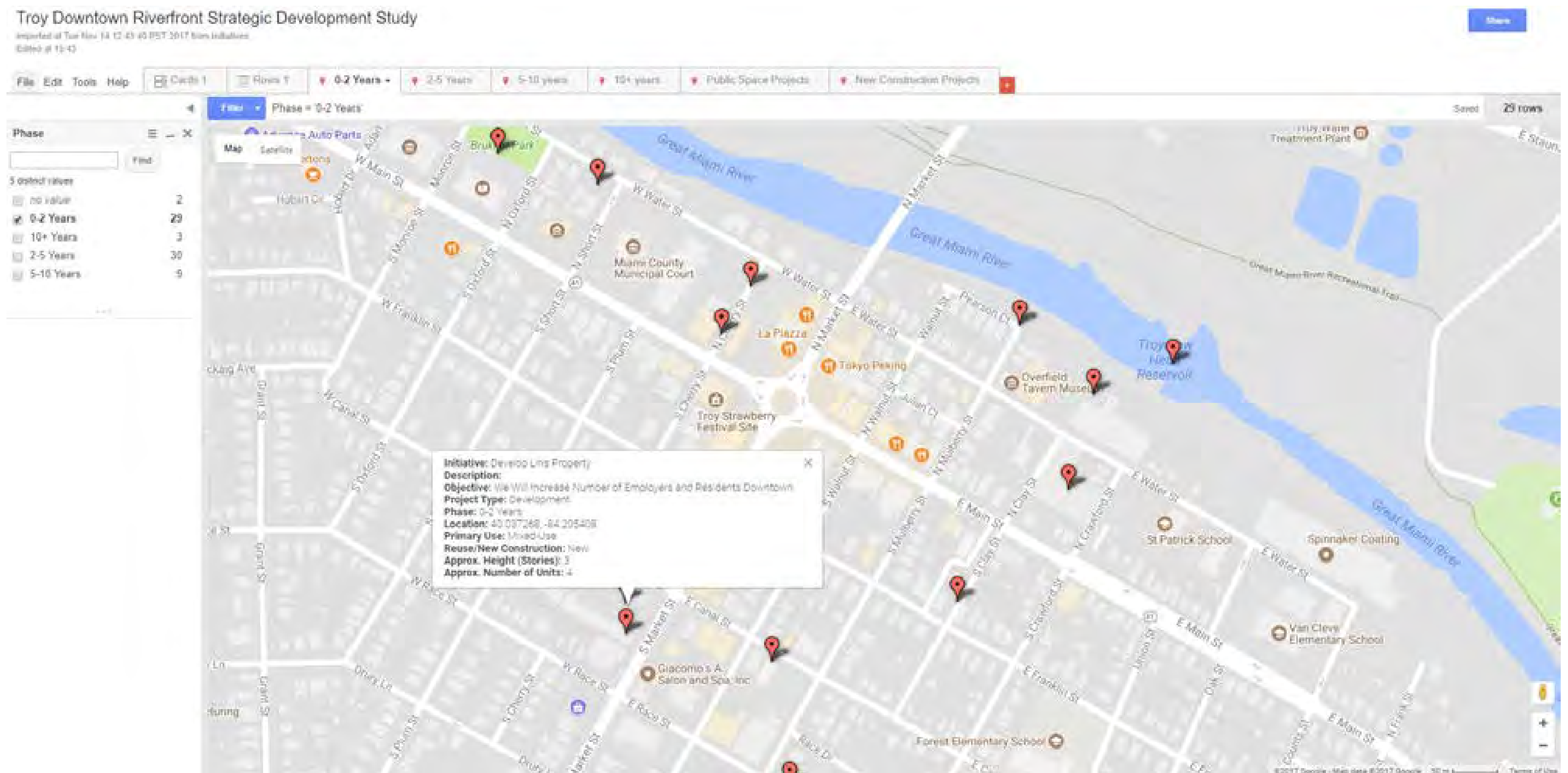
WORK PLAN

This Study includes a “Live” Work Plan that chronicles each of the development, infrastructure, policy, and programming initiatives in a filter-able online matrix and map. This tool serves to facilitates the implementation of the initiatives through the active tracking of the study’s initiatives. Additionally, this tool provides flexibility for new projects to emerge or for any changes that may arise to certain initiatives.

The tool operates online through a Fusion Table platform. This one working file is comprised of three parts:

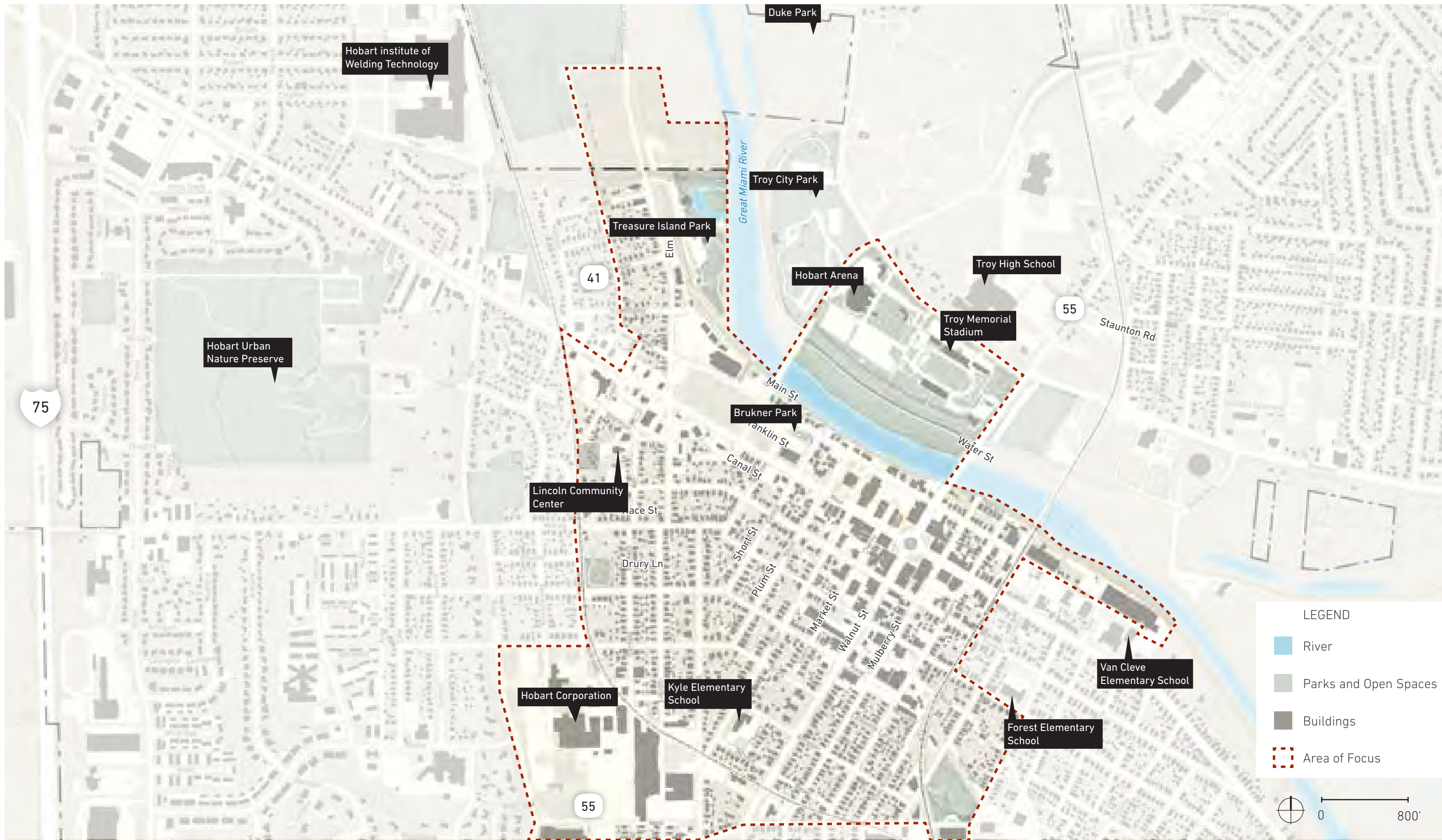
- » Editable Spreadsheet (Google Sheets)
- » A Fusion Table Database that references the spreadsheet
- » A Map that displays and can filter the initiatives by year or by type of initiative.

THE LINK TO THE LIVE WORK PLAN IS HERE.



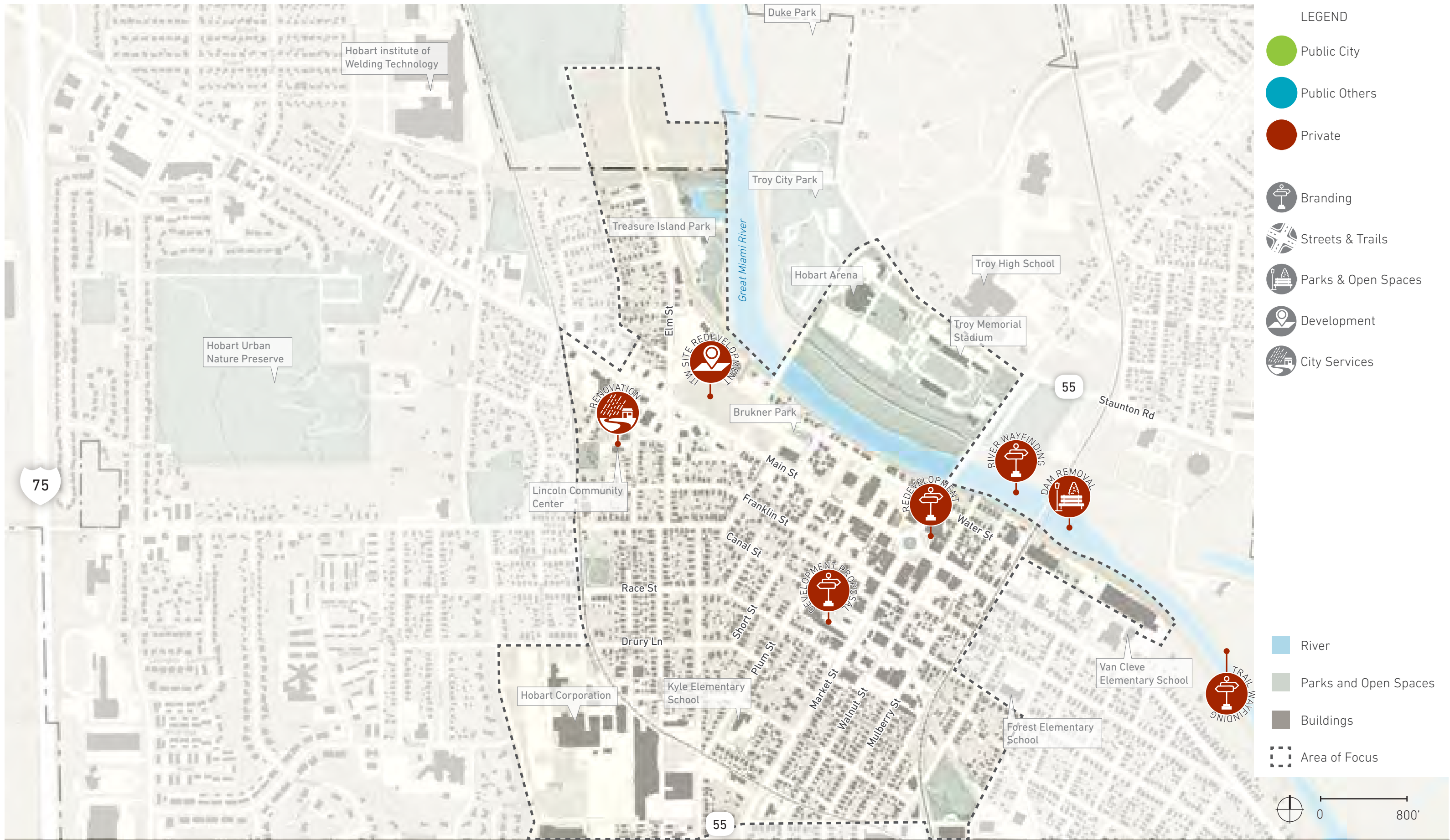






Basemap of Existing Conditions
Downtown Reinvestment Plan | Troy, OH

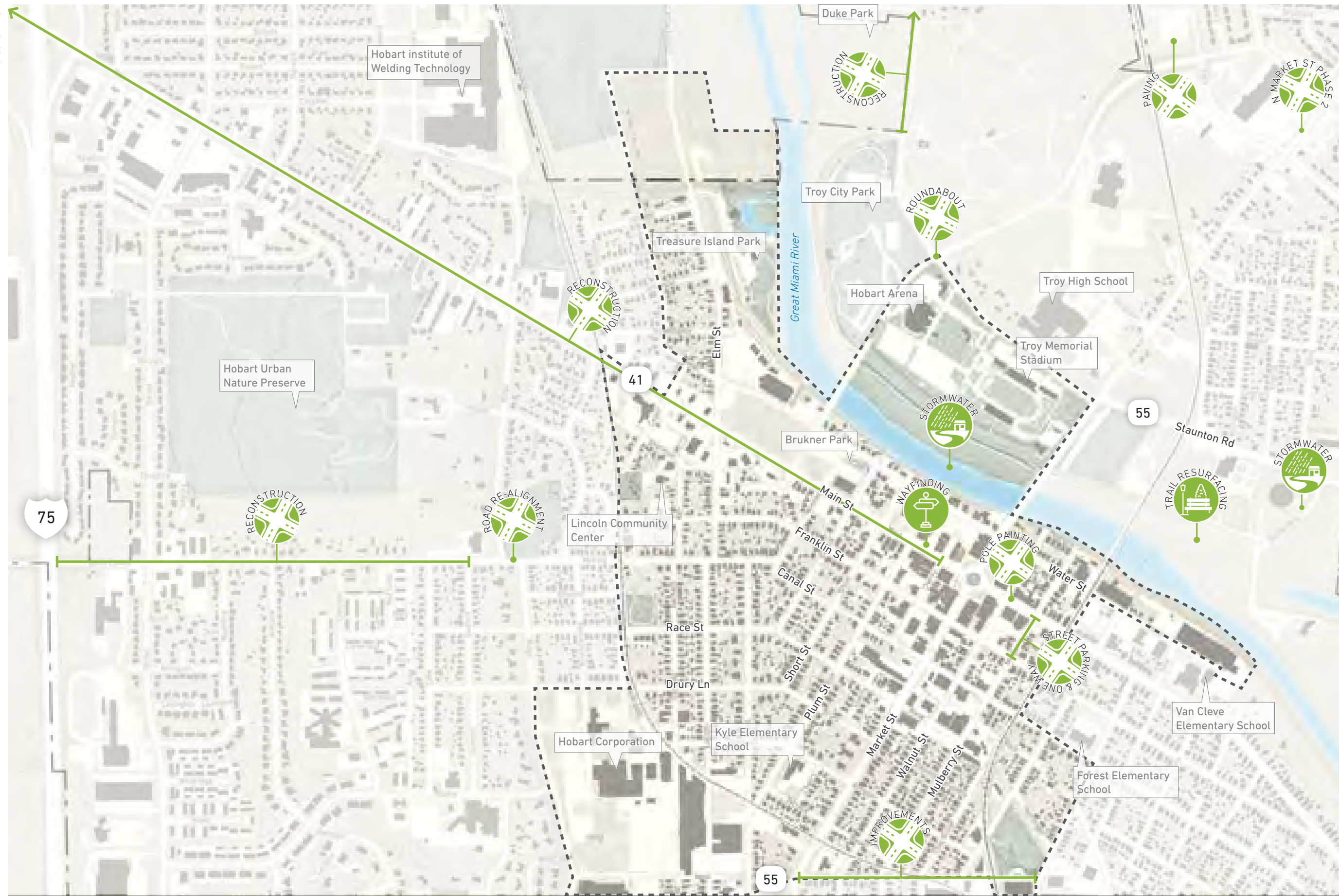
February 24, 2017



Capital Plan: Private Initiatives

Downtown Reinvestment Plan | Troy, OH

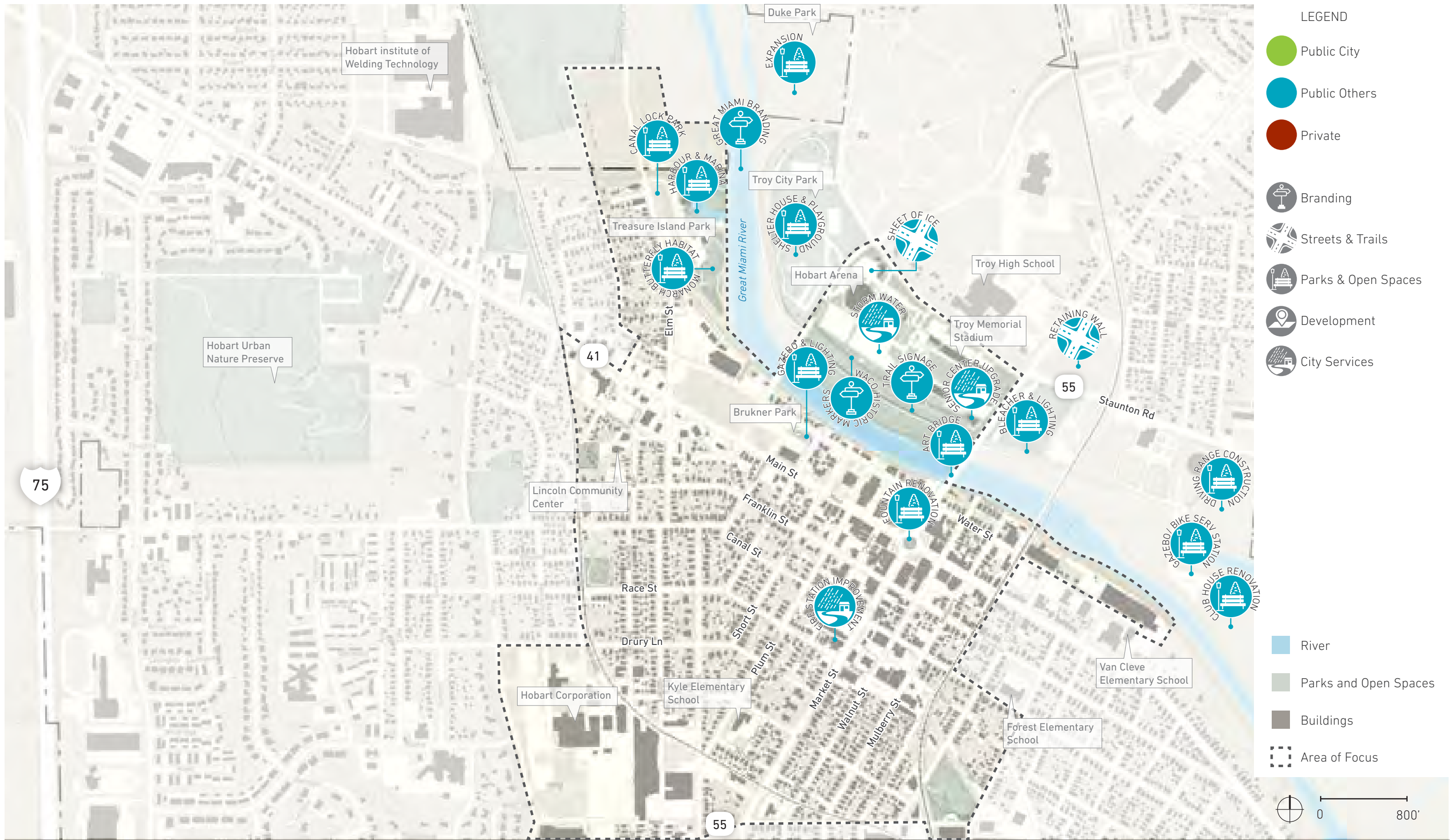
February 24, 2017



LEGEND

- Public City
- Public Others
- Private
- Branding
- Streets & Trails
- Parks & Open Spaces
- Development
- City Services

- River
- Parks and Open Spaces
- Buildings
- Area of Focus



Capital Plan: Other Public Initiatives

Downtown Reinvestment Plan | Troy, OH

February 24, 2017



Parking Diagram
Downtown Reinvestment Plan | Troy, OH

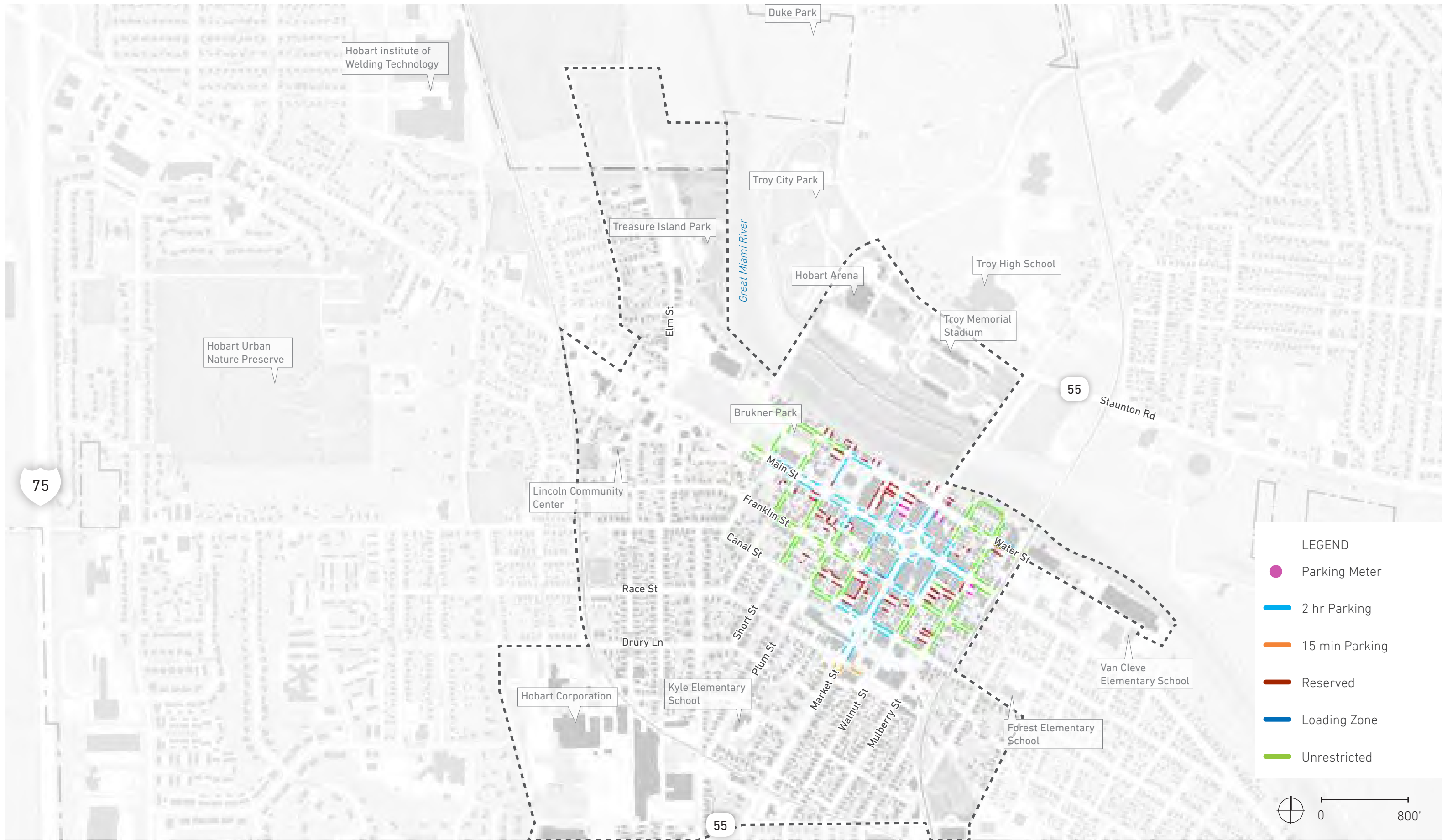
February 24, 2017



Downtown Parking Spaces

Downtown Reinvestment Plan | Troy, OH

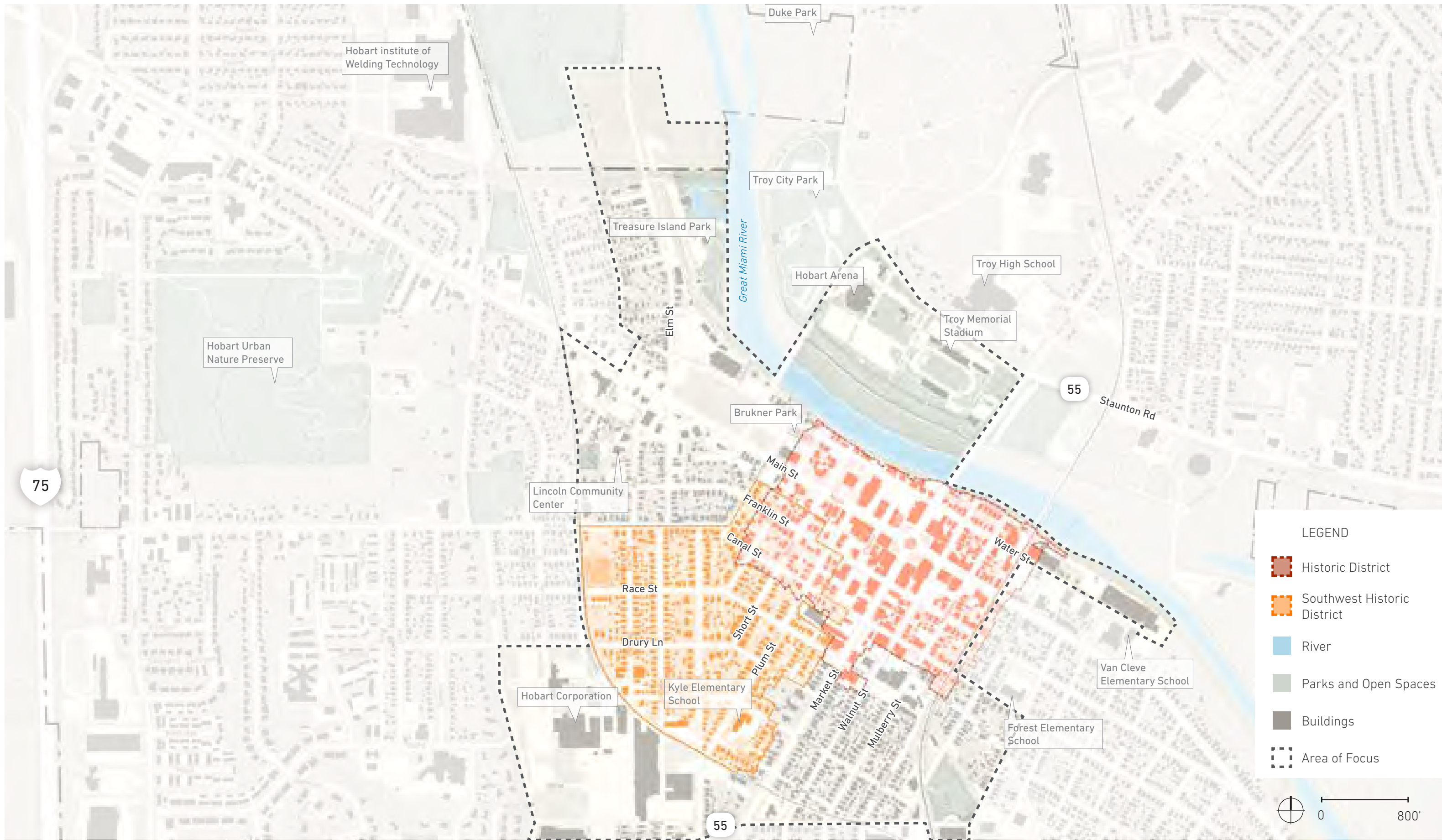
February 24, 2017



Downtown Parking Restrictions

Downtown Reinvestment Plan | Troy, OH

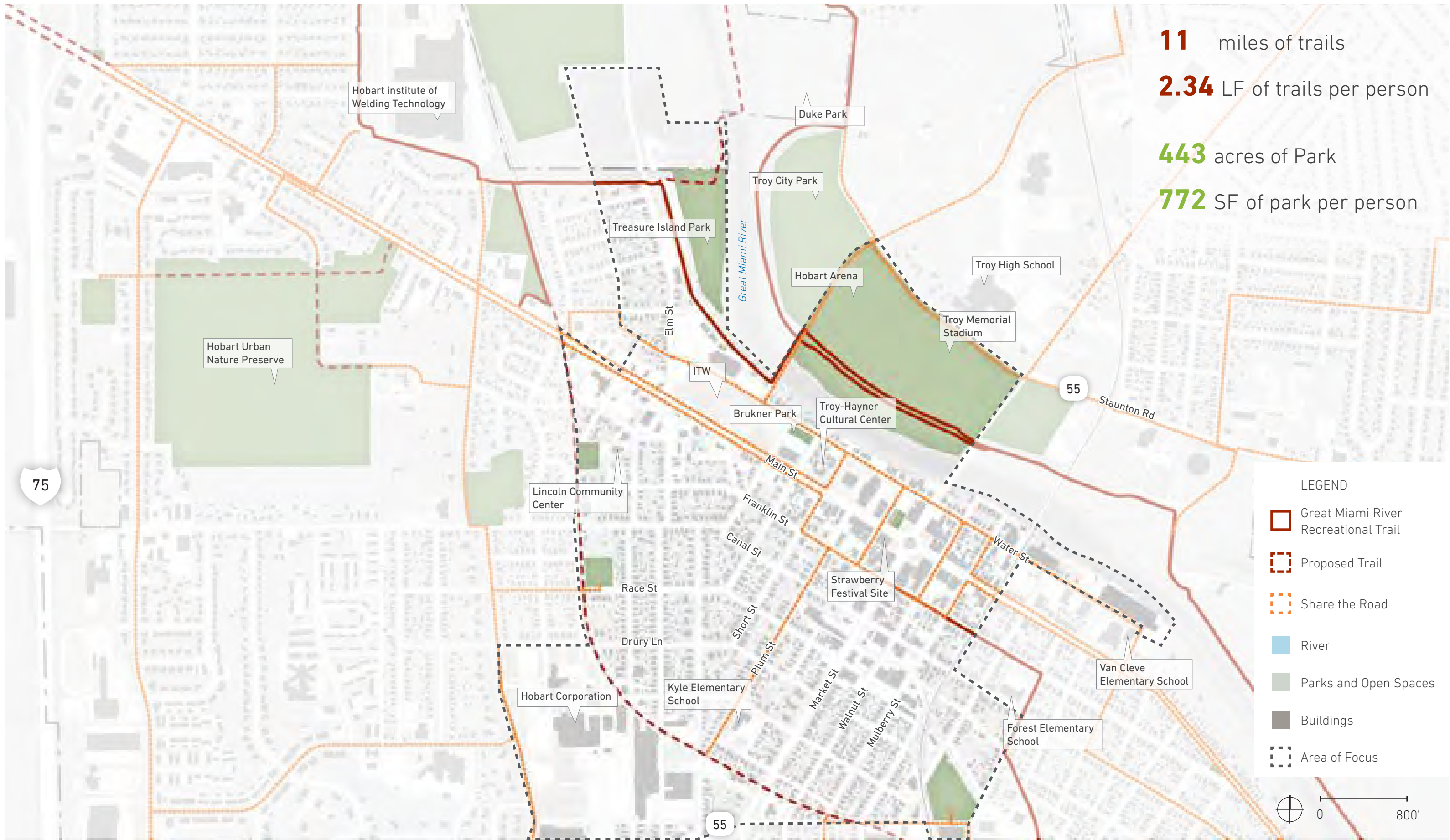
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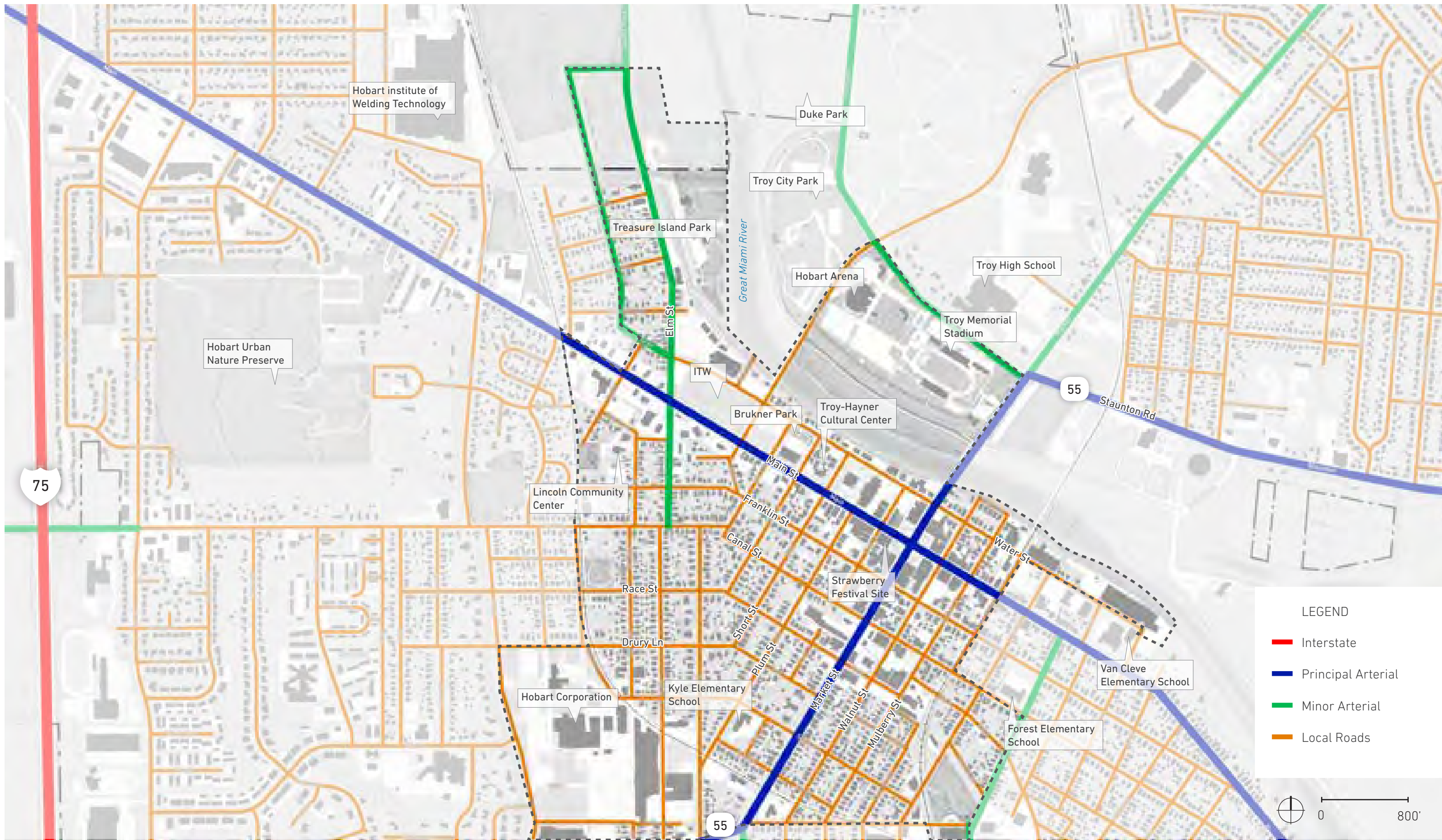


Historic Diagram

Downtown Reinvestment Plan | Troy, OH

February 24, 2017

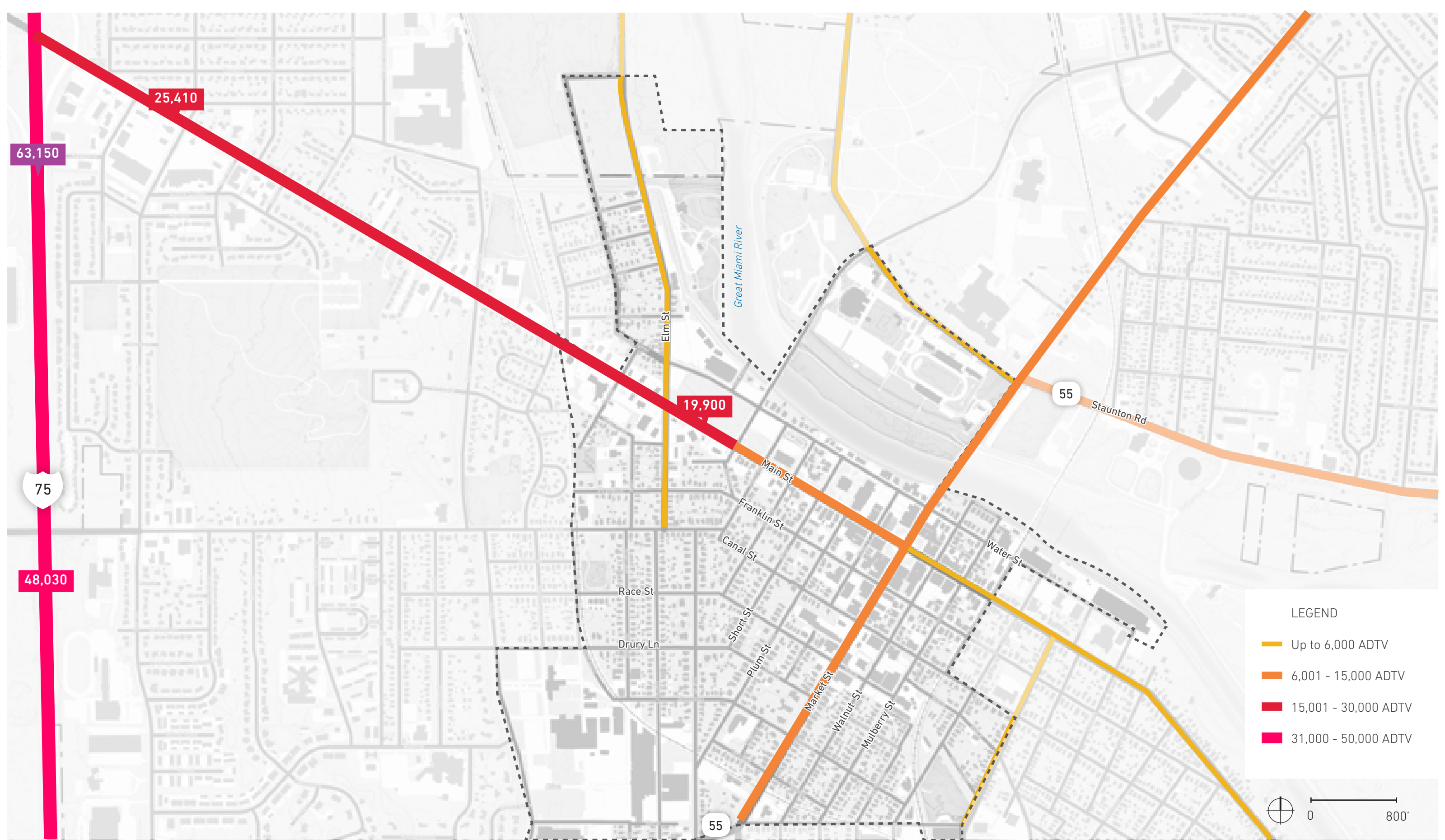


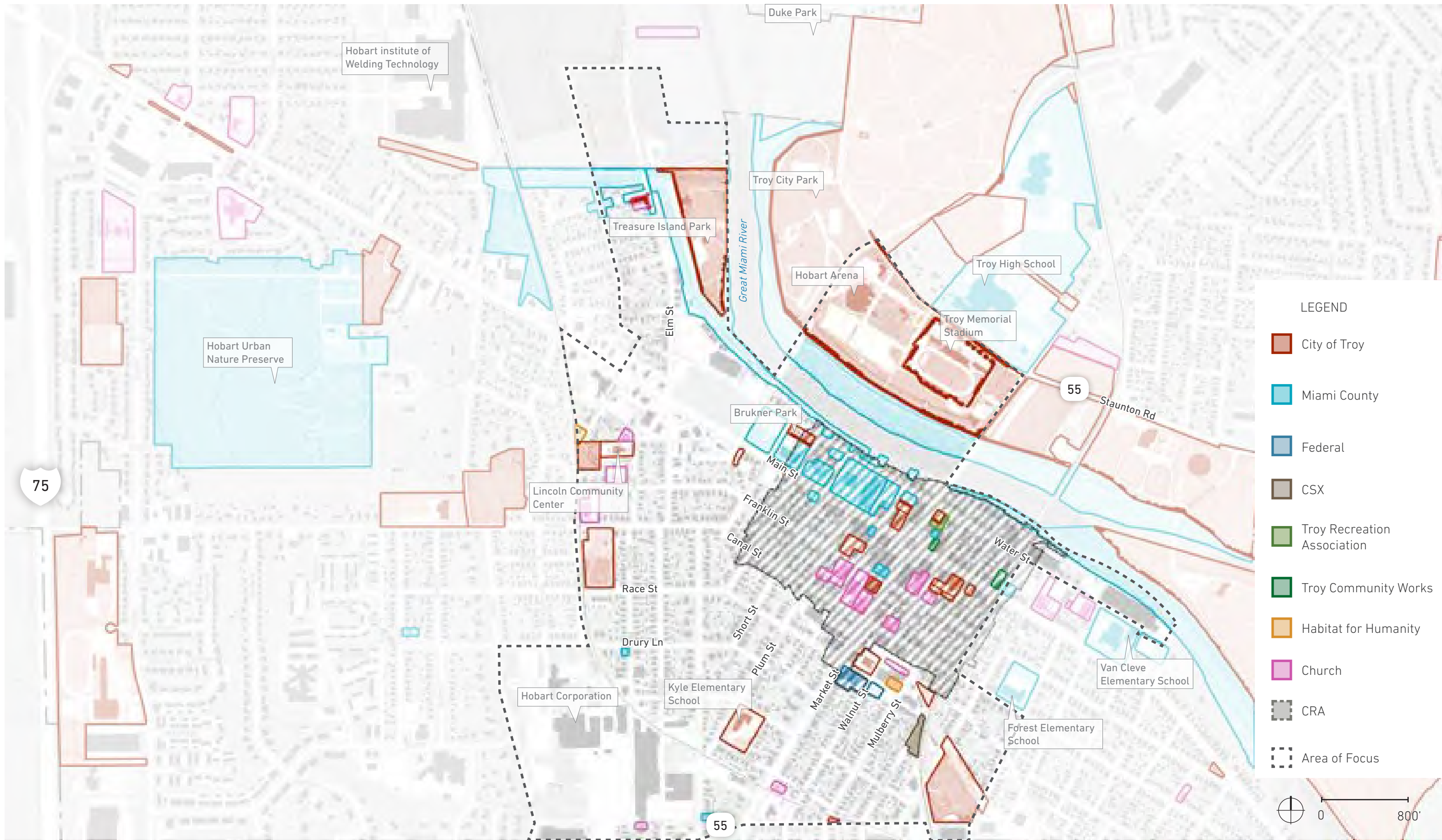


Street Hierarchy

Downtown Reinvestment Plan | Troy, OH

February 24, 2017

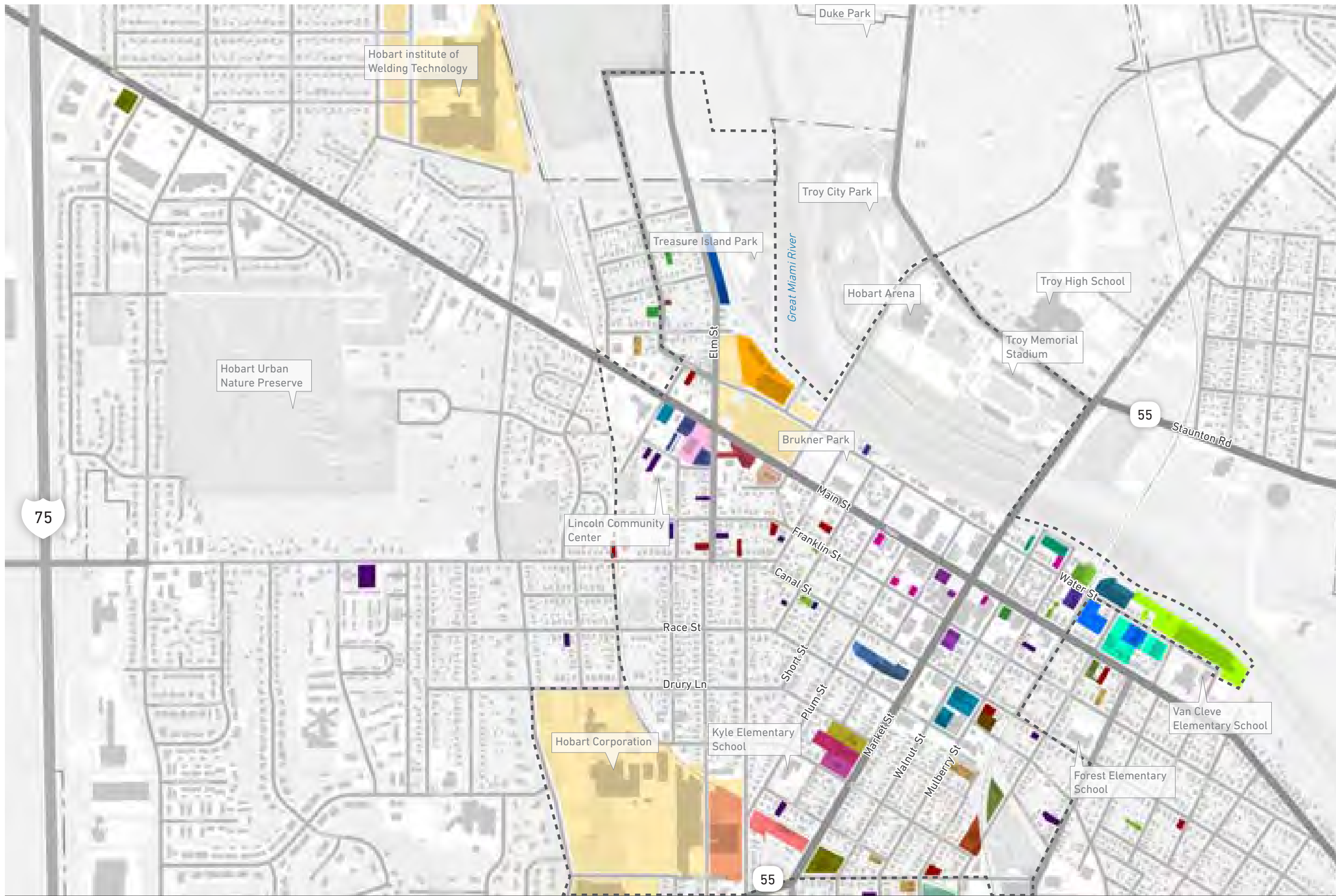




Ownership

Downtown Reinvestment Plan | Troy, OH

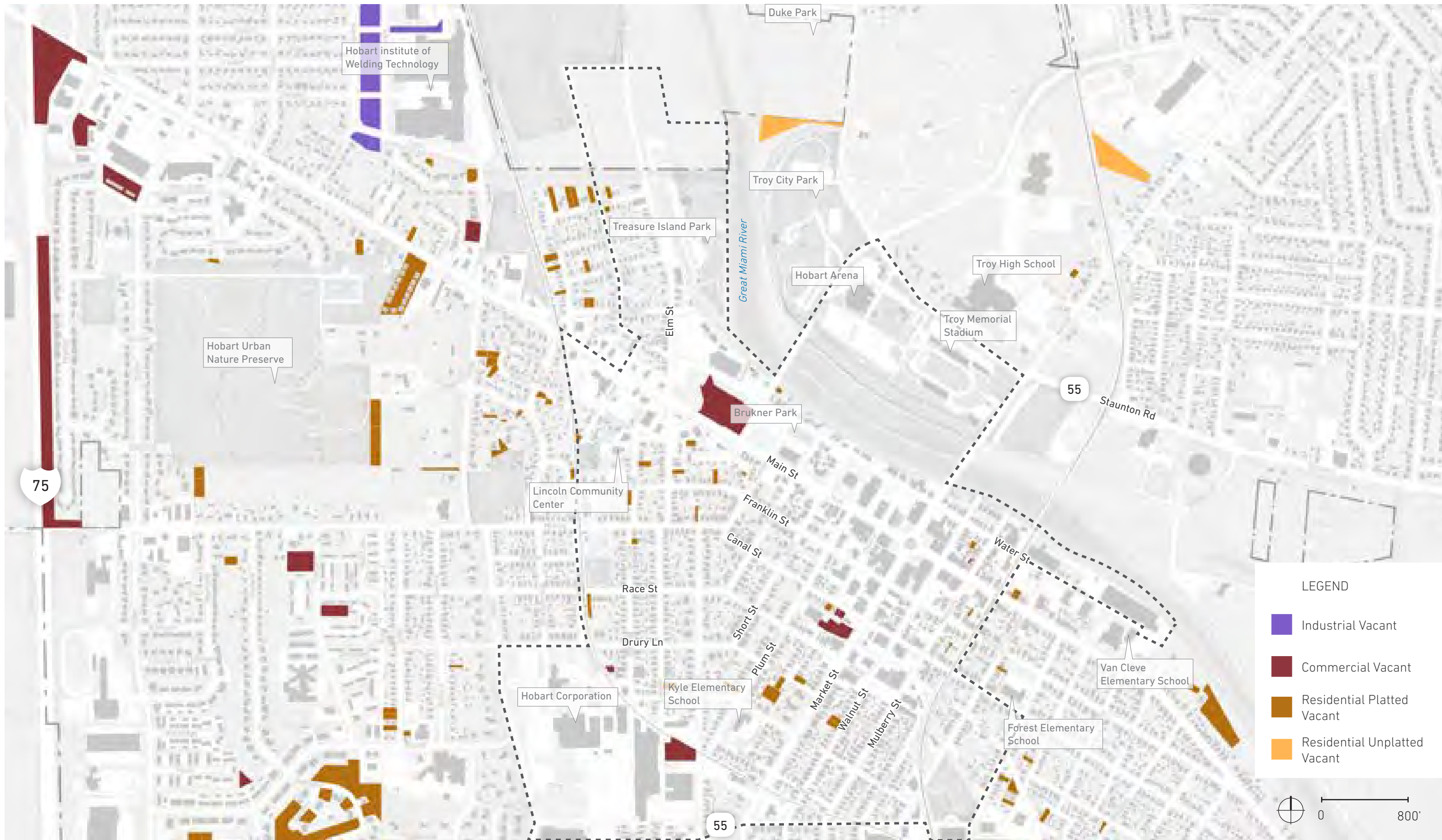
February 24, 2017

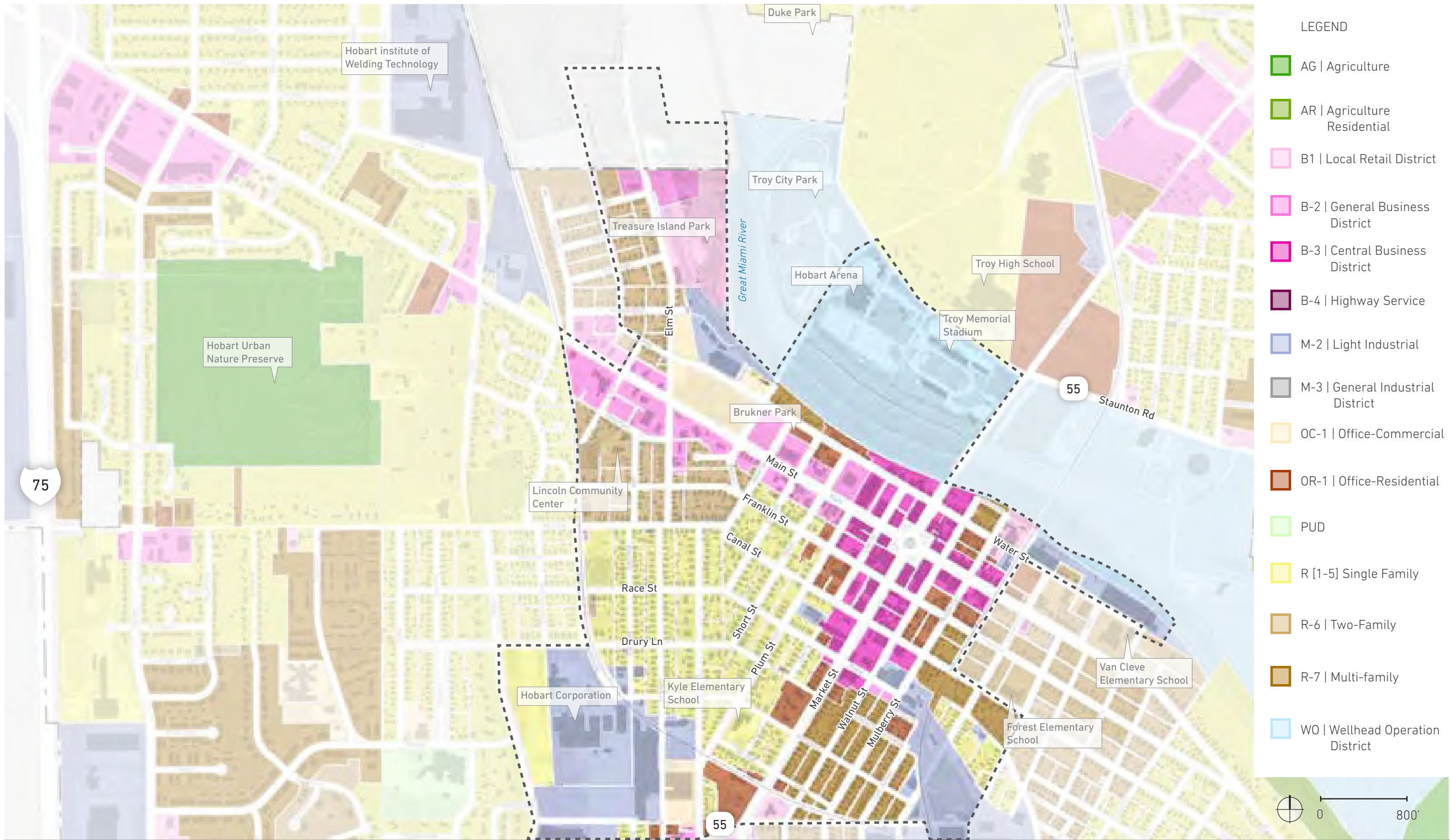


LEGEND

- Hobart
- American Legion Post #43
- Cole Robert K
- Goodall Properties Llc
- Grant Street Enterprises
- Kinney Bonnie S
- Mainsource Bank
- Mitchell Ted C
- Pilarczyk Daniel E
- Schnurr Dennis M
- Setland Group Llc
- Spinnaker Coating Llc
- Wirz Leonard C
- Conard Robert E
- Davey Heather M
- Denoyer David E
- Hobart Edward J
- Lephart Joshua
- Lins Douglas J
- Market Street Management
- Maxwell Robert T
- Miami Aerie #971 Foe
- P & C Ventures Llc
- Pensco Trust Company
- Primax Properties Llc
- Sbs Investments Llc
- Schnickelfritz Inc
- Steineman Richard W
- Sturwold Charles S
- Tillman John J
- Tim Donut Us Limited Inc
- Zrt Investments Llc
- Zwiebel Family Limited



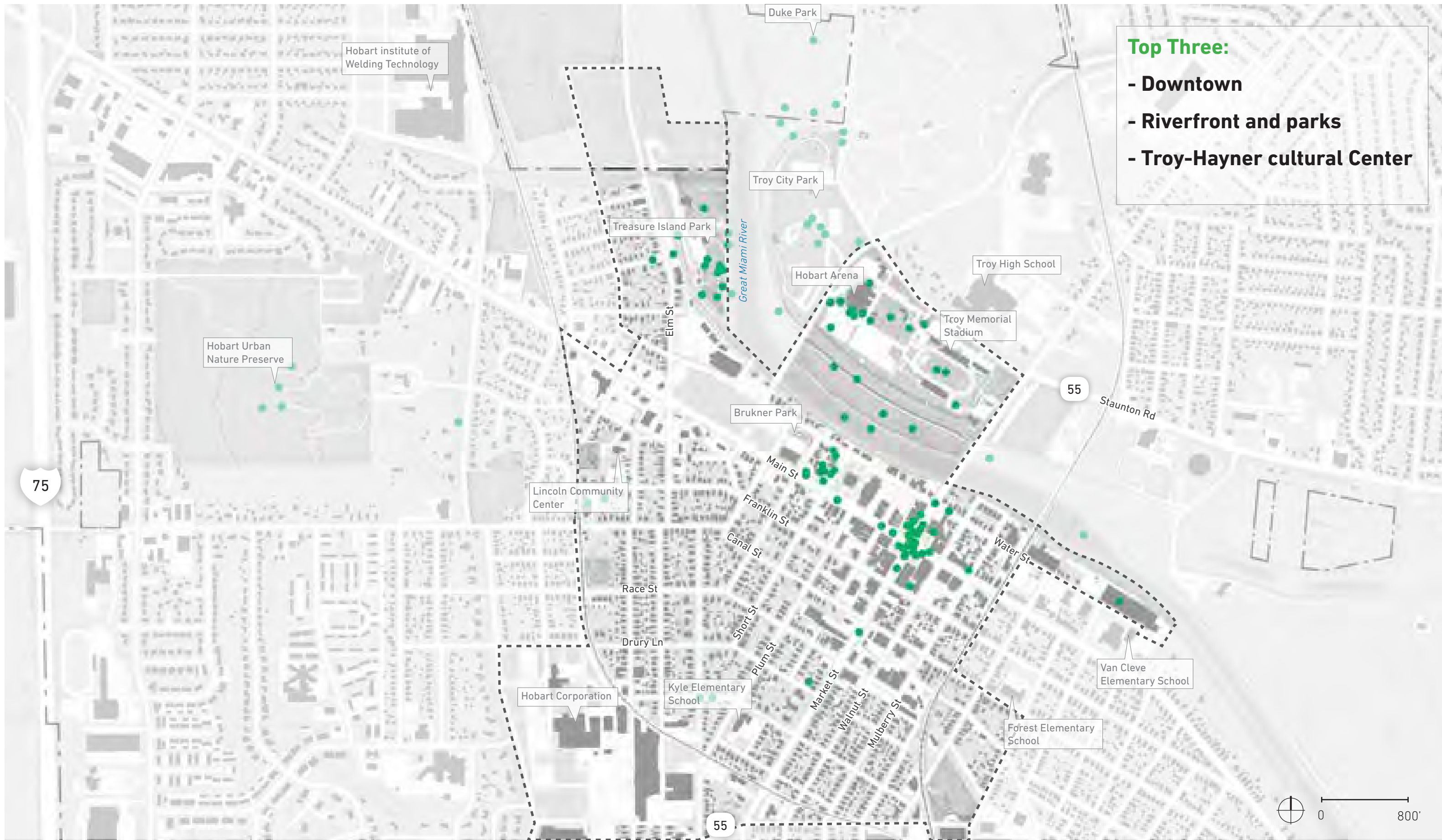


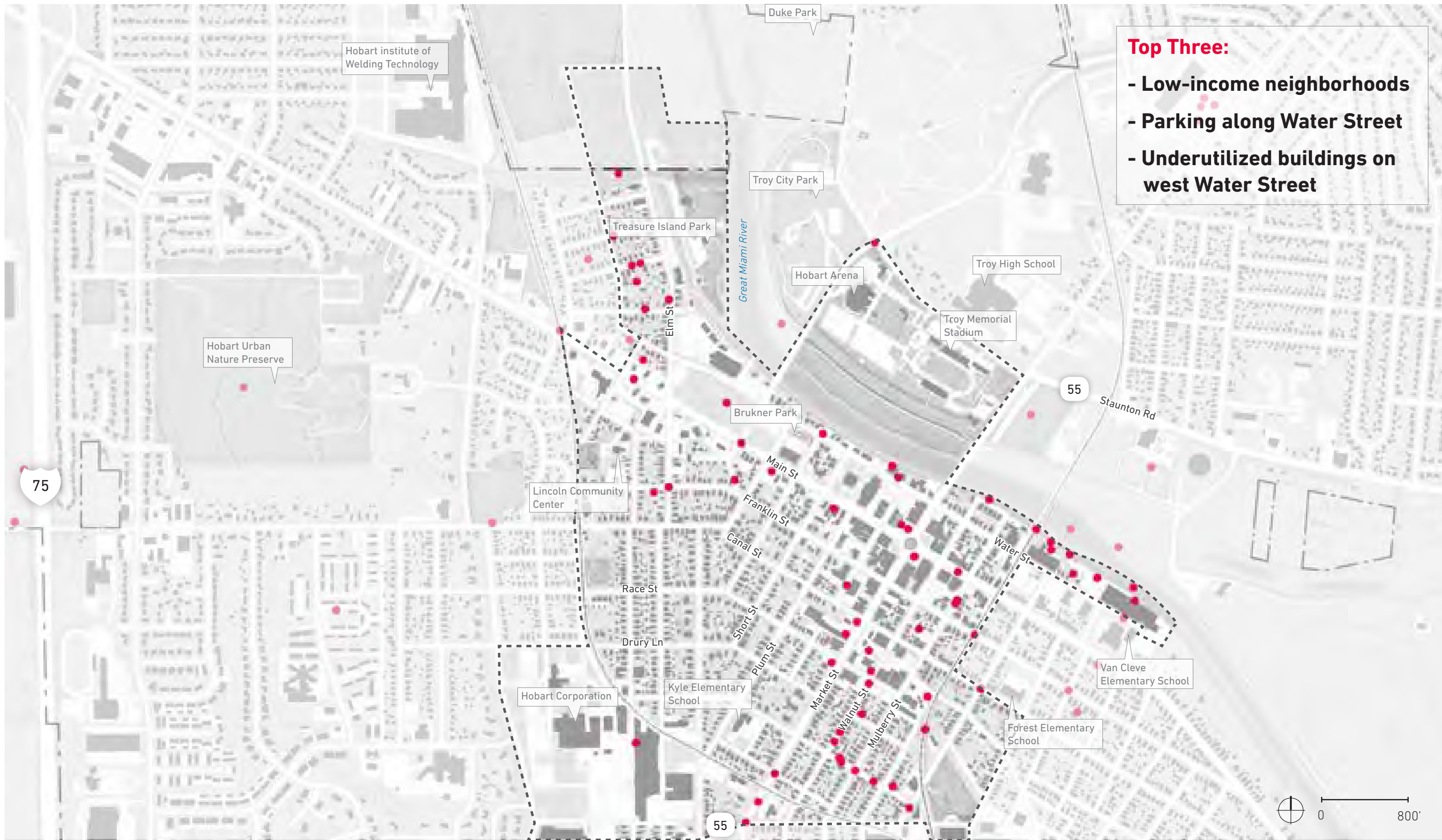


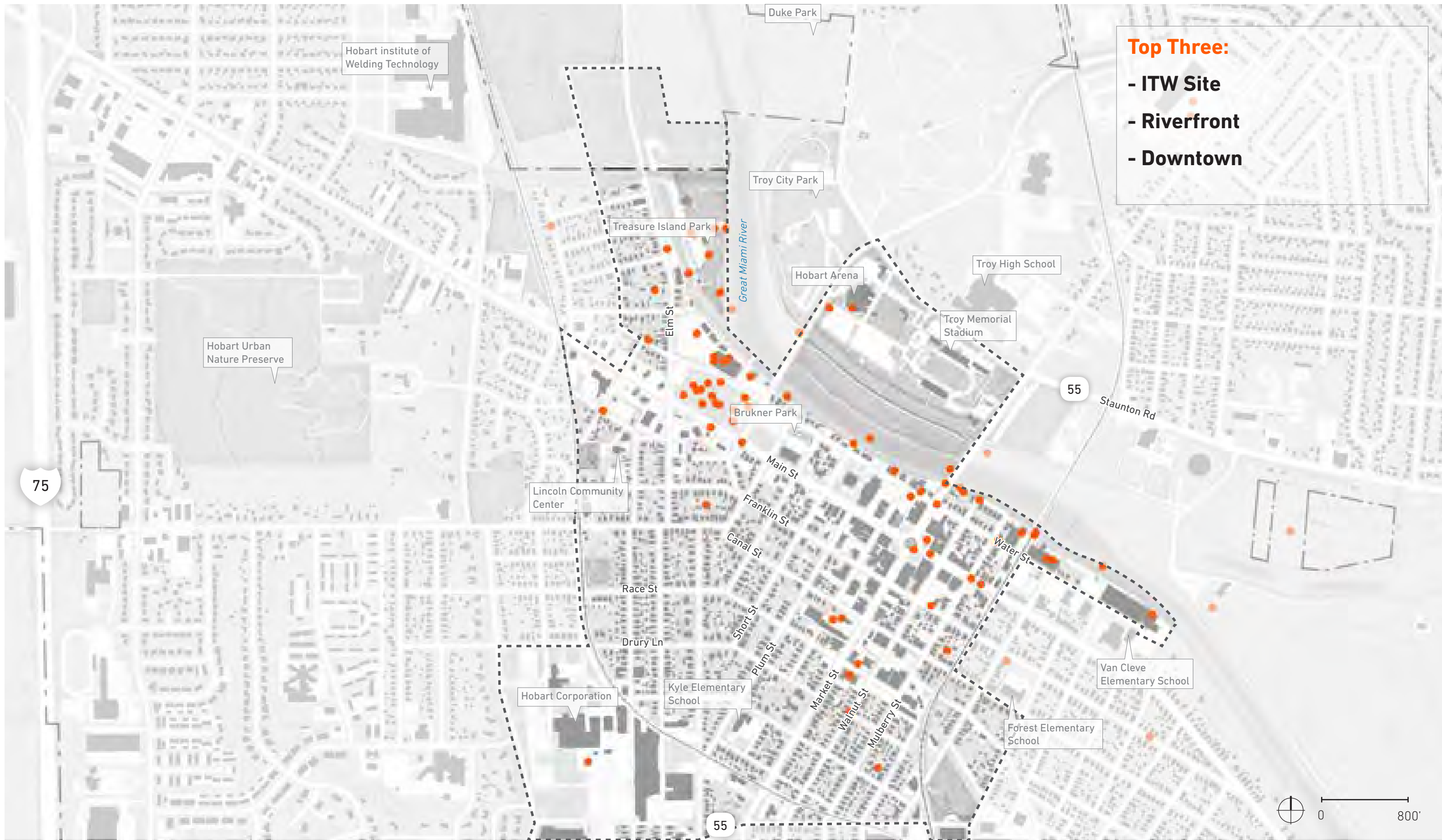
Zoning

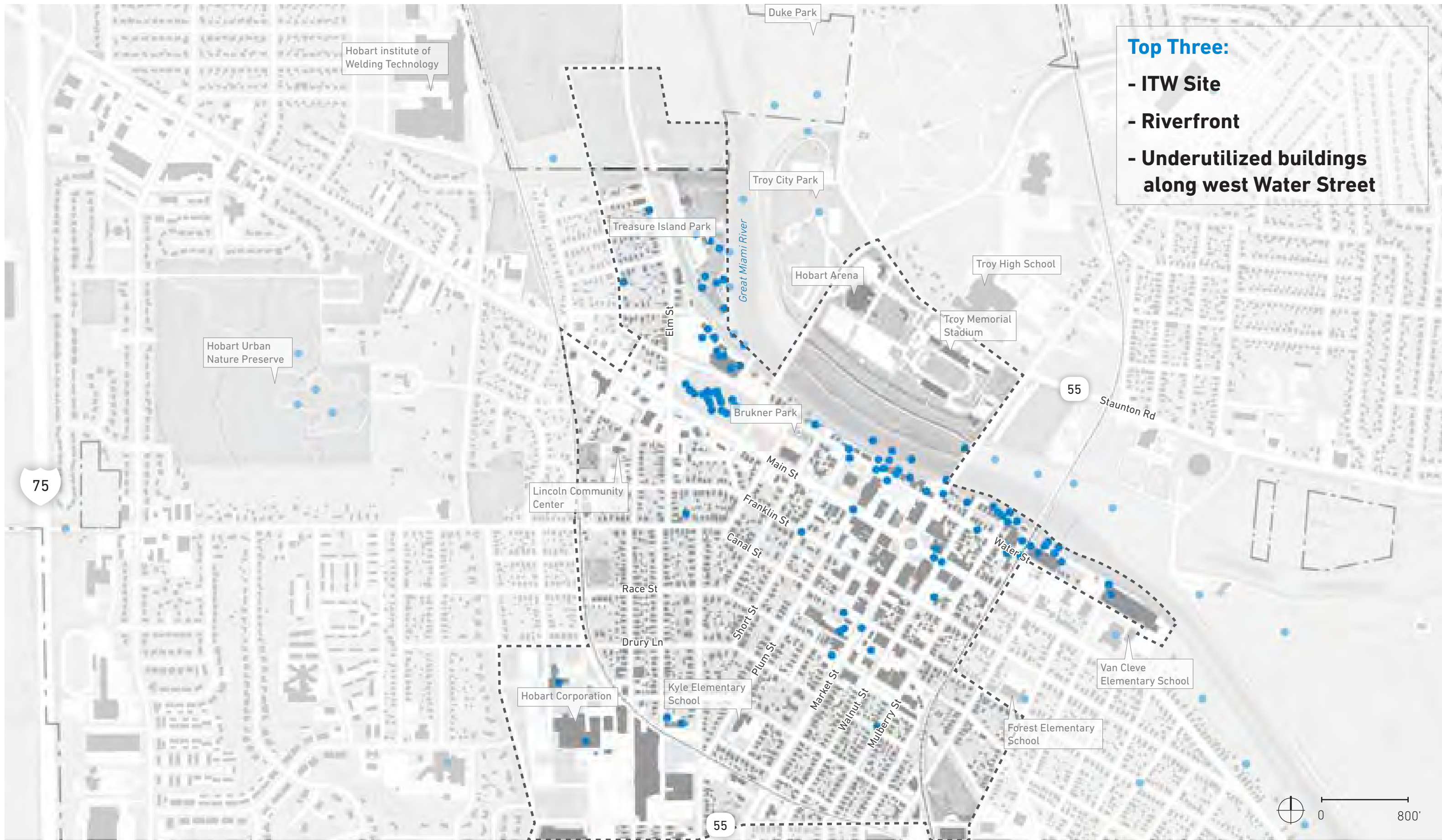
Downtown Reinvestment Plan | Troy, OH

February 24, 2017









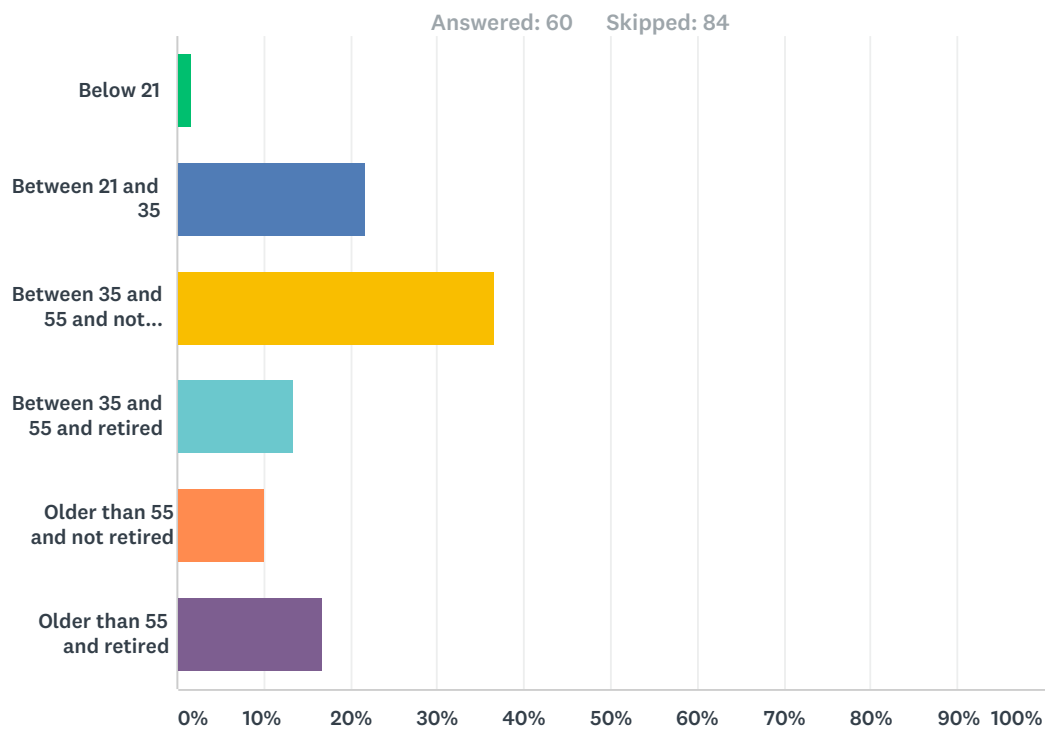
Q1 What is your name? (Your name will not be used when publishing survey results)

Answered: 60 Skipped: 84

#	Responses	Date
1	Jessi DeHart	8/8/2017 2:15 PM
2	Lisa	8/5/2017 10:09 PM
3	Anonymous	8/5/2017 12:14 PM
4	Heather Herman	8/4/2017 8:18 AM
5	Tania Hunt	8/3/2017 10:01 PM
6	Wade Campbell	8/3/2017 9:31 PM
7	Nickie	8/3/2017 9:09 PM
8	Valerie	8/3/2017 9:01 PM
9	Darlene Campbell	8/3/2017 7:48 PM
10	John Permenter	8/3/2017 6:57 PM
11	Hannah Masters	8/3/2017 5:29 PM
12	Travis Young	8/3/2017 5:05 PM
13	Rhonda	8/3/2017 2:15 PM
14	Adam	8/3/2017 1:36 PM
15	Amy	8/3/2017 1:17 PM
16	Jayne Osborne	8/3/2017 12:54 PM
17	Heather	8/3/2017 12:52 PM
18	Josh mcgrath	8/3/2017 12:34 PM
19	John Mathes	8/3/2017 12:10 PM
20	Brooke Studebaker	8/3/2017 11:42 AM
21	Jenny	8/3/2017 11:36 AM
22	Mary	8/3/2017 10:58 AM
23	Kathy McIntosh	8/1/2017 11:46 AM
24	Kim	8/1/2017 9:53 AM
25	Deborah Hogshead	7/31/2017 4:20 PM
26	frank	7/31/2017 11:47 AM
27	Concerned Citizen	7/30/2017 12:01 AM
28	Millennial who is not in favor	7/29/2017 11:31 PM
29	Andrea Snyder	7/29/2017 1:58 PM
30	Nikki	7/29/2017 11:29 AM
31	Debby Gray	7/29/2017 11:10 AM
32	Eileen M. Clark	7/29/2017 8:24 AM
33	Emily Snyder	7/28/2017 10:52 PM
34	Charles W. Frank	7/28/2017 5:05 PM
35	Mary Stump	7/28/2017 2:47 PM

36	ruth simpson	7/28/2017 2:46 PM
37	Christopher Davis	7/28/2017 2:29 PM
38	Carri Walters	7/28/2017 2:09 PM
39	Lisa	7/28/2017 1:59 PM
40	Mandi Hines	7/28/2017 1:53 PM
41	William Lutz	7/28/2017 1:33 PM
42	Lisa Myers	7/27/2017 9:46 PM
43	Chris Starnes	7/26/2017 12:25 PM
44	Erin	7/23/2017 11:49 PM
45	Julie Thompson	7/23/2017 7:26 PM
46	Todd	7/22/2017 5:49 PM
47	Keith	7/21/2017 7:55 PM
48	Marie Lewis	7/21/2017 5:20 PM
49	Anonymous	7/21/2017 4:48 PM
50	Stephen J. Kalmar	7/21/2017 3:32 PM
51	Connor Haren	7/21/2017 11:50 AM
52	Linda Roth	7/21/2017 11:06 AM
53	Roberta Jacobs	7/21/2017 10:31 AM
54	timothy wells	7/20/2017 11:59 PM
55	Sarah Worley	7/19/2017 3:00 PM
56	Matt Blythe	7/18/2017 9:37 PM
57	David Cornelisse	7/18/2017 12:41 PM
58	Pamela Sturtz	7/17/2017 5:51 PM
59	Amber Kiser	7/17/2017 5:28 PM
60	Rachel Webb	7/17/2017 3:25 PM

Q2 What is your approximate age?



Answer Choices	Responses	
Below 21	1.67%	1
Between 21 and 35	21.67%	13
Between 35 and 55 and not retired	36.67%	22
Between 35 and 55 and retired	13.33%	8
Older than 55 and not retired	10.00%	6
Older than 55 and retired	16.67%	10
TOTAL		60

Q3 What is your organization, if applicable?

Answered: 13 Skipped: 131

#	Responses	Date
1	Concerned citizen of troy	8/5/2017 10:09 PM
2	Miami County	8/4/2017 8:18 AM
3	Honda of America	8/3/2017 5:05 PM
4	public employee	7/31/2017 11:47 AM
5	I work downtown	7/29/2017 1:58 PM
6	The New Path, Inc.	7/28/2017 1:33 PM
7	Miami Co Park District	7/27/2017 9:46 PM
8	Member of The Community	7/21/2017 5:20 PM
9	na	7/21/2017 3:32 PM
10	Haren's Market	7/21/2017 11:50 AM
11	Community Volunteer, resident and work from home when not traveling	7/21/2017 10:31 AM
12	Dungan & LeFevre	7/19/2017 3:00 PM
13	ret.	7/18/2017 12:41 PM

Q4 What is the zip code of your residence?

Answered: 60 Skipped: 84

#	Responses	Date
1	45373	8/8/2017 2:15 PM
2	45373	8/5/2017 10:09 PM
3	45373	8/5/2017 12:14 PM
4	45373	8/4/2017 8:18 AM
5	45373	8/3/2017 10:01 PM
6	45373	8/3/2017 9:31 PM
7	45373	8/3/2017 9:09 PM
8	45373	8/3/2017 9:01 PM
9	45373	8/3/2017 7:48 PM
10	45373	8/3/2017 6:57 PM
11	45373	8/3/2017 5:29 PM
12	45373	8/3/2017 5:05 PM
13	45373	8/3/2017 2:15 PM
14	45326	8/3/2017 1:36 PM
15	45373	8/3/2017 1:17 PM
16	45373	8/3/2017 12:54 PM
17	45373	8/3/2017 12:52 PM
18	45373	8/3/2017 12:34 PM
19	45373	8/3/2017 12:10 PM
20	45415	8/3/2017 11:42 AM
21	45373	8/3/2017 11:36 AM
22	45373	8/3/2017 10:58 AM
23	45373	8/1/2017 11:46 AM
24	45371	8/1/2017 9:53 AM
25	45373	7/31/2017 4:20 PM
26	45373	7/31/2017 11:47 AM
27	45373	7/30/2017 12:01 AM
28	45373	7/29/2017 11:31 PM
29	45373	7/29/2017 1:58 PM
30	45373	7/29/2017 11:29 AM
31	45373	7/29/2017 11:10 AM
32	45373	7/29/2017 8:24 AM
33	45373	7/28/2017 10:52 PM
34	45373	7/28/2017 5:05 PM
35	45373	7/28/2017 2:47 PM
36	45373	7/28/2017 2:46 PM

37	45373	7/28/2017 2:29 PM
38	45373	7/28/2017 2:09 PM
39	45373	7/28/2017 1:59 PM
40	45373	7/28/2017 1:53 PM
41	45373	7/28/2017 1:33 PM
42	45373	7/27/2017 9:46 PM
43	45373	7/26/2017 12:25 PM
44	45373	7/23/2017 11:49 PM
45	45373	7/23/2017 7:26 PM
46	45373	7/22/2017 5:49 PM
47	45373	7/21/2017 7:55 PM
48	45373	7/21/2017 5:20 PM
49	45373	7/21/2017 4:48 PM
50	45373	7/21/2017 3:32 PM
51	45356	7/21/2017 11:50 AM
52	45373	7/21/2017 11:06 AM
53	45373	7/21/2017 10:31 AM
54	45373	7/20/2017 11:59 PM
55	45371	7/19/2017 3:00 PM
56	45373	7/18/2017 9:37 PM
57	45373	7/18/2017 12:41 PM
58	45373	7/17/2017 5:51 PM
59	45373	7/17/2017 5:28 PM
60	45371	7/17/2017 3:25 PM

Q5 What is the zip code of your employment?

Answered: 48 Skipped: 96

#	Responses	Date
1	45371	8/8/2017 2:15 PM
2	45373	8/5/2017 10:09 PM
3	45373	8/5/2017 12:14 PM
4	45373	8/4/2017 8:18 AM
5	45365	8/3/2017 10:01 PM
6	45365	8/3/2017 9:31 PM
7	45373	8/3/2017 9:09 PM
8	45356	8/3/2017 9:01 PM
9	45373	8/3/2017 7:48 PM
10	45373	8/3/2017 6:57 PM
11	45373	8/3/2017 5:29 PM
12	45302	8/3/2017 5:05 PM
13	45373	8/3/2017 2:15 PM
14	45373	8/3/2017 1:36 PM
15	45373	8/3/2017 1:17 PM
16	45402	8/3/2017 12:54 PM
17	45373	8/3/2017 12:52 PM
18	45373	8/3/2017 12:34 PM
19	45373	8/3/2017 11:42 AM
20	45402	8/3/2017 11:36 AM
21	45402	8/3/2017 10:58 AM
22	45373	8/1/2017 11:46 AM
23	45373	8/1/2017 9:53 AM
24	45373	7/31/2017 11:47 AM
25	45373	7/30/2017 12:01 AM
26	45373	7/29/2017 11:31 PM
27	45373	7/29/2017 1:58 PM
28	45373	7/28/2017 10:52 PM
29	45373	7/28/2017 5:05 PM
30	45373	7/28/2017 2:29 PM
31	45373	7/28/2017 2:09 PM
32	45373	7/28/2017 1:59 PM
33	45371	7/28/2017 1:33 PM
34	45373	7/27/2017 9:46 PM
35	45356/45373	7/23/2017 11:49 PM
36	45373	7/23/2017 7:26 PM

37	45373	7/22/2017 5:49 PM
38	45373	7/21/2017 7:55 PM
39	45373	7/21/2017 4:48 PM
40	45373	7/21/2017 3:32 PM
41	45373	7/21/2017 11:50 AM
42	43506	7/21/2017 10:31 AM
43	45373	7/20/2017 11:59 PM
44	45373	7/19/2017 3:00 PM
45	45365	7/18/2017 9:37 PM
46	n/a	7/18/2017 12:41 PM
47	45373	7/17/2017 5:28 PM
48	45433	7/17/2017 3:25 PM

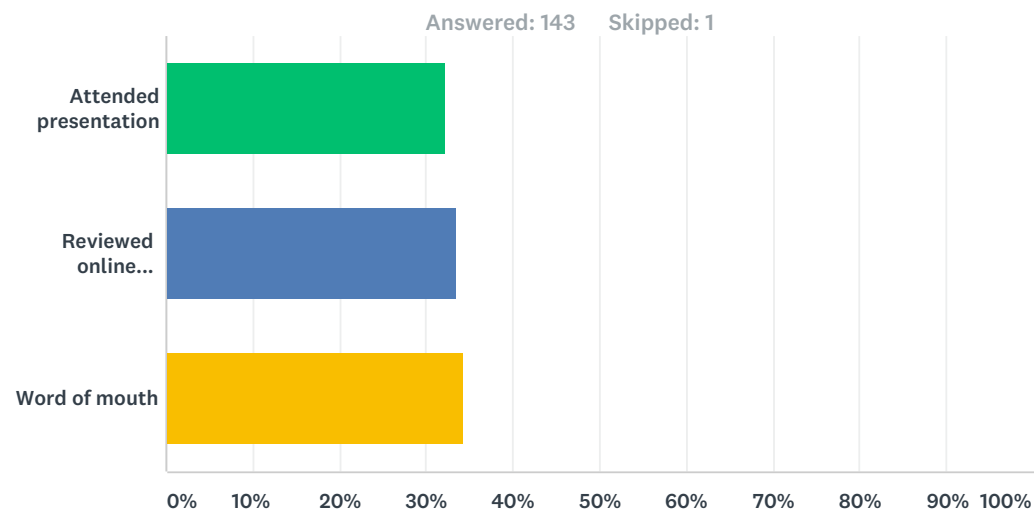
Q6 Do you own property in Troy?

Answered: 60 Skipped: 84

#	Responses	Date
1	Yes	8/8/2017 2:15 PM
2	Rent	8/5/2017 10:09 PM
3	Yes	8/5/2017 12:14 PM
4	Yes	8/4/2017 8:18 AM
5	no	8/3/2017 10:01 PM
6	Yes	8/3/2017 9:31 PM
7	Yes	8/3/2017 9:09 PM
8	No	8/3/2017 9:01 PM
9	Yes	8/3/2017 7:48 PM
10	No	8/3/2017 6:57 PM
11	No	8/3/2017 5:29 PM
12	Yes, house	8/3/2017 5:05 PM
13	Now	8/3/2017 2:15 PM
14	no	8/3/2017 1:36 PM
15	Yes	8/3/2017 1:17 PM
16	Yes	8/3/2017 12:54 PM
17	yes	8/3/2017 12:52 PM
18	Yes	8/3/2017 12:34 PM
19	Yes	8/3/2017 12:10 PM
20	no	8/3/2017 11:42 AM
21	Yes	8/3/2017 11:36 AM
22	No	8/3/2017 10:58 AM
23	Yes	8/1/2017 11:46 AM
24	No	8/1/2017 9:53 AM
25	Yes	7/31/2017 4:20 PM
26	yes	7/31/2017 11:47 AM
27	Soon, under contract	7/30/2017 12:01 AM
28	No	7/29/2017 11:31 PM
29	No, but plan to	7/29/2017 1:58 PM
30	Yes	7/29/2017 11:29 AM
31	yes	7/29/2017 11:10 AM
32	yes	7/29/2017 8:24 AM
33	No	7/28/2017 10:52 PM
34	Yes	7/28/2017 5:05 PM
35	Yes	7/28/2017 2:47 PM
36	yes	7/28/2017 2:46 PM

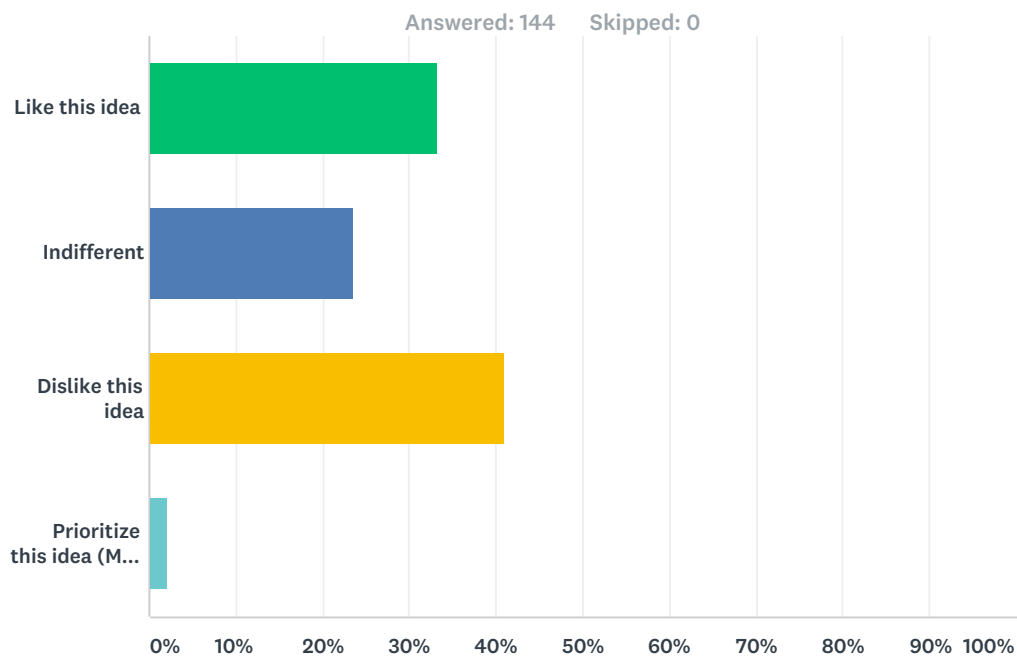
37	Rent	7/28/2017 2:29 PM
38	Yes	7/28/2017 2:09 PM
39	Yes	7/28/2017 1:59 PM
40	Yes	7/28/2017 1:53 PM
41	Yes	7/28/2017 1:33 PM
42	yes	7/27/2017 9:46 PM
43	Yes	7/26/2017 12:25 PM
44	yes	7/23/2017 11:49 PM
45	Yes	7/23/2017 7:26 PM
46	Yes	7/22/2017 5:49 PM
47	Yes	7/21/2017 7:55 PM
48	Yes	7/21/2017 5:20 PM
49	No	7/21/2017 4:48 PM
50	yes	7/21/2017 3:32 PM
51	Yes	7/21/2017 11:50 AM
52	Yrs	7/21/2017 11:06 AM
53	Yes	7/21/2017 10:31 AM
54	no	7/20/2017 11:59 PM
55	No	7/19/2017 3:00 PM
56	Yes	7/18/2017 9:37 PM
57	yes	7/18/2017 12:41 PM
58	Yes	7/17/2017 5:51 PM
59	Yes	7/17/2017 5:28 PM
60	No	7/17/2017 3:25 PM

Q7 How did you hear about the Downtown Riverfront Initiative?



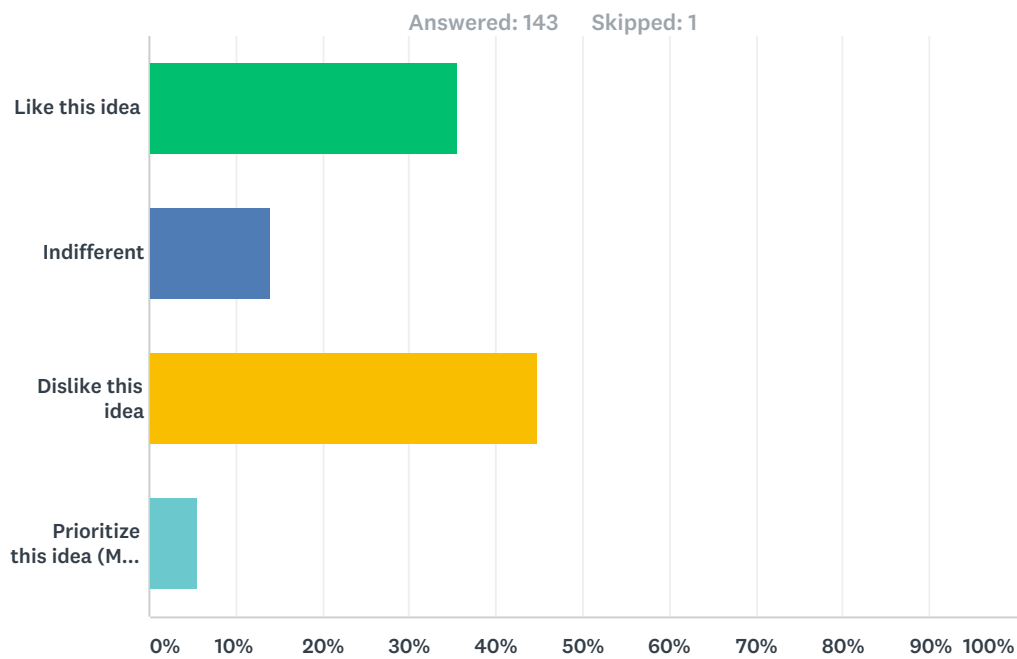
Answer Choices	Responses	
Attended presentation	32.17%	46
Reviewed online presentation	33.57%	48
Word of mouth	34.27%	49
TOTAL		143

Q8 0-2 Years ; Cherry St. Commons



Answer Choices	Responses	
Like this idea	33.33%	48
Indifferent	23.61%	34
Dislike this idea	40.97%	59
Prioritize this idea (Make this Happen Sooner)	2.08%	3
TOTAL		144

Q9 0-2 Years ; Temporary Bike Lanes



Answer Choices	Responses	
Like this idea	35.66%	51
Indifferent	13.99%	20
Dislike this idea	44.76%	64
Prioritize this idea (Make this Happen Sooner)	5.59%	8
TOTAL		143

Q10 Any Additional Comments

Answered: 69 Skipped: 75

#	Responses	Date
1	The placement of this bike path on water street is not very logical or safe. It is on a street that is going to have a major hospital on it and it has the courthouse that is very busy during the week. Two things number one the path is unsafe on the side it is in and people trying to use the roads on that street are going to cross over it. And the bike path that is already made has a way from Adams to market on them. It doesn't make sense to add a bike path in town when they can already make it to market street. When the hospital is built it will be a big safety concern and plus it makes it harder for people who are driving to get where they are going safely. Two you are taking out parking that is much needed by the courthouse. Which includes two handicap parking spots. It is already hard to find parking downtown and by the courthouse. The city should be keeping all those spots.	8/5/2017 10:09 PM
2	No bike lanes in traffic lanes, we spent hundreds of thousands of dollars on the bike path. Do not take away lanes of traffic for motor vehicles for bike lanes when most people are too lazy to ride. There are not enough bike riders to warrant taking away motor vehicles lanes of traffic.	8/5/2017 12:14 PM
3	These bike lanes are unnecessary and will worsen the already bad parking issue in downtown Troy.	8/4/2017 8:18 AM
4	This bike path has to be the stupidest thing this city has come up with. You have taken parking that should be for downtown area. The bike path in front of the Jr. was another bad decision. I have yet to see anyone using the bike path by the Jr. High school. The city could not even put a plain ballet for Youth baseball without adding a bunch of hidden things in it. If you want to do something for everyone that is fine. This should have been voted on and not just put down our throats.	8/3/2017 10:01 PM
5	Bike lanes taking away public streets & parking is a horrible idea! And if this is going to be the case then bikers need to pay street fees/taxes just like motorist do!	8/3/2017 9:09 PM
6	The bike lanes are absolutely unnecessary. Not once have I seen anyone use them!!!	8/3/2017 9:01 PM
7	Bike path on Adams & Water St. is the DUMBEST & most inconvenient idea EVER!! I work @ the Courthouse & seen 5 bikers today... however they were across the street from the bike lane on the sidewalk... YES GREAT idea! Troy is going to the dumps!	8/3/2017 12:52 PM
8	I think we need to get our schools in better shape and the roads in better shape, before we borrow and/or spend any money on the Mayor and HIS, service and safety director, I use the term service and safety very loosely. My personal for the best thing for US citizens of Troy, would be to vote in a NEW Mayor at the next election.	8/3/2017 12:10 PM
9	the bike lanes are an insane waste of money, this town is not made up of people who bike like that, nor is this a HUGE city that needs this. They are trying to make Troy a little Columbus or Cincinnati and there is no reason for it whatsoever. I get having pride in your town, but you aren't going to draw the crowds you want for the purposes you want. There are no big colleges in this down that would want young people to come here. Then taking away Van Cleve...the original high school...which is pretty much historic to this town to add apartments?!?! Hello!! what is going on in the planning departments heads that they are not seeing that nearly ALL these changes are not for the best of our community, but purely just about trying to gain revenues. Such a shame and so glad I moved out of this town earlier this year! I used to have hometown pride, seeing as I was born and raised here for 34 years, but the stupidity that is setting is has more than made me glad about my decision to raise my kids elsewhere.	8/3/2017 11:42 AM
10	If I understand the proposal, the temporary bike lanes are just to test the concept--to see if people will use them. If that's correct, I'd like to see temporary bike lanes going out to the edges of the city, say to the three I-75 exit/entrance ramps, to see if residents beyond downtown and from outside of Troy would use the bike lanes.	7/31/2017 4:20 PM
11	We do not need another bike lane to nowhere. Additionally, the bike lane creates more public safety issues. Troy PD won't pull a vehicle over on Adams St now because of the bike lane, so let's add more? Adding more bike lanes does not address parking problems, nothing in this proposal does. The Cherry St. proposal is a reiteration of Prouty, why spend more money on something that already works?	7/30/2017 12:01 AM

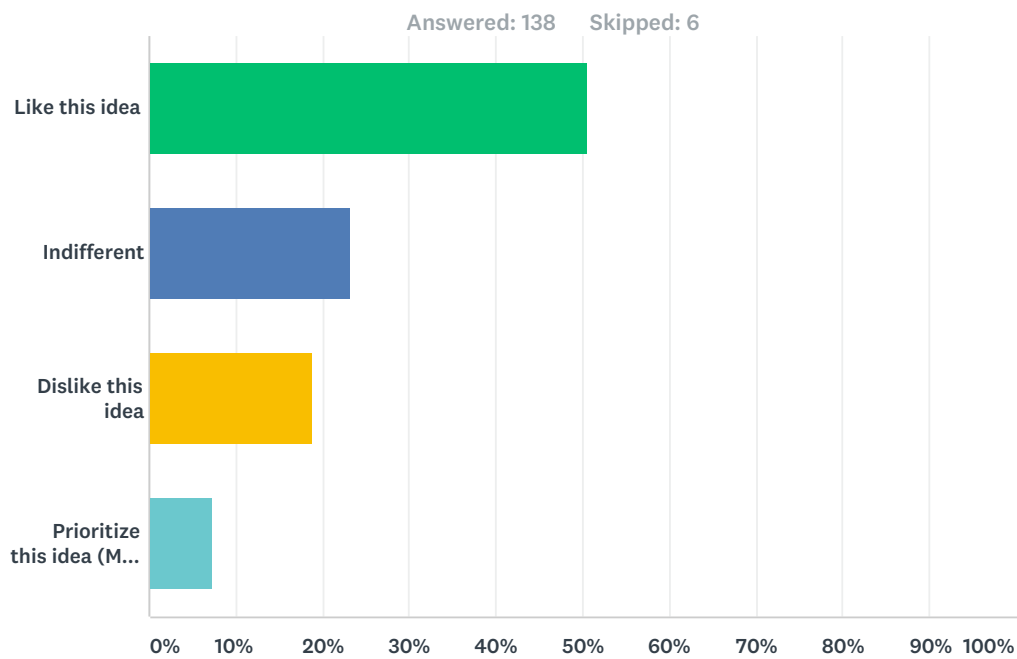
12	We need more parking to take more away for biking is crazy. Coming from and avid bike rider	7/29/2017 1:58 PM
13	This is a huge waste of money. Put it towards something useful such as feeding the hungry!	7/29/2017 11:29 AM
14	The Water Street bike path is a horrible idea. There isn't enough parking downtown now, especially for business at the court house. Every parking lot you have made is for county employees, not for public business. No one wants this bike trail!!	7/29/2017 11:10 AM
15	I just think with the Kettering medical center where Hobart Bros was it is going to create a lot of traffic with out any places to park. I personally think we should be looking into more parking areas instead of bike lanes.	7/28/2017 2:47 PM
16	Make bike lanes permanent. Consider converting curb lawns to retain street parking.	7/28/2017 2:09 PM
17	All I see are bike lane JUST downtown without regard to connecting the bike paths to the neighborhoods to draw INTO the downtown. I live in Willowcreek and would NEVER ride my bike into the downtown as Mc Kaig's narrow road with no side walk or even room to walk let alone ride a bike!! To park downtown is more than aggravating, so we just DON'T go downtown. Freeing up parking downtown should be the priority. How about leasing a portion of Sherwood shopping centers parking lot and establish a park and ride. With so many county and city parking only spaces. Those who do attempt to come downtown are met with very little parking 8-5 Mon-Fri.	7/28/2017 1:59 PM
18	There is no need for a bike lane when the city has great bike paths. I do not feel there is a need for a study to tell us what needs to be done in this city when your citizens are telling you what they want.	7/28/2017 1:53 PM
19	I live on the west side of 75 in Cobblestone. We really need a connecting bikeway to the other side/center of town. I have McKaig and rt 41. Lots of families in my area riding bikes and walking families/strollers. We need to get there without getting hit on either road. With more housing at Concord and along Washington, I feel it is very important. I also believe the family income is higher in these areas and could really help the downtown businesses. The Cherry St area is so "unappealing". Too narrow, dark, dirty road & sidewalks, garage doors, trash cans, warehouse. Not family friendly at all. Maybe if street was removed and grassy area installed. Brightened up, trees, picnic tables, move music back to water street. The area is too crowded, not roomy for children and blankets, makes music too loud. The crowd was not participating at all. Prouty is so appealing for concerts! The background of the beautiful waterfall, grass, openness is much more appealing. The air also moves and it's sunny.	7/27/2017 9:46 PM
20	I don't see the Cherry Street Commons as adding anything to our city. We already have two other venues for bands and shows. We could so utilize the many other parks in Troy to do similar events. However, the bike lanes I think are a priority. I love our bike paths but they are very difficult to access from various areas of our city. This is especially true if you have smaller children that you are trying to ride with.	7/26/2017 12:25 PM
21	I like the idea of bike lanes. It would make me feel safer while riding with my 9 yr old daughter. I'm just not sure you are going about it the right way. I realize now (having attended a presentation) that you are trying to implement them in the order of road reconstruction, they just don't always make since from a connectivity standpoint. I'm thinking you would have a lot less opposition to them is you explained clearly the big picture and reasons for things being done in the order in which they are being done.	7/23/2017 11:49 PM
22	I am in favor of a 3 level parking deck behind the Mayflower. Close Cherry street. Place restroom facility in this structure.	7/23/2017 7:26 PM
23	On street parking on Mulberry and Plum streets is needed but makes cycling dangerous	7/21/2017 7:55 PM
24	Cherry St. is a side street, not a commons, situated between two buildings. One year is not temporary. Do you have a way of tracking usage?	7/21/2017 5:20 PM
25	it doesn't seem like Cherry street Commons is any safer than Prouty Plaza. Plus it's not very "pretty" The bike lanes are a joke. I'm not sure why we aren't focusing on parking situations in Troy first. Plus there are ways to get downtown from the bike path, including 2 bridges with bike lanes. People c an make it from the path to downtown easily.	7/21/2017 4:48 PM
26	It seems like in most communities with areas like this, it is to connect already active spaces. This just seems like an idea with no real purpose for Troy. Just because other cities have spaces like this, it needs to be more thought out as to why, not just a keeping up with the Jones' checkbox. Think outside the box to make Troy continue to be a standout town, not a just like everyone else town.	7/20/2017 11:59 PM

27	I love the idea on testing things out before full-on implementation! Cherry st cannot handle large crowds for concerts if facing main st. Overflow is forced across the street and is more dangerous than in the square because there is less line if sight.	7/18/2017 9:37 PM
28	I live on W. Water St. Parking at my address (309 W. Water) is all street parking, I have no driveway. The "temporary" bike trail, with all parking on the south side removed is impractical and makes the situation much worse. A better solution would be to make PEDESTRIAN traffic restricted to the north side sidewalk and make the bike trail temporary on the south side sidewalk on Water Street, between Market and Adams. FAR less compaction of parking would be necessary and the bikes could very easily be used on the south side where FEWER RESIDENCES would be impacted by bikes. I have lived here for 31 years with on-street parking and removing all those parking spots is far more backward than declaring the south-side sidewalk a bike trail. Dave C.	7/18/2017 12:41 PM
29	People who ride bicycles don't make purchases--they have no where to put them. We have enough bike trails--I used them enough to know this. We don't need more bike lanes downtown for people to ride through our town. We need parking so they can use the resources we already have and can frequent the downtown.	7/17/2017 11:35 AM
30	Very interested in Condo's or Town Houses along river front--\$300k range	7/17/2017 10:42 AM
31	Just attended the concert on 7/14 and thought that the commons area might be a bit small	7/17/2017 7:48 AM
32	Losing 26 parking spaces on water street in a busy area is ridiculous. Especially when there is a dedicated bike bath directly across the river. When I asked members of troy Main Street where they planned on "remarking" 21 spaces to make up for the los of 26, they had no answer for me. Why are we so quick to remove parking spaces when parking is already a major issue downtown? Sure, a bike lane would be nice for people on bikes. But since when do the needs of a bicyclist outweigh the needs of people who would like to park closer to work or the people who would like to park to shop at our local merchants? How many bikes do you foresee using said bike lane? Are there going to be more cyclists using this temporary lane than there would be people who would like to park their cars?	7/16/2017 5:49 PM
33	Cherry St. band location was not enjoyable. Too crowded and unsafe in that narrow street so we sat across Main St. and couldn't even see the stage but the music was too loud and everyone around us complained.	7/16/2017 4:09 PM
34	Any lost parking MUST be replaced. What about the older people of Troy. You selling out to big business and big money!!! Stop this nonsense.	7/16/2017 3:50 PM
35	I attended the concert on Cherry St July 15th, and didn't like the location. The seating was cramped, and the sound was way too loud going out between two buildings. Maybe if the stage was moved closer to Water street some of the sound would be able to spread out and that would add to the space for the lawn chairs. Was nice with out the cars driving behind the seating. Music on the square is more of Americana nostalgic feeling than on a side street with no grass. John & Anita Ankerman	7/16/2017 2:57 PM
36	Traffic is bad enough downtown already. Have you ever tried to pick up a kid at the junior high? The bike lane in front of the school is probably one of the dumbest ideas Troy has ever had. I never see ANYONE on this and the traffic before and after school is HORRIBLE	7/16/2017 2:55 PM
37	No new bike lanes	7/16/2017 12:31 PM
38	attended the concert friday night. was not made aware that it moved from the plaza, and had to follow the mass of confused people to a side street? We arrived just at the start time, but could not get anywhere near the stage. There was no where to walk, and we stood halfway onto the roadway with our three small children. Seriously? This was so poorly thought out it's embarrassing. We will certainly not be back if this is how the city wants to hold concerts downtown. Went to Piqua's show at the lock park and it was MUCH better. Now our stuff is worse than Piquas. Thanks a lot troy main street. Urgh.	7/16/2017 10:54 AM
39	Many, Many more residents travel into down town with cars than bikes. Let's prioritize how to park those and move them through. Bikes secondary phase.	7/15/2017 11:35 PM
40	Cherry Street Commons sounds like a good idea for smaller, intimate events, such as the Farm to Table event, or as an extension of current events such as the Farmers Market and Troy Street Alive. I attended the concert in the space and felt a bit crowded. Numerous people were standing behind the Road Closed sign and into the street. Safety would continue to be a concern.	7/15/2017 5:05 PM

41	Liked seeing a different venue. Thanks for trying and testing new ideas!	7/15/2017 4:32 PM
42	Loved concert's location last night, more shade, felt safer with building on both sides....sadly we live in a crazy world and change is good!	7/15/2017 3:01 PM
43	We do NOT need a bike path on Water Street. It is too narrow and we need rooms for cars. Prouty Plaza is GREAT and enough - just do not feel Cherry Street needs to happen at all!!	7/15/2017 11:38 AM
44	Having attended the Cherry St. event, Friday, July 14, I am not in favor of this location. The very loud and incoherent performance by "Brothers" was not in the tradition of the quality we have become accustomed to at Prouty Plaza. The narrow street, embraced by buildings added to the over-whelming volume. This group was a good example of why we should not use Cherry Street for rock concerts. The community atmosphere is diminished also in comparison to Prouty Plaza. I say return to the plaza and don't invite this group to return. Thank you	7/15/2017 10:53 AM
45	Concert was great. Like being at a true venue. Add a beer truck and food.	7/15/2017 10:18 AM
46	Don't see how parking needs addressed if put in bike lanes.	7/15/2017 8:34 AM
47	Work with the school board to ensure downtown schools don't continue to be segregated from Comcord with the new school plans. If you want downtown to be appealing, the schools must be desirable.	7/15/2017 8:34 AM
48	Felt that The Cherry Street commons had very limited seating and the buildings were not pleasant to look at.	7/15/2017 8:32 AM
49	Some concern over how original focus groups were selected. Hard to believe that everyone in those groups favored everything that was presented. Seems like plans are a done deal per presentation at council by Patrick and Thursdays meeting, even though it was, stated still after citizen input.	7/15/2017 8:13 AM
50	Re: Cherry St, keep sidewalks clear, establish a dance floor in front on stage (paint a box), make lines on street (half moon arcs) as guidelines for chair placement, have volunteer ushers guide people to front of venue so more folks can be seated, add lighting along sidewalks, get rid of the vines on the side of the building	7/15/2017 7:03 AM
51	If they hold concerts on cherry Street they need to make it a smoke free event, we had people smoking by us. Also the loudness of the concert was to much.	7/14/2017 11:11 PM
52	Since it is windy there make sure garbage sacks don't blow away. Ivey on building was falling. Needs cleaned up. Need a beer tent area. Could start at 7pm	7/14/2017 10:41 PM
53	Keep the concerts on Prouty Plaza...better acoustics...much more comfortable...better for the kids...if they happen to fall on grass it won't be near as bad as if they happen to fall on the road...who wants to sit on a dirty, dusty road to hear a concert??	7/14/2017 10:32 PM
54	I did not enjoy the concert on July 14th at the Cherry Street venue. It was extremely loud. Seating was very crowded. I had to sit near the Troy History Center. If the rest of the concerts are on Cherry St., you can count me out. There were also many people who left early. Cherry Street venue is not as enjoyable as Prouty Plaza.	7/14/2017 10:27 PM
55	W. Main st. Stoplight/crosswalk time makes egress problematic from Cherry St. Commons. Open Furniture store roll up door and visible cardboard,etc. Looks trashy. Brother Believe Me may be the best rock performers I've enjoyed downtown!	7/14/2017 9:48 PM
56	Please keep concerts at Prouty its more appealing, open area, not as loud, not crowded, beautiful waterfall to see and hear. Cherry st. Is dark and ugly between buildings, too close, loud. Crowd interaction was very small. Not as many people, my whole row left by 3/4 way thru concert. Sides of buildings, trash cans, garage doors, let alone a dead ivy wall are not appealing! Why change what works? The fun was gone tonight!	7/14/2017 9:47 PM
57	Possible to make Cherry Street a permanent plaza area? Even the section from Main to Canal? Possible to close Main and reroute traffic to Water or Canal during special events here?	7/14/2017 9:16 PM
58	Not greatest venue for concerts, keep concerts on prouty plaza. Would work for other events such as movie nights, small festivals, etc. Saftey was issue when crowd grew into the busy street. Expand area to close off part of Main Street, or move stage back to water street to help avoid potential hazards. Always good idea to keep sidewalk open down cherry by the stage, for emergency response if necessary. Accessible area blocked off for individuals using a wheelchair could be a potential benefit, shows inclusion to all patrons of the community.	7/14/2017 8:39 PM

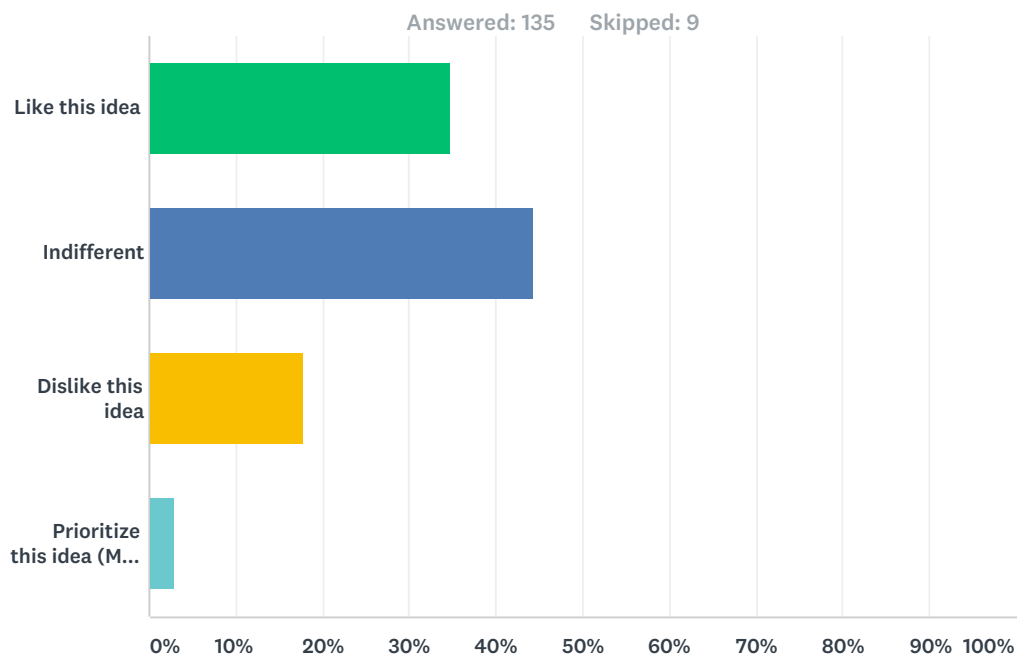
59	I love the idea of bike lanes. Permanent bike lanes! But not at the expense of parking. How would we do this?? I do not understand closing Cherry Street when we have the lovely Prouty Plaza already in use and known.	7/14/2017 3:36 PM
60	It will interesting to see if the bike lanes bring more people downtown.	7/14/2017 3:17 PM
61	No bike lanes.	7/14/2017 2:11 PM
62	We are very excited to see the growth in Troy and plans for development and investment in the community. It is clear that, as a community, Troy walks the walk in supporting a living and working environment conducive to creating a quality of life that residents and businesses are looking for.	7/14/2017 9:42 AM
63	I live on Plum Steet and I'm trying to figure out parking is we have a bike lane. We have to park on the street as many of our neighbors do so in not sure how this would work. I love the bike trail and love the idea of an easier way to get on it so I have mixed feelings.	7/13/2017 9:12 PM
64	Get Plum street to be a complete street NOW! Atleast slow down the traffic, it is not a state highway but people fly on it to avoid Market.	7/13/2017 4:50 PM
65	Parking issue is not addressed	7/13/2017 3:14 PM
66	Aren't there homes around this Cherry St Area? Seems we would bother more people with concerts there than downtown.	7/13/2017 3:03 PM
67	Pave West Main next year. It should be a top priority.	7/13/2017 2:24 PM
68	need to tie the west side of Troy to the downtown with a safe family orientated bike lane	7/13/2017 5:50 AM
69	Great	7/12/2017 3:02 PM

Q11 0-2 Years ; Prouty Plaza



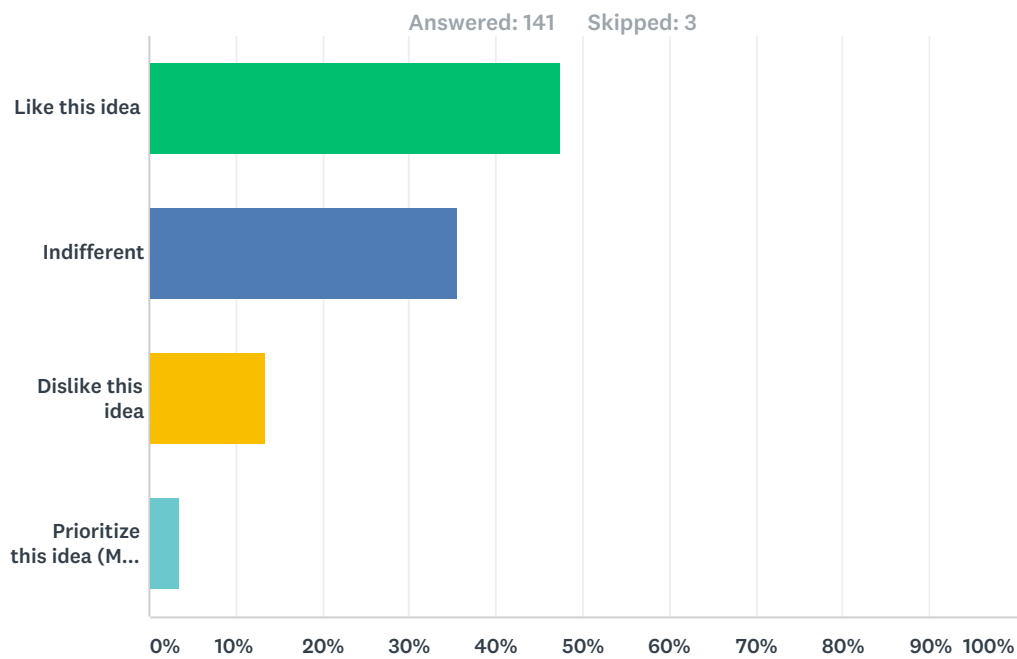
Answer Choices	Responses	
Like this idea	50.72%	70
Indifferent	23.19%	32
Dislike this idea	18.84%	26
Prioritize this idea (Make this Happen Sooner)	7.25%	10
TOTAL		138

Q12 0-2 Years : Troy Truck Yard



Answer Choices	Responses	
Like this idea	34.81%	47
Indifferent	44.44%	60
Dislike this idea	17.78%	24
Prioritize this idea (Make this Happen Sooner)	2.96%	4
TOTAL		135

Q13 0-2 Years ; Artist in Residency and Co-working Studio



Answer Choices	Responses	
Like this idea	47.52%	67
Indifferent	35.46%	50
Dislike this idea	13.48%	19
Prioritize this idea (Make this Happen Sooner)	3.55%	5
TOTAL		141

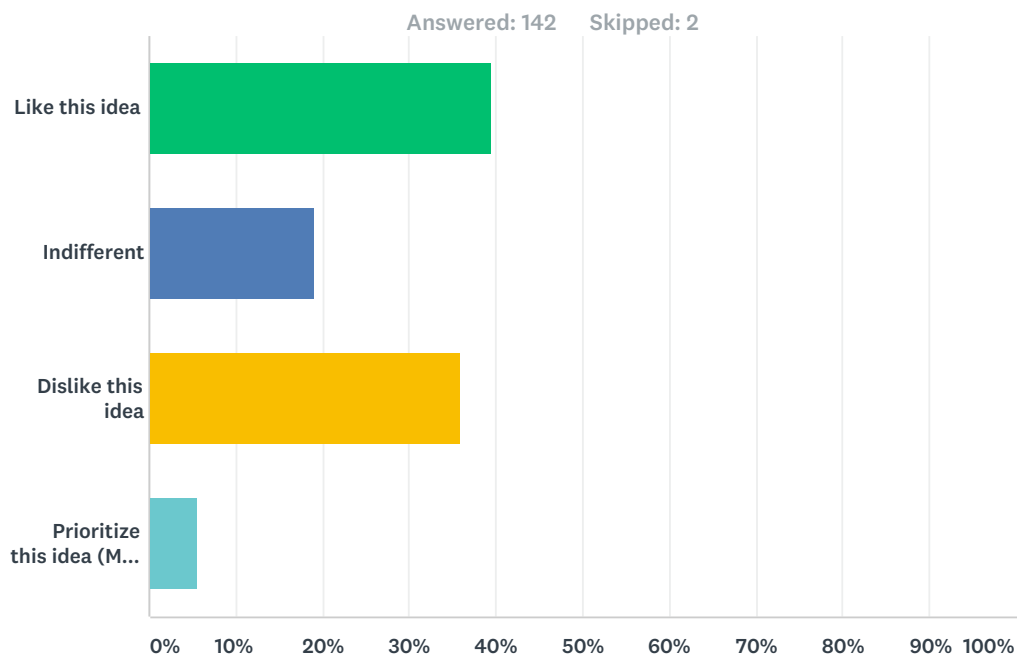
Q14 Any Additional Comments

Answered: 25 Skipped: 119

#	Responses	Date
1	Prouty Plaza is a pain when they shut down streets.	8/3/2017 1:36 PM
2	the bike lanes are an insane waste of money, this town is not made up of people who bike like that, nor is this a HUGE city that needs this. They are trying to make Troy a little Columbus or Cincinnati and there is no reason for it whatsoever. I get having pride in your town, but you aren't going to draw the crowds you want for the purposes you want. There are no big colleges in this town that would want young people to come here. Then taking away Van Cleve...the original high school...which is pretty much historic to this town to add apartments?!?! Hello!! what is going on in the planning departments heads that they are not seeing that nearly ALL these changes are not for the best of our community, but purely just about trying to gain revenues. Such a shame and so glad I moved out of this town earlier this year! I used to have hometown pride, seeing as I was born and raised here for 34 years, but the stupidity that is setting in has more than made me glad about my decision to raise my kids elsewhere.	8/3/2017 11:42 AM
3	Prouty Plaza is my biggest concern. I like the green space. I can see having a permanent stage, but not in the proposed location, and I can see having a small restroom facility. However, I very much dislike the idea of the corner building selling food; the building would eliminate too much green space and the sale of food would take business away from the restaurants already on the square.	7/31/2017 4:20 PM
4	Why is the government paying for community art? This is a failing liberal ideology that has no place in Troy, move to Yellow Springs. You have Hobart, Treasure Island and Prouty for various size venues. Prouty's current set up allows for flexibility for lot usage. The proposal appears to be a fixed permanent set-up. The proposal appears to limit the seating capacity and available area for crowd occupancy. This is a foolish decision and a waste of taxpayer funds.	7/30/2017 12:01 AM
5	Too much stuff in a small area!	7/29/2017 11:31 PM
6	This is a small town we are not Dayton or Dublin or Detroit	7/28/2017 2:29 PM
7	Still not clear what the Troy Truck yard is?	7/27/2017 9:46 PM
8	The city of Troy is missing out when it comes to food trucks. They've placed such a stigma upon them. We drive 30-45 minutes on a regular basis to eat at them, yet our city chases them away. Many great food trucks look at anything north of 70 as a wasted trip because the food truck community is not supported.	7/26/2017 12:25 PM
9	Place a permanent stage on Prouty. Dislike idea of selling food.	7/23/2017 7:26 PM
10	While re utilization of the spaces is beneficial, it should be left to individual investors and not the city	7/21/2017 7:55 PM
11	Why a food building on the Plaza taking up space? There's plenty of food options available presently. No question re: VanCleve School Redevelopment	7/21/2017 5:20 PM
12	I like the artist in residency idea. I think this will be successful.	7/21/2017 4:48 PM
13	What about Prouty Plaza is being examined in this phase?	7/21/2017 11:50 AM
14	The redesigned Prouty Plaza is a poorly thought idea for how this space is or should be used. It will reduce the audience size to less than 100 vs the several thousands it can now support. Having a compacted crowded Prouty and a confined Cherry Street Commons appears to give us two limited and restricted audience spaces basically adjacent to each other. If you are seeking to keep Troy relevant, being able to have a wide open Prouty Plaza that can easily annex the parking lot behind Prouty and the parking lot to expand the offerings for downtown events (beer festivals, book festivals, etc.) seems like the better bet. Younger people will be attracted to larger spaces that offer gathering spaces for small to large crowds, not a bunch of tiny cramped spaces. That's pretty much true for all generations and ages.	7/20/2017 11:59 PM
15	I like the idea of having a permanent stage and some artwork, but am very concerned about choking down the ability to have large events in the square. Open up stage to square, not to a building, please.	7/18/2017 9:37 PM

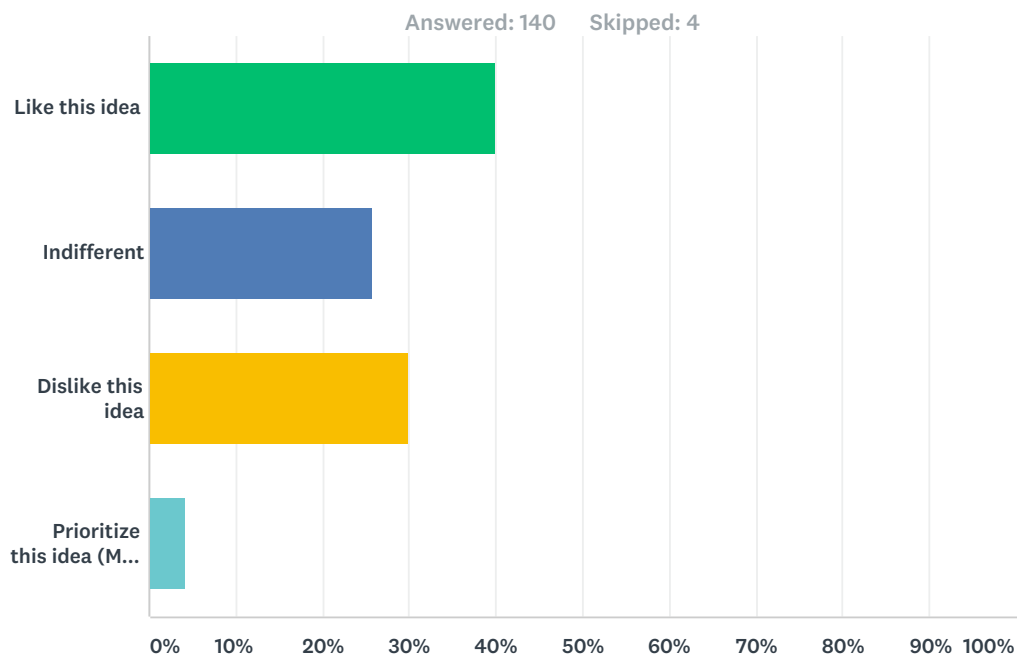
16	who thought this crap up? Clearly nobody who has ever lived in Troy! Condos behind the arena and stadium? I want whatever that guy was smoking! And enough with the fucking bike lanes already. Traffic is shitty enough already, and now that the new hospital is being built, we need to ADD traffic lanes and parking options for CARS, not bikes. Besides, aren't bikes already supposed to be able to use the streets? Seems a bit silly to take away prime traffic lanes for something so unnecessary. And don't get me started on the artist bullshit. Just what we need, free space for a bunch of poor hippies to mope around in. That will certainly bring my family and I downtown...NOT.	7/16/2017 10:54 AM
17	In these plans I see the openness of our town turning into an overfilled closed off community. I also see parking diminishing rather than increasing. Maybe I'm missing something with the parking solution, if I am so are others. It should be highlighted how parking issues will be resolved. Don't give me access to downtown with a bike lane, it isn't going to happen. I was downtown recently and had to drive around the block 5 times before I finally gave up and went elsewhere. Parking is a huge issue and it seems the planning committee thinks we are going to just start riding our bikes everywhere. If I'm dressed up to go out I'm not going to ride my bike and get all sweaty on my way to dinner. I feel like this biking initiative was created by someone in California who doesn't understand Midwestern weather. Biking is seasonal here and I feel like that point is being missed somewhere. You can't make a plan to draw more people to downtown yet provide them with less parking. Overall I think this plan has good ideas to rejuvenate some of the forgotten areas of town. I just don't want it to get too big that Troy loses its small town appeal. That is the reason so many love the town. We are a small town with close access to big city amenities. Just because we attend the big city amenities in Dayton and Cincinnati doesn't mean we want those attractions and overgrown feel of the big city where we live and raise our children. We like our small town and the openness of our town. Don't bog it down with too much and don't make it impossible to drive through downtown, with your one way streets and single lanes that everyone starts to avoid downtown all together.	7/15/2017 8:20 AM
18	Based on Thursday presentation couple of the above items need to provide more details.... Artist in residency program, and permanent plans at prouty plaza, feel kind of glossed over those.	7/15/2017 8:13 AM
19	concerts should stay at Prouty Plaza	7/14/2017 10:32 PM
20	You really need to do better with communication. I had no idea there were plans for downtown renovation. When and where is this being discussed?	7/14/2017 10:27 PM
21	I have not heard about what the Prouty Plaza plan in #5 is referring to, nor the Two Truck Yard.	7/14/2017 3:36 PM
22	Waste of money.	7/14/2017 2:11 PM
23	What are we doing to promote/create job that have a real impact in this community?	7/13/2017 10:38 PM
24	Trains come through Troy on a regular basis. The noise would disrupt any function going on outside. Parking issue still remains	7/13/2017 3:14 PM
25	Do not raise property taxes.	7/13/2017 2:24 PM

Q15 2-5 Years ; Phase 1 of River District



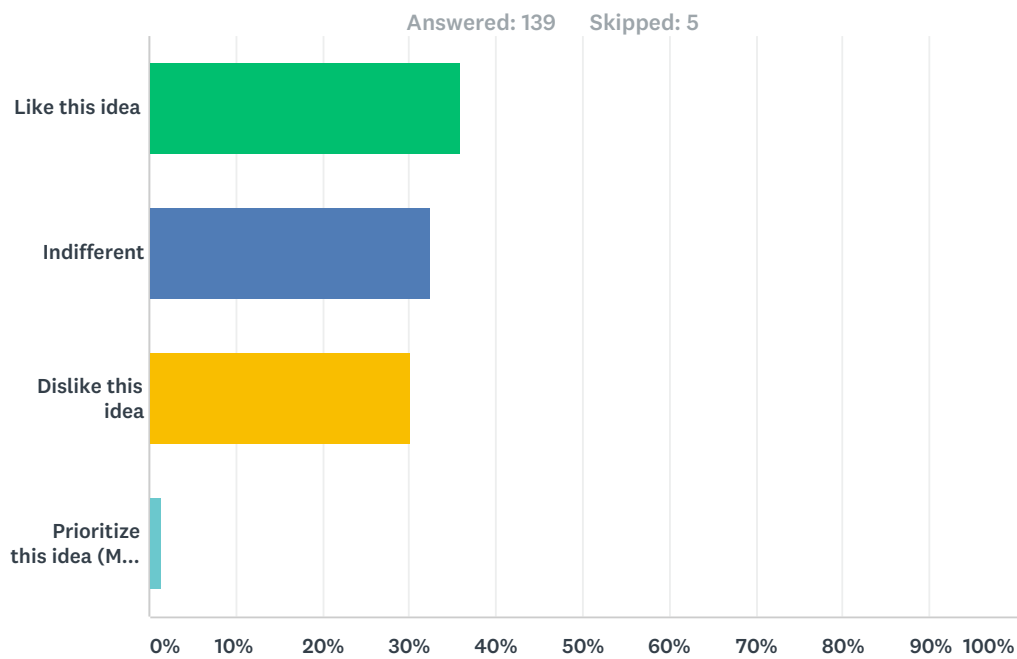
Answer Choices	Responses	
Like this idea	39.44%	56
Indifferent	19.01%	27
Dislike this idea	35.92%	51
Prioritize this idea (Make this Happen Sooner)	5.63%	8
TOTAL		142

Q16 2-5 Years ; Infill Housing



Answer Choices	Responses	
Like this idea	40.00%	56
Indifferent	25.71%	36
Dislike this idea	30.00%	42
Prioritize this idea (Make this Happen Sooner)	4.29%	6
TOTAL		140

Q17 2-5 Years ; Condo Pool



Answer Choices	Responses	
Like this idea	35.97%	50
Indifferent	32.37%	45
Dislike this idea	30.22%	42
Prioritize this idea (Make this Happen Sooner)	1.44%	2
TOTAL		139

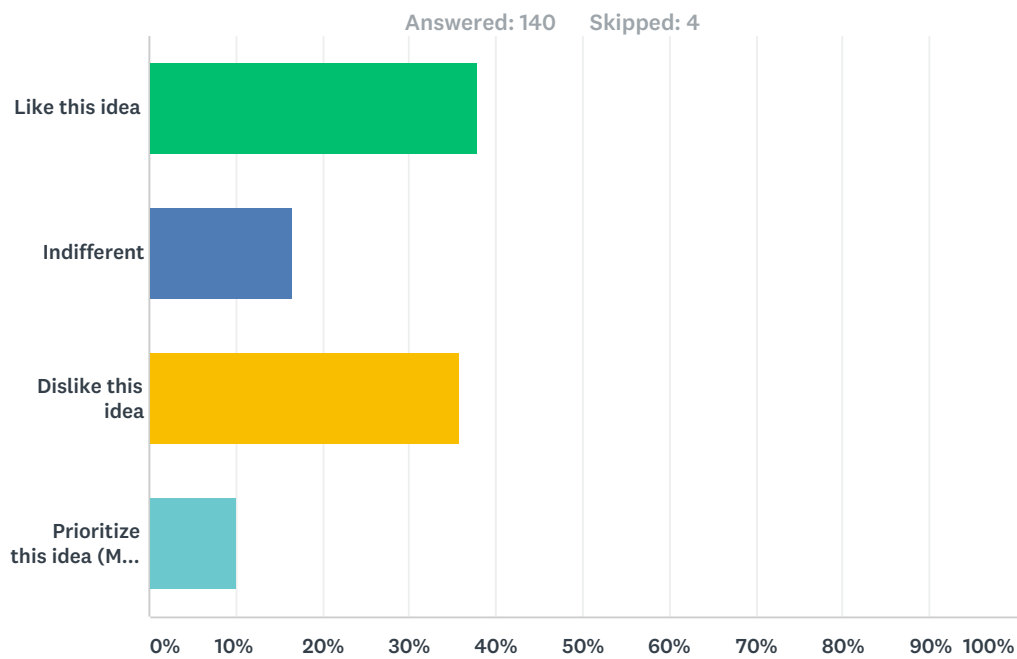
Q18 Any Additional Comments

Answered: 28 Skipped: 116

#	Responses	Date
1	I am concerned that buildings in the current Hobart parking along with buildings behind the stadium will have a negative impact on school events. The parking spots are definitely needed. The area behind the stadium is the Cross Country course as well as the place the Track team uses for shot put. Without these areas, we will have difficulty hosting meets which are the main way our sports make money. If shops are built here, their revenue during any sporting event would negatively impact concession sales which, once again, are VITAL to making money for our sports teams.	8/8/2017 2:15 PM
2	I like the condo pooling, but infill housing?	8/3/2017 1:36 PM
3	the bike lanes are an insane waste of money, this town is not made up of people who bike like that, nor is this a HUGE city that needs this. They are trying to make Troy a little Columbus or Cincinnati and there is no reason for it whatsoever. I get having pride in your town, but you aren't going to draw the crowds you want for the purposes you want. There are no big colleges in this down that would want young people to come here. Then taking away Van Cleve...the original high school...which is pretty much historic to this town to add apartments?!?! Hello!! what is going on in the planning departments heads that they are not seeing that nearly ALL these changes are not for the best of our community, but purely just about trying to gain revenues. Such a shame and so glad I moved out of this town earlier this year! I used to have hometown pride, seeing as I was born and raised here for 34 years, but the stupidity that is setting is has more than made me glad about my decision to raise my kids elsewhere.	8/3/2017 11:42 AM
4	It appears to me that Phase 1 of the River district would take away parking for the Hobart Arena and for local use of the Stadium. During events held at either location parking is filled to the max now with overflow going into the park.	8/3/2017 10:58 AM
5	The River District really concerns me. Having green space is an asset. It's a public space, open to everybody. It's beautiful, and right now I'm against building there. I'm concerned that if we put mixed use buildings in that area the apartments/lofts in those buildings will be expensive, restricting access to people with high incomes only. That then gives high-income people greater and easier access to our community recreational facilities and events, and I don't think that's the correct way to use space that's always been accessible to everyone.	7/31/2017 4:20 PM
6	Phase 1: where is the parking for Hobart, events on the levee, and at the stadium? You encourage new development in this area, but what happens when the businesses of phase 1 leave town? You have even more "eyesores" like what is on Water Street that it makes Springfield look like America's Hometown runner-up finalist. Infill Housing: what is the statistical rate of crime in the City of Troy for multi-family dwellings compared to those of single family developments? You want more multi-family dwellings?	7/30/2017 12:01 AM
7	I love living in Troy because it is a small community, that is safe. I think this huge expansion of rental properties will attract people to our community that do not appreciate the safety of a small community. I do not think adding more rentals is a good idea AT ALL. Millennials will only be young for so long, then they'll finally have families, pay off their college debt, and buy homes outside of town. What will you do with all these complexes then?	7/29/2017 11:31 PM
8	More parking!	7/29/2017 1:58 PM
9	Troy doesn't need a pool we have one of them already need no more bars or brewery	7/28/2017 2:29 PM
10	Not clear if any of this is low income housing?	7/27/2017 9:46 PM
11	Troy needs more housing options. But it also needs to get the general cost of housing balanced. So many people are looking to buy or rent outside of Troy due to cost and available options.	7/26/2017 12:25 PM
12	According to the 90+page presentation, Troy has an overabundance of large single family homes, yet we continue to build more. ??? I'm also leary of any type of rental properties because the ones in my neighborhood are not always well kept and I fear that without proper property management these grand ideas for condos could go awry.	7/23/2017 11:49 PM

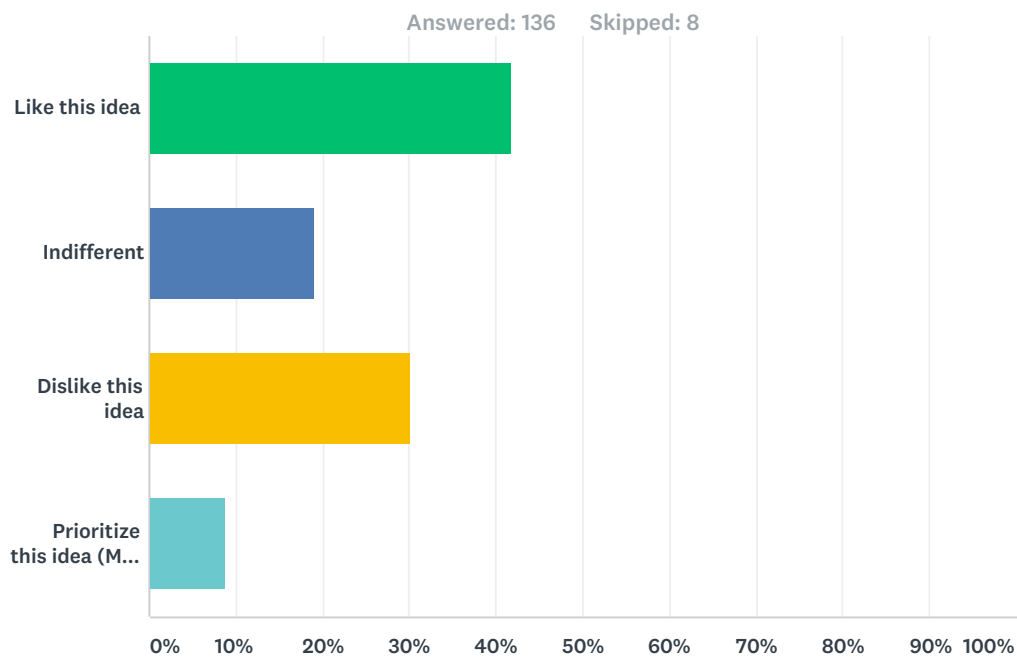
13	How stupid are you?!?!?? Parking is at a premium around Hobart Arena and you want to limit it by putting mixed used facilities there that. Mixed use properties wedged behind the stadium and levy...ridiculous...you are adding to parking problems and and noise/light issues with the stadium. Condo pool is for private developers to create based on demand, not the city. Brewery/roaster in a residential neighborhood...so much for single family zoning	7/21/2017 7:55 PM
14	Phase 1 of river district may not be feasible due to water fields.	7/21/2017 5:20 PM
15	I'm not sure how you will make the river properties look good on the levy. Plus it will be difficult to execute. Not a good place for these things.	7/21/2017 4:48 PM
16	As discussed in the informational meeting on July 20th, even Wade acknowledged that he can't develop some of his existing properties since he can't offer dedicated parking spots. Without parking taken into account before or in conjunction with adding condos and infill housing downtown, it will be a tough sell unless the residents are working downtown or can easily bike to work. But how many will want to bike to work and be cold or sweaty when they get to work? There needs to be more to the plan than bikes and individually owned cars to make this a cohesive and comprehensive plan. And referring to this as a "riverfront plan" is a giant misnomer if the river isn't made the centerpiece of it all. In all the plans I've seen, the river is never the centerpiece. It is a natural resource that deserves the spotlight as a key piece to what makes downtown Troy vital and different. So many towns across the US, Europe, etc have non-river traffic rivers in their cities and find a way to make the river the attraction. In none of these plans have I seen the river ever be made an attraction other than as something elite condos overlook - hardly a city-wide attraction.	7/20/2017 11:59 PM
17	I'm an empty nester. You seem to think I should downsize my 3,000 square foot house. It's not happening. You don't seem to know what people like/need. As someone who has rentals, people get what they can afford. Housing rentals start at \$650 on Patton and go up exponentially from there. Most can't rent a house because they can only afford an apartment and there are too few available. If someone with an average income can afford your condos and have a dedicated parking spot, it's a good idea. Turning Brukner park into housing instead of parking is a terrible idea.	7/17/2017 11:35 AM
18	We will be losing much of the charm that us older people in Troy have loved so much. Leave well enough alone.	7/16/2017 3:50 PM
19	Look, I get the idea behind this. But these suggestions are so impractical, they're a joke. We are all for making our town awesome or whatever, but this "study" isn't worth the paper it's written on.	7/16/2017 10:54 AM
20	More downtown residents will require additional parking.	7/15/2017 11:35 PM
21	We need a brewery!	7/15/2017 8:34 AM
22	Picked like "choice" due to others not exactly fitting. What is the difference between infill housing and the condos, other than the condos are on the north side of levy. Don't remember much in presentation about infill housing . May need to come again Thursday.	7/15/2017 8:13 AM
23	concerts should be on Prouty Square	7/14/2017 10:32 PM
24	I am still puzzled why this renovation project has not been publicized. Why not? Who is responsible for communication?	7/14/2017 10:27 PM
25	I don't know what you are showing there with the Hayner block, but don't!	7/14/2017 3:36 PM
26	Need to lower bills.	7/14/2017 2:11 PM
27	Very important that housing is quality with the goal of attracting professionals and families in the surrounding areas that will be working in our area.	7/14/2017 9:42 AM
28	No parking available.	7/13/2017 3:03 PM

Q19 5-10 Years ; Bridge



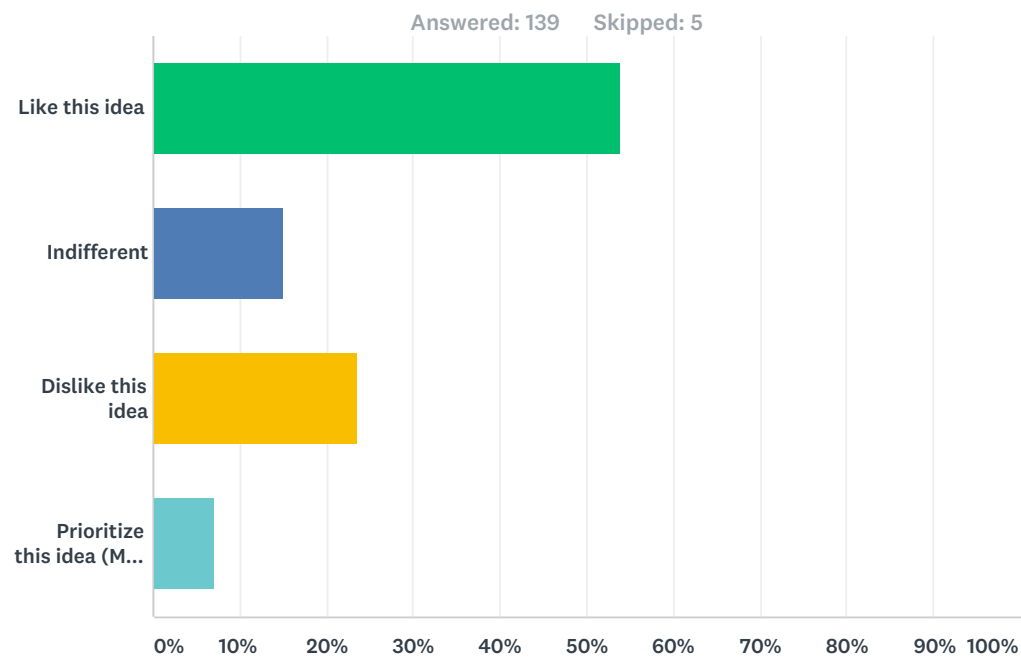
Answer Choices	Responses	
Like this idea	37.86%	53
Indifferent	16.43%	23
Dislike this idea	35.71%	50
Prioritize this idea (Make this Happen Sooner)	10.00%	14
TOTAL		140

Q20 5-10 Years ; Public Square



Answer Choices	Responses	
Like this idea	41.91%	57
Indifferent	19.12%	26
Dislike this idea	30.15%	41
Prioritize this idea (Make this Happen Sooner)	8.82%	12
TOTAL		136

Q21 5-10 Years ; East Water Street Redevelopment



Answer Choices	Responses	
Like this idea	53.96%	75
Indifferent	15.11%	21
Dislike this idea	23.74%	33
Prioritize this idea (Make this Happen Sooner)	7.19%	10
TOTAL		139

Q22 Any Additional Comments

Answered: 23 Skipped: 121

#	Responses	Date
1	the bike lanes are an insane waste of money, this town is not made up of people who bike like that, nor is this a HUGE city that needs this. They are trying to make Troy a little Columbus or Cincinnati and there is no reason for it whatsoever. I get having pride in your town, but you aren't going to draw the crowds you want for the purposes you want. There are no big colleges in this town that would want young people to come here. Then taking away Van Cleve...the original high school...which is pretty much historic to this town to add apartments?!?! Hello!! what is going on in the planning departments heads that they are not seeing that nearly ALL these changes are not for the best of our community, but purely just about trying to gain revenues. Such a shame and so glad I moved out of this town earlier this year! I used to have hometown pride, seeing as I was born and raised here for 34 years, but the stupidity that is setting is has more than made me glad about my decision to raise my kids elsewhere.	8/3/2017 11:42 AM
2	I'm not convinced we need a pedestrian bridge. Adams and Market Street bridges are so close and provide adequate space for foot and bike traffic. I like the plan to put "traffic calmers" in the round about, allowing car traffic to travel on Market and Main streets. I wouldn't want to see the square closed to auto traffic.	7/31/2017 4:20 PM
3	Isn't East Water Street part of an EPA brown area? You want families to grow up living on top of spilled TCE? Why, just so the city can cram more people in a small space Hoping that they will have more citizens to collect income tax from. I'll tell you this, if they are renting there not a great deal of tax to gain from them. Bridge: For all of the "wtf" proposals this one takes the cake!	7/30/2017 12:01 AM
4	The public square is the heart of the town, this and Prouty Plaza is very important for events in downtown.	7/27/2017 9:46 PM
5	We have 2 fairly newly redone bridges now, why the need for a pedestrian only one? The Adams Street bridge especially has plenty wide enough sidewalks to feel safe and if there are issues with the Market Street bridge why were these not addressed several years ago when the bridge was redone?	7/23/2017 11:49 PM
6	Pedestrian bridge should connect the marina and park (and Duke Park), not go where we already have 2 bridges to get you there. Traffic into/around the square needs fixed (ie no left hand turns from Market onto Canal or Franklin St). Water St redevelopment based upon market forces and private investment, not city	7/21/2017 7:55 PM
7	If unable to build over Water Fields, would a bridge still be needed? I chose Indifferent on Plaza as, "I'm not sure yet".	7/21/2017 5:20 PM
8	We have 2 bridges, one with an extra wide sidewalk. Not sure why we would spend money on a 3rd bridge. That's a waste. Closing the square and making it a walking area wouldn't bring people downtown, plus parking would be even more of a nightmare.	7/21/2017 4:48 PM

9	The pedestrian bridge confounds me as to "why?" There are two bridges on either side of the proposed bridge, each within easy walking distance of each other, let alone a connecting pedestrian bridge in between them. If the existing bridges are not adequate for use by the public, then it seems like it would be easier to build and maintain by modifying those bridges than to build an entirely new bridge that must be built and maintained. If the access to parking is the issue, even using a trolley bus system that offers free transportation from the parking lots to various drop off locations around downtown seems like a better option. It adds a kinetic energy having quaint trolley cars moving around downtown, provides mass transit between the parking lots and various locations and businesses downtown. Adding bike racks to the trolleys then offers the bikers easy access to and around town. The squareabout confounds me as well. Touting that having the public space in the middle of the intersection as a safe area for families seems contradictory. At least with Prouty Plaza, it is only bordered on one and half sides by roads, with a parking lot offering dead space for the half side. It would seem a smarter plan to close off the west side of the circle and the first block of West Main as a pedestrian mall, keep Prouty the way it is and have an entire block that can be set up for use as what Cherry Street Commons is supposed to be. Extending active downtown into East Water Street makes sense as it's an obvious direction to grow the active downtown activities. But since it's a long-range plan, allowing the space and plans for that phase of expansion to be fluid at this time makes sense. But having a solid, cohesive, coherent, thought out plan from Day 1 seems like the best plan and I don't see how the proposed plans offer a coherent plan where the steps in years 0-2 help propel growth and development leading into 3-5 and 5-10 and 10+ plans.	7/20/2017 11:59 PM
10	I like a ped bridge across the river as long as it is economical and does not detract from city. I am very against the structure type shown. This type of bridge on that alignment is unduly expensive to design construct and maintain. Especially with crossings at Market and Adams. I like improving the function and use of the square, but not at the cost of transporting traffic through Troy on Sr-41 & Sr-55. The 'square about is too extreme at this stage with no other details.	7/18/2017 9:37 PM
11	I don't understand the walking bridge especially since the bridges already here are adequate. During the colder months, the bridge will be an awful place to walk with the cold wind. The planning for the infill housing on the north side of the river would be enhanced if Sherwood actually had stores and the shopping there could help the new residents. Parker Behm found a hardware store, pizza place and theaters to make life better for Sherwood. Can't the city use incentives to find retail operations?	7/18/2017 12:41 PM
12	If you want to create all of these additional users of the downtown area, why get rid of parking and streets. Main Street is already busy.	7/17/2017 11:35 AM
13	What need is there for a walking bridge between two perfectly good bridges with sidewalks. One of which was just rebuilt to accommodate more people on foot and on bikes. Also, if the roundabout were to be converted to a "squareabout" how would that affect the high level of large trucks that travel through on a daily basis? I'm not sure the squareabout would easily accommodate the semi trucks that use the current roundabout because after all, it is a junction for 2 state routes.	7/16/2017 5:49 PM
14	You want to make a difference? kick out all the heroin addicts in the shabby housing east of downtown. and west. and south. and north. yeah, that will work.	7/16/2017 10:54 AM
15	A walking bridge between the two existing is an expensive boondogle. The Adams street bridge was built to be pedestrian and bike friendly. The vehicle regestering residents even ponied up the extr millions to put river overlook platforms on it. The new residents will be happy to walk the extra 100 feet to cross an existing bridge. Same thought with a water street park. The are already two parks within eyesight of the proposed additional park.	7/15/2017 11:35 PM
16	If part of the plan is to link to the treasure island area, I think a bridge closer to that area makes more sense. Just having a bridge from the parking lot to water street when the idea is that people will end up on market is redundant. They can walk along the river corridor, enjoy the swings if they want, and get across at market street. I liked many of the ideas for the square, especially the one that closes off they traffic. The question that raises though is, what about the state truck route? Semis certainly can't maneuver through the back streets.	7/15/2017 2:44 PM
17	Bridge is fine and probably needed if you have the condos. All comes down to financing and who does it. I would be interested in seeing where the proposed rerouting of state routes are going to be. Great concern if you continue to route traffic away from downtown that you will actually get more people downtown and attain your goals.	7/15/2017 8:13 AM
18	These ideas are not known to me, and not explained here.	7/14/2017 3:36 PM

19	Makes no sense.	7/14/2017 2:11 PM
20	Like the idea of still having a public square to access but down to one lane with more bike & pedestrian friendly options.	7/13/2017 10:38 PM
21	I prefer the round-about option for the public square.	7/13/2017 4:33 PM
22	Parking issue! Bringing more people to Troy and yet our ongoing issue is not addressed!	7/13/2017 3:14 PM
23	We need this plan	7/12/2017 3:02 PM

Q23 Any Additional Comments

Answered: 33 Skipped: 111

#	Responses	Date
1	What will be done with the ball field?	8/8/2017 2:15 PM
2	Building this city up may bring in more people & more money but it will also bring more trouble & more drugs. How about let's start focusing on the heroin & meth epidemic in Troy instead of bike lanes & stupid shit like that!	8/3/2017 9:09 PM
3	Troy is unique, that's why people move here. Don't try to make it something it's not. If you're going to try to make this better and bring in more residents, why not work on something that would assist this quicker, such as public transportation? Parking is completely terrible, so bring people in via public transit to offset this. Don't rely on building new buildings.	8/3/2017 1:36 PM
4	Stop trying to grow Troy into a mini Dayton! With all new development comes new/more people & more trouble! Again Troy is going nowhere but downhill!! Will be moving out of it soon!	8/3/2017 12:52 PM
5	I have observed the Adams St. bike lanes almost every day, since I live on Stonyridge and use Adams St. several times a day. The use of the bike lanes are a waste of use of a public street. Very, very little use	8/3/2017 12:10 PM
6	the bike lanes are an insane waste of money, this town is not made up of people who bike like that, nor is this a HUGE city that needs this. They are trying to make Troy a little Columbus or Cincinnati and there is no reason for it whatsoever. I get having pride in your town, but you aren't going to draw the crowds you want for the purposes you want. There are no big colleges in this town that would want young people to come here. Then taking away Van Cleve...the original high school...which is pretty much historic to this town to add apartments?!?! Hello!! what is going on in the planning department's heads that they are not seeing that nearly ALL these changes are not for the best of our community, but purely just about trying to gain revenues. Such a shame and so glad I moved out of this town earlier this year! I used to have hometown pride, seeing as I was born and raised here for 34 years, but the stupidity that is setting is has more than made me glad about my decision to raise my kids elsewhere.	8/3/2017 11:42 AM
7	Is the school district planning to close Kyle and Van Cleve? If so, I like the idea of mixed use and residential in these blocks. I'd want to see housing that was accessible to people of all incomes, not just middle and upper-middle class. I do not like the idea of separate "senior citizen" housing. I think we should be creating intentional communities that allow for people of different age and income and race to interact.	7/31/2017 4:20 PM
8	hard to give an accurate response to this survey when I know so little of the actual plans. I can see the "vision" on these maps, but know little about them.	7/31/2017 11:47 AM
9	I'm going to start investigating how to create a ballot initiative to ensure that nobody on the board of this committee profits from this plan. This proposal needs to be approved by a vote by the citizens of Troy.	7/30/2017 12:01 AM
10	I don't understand the purpose of overcrowding downtown. People like the small town feel of Troy. Cramming multiple story buildings all over the place will make it crowded and unsafe. Additional costs will be incurred for fire, police, and EMS with a spike in the population. Your study says Troy will be the most sought after town in Ohio, there's no way! People who have lived here for many years will leave. Also, who is paying for all of this? There's no way you can justify using taxing dollars for all of this! Also, people on the Troy Main Street committee should not be allowed to profit from this plan, that seems like a conflict of interest. For example, realty companies and development companies.	7/29/2017 11:31 PM
11	Who is working on attracting those new businesses to help pay for these ambitious endeavors? How much are you going to burden us taxpayers? Tell us way in advance BEFORE projects are started!	7/29/2017 8:24 AM

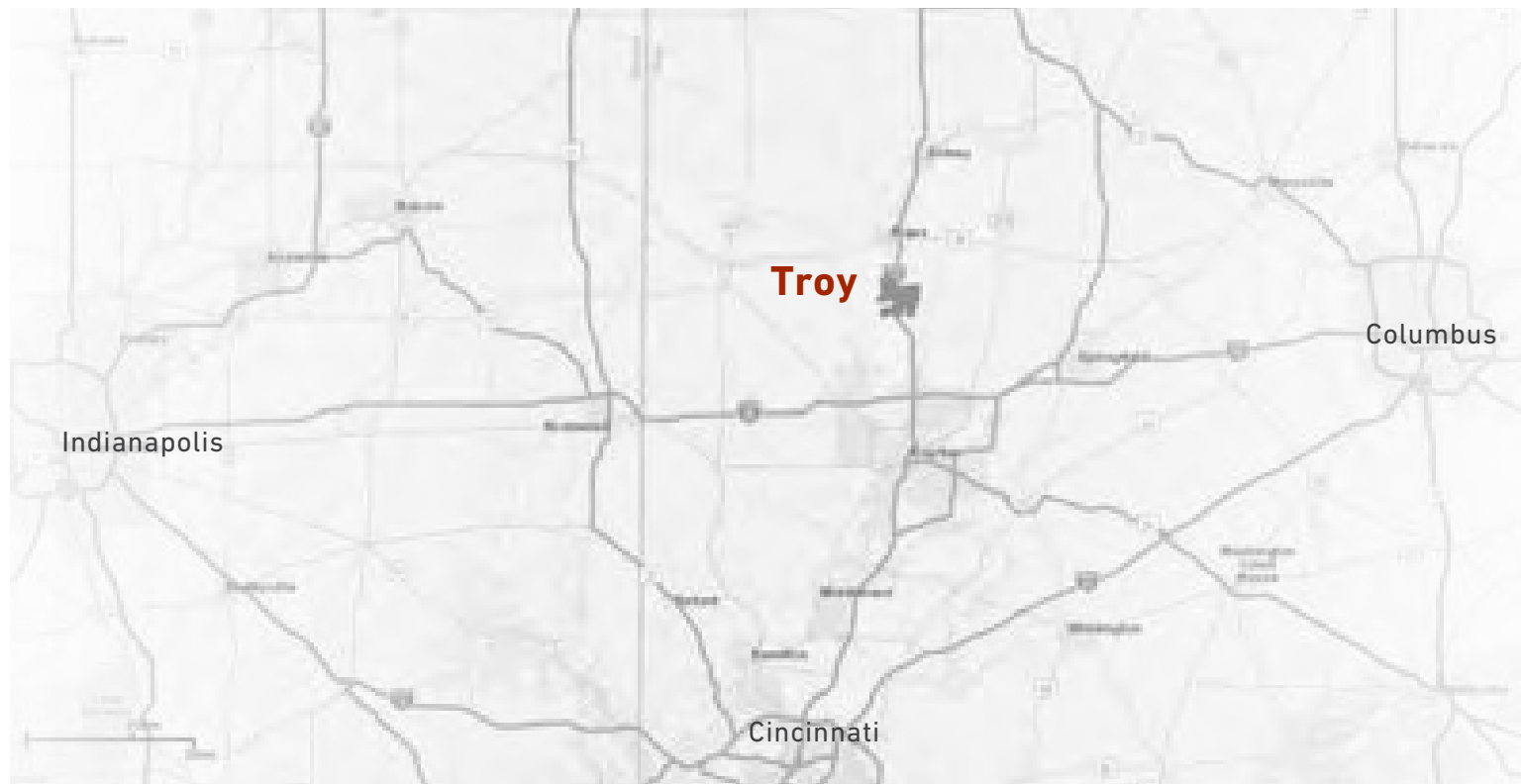
12	If you are going to have a "prioritize this" option you should also have a "please do not do this" option. I would like to point out that the area that was studied includes quite a large chunk of neighborhood south of downtown; however, it includes practically nothing west of downtown. I do not believe that all demographics were considered in this study. From what I understand the focus groups consisted mostly of middle aged business persons, this is not representative of the entire community and skews results. As a young voting citizen who works downtown and lives within a mile of the square I am very upset by the way this study was conducted.	7/28/2017 10:52 PM
13	We love Troy and all the entertaining and local shopping available. We moved here 3 years ago from 20 yrs in Covington because we spent so much time downtown. I buy as much as possible from locally owned stores and attend most all events downtown. We would love to be able to ride our bikes to the circle however.	7/27/2017 9:46 PM
14	This whole plan is rubbish. The city needs to focus on traffic congestion and parking issues. Quit wasting money on plans from developers and cockamamie projects. Spent millions on a stupid marina that goes largely unused, cant figure out why a tax for a bloated and overreaching recreational plan failed, and now you want citizens to support this.....REALITY CHECK	7/21/2017 7:55 PM
15	We love the downtown and the levy area, having walked many miles on both. We moved here almost 3 years ago and have no regrets.	7/21/2017 5:20 PM
16	I was not impressed with how you'd bring millenials back to the area. You aren't doing anything special to make them want to live here. A bike path will not bring them back. Try bringing in new musical acts to town or have special nights for them (such as suggesting businesses offering a "student discount" or something during events such as Troy streets alive or concerts) if you are not serious about wanting a younger crowd in Troy, then do not list it as a "priority"	7/21/2017 4:48 PM
17	While I like the ideas presented; I do understand the parking issues and as I travel throughout North America for business I have many opportunities to see what other communities are doing. While this is NOT in the plan nor part of this project; I would like to see better control of the over sized vehicles parking downtown. Athens GA has handles this very cleverly with lines painted at the rear of the parking spots that are a visual that you are parked within the allotted space. Other communities have begun "backing" in diagonal parking and while I'm sure that was a change hard to take; it seems to be a very smooth and safe way to leave your parking space. Thank you to all for the hard work you are putting into this project to keep Troy a wonderful place to live, work, volunteer and play!	7/21/2017 10:31 AM
18	I love the initiative and the willingness to reach for the stars with active planning and action. Regarding is going to be tough without bringing more in to make downtown area more of a destination. Bringing in a microbrewery, an art scene, music, a good coffee shop (ala Night Sky), more things for people to do will go along way to generate more interest in developement and downtown living. Thank you for involving the public.	7/18/2017 9:37 PM
19	We don't have "Tiger Stadium" which was mentioned in phase 2, I believe, when it talks about the north side of the river. This looks like a template that you customize and not a real initiative. I am not normally a negative person but there is very little in this plan I can find to be positive about.	7/17/2017 11:35 AM
20	I think all of these plans need more input from the residents of troy. I would also like to point out that I'm not a huge fan of closing downtown streets for concerts and festivals. Considering that we dumped boat loads of money into treasure island. Why isn't that location being utilized more?	7/16/2017 5:49 PM
21	Building on the levee on the north side of the river would be a terrible mistake. This area is considered like park land by many, many Trojans.	7/16/2017 3:50 PM
22	All of these questions have no meaning to me since there is no explanation of what these projects are, & I've not seen any literature or been to a presentation. I came to this because a card was given to me at the concert for feed back on the concert. So I just picked comment #4 to give my opinion.	7/16/2017 2:57 PM
23	I hope you didn't spend a lot of money on this bullshit.	7/16/2017 10:54 AM
24	This is good stuff.	7/15/2017 11:35 PM
25	If the above item is the future initiatives of building senior living on the current athletic fields, believe you need to very seriously consider comments offered by Mrs. Jones and Mr. Terwilliger at the July 3rd council mtg. I would have to vote a strong dislike for Sr. Housing at current athletic fields site	7/15/2017 8:13 AM

26	not real sure where you want to put senior housing...	7/14/2017 10:32 PM
27	I would like to say that Cherry Street wasn't a bad place. Advantages are: 1. I would think traffic control for Police and Firemen. 2. Don't have kids playing along the building. Out of the sun. 4. Central location. If you keep this venue, you need to ANNOUNCE BEFORE THE CONCERT and put up signs, NO SMOKING. very, VERY RUDE OF A FEW. Also, very disappointed in who is in charge of the speaker system. Way , way to LOUD. 12 people left after the first 2 songs. I used ear plugs and I still could hear the them. Same way at Treasure Island. I cannot believe no one else has ever complained. Were not a bunch of 25 year olds that attend these things, most people are over 50 and want to list to music, not feel vibrations going through their body. Did I mention it is way to LOUD. Ridiculous!!!!	7/14/2017 9:34 PM
28	Big ideas! Mind expanding. Some exciting stuff here!	7/14/2017 3:36 PM
29	You need to get the drugs and criminals out of Troy before anyone will move here or stay here or do business here.	7/14/2017 2:11 PM
30	Where is all the money going to come from?	7/13/2017 3:14 PM
31	Stop messing up troy	7/13/2017 3:09 PM
32	We need cheaper apartments.	7/13/2017 2:24 PM
33	need this plan	7/12/2017 3:02 PM

MARKET ANALYSIS: BACKGROUND

TROY, OHIO IS A HISTORIC COUNTY SEAT SITUATED IN THE MIAMI VALLEY

LOCATION

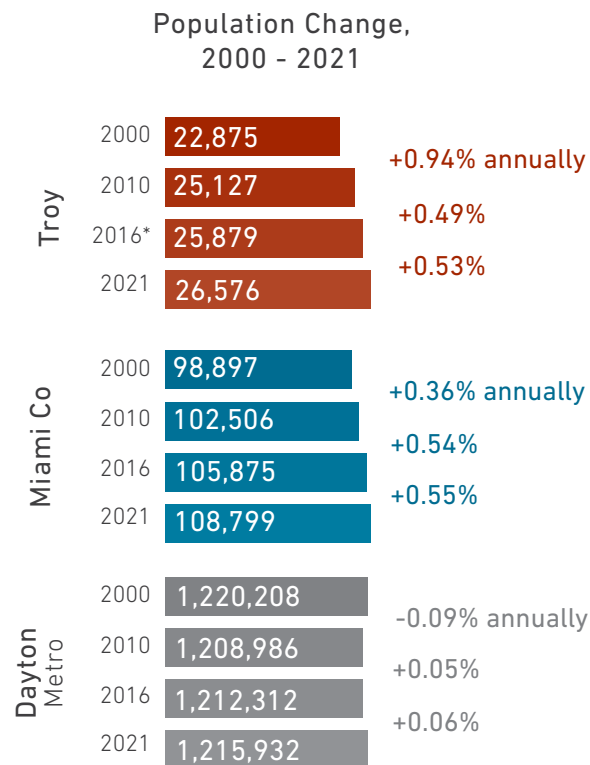


Source: Esri

MARKET ANALYSIS: BACKGROUND

DEMOGRAPHIC TRENDS FOR TROY SHOW MODEST GROWTH IN KEY INDICATORS LIKE POPULATION, HOUSEHOLDS, AND INCOMES. THESE TRENDS FACTOR INTO THE FUTURE DEMAND FOR HOUSING, OFFICE, AND RETAIL

DEMOGRAPHIC TRENDS



\$49,023
2016 Troy
Median Household
Income

\$47,784
2016 Dayton Metro
Median Household
Income

\$53,605
2021 Troy
Median Household
Income

\$53,920
2021 Dayton Metro
Median Household
Income

1.9% annual growth in incomes, US average
inflation (2016) was 2.1%

Source: Esri

*: Some of the growth from 2000 to 2016 was due to annexation.

MARKET ANALYSIS: BACKGROUND

TROY'S INDICATORS ARE GENERALLY IN THE MIDDLE OF ITS NEAREST NEIGHBORS

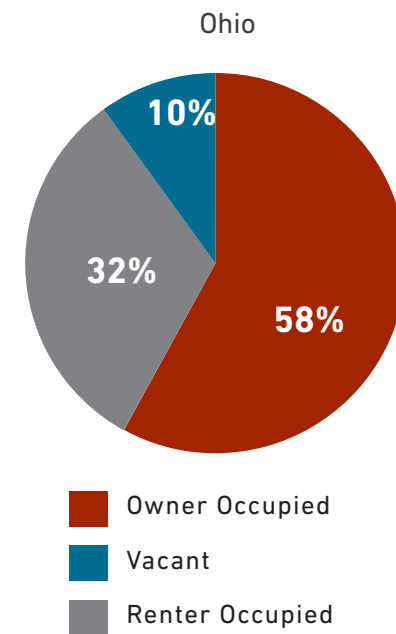
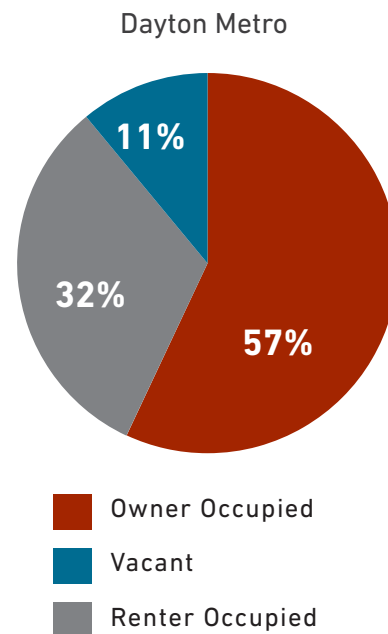
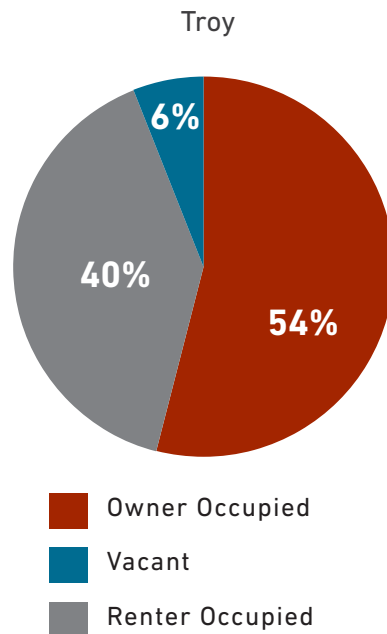
	Troy	Tipp City	Sidney	Piqua
				
2016 Population	25,879	10,100	21,330	20,984
College or University	Hobart Institute of Welding Technology	None	None	Edison State Community College
2016 Median HH Income	\$49,023	\$58,569	\$41,330	\$39,897
2016 Median Age	39.0	43.3	37.1	39.3
2016 Average HH Size	2.36	2.47	2.52	2.43
% with Bachelor's Degree or Higher	23.9%	29.8%	14.8%	10.5%
2016 Median Home Value	\$134,213	\$171,561	\$110,447	\$90,800
Largest Employment Industry	Services: 40.8% Manufacturing: 25.5%	Services: 43.2% Manufacturing: 27.2%	Services: 40.6% Manufacturing: 35.6%	Services: 35.5% Manufacturing: 32.5%
OH DoE School District Achievement Score	C	B	D	D

Source: Esri, Ohio Department of Education, Greenstreet Ltd.

MARKET ANALYSIS: RESIDENTIAL

TROY'S HOUSING MARKET IS RELATIVELY STRONG, WITH LOWER VACANCY THAN THE STATE AND THE METRO. TROY DOES HAVE MORE RENTER OCCUPIED HOMES, HOWEVER

HOUSING UNITS BY TENURE, 2016

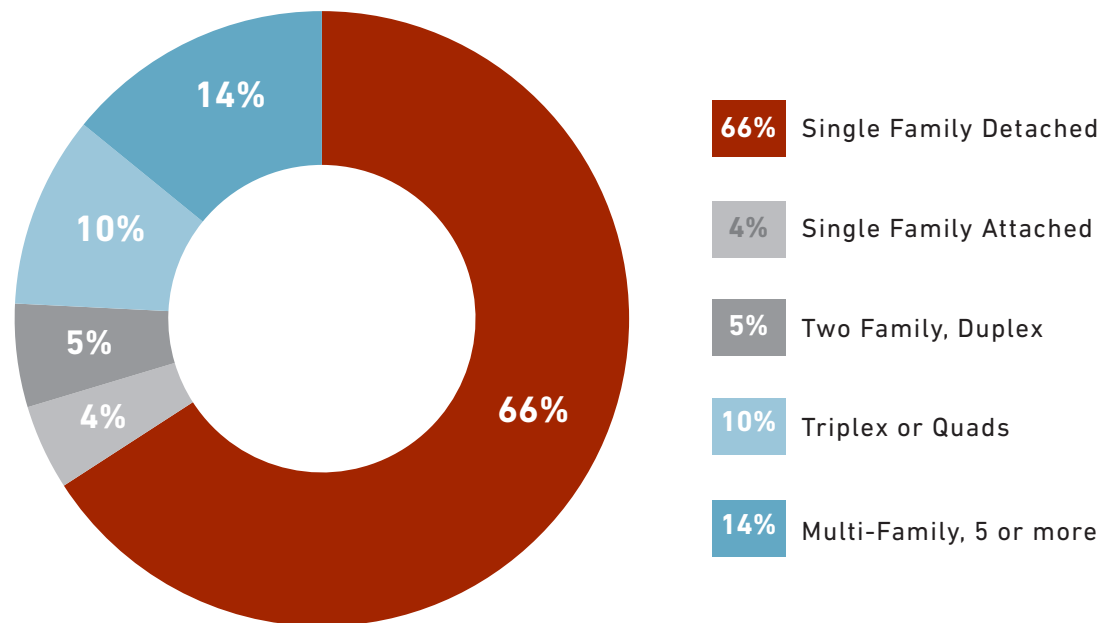


Source: Esri

MARKET ANALYSIS: RESIDENTIAL

ALTHOUGH SOME MULTI-FAMILY OPTIONS EXIST, THE MAJORITY OF TROY'S CURRENT HOUSING SUPPLY IS DETACHED SINGLE FAMILY HOUSES

TROY, OH RESIDENTIAL SUPPLY, 2015



Existing Homes by
Unit Types

Source: US Census American Community Survey 2015 Estimates

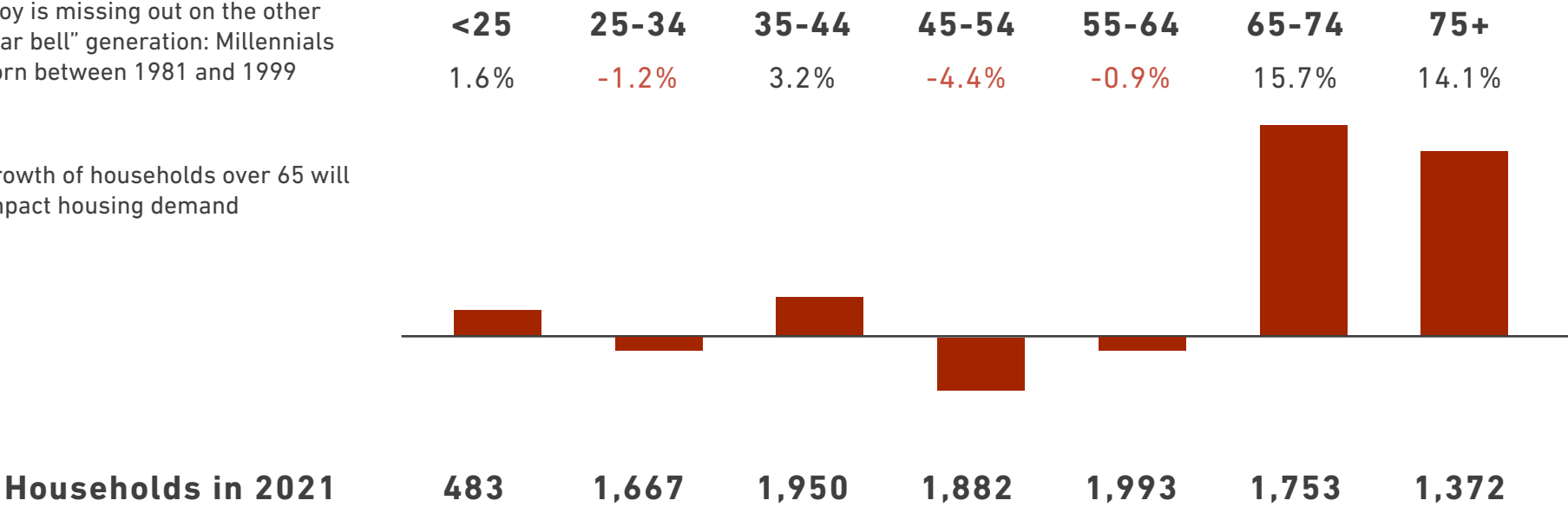
MARKET ANALYSIS: RESIDENTIAL

BASED ON PROJECTIONS, OVER THE NEXT FIVE YEARS TROY IS EXPECTED TO SEE THE MAJORITY OF ITS POPULATION GROWTH IN SENIOR-LED HOUSEHOLDS

CHANGE BY AGE OF HOUSEHOLDER,
2016 - 2021

Troy is missing out on the other “bar bell” generation: Millennials born between 1981 and 1999

Growth of households over 65 will impact housing demand

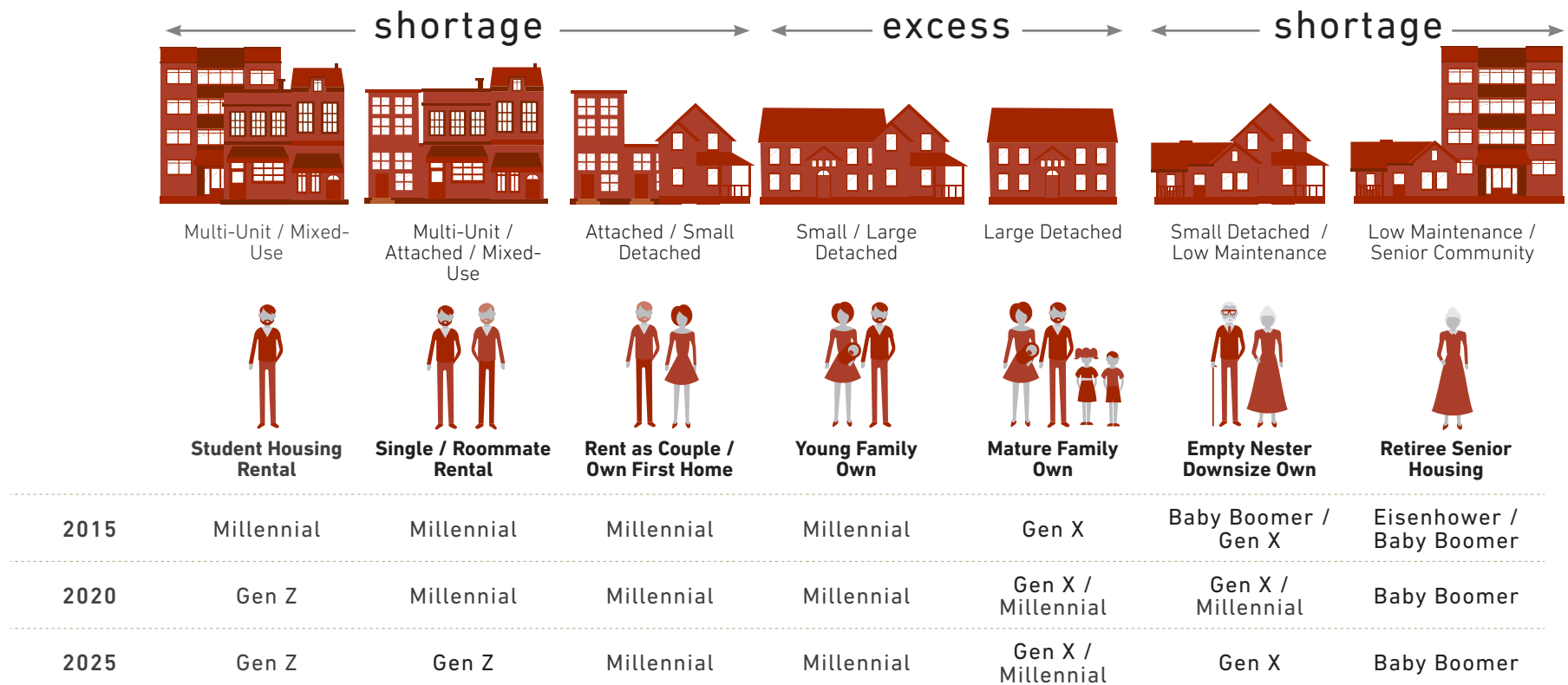


Source: Esri

MARKET ANALYSIS: RESIDENTIAL

HOUSING DIVERSITY ATTRACTS AND RETAINS PEOPLE AT ALL LIFE-STAGES. TROY'S CHANGING DEMOGRAPHICS WILL DRIVE NEW HOUSING DEMAND THAT DOES NOT MATCH ITS CURRENT SUPPLY.

HOUSING TYPE BY GENERATION



Source: Adapted from RCLCO; U.S. Census Bureau; Greenstreet analysis
 Silent/Greatest, before 1946; Baby Boomers, 1946-1964; Gen X, 1965-1980; and Millennials, 1981-1999; Gen Z, after 2000

MARKET ANALYSIS: RESIDENTIAL

SERVING, HOUSING, AND EMPLOYING BABY BOOMERS (THOSE BORN BETWEEN 1946-1964) HAS DOMINATED THE ECONOMY FOR THE LAST 60 YEARS. NO LONGER THE LARGEST GENERATION, THEIR NEEDS WILL CONTINUE TO INFLUENCE THE ECONOMY

BABY BOOMERS' INFLUENCE ON THE HOUSING MARKET



Empty Nesters

Most likely to live in the suburbs

More likely to downsize over the next 5 years and consider renting

About 60% of all seniors will change housing types between the ages of 65 and 85

A majority want "safe urbanism," or walkable communities with urban amenities, culture, and education

Desire "third places," or places to spend time outside of home or work

Willing and able to pay for what they want and where they want it (even though many will delay retirement)

Source: ULI, "America in 2015"; RCLCO National Consumer Survey; American Housing Survey

MARKET ANALYSIS: RESIDENTIAL

AS TODAY'S LARGEST GENERATION, MILLENNIALS (THOSE BORN BETWEEN 1981-1999) WILL DOMINATE THE ECONOMY FOR THE NEXT 20 YEARS. THE MOST DIVERSE GENERATION, MUCH OF THEIR GROWTH WILL COME FROM IMMIGRATION.

MILLENNIALS' INFLUENCE ON THE HOUSING MARKET



Young
Professionals



First-Time Home
Buyers

Want diversity, walkability, and proximity to jobs (however, just 33 percent are willing to pay for it which emphasizes the importance of price)

High preference for urban living (77 percent)

Emphasize design over size

Attracted to denser neighborhoods with smaller homes, with a general shift towards denser living regardless of location

Twice as many expect to be living in an attached single-family or town home in the future

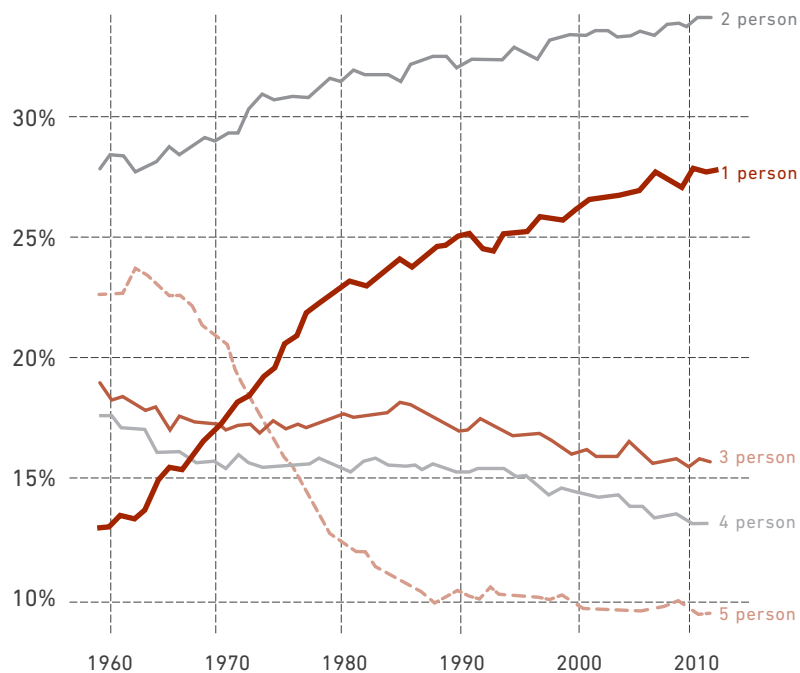
Want less reliance on cars with 63 percent desiring to live in “car optional” places

Source: ULI, “America in 2015”; RCLCO National Consumer Survey; American Housing Survey

MARKET ANALYSIS: RESIDENTIAL

AGE ISN'T THE ONLY FACTOR IN CHANGING HOUSING DEMAND. HOUSEHOLD SIZE AND MAKE-UP ALSO AFFECT WHAT IS NEEDED. OVER THE NEXT 15 YEARS, HALF OF ALL DEMAND IN THE U.S. WILL BE FROM SINGLE-PERSON HOUSEHOLDS

CHANGE IN HOUSEHOLD SIZE



Single Person Households

44% growth by 2030

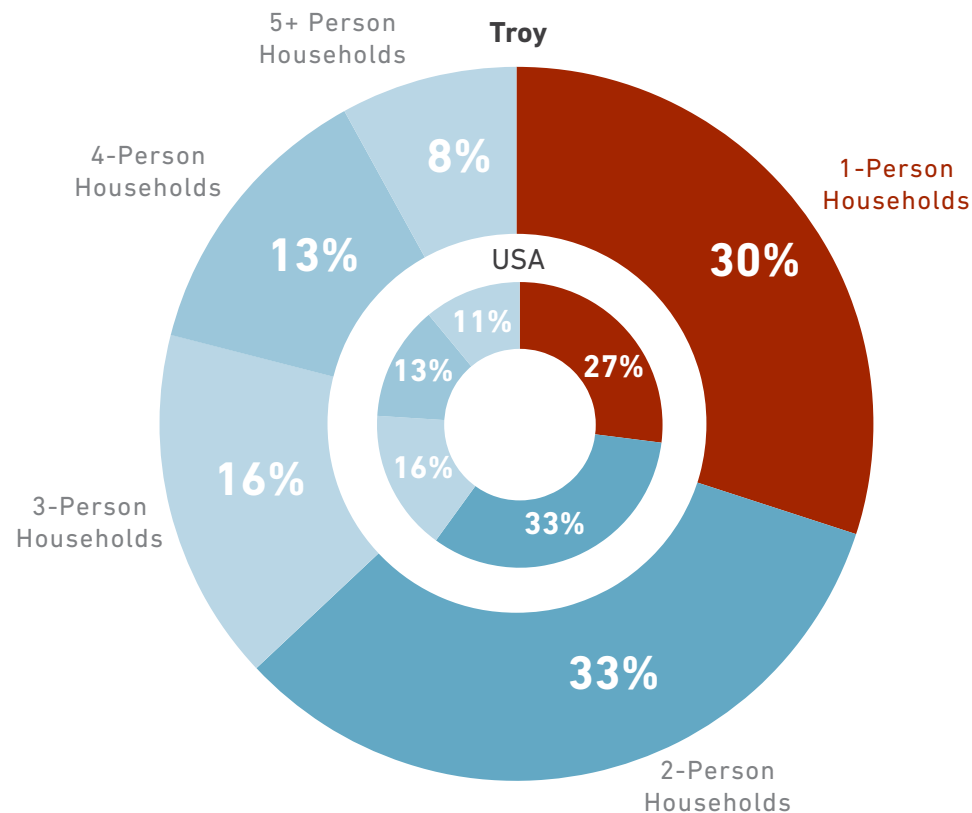
The proportion of Americans who live alone has grown considerably since the 1920s when only 5 percent of people lived alone. Today single-person households make up 27 percent of all households nationwide.

Source: U.S. Census; The Pew Charitable Trusts, "Growing Number of People Living Solo Can Pose Challenges," 2014; Wall Street Journal "One in Four American Households Is One Person Living Alone," 2014

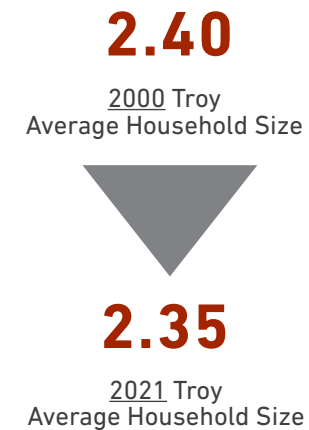
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HOUSEHOLD SIZE 2010



CHANGE IN HOUSEHOLD SIZE

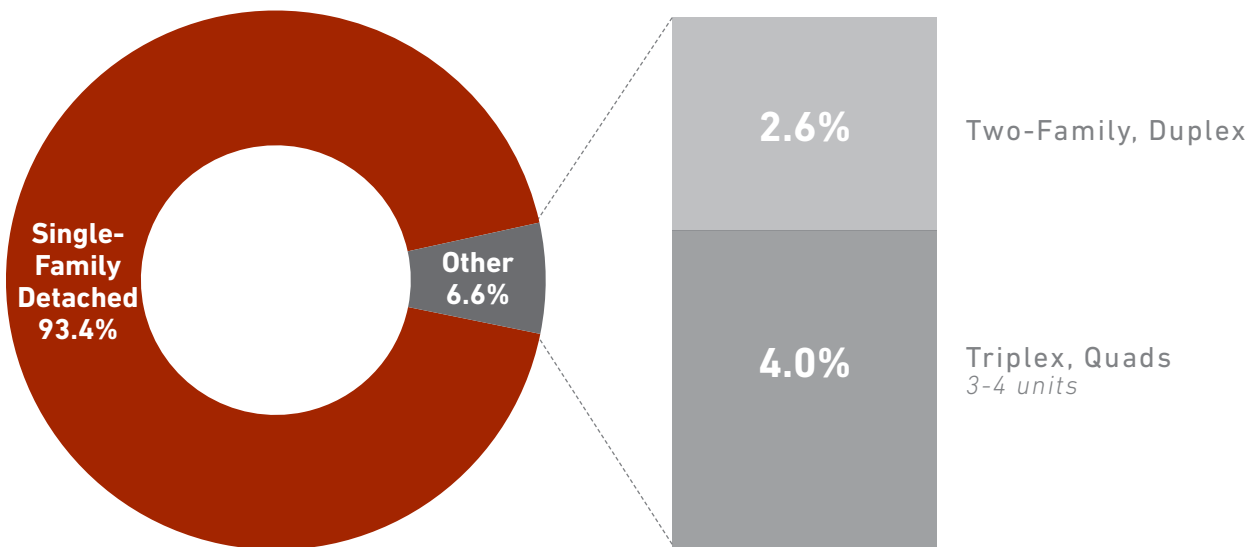


Source: U.S. Census & ESRI

MARKET ANALYSIS: RESIDENTIAL

TODAY, ABOUT 93 PERCENT OF WHAT GETS BUILT IN TROY IS SINGLE-FAMILY DETACHED. BUT ONLY HALF OF NATIONAL CONSUMERS PREFER THAT, LEAVING ABOUT A THIRD OF HOUSEHOLDS WANTING SOMETHING ELSE WITHOUT A WAY TO GET IT

DEMAND NOT DRIVING SUPPLY

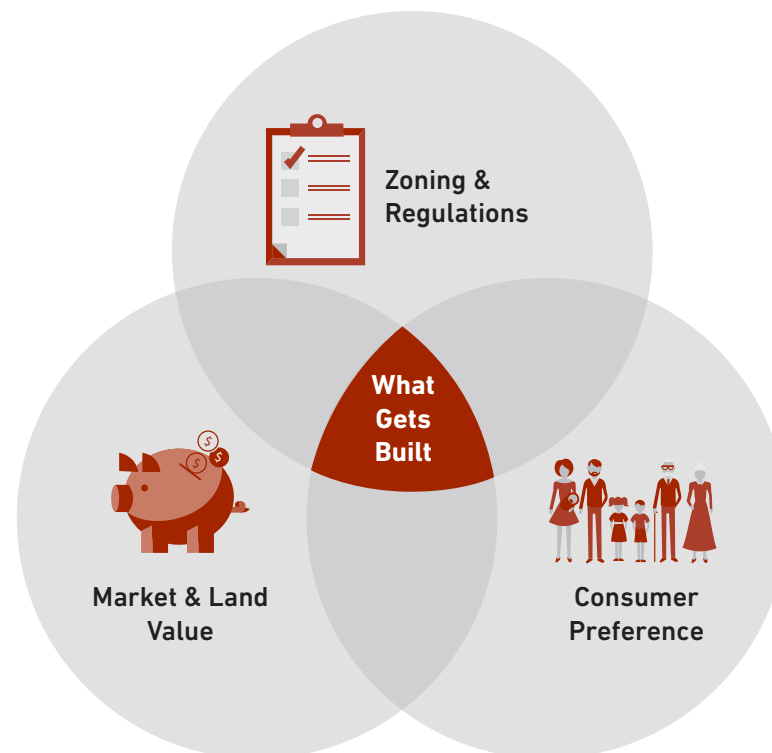


Source: US Census, 2015 residential building construction; reflects Miami County, OH new construction in 2015

MARKET ANALYSIS: RESIDENTIAL

CONSUMER PREFERENCE IS NOT THE ONLY FACTOR INFLUENCING WHAT ACTUALLY GETS BUILT IN MOST COMMUNITIES. THE REGULATORY ENVIRONMENT AND THE MARKET ALSO PLAY A ROLE

NEW CONSTRUCTION NOT SOLELY DEPENDENT ON CONSUMER DEMAND



Source: adapted from RCLCO

MARKET ANALYSIS: RESIDENTIAL

PLANNING AND DEVELOPMENT POLICIES OFTEN ADDRESS THE FAR ENDS OF THE HOUSING SPECTRUM (SINGLE-FAMILY DETACHED AND LARGER MULTI-FAMILY) NEGLECTING ALTERNATIVE DEVELOPMENT TYPES

MISSING MIDDLE HOUSING TYPES EXPAND CHOICE & AFFORDABILITY

Multi-unit or clustered housing that is in scale with surrounding single-family neighborhoods offers a solution to the disconnect between existing housing stock and shifting demographic preferences.



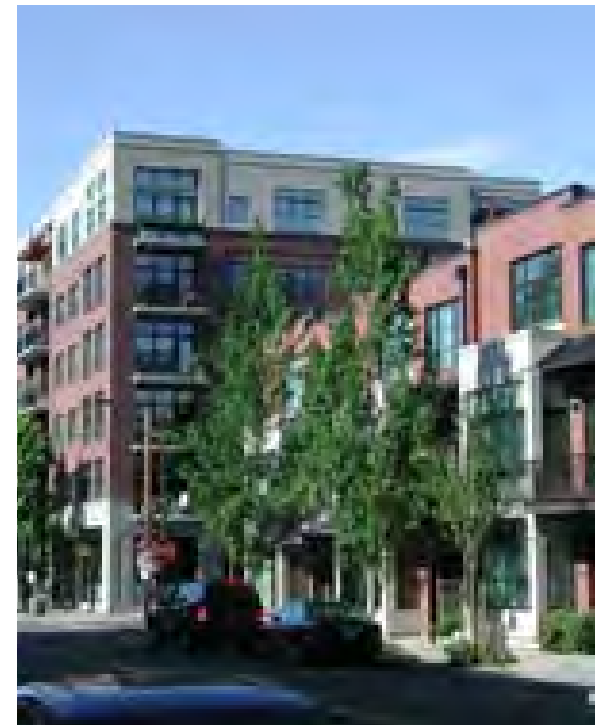
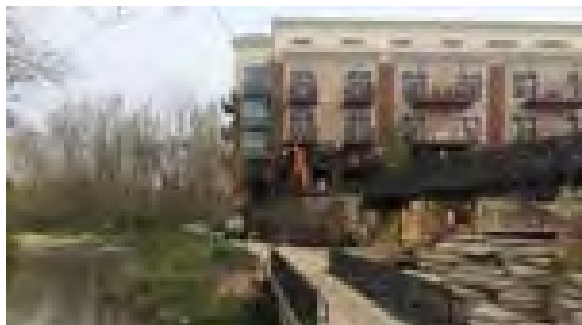
Source: missingmiddlehousing.com

MARKET ANALYSIS: RESIDENTIAL

DOWNTOWN TROY IS A GREAT LOCATION TO OFFER MORE HOUSING OPTIONS TO MORE SEGMENTS OF TROY'S POPULATION. BUILDING OFF OF ITS MOMENTUM, DOWNTOWN TROY CAN BE SOLIDIFIED AS A PLACE TO LIVE, WORK, AND PLAY

RESIDENTIAL DEMAND TABLE

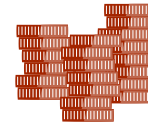
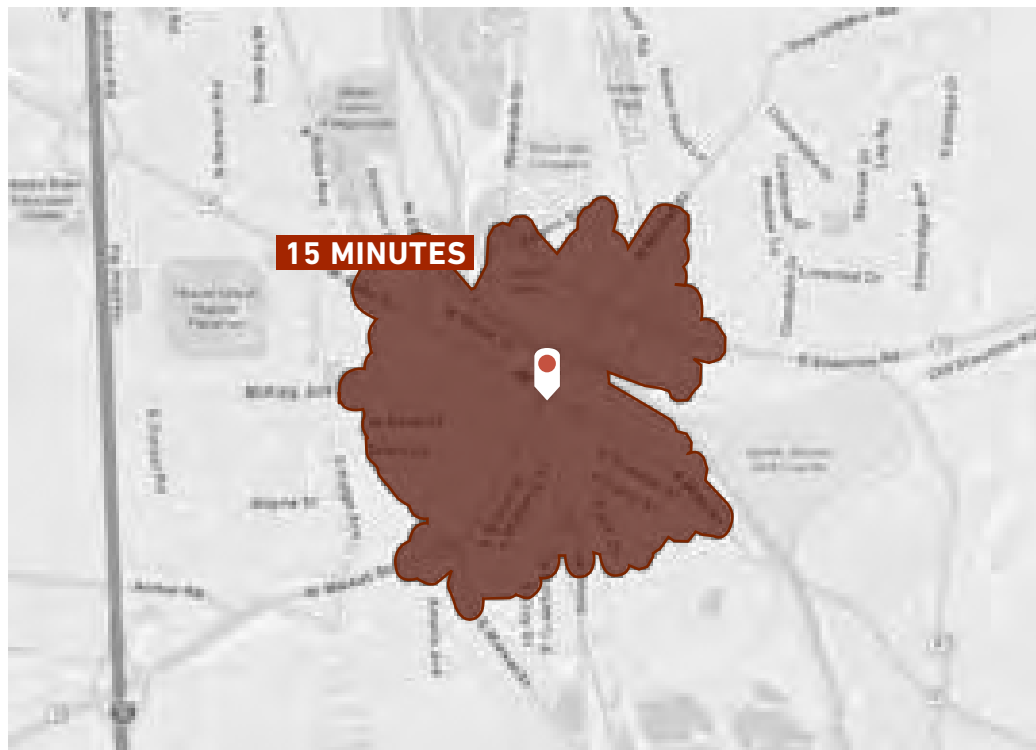
	Low	High
Annual New Housing Demand	40	65



MARKET ANALYSIS: RETAIL

THE FOLLOWING MAP SHOWS THE DOWNTOWN TRADE AREA—A 15 MINUTE WALK FROM THE PUBLIC SQUARE. ABOUT \$30 MILLION OF THESE HOUSEHOLDS' EXPENDITURES LEAVE THE AREA

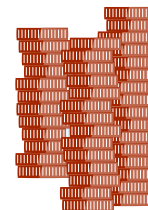
15 MINUTE WALK



\$55,824,721

Total sales 2016

The total 2016 sales in retail, food, and drink in a 15 minute walk area surrounding downtown Troy.



\$85,284,829

Household Expenditures 2016

The 2016 total household expenditures of the 1,999 households in Downtown Troy

Source: Esri

MARKET ANALYSIS: RETAIL

SURPLUS AND LEAKAGE IS A MEASURE OF THE RELATIONSHIP BETWEEN SUPPLY AND DEMAND THAT RANGES FROM +100 (TOTAL LEAKAGE) TO -100 (TOTAL SURPLUS).

SURPLUS/LEAKAGE FACTOR

Surplus

Surplus- Businesses are capturing more than local residents are spending; suggests the trade area is attracting non-local shoppers.

Leakage - Residents are spending more than local businesses capture; suggests that there is unmet demand in the trade area.

Leakage

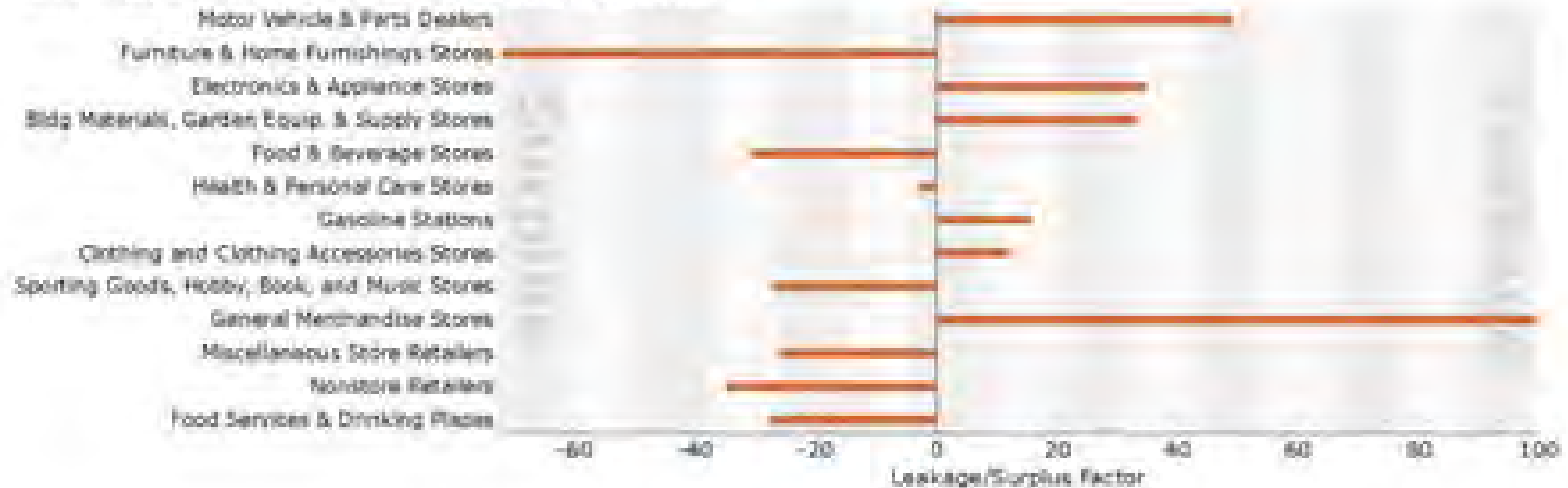
MARKET ANALYSIS: RETAIL

WHILE THERE IS OVERALL LEAKAGE OF ABOUT \$30 MILLION, DOWNTOWN TROY PERFORMS VERY WELL WITH SHOPPING AND RESTAURANTS

TROY SURPLUS & LEAKAGE, 2016

15-Minute Walk From Market and Main

Leakage/Surplus Factor by Industry Subsector



Source: Esri

MARKET ANALYSIS: RETAIL

DOWNTOWN TROY'S CONTINUED SUCCESS AS A COMMERCIAL AND ENTERTAINMENT DESTINATION CAN CONTINUE TO GROW MODESTLY FOR THE FORESEEABLE FUTURE. NEW VISITOR AND EMPLOYEE SPENDING COULD FURTHER INCREASE DEMAND

RETAIL DEMAND TABLE

	Low	High
New Annual Commercial Retail Demand*	3,800 Square Feet	6,400 Square Feet



*This demand is projected from growth in household spending. Due to a lack of data sources, visitor and employee spending is not accounted for in this analysis.
Source: Greenstreet Ltd.

MARKET ANALYSIS: OFFICE

CONCORD TOWNSHIP IS AN EMPLOYMENT HUB, AS THE COUNTY SEAT AND HOME TO MANY LARGE EMPLOYERS. FEW PEOPLE LIVE AND WORK WITHIN THE TOWNSHIP, HOWEVER, WHICH IS ESPECIALLY PRONOUNCED AMONG YOUNGER HOUSEHOLDS

EMPLOYEE INFLOW/OUTFLOW

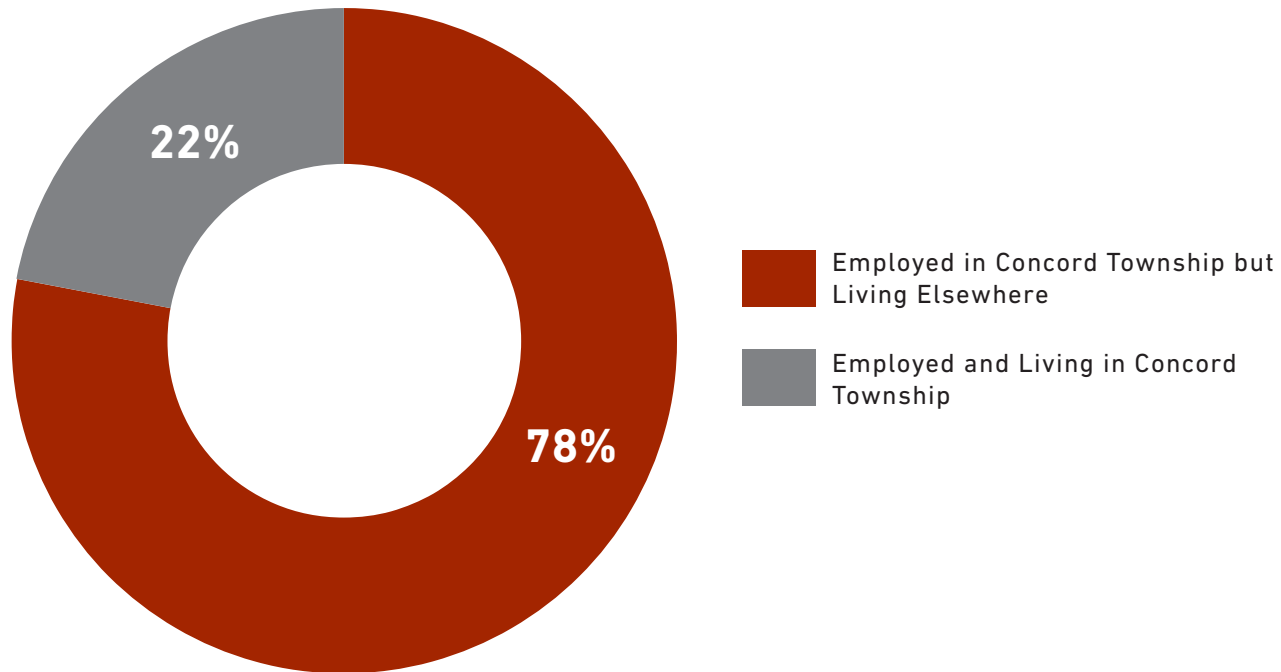


Source: US Census On the Map 2014

MARKET ANALYSIS: OFFICE

78% OF EMPLOYEES IN CONCORD TOWNSHIP LIVE ELSEWHERE. THESE EMPLOYEES COULD BE A POTENTIAL RESIDENTIAL DEMAND SOURCE

EMPLOYEE MIGRATION



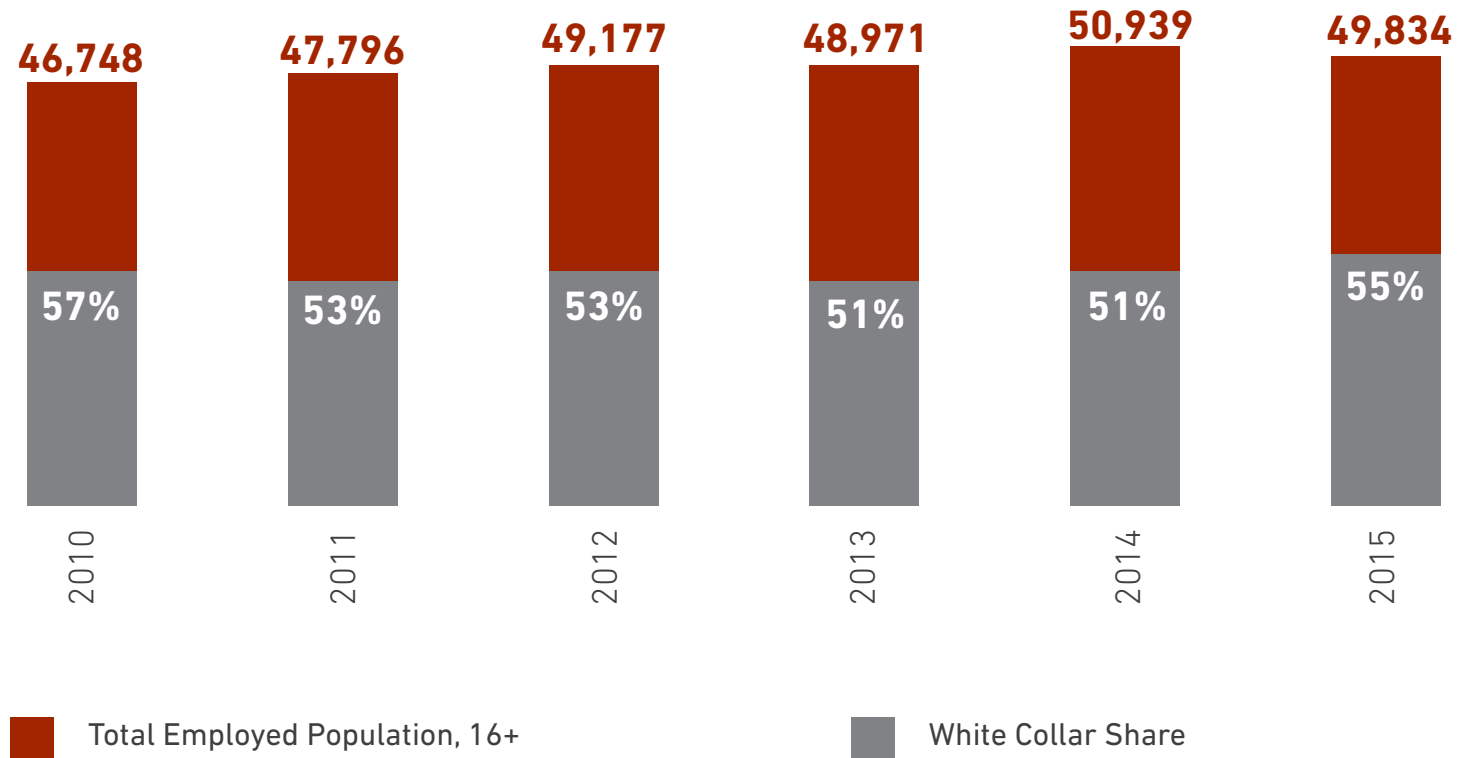
Source: US Census On the Map 2014

MARKET ANALYSIS: OFFICE

78% OF EMPLOYEES IN CONCORD TOWNSHIP LIVE ELSEWHERE. THESE EMPLOYEES COULD BE A POTENTIAL RESIDENTIAL DEMAND SOURCE

MIAMI COUNTY EMPLOYMENT TRENDS

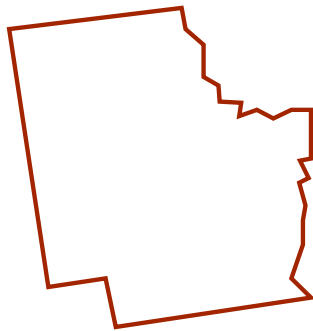
2015 Unemployment rate: 5.5%



Source: American Community Survey

MARKET ANALYSIS: OFFICE

DOWNTOWN TROY SHOULD CONTINUE TO SEE DEMAND FOR OFFICE SPACE. WHEN RENTS REACH A HIGH ENOUGH POINT, NEW CONSTRUCTION WILL BECOME MORE FEASIBLE.



10,430

Relocation potential: People live inside Concord Township but work elsewhere

POTENTIAL OFFICE DEMAND DRIVERS

Existing Demand: There is current unmet non-profit demand located downtown.

New Growth: New enterprise creation and growth drives office demand.

Relocation: Affordable high-speed internet can allow more remote workers to locate in Troy. This can be single users in coworking spaces or larger firms establishing satellite offices.

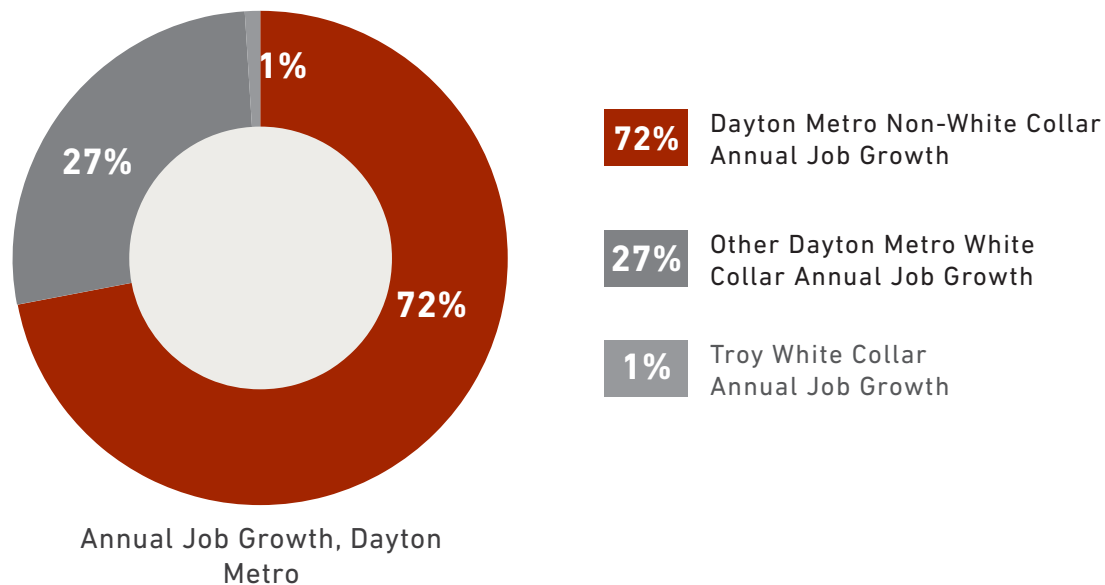
Relocation: Relatively inexpensive office space can attract some tenants from Dayton or other markets, especially in renovated historic buildings.

MARKET ANALYSIS: OFFICE

ABOUT A QUARTER OF METRO DAYTON'S JOB GROWTH IS EXPECTED IN NON-WHITE COLLAR INDUSTRIES, WHICH DO NOT DRIVE OFFICE SPACE DEMAND. THROUGH 2022, TROY'S WHITE COLLAR INDUSTRIES CAN EXPECT ABOUT 1% OF THE METRO'S JOB GROWTH

ANNUAL WHITE COLLAR JOB GROWTH, 2012 - 2022

Total new jobs Metro Dayton: 20,900



Source: Ohio Department of Job and Family Services

MARKET ANALYSIS: OFFICE

FROM MODEST JOB GROWTH AND POTENTIALLY ATTRACTING NEW BUSINESSES, DOWNTOWN TROY CAN EXPECT TO SEE MODEST NEW OFFICE DEMAND

OFFICE DEMAND TABLE

	Low	High
Commercial Office Space	2,800 Square Feet	4,000 Square Feet



Source: Esri

MARKET ANALYSIS: SUMMARY

OVER THE NEXT FIVE TO TEN YEARS, THE FOLLOWING TABLE DESCRIBES ANNUAL DEMAND FOR RESIDENTIAL, COMMERCIAL RETAIL AND OFFICE USES

DEMAND SUMMARY TABLE

	Low	High
Annual Residential Demand	40 Units	65 Units
Annual Retail Demand	3,800 Square Feet	6,400 Square Feet
Annual Office Demand	2,800 Square Feet	4,000 Square Feet

Source: Greenstreet Ltd.

MARKET ANALYSIS: SUMMARY

THE FOLLOWING X-FACTORS HAVE THE ABILITY TO CHANGE TROY'S TRAJECTORY. THOSE LISTED HERE ARE NOT COMPREHENSIVE, BUT REPRESENT SOME OF THE LARGEST OPPORTUNITIES OR IMPEDIMENTS THAT ARE LIKELY TO AFFECT DOWNTOWN AND THE RIVERFRONT

X-FACTORS

Demographic Shifts

An aging population's needs must be balanced against attraction of younger households

Redevelopment of Key Downtown Sites

Limited infill sites should be leveraged to diversify Troy's housing options and provide new commercial space

Supply Shortage

New real estate demand will not be captured if there is not sufficient supply at the right price

Downtown and Riverfront Momentum

Troy should continue to build on the momentum of downtown to attract new investment



Source: Greenstreet Ltd.

MARKET ANALYSIS: SUMMARY

TROY IS AMONG MANY COMMUNITIES STRUGGLING TO ATTRACT NEW WORKING AGE RESIDENTS DUE TO A LACK OF ENTRY LEVEL HOUSING OPTIONS, TRANSPORTATION, LATE NIGHT ENTERTAINMENT OPTIONS, AND LOCAL EDUCATIONAL RESOURCES

TOP FACTORS FOR WORKFORCE ATTRACTION AND RETENTION

Millennials prefer to rent or buy smaller homes, but much of what Troy builds are larger, single-family detached homes.

Troy needs to offer a variety of apartments, including some that are affordable and located downtown.

Land-use regulations and lack of available land restrict developers' ability to build apartments.

Despite the 12,000 available jobs in the 7-county region, employers are often not able to find potential employees with the necessary skills in advanced manufacturing.

Public transportation is insufficient for the transit-dependent (those without cars) living in Miami County and the counties to the north and east. In addition, Dayton's bus service does not come into Miami County.

DEVELOPMENT TOOLKIT

TOOL	TYPE	SOURCE	APPLICATION	LEAD ORGANIZATIONS	AUTHORIZATION	SOURCE
EPA Brownfields Program	Funding	Federal	Remediation	Public Sector	U.S. H.R. 2869, 2002	https://www.epa.gov/sites/production/files/2015-09/documents/anat_bf_redev_101106.pdf
Special Improvement District	Funding	Local	Construction, Other	Public Sector	Ohio Revised Code (ORC) 1710.02, 2000	http://codes.ohio.gov/orc/1710
Community Reinvestment / Area Program	Funding	State	Construction	Public Sector	Ohio Revised Code (ORC) 3735.65 - 70	http://www.troyeconomicdevelopment.com/Credits.html
Tax Increment Financing	Funding	Local	Construction	Public Sector	Amended HB 530, March 2006	
Downtown Redevelopment District	Funding	Local	Construction	Public Sector	Am. Sub. House Bill 233 ("H.B. 233")	http://www.beneschlaw.com/Downtown-Redevelopment-Districts-Provide-Additional-Economic-Development-Tools-for-Ohio-Municipalities-07-22-2016/ http://www.vorys.com/publications-1713.html
Community Development Block Grant	Funding	State	Construction	Public Sector for Small Cities	Title I of the Housing and Community Development Act, 1974	
HOME Investment Partnerships Program	Funding	State	Preservation, Construction	Public Sector for Small Cities	Title II of the Cranston-Gonzalez National Affordable Housing Act, 1990	
Property Assessed Clean Energy	Funding	State	Construction	Local Government	SB 232, 2010	http://www.bricker.com/insights-resources/publications/property-assessed-clean-energy-pace-financingthe-ohio-story
Historic Tax Preservation Credit – Federal / State	Funding	Federal / State	Preservation	Private Sector and/or Not-for-profits	H.B. 149 of the 126th General Assembly, 2007	
City of Troy Small Business Development Revolving Loan Fund	Loan	Local	Other	Local Government		
Economic Development Revolving Loan Fund	Loan	Local	Other	Local Government		http://www.troyeconomicdevelopment.com/Credits.html
Consortium for Ongoing Reinvestment Efforts	Funding	Local	Preservation, Acquisition, Construction	Troy Redevelopment Council or other redevelopment authority		http://www.troyeconomicdevelopment.com/Credits.html

*Note: This list is not meant to be exhaustive, and the political and regulatory environment may change. Explanations for each tool can be found on the following pages.

DEVELOPMENT TOOLKIT - CONTINUED

EPA Brownfields Program

Brownfields Assessment Grants provide funding for Brownfields inventories, planning, environmental assessments, and community outreach. Brownfields Area-Wide Planning Grants provide funding to communities to research, plan and develop implementation strategies for cleaning up and revitalizing a specific area affected by one or more Brownfields sites. Brownfields Job Training Grants provide environmental training for residents of Brownfields communities.

Special Improvement District (SID)

A community, neighborhood, or business district that desires public improvements and services beyond the level currently provided may want to investigate a Special Improvement District (SID). Most states formalized legislation enabling the creation of such taxing districts—also known as Business Improvement Districts, Special Services Areas, or Community Improvement Districts—in the 1990s. While the concept originated in Canada in 1970, the authority to create a SID in Ohio was outlined in Ohio Revised Code (ORC) 1710.02 as of June 27, 2000.

Community Reinvestment Area (CRA) Program

A CRA is an area of land in which property owners can receive tax incentives for investing in real property improvements. The CRA Program is a direct incentive tax exemption program benefiting property owners who renovate existing or construct new buildings. The program permits the City of Troy to designate areas where investment has been discouraged as a CRA to encourage revitalization of the existing housing stock and the development of new structures.

Tax Increment Financing (TIF)

Tax Increment Financing raises revenue for capital or operating costs by diverting increased property tax revenue generated by increasing existing property values and new development. Because the tax increment is based on the total increase in taxes generated, new development has a much greater impact on tax increment than growth in value in existing properties. For this reason, TIF can generate a significant amount of revenue where currently underutilized parcels are the focus for new development.

Downtown Redevelopment District (DRD)

Ohio municipalities create Downtown Redevelopment Districts (DRDs) to encourage the rehabilitation of historic buildings and economic development in commercial and mixed-use areas. DRDs are very similar to Tax Increment Financing (TIF) areas, but the use of the proceeds generated within DRDs is broader than what is currently available for TIFs. In general, a DRD exemption may be for up to 10 years, 70% without approval of the affected local school district. With school district approval or with the inclusion of “non-school” language in the municipal legislation, the exemption may be for up to 30 years, 100%. Municipalities also may designate an Innovation District within a DRD, the purpose of which is to attract and facilitate growth of technology-oriented businesses and to support the economic development efforts of business incubators and accelerators.

Community Development Block Grant (CDBG)

CDBG entitlement program allocates annual grants to cities and counties to develop safe housing and expand economic opportunities for low- and moderate-income persons. Activities supported by these funds must address one of the national priorities: benefit low- and moderate-income persons, prevention or elimination of blight, or address community development needs that pose serious and immediate threat to the health or welfare of a community.

HOME Investment Partnerships Program

HOME provides grants to states and local municipalities to fund a wide range of activities including building, buying, and/or rehabilitating affordable housing for both rent and homeownership. Activities may include direct financing assistance, construction/rehab, site acquisition or improvement, demolition, and relocation expenses.

Property Assessed Clean Energy (PACE)

Property Assessed Clean Energy (PACE) programs represent one of the newest mechanisms available for financing energy efficiency and renewable energy improvement projects. They allow qualifying energy improvements to be financed through assessments on a property owner’s real estate tax bill. The special assessments are used to secure local government bonds issued to fund the improvements without requiring the borrower or the sponsoring local government to pledge its credit. By allowing participating property owners to pay for energy improvements to their properties via a bond issue tied to a special assessment on their property tax bill, PACE financing enables property owners to reduce energy costs with no upfront investment.

Historic Tax Preservation Credit - Federal / State

Jointly administered by the US Department of the Interior and the Department of the Treasury, tax credits are made available to Ohio tax payers who engage in certified rehabilitations of income-producing historic buildings. Taxpayers may claim up to 25% of the total qualified rehabilitation or preservation cost of project. The total credit is limited to \$5 million unless it qualifies as a catalytic project. Buildings cannot be rehabilitated for single-family or multi-family condominiums.

DEVELOPMENT TOOLKIT - CONTINUED

City of Troy Small Business Development Revolving Loan Fund

The Troy Small Business Development Loan Program is a City-administered Revolving Loan Fund using local dollars. The program was designed to assist existing businesses that are expanding, but having difficulty securing traditional financing.

Economic Development Revolving Loan Fund (ED RLF)

The Troy Economic Development Revolving Loan Fund is a City-administered program leveraging federal dollars to provide “gap financing” to businesses that have a primary lender. The Troy ED RLF strengthens cash flow and capacity position for the business by requiring less equity and providing a lower interest rate. In addition, the program is attractive for banks as the City helps guarantee the loan by taking a subordinate position.

Consortium for Ongoing Reinvestment Efforts (CORE)

This is a redevelopment fund example from Hamilton, Ohio, that could be replicated in Troy, Ohio. The fund is made up of three functions:

- » Investment Fund - CORE provides gap financing for large redevelopment projects undertaken in Hamilton’s urban core by private developers.
- » Strategic Property Fund - CORE purchases key underutilized commercial properties and works to reactivate them. CORE ensures they are secure and weather tight while aggressively seeking private developers and businesses to partner with for redevelopment.
- » Residential Redevelopment Fund - CORE acquires historic residential properties and seeks homeowners to partner with to renovate the homes.

ACTIVATION STRATEGY

TESTING IDEAS TO DRIVE OUTCOMES

Some of our favorite places started in tents, out of the back of a truck, or in a garage. The Plan's methodology takes that approach to testing ideas coming out of the Plan and pursues them immediately, testing what works and what does not en route to reaching a particular outcome.

When we do this work, we strive to capitalize on what exists, focus on key locations that can create opportunities for further development, promote connectivity between anchors and experiences, and bring people together. It is this kind of energy, experience, and creativity that makes people want to retire here and brings our younger generations back to re-establish roots.

The following section includes several categories of ways to activate downtown Troy and, within each category, several concepts to consider. Each category has a hypothesis on an outcome that the activation seeks to bear out. Once the activation strategy(ies) is selected, the next step will be to develop and scope that idea out further, design the experience, and deliver it in the summer of 2017.



ACTIVATION STRATEGY

RETAIL

SHARE THE HAIR / HAIR ON THE SQUARE Give back to benefit organization like Locks of Love and animate the Public Square or spaces just off of it.

POP UP SHOPS Inspire and support young entrepreneurs to fill quirky or underused space and assist through mentorship program.

CITY FLEA / MAKERS MARKET Host a makers market that brings vendors and artisans around a theme to an underused part of downtown.

OUTCOME:
STRENGTHEN CURRENT RETAIL AND
EXPAND THE OFFERING WITH FRESH IDEAS



ACTIVATION STRATEGY

CULINARY/RESTAURANT

FARM TO FAMILY Recruit young chefs from Troy who have moved to bigger cities to come back home for pop-up community dinner where everyone breaks bread together

FOOD FIGHT Host a local chef competition

SMOOTHIE ON WHEELS Bring food to potential market locations in partnership with the farmers market

FOOD TRUCK RALLY Recruit region's best food trucks featuring a variety of cultural food offerings to an interesting space in downtown Troy

OUTCOME:
CREATE A STRONGER NIGHT AND WEEKEND
FOOD SCENE



ACTIVATION STRATEGY

ENTERTAINMENT

LIGHT UP THE NIGHT Hold a concert focused on bringing in national talent and activating the river front with urban camping

PLAY IN THE PARK Organize a recurring series of nights with family/friend activities for kids in the local parks near downtown

GORILLA CINEMA Pop up an outdoor theater on Cherry Street and host movie nights with themed food and beverages

URBAN CAMPING AND OUTDOOR EXPLORE Organize a regional overnight bike ride or hike that stops over in Troy and explores the city and regional trail network.

OUTCOME:
BROADEN THE DOWNTOWN EXPERIENCE



ACTIVATION STRATEGY

ARTS / CREATIVE

PILOT A HOBART INSTITUTE ARTIST-IN-RESIDENCE PROGRAM

Recruit top sculptors and metallurgical artists to exhibit, speak, and teach and sponsor a metal-working artist to live in Troy for a year

ARTS & DRAFTS Host a regular meetup and demonstrations with artists in partnership with regional breweries

COSIGN Pair the welding school, artists, small businesses, and sign fabricators to design and install a critical mass of unique handcrafted signage in and around the downtown business district

OUTCOME:

LINK INDUSTRIAL HERITAGE WITH A DIVERSE ARTS SCENE TO FOSTER A NEW ARTIST-IN-RESIDENCY AND MAKERS SCENE



ACTIVATION STRATEGY

MOBILITY & MOVEMENT

BIKE PARADE - Tour de Troy with an event in an unexpected location at its conclusion

BIKE WAY FINDING - downtown map with creatively painted and buffered pathways along the routes identified in the Plan

RICKSHAW - City ambassador program to transport to and from surrounding neighborhoods

PADDLE BOAT COMPETITION host river races from Treasure Island to the Spinnaker Building



TROY RIVER DISTRICT NEW RIVER CROSSING
ALTERNATIVES EVALUATION REPORT

August 15, 2017



*Proposed location for new
pedestrian bridge*

DRAFT REPORT: CITY STAFF REVIEW
August 16, 2017



PREPARED FOR:
City of Troy

100 S. Market Street
Troy, Ohio 45373

PREPARED BY:
LJB Inc.

2500 Newmark Drive
Miamisburg, OH 45342
(937) 259-5000

Dan Hoying, P.E., P.S., PMP
DHoying@LJBinc.com



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OVERALL SUMMARY AND RECOMMENDATIONS

The Troy downtown riverfront strategic development plan was developed by MKSK to help the city of Troy and other local stakeholders define priorities to further develop the strengths of the community and create a sought-after place for people to live, work and play. In early stakeholder and public involvement meetings, the concept of a pedestrian bridge that links the north riverbank with downtown emerged as an option to explore early in the development process so potential funding sources and partnerships could be fully explored well before construction.

This report explores three concepts for a pedestrian bridge to provide a convenient connection from the Hobart Arena area to downtown Troy. Landscaping and lighting options related to the bridge are addressed as well.

All three bridge alternatives can be customized with the landscaping and lighting options outlined in the report. In addition, the three options all contain provisions for pier overlooks at each bank, which provide a larger deck area for flexibility of use and potential event programming at the river’s edge. The wider overlooks at the bank also reduce the perceived distance across the bridge.

Bridge Alternative 1 is a main span cable-stayed bridge. The cable-stayed option offers an architecturally significant focal point for the river corridor to draw people to explore the amenities of the area. This option offers hydraulic advantages with the low profile of the deck, which allows it to limit impacts to the waterway. The drawback to this alternative is that it has the highest estimated cost, as shown in the adjacent cost summary.

Bridge Alternative 2 uses haunched steel girders for the main spans. The variable depth girders are similar to other area bridges. This alternative is a traditional bridge type with limited architectural impact. The large spans lead to deep girders that may have a greater impact on the hydraulic design of the structure. The relative simplicity of the structure gives this option the lowest estimated cost.

Bridge Alternative 3 is a constant depth thru girder structure. The bridge type mimics the look of a railroad bridge and provides more interesting aesthetic opportunities than a traditional pedestrian bridge. It has similar hydraulic implications to Alternative 2. The estimated cost for this structure type is slightly higher than the lowest cost alternative.

LJB recommends the haunched steel girder structure (Alternative 2). This structure is the most cost-effective structural solution (as shown in Table 1) and will allow the city the flexibility to customize the landing areas to suit the needs of the community. The traditional profile will blend well with existing structures nearby. The evaluation criteria determined for this study are described in more detail in the following sections and are summarized in Table 2.

COST SUMMARY

TABLE 1 – COST ESTIMATE SUMMARY

ALTERNATIVE	TOTAL CONSTRUCTION COST	TOTAL PROJECT COST
Alternative 1 – Cable-stayed	\$13,974,421	\$15,671,863
Alternative 2 – Haunched Steel Girders	\$6,264,611	\$7,191,072
Alternative 3 – Constant Depth Thru Girders	\$6,373,015	\$7,310,316

Total construction cost includes bridge cost, landscaping and lighting.
Total project cost includes construction cost, as well as contingencies for design and environmental work.
See Appendix A for detailed cost information.

EVALUATION CRITERIA SUMMARY

TABLE 2 – EVALUATION CRITERIA SUMMARY

ALTERNATIVE	REGIONAL SIGNIFICANCE	AESTHETIC IMPACT	FLEXIBILITY OF USE	COST	COMPOSITE SCORE
Alternative 1 – Cable-stayed	5	5	2	1	2.8
Alternative 2 – Haunched Steel Girders	2	2	5	4	3.4
Alternative 3 – Constant Depth Thru Girders	3	3	4	3	3.2



DRAFT PURPOSE AND NEED

The City of Troy has a goal to strategically develop the downtown river district. MKSK is currently working with the city to craft an action-oriented, strategic investment plan for downtown that leverages the city’s inherent strengths, riverfront and historic core. The plan will help connect current initiatives, as well as identify complementary focus areas to unlock development possibilities.

One of the primary goals of this plan is to improve connectivity between the river district, Hobart Arena, and the extensive regional trail network to residents and businesses in downtown Troy. A new river crossing is necessary to increase connectivity, foster economic development and create a landmark for the city. The new river crossing will create a park-once opportunity for residents, commuters and visitors to the numerous destinations in the city by increasing accessibility to additional parking for the courthouse and provide a connection to revitalized Water Street and Cherry Street.

While other alternatives exist and will be evaluated during the preliminary engineering of this project, the new river crossing discussed in this report best accomplishes each of the city’s objectives. The Adams Street bridge includes wide sidewalks and brings the regional recreational trail network to the city streets. However, the required travel distance from the parking at Hobart Arena to the downtown destinations is too significant to encourage frequent use. The Market Street bridge currently includes only narrow sidewalks and recently had a new deck installed. The useful life of this structure is estimated at approximately 20 years, limiting the likelihood of additional investment in widening the structure to better accommodate the pedestrian and bicycle modes of transportation in the near future. The new river crossing shortens the distance and provides additional experiential opportunities that will encourage its use and allow the city to best leverage its assets to meet the objectives of the plan.

The purpose of this study is to review alternatives for the new river crossing bridge type and bridge approach elements. Through a variety of evaluation criteria and scoring of alternatives, the goal of this study is to provide a recommendation for the most appropriate and cost-efficient option for the new river crossing.

GENERAL APPROACH AND ASSUMPTIONS

LJB Inc. and MKSK worked together with the City of Troy to determine the criteria and goals for the bridge alternatives. Using the vision from the Troy downtown riverfront strategic development plan as a guide, the team collaborated to determine three bridge alternatives for evaluation.

The same span arrangement was used for each bridge alternative. Span lengths of 75 feet, 230 feet, 230 feet and 75 feet create a total length of 610 feet from levee to levee. The span lengths were chosen to simplify the comparison between the alternative bridge types and provide cost-effective options for architectural impact. Shorter end spans reduce costs by using rolled steel beams and shorten the perceived length of the bridge by creating a distinct space separate from the main spans. The longer main spans can then optimize the efficiency of the selected structural options.

EVALUATION CRITERIA

The evaluation criteria and the weighting of each item are described below. For each alternative, the criteria are given a score of 1 to 5, with 1 being the least desirable and 5 being the most desirable for any given category. The highest total score is then used to determine the recommended alternative.

Regional Significance

- > 20% of scoring
- > Troy has a number of memorable landmarks, such as the courthouse, grain silo, and the fountain in the square. The proposed bridge location in downtown Troy affords the ability to create another such landmark that will further set Troy apart from its peer cities. The regional significance criteria is a measure of how well each alternative will not only draw people from around the state but also attract people to cross the bridge, better uniting downtown to Hobart and allowing people to interact with the river.

Aesthetic Impact

- > 20% of scoring
- > The aesthetic impact criteria is a measure of the structural solution’s ability to have an architectural presence, providing a beautiful form as well as function.

Flexibility of Use

- > 20% of scoring
- > The bridge space has the ability to serve a purely functional connection or act as a destination in and of itself, with areas for events or gathering space for enjoying the river and views of downtown Troy. The flexibility of use depends on the layout and useable width of the deck area, as well loading assumptions.

Cost

- > 40% of scoring
- > Total cost for design and construction of the bridge, approaches and landing areas. See Appendix A for additional cost information.



LANDSCAPE ENHANCEMENTS

LANDSCAPE ENHANCEMENT COSTS

TABLE 3 - LANDSCAPE COSTING TABLE

ITEM OF WORK DESCRIPTION	APPLIES TO ALL ALTERNATIVES	AREA	UNIT COST	TOTAL COST
Landscape Areas (Plantings)	Yes	55,000 ft ²	\$5.00 / ft ²	\$275,000
Approaches (On Both Sides of River)	Yes	5,500 ft ²	\$30.00 / ft ²	\$165,000
Landings (On Both Sides of River)	Yes	6,000 ft ²	\$30.00 / ft ²	\$180,000
Bike Path Shaping	Yes	5,500 ft ²	\$12.00 / ft ²	\$66,000
Primary Span Upgraded Surface (Cable-stayed)	--	7,360 ft ²	\$30.00 / ft ²	\$220,800
Primary Span Upgraded Surface (Haunched Girder)	--	9,200 ft ²	\$30.00 / ft ²	\$276,000
Primary Span Upgraded Surface (Thru Girder)	--	9,200 ft ²	\$30.00 / ft ²	\$276,000
Benches and Seating	Haunched and Thru	10 Benches	\$2,000 / bench	\$20,000
Pier / Overlook (Cost for Both sides) - Optional	Yes	2,000 ft ²	\$30.00 / ft ²	\$60,000
Total	Between \$686,000 and \$ 1,042,000			

Landscape Costs Explanation

Landscape Areas (Plantings)

This is a general cost for landscape beds and areas made up of plantings including perennials, ground cover, ornamental grasses, and more.

Approaches (On Both Sides of River)

This row uses a general cost to cover the paving of the approaches. This row includes the approaches on both sides of the river.

Landings (On Both Sides of River)

This row uses a general cost to cover the paving and surface treatments of the landings. This row includes the landings on both sides of the river.

Path Shaping

This cost is for the reshaping of the bike paths to connect to the new landings.

On-Span Treatments

This cost is for special paving used on the walking deck of the bridge alternatives.

Benches and Seating

This cost is a general per unit cost for benches on the landings, and spans of the various bridges. This only applies to the Haunched Girder and Thru Girder bridges.

Pier / Overlook (Cost for both sides)

This cost covers special paving for the pier overlooks. The total for this row includes the pier overlook on both sides. This is an optional cost.



Examples for "On-Span Treatments"



"Landscape Areas (Plantings)" Example



Approaches / Landings Example with Path Connections



Pier Overlook example



Landscape Costing Zones

Orange- Landscape Areas
Dark Gray – Approaches / Landings
Light Gray – On-Span Treatments
Purple – Pier Overlook



 LIGHTING ENHANCEMENTS

TABLE 4 - LIGHTING COSTS TABLE

ITEM OF WORK DESCRIPTION	AREA COVERED	UNIT COST	TOTAL COST
Lighting – General Estimate (Cable-stayed)	Span and Landing	--	\$200,000
Lighting – General Estimate (Haunched and Thru)	Span and Landing	--	\$100,000
Under-Lighting Fixture	Span	\$200 / LF	\$92,000

Lighting Costs Applicability

The general lighting cost is an overall estimate for the bridge alternatives. This estimate includes costs for lighting on the landings and the spans of the bridge. The difference in costs come from the desire to add architectural lighting to the cable-stayed bridge because of the prominent vertical elements.

The under-lighting cost is a general cost for adding additional accent lighting to the bridge and is an optional cost.



Light Fixture Example for Landings



Example of Architectural Lighting on Bridge



BRIDGE DESIGN CRITERIA

The following criteria and assumed loading were used for the preliminary design of the bridge alternatives to determine appropriate construction costs.

Specifications

- > AASHTO LRFD Bridge Design Specifications, 7th Edition with 2015 and 2016 Interim Revisions
- > AASHTO LRFD Guide Specifications for the Design of Pedestrian Bridges, 2nd Edition, with 2015 Interim Revisions
- > ODOT Bridge Design Manual, 2007 Edition, with most recent updates

Dead Loads

- | | |
|--|-----------|
| > Normal Weight Reinforced Concrete Deck | 150 pcf |
| > Steel Railing Allowance | 75 lbs/ft |

Live Loads

- > H-15-44 Truck (30,000 lb gross weight, per ODOT Bridge Design Manual 301.4.2)
- > Pedestrian Load of 90 psf on the full bridge deck area

ITEMS COMMON TO EACH ALTERNATIVE

The shorter approach spans and the substructure are substantially the same for each of the three alternatives. Any variation in size or aesthetics are accommodated in the cost estimates, but the basic description and assumptions are as described below.

Approach Work – Shared Use Path and Connections

The approach work consists of constructing and supporting a shared use path connection to the Great Miami River recreational trail. The cost of this work includes a 10-foot wide asphalt path with 2-foot clear shoulders on each side, as well as a potential cast-in-place retaining wall. The path will provide an elegant approach to the bridge and serve as a connection from the flood plain to the top of the levee west of the bridge.

Approach Spans

The approach spans are 75 feet long with a design deck width of 20 feet. The superstructure is composed of simple span W36 rolled steel beams with a composite concrete deck. A three-beam and four-beam option were explored. The three-beam option costs less, while the four-beam option offers greater flexibility for flaring the span width. The four-beam option was used for the cost estimates.

Optional Pier Overlooks

In addition to the typical 20-foot width for the approach spans, costs for optional pier overlooks are considered in the estimates and alternatives review. The additional deck area at the pier overlooks provides a space to experience the river and shortens the perceived length of the bridge. The structure supporting these areas would be rolled steel beams arranged to support the flared deck area. The cost per square foot of the pier overlooks is based on the structural design of the approach span.

Substructure

The bridge ends will be supported by stub abutments on spill thru slopes with deep pile foundations. Interior support will be provided by wall type piers, except for the central pylon support for the cable-stayed option (Alternative 1). Wall type piers are preferred in the river to limit debris build up. The exact size, shape and aesthetic treatment for each option can vary to create architectural impact while providing the needed structural strength.



STRUCTURE TYPE STUDY: ALTERNATIVE 1 – CABLE-STAYED BRIDGE

ALTERNATIVE 1 – CABLE-STAYED



Ron Venderly Family Bridge – Fort Wayne, IN

CONCEPT SUMMARY

The cable-stayed alternative utilizes a single, approximately 80-foot tall pylon to symmetrically carry the primary span load. This allows the depth of bridge deck structure to be the thinnest amongst the alternatives and affords the provision of a signature, highly visible architectural element in the pylon. Given the cost and above-deck structure, this alternative is less reliant upon on-bridge programming and, thus, may be a narrower section of 16 feet. This alternative is more about elegantly moving through the “water room” than spending time in it.

Sub-alternates not explored: cable-stayed bow string or twin pylon suspension



ALTERNATIVE 1 – CABLE-STAYED

Technical Summary

The opportunity for a signature bridge option with a cable-stayed structure is explored with Alternative 1.

To contain costs and make this signature bridge a competitive option, the bridge width is smaller than the other options at 16 feet.

The cable-stayed option offers the lowest profile deck and support system below the top of levee elevation. This gives this option a hydraulic advantage over the other two alternatives.

The costs for this structure type were assembled from various examples of similar cable-stayed and suspension structures. Architectural choices in the pylon and the deck typical section can greatly impact the final design and costs of such a structure. The following table lists representative projects that are used to develop a price per square foot for this bridge type.

TABLE 5

BRIDGE	DECK AREA (SQ FT)	TOTAL CONSTRUCTION COST	PRICE PER SQ FT DECK AREA
North Atwater Bridge, Los Angeles, CA	7,200	\$12,500,000	\$1,736
Harbor Drive Pedestrian Bridge, San Diego, CA	10,355	\$18,000,000	\$1,738
Dublin Pedestrian Bridge, Dublin, OH	10,640	\$22,100,000	\$2,077
Ron Venderly Family Bridge, Fort Wayne, IN	6,600	\$4,800,000	\$727
Lane Avenue Bridge, Columbus, OH	41,440	\$20,800,000	\$502
U.S. Grant Bridge, Portsmouth, OH	129,300	\$34,500,000	\$267
Average Cost per square foot = \$1,175			

All construction costs have been converted to 2017 dollars for comparison.

The total bridge cost for this alternative, not including landscaping or lighting, is estimated to be \$12.72 M.

Evaluation Criteria

Regional Significance

This signature bridge would be a unique addition to the region. It would provide a striking link between the arena district and downtown Troy.

> 5

Aesthetic Impact

The pylon and cable-stayed structural elements give the best aesthetic impact for the structure itself. The vertical scale of the structure creates a focal point at the river. Flexibility of architectural choices may be limited in the final design to keep the costs in line with the estimates for funding.

> 5

Flexibility of Use

The smaller useable width for this option limits some flexibility of use. Sixteen feet still allows adequate width for pedestrians, cyclists and maintenance vehicles, but would not allow for events to be held on the structure itself.

> 2

Cost

This has the highest cost of the three alternatives.

> 1

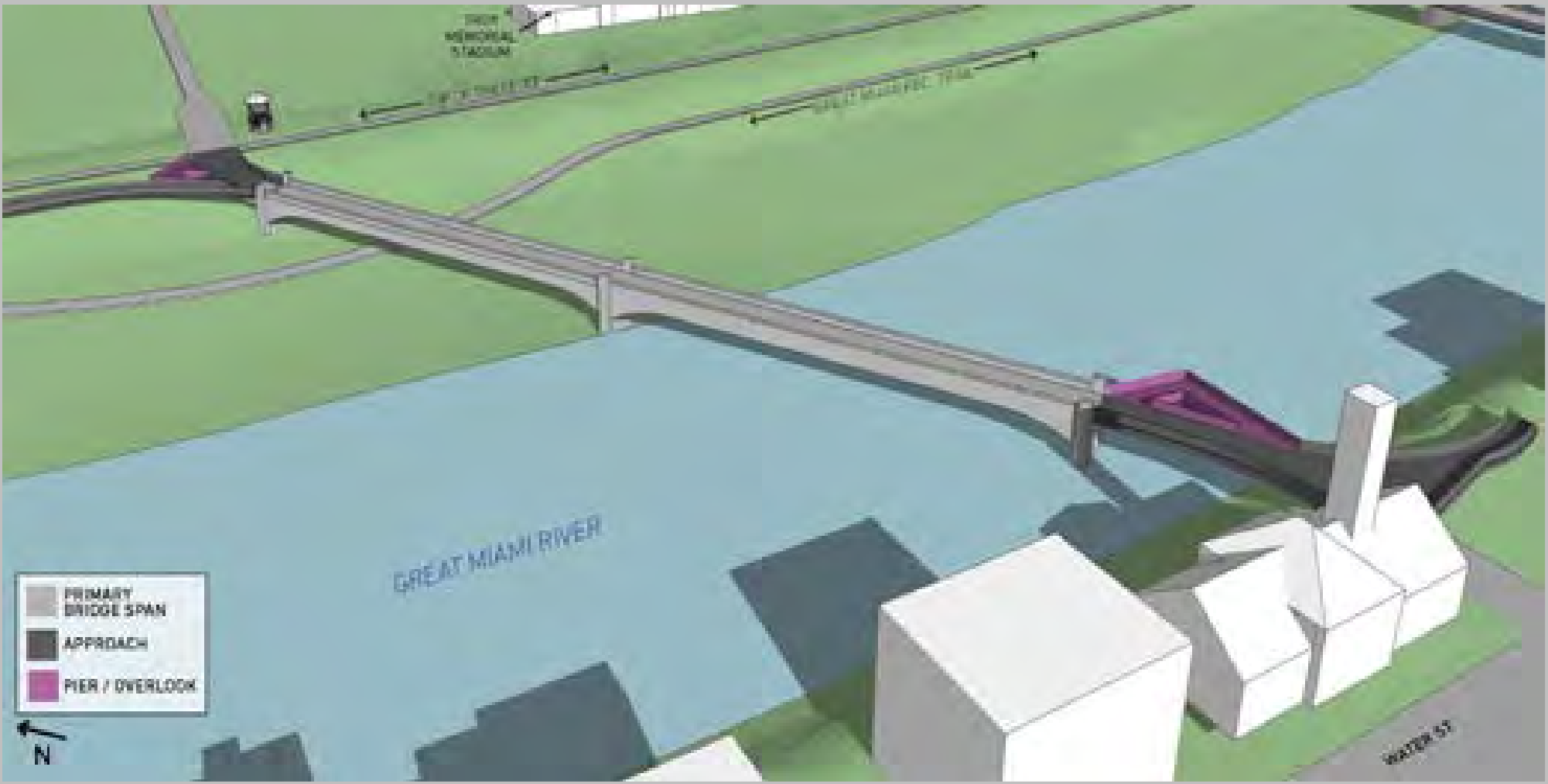
COMPOSITE SCORE

> 2.8



STRUCTURE TYPE STUDY: ALTERNATIVE 2 – HAUNCHED STEEL GIRDERS

ALTERNATIVE 2 – HAUNCHED STEEL GIRDERS



Haunched Girder Bridge example – Robert J. Shook Bikeway Bridge

CONCEPT SUMMARY

The haunched girder alternative is the most commonplace option that was explored. Architectural design would come primarily from applied elements at the piers and atop the deck. The wider deck width permits more expansive on-bridge programming in the form of seating and planting to complement the necessary through movements.

Sub-alternates not explored: open-web steel truss



ALTERNATIVE 2 – HAUNCHED STEEL GIRDERS

Technical Summary

Alternative 2 uses multi-beam haunched steel plate girders with a composite concrete deck to support the superstructure. This a more traditional structural option with the variable height steel sections offering efficiency and mimicking the shape of the nearby Adams Street bridge. LJB evaluated three-beam and four-beam typical sections. The three-beam option was adopted for the sizing and cost comparison. The bridge’s main span deck width is 20 feet. The girders will vary in height from 7’-4” at the mid-spans to 12’-2 ½” at the piers.

The haunched steel plate girders extend to the lowest elevation between the tops of the levee at the piers. This option has a similar area below top of levee as Alternative 3. This will lead to a hydraulic opening smaller than Alternative 1 and similar to Alternative 3.

The total bridge cost for this alternative, not including landscaping or lighting, is estimated to be \$5.03 M.

Evaluation Criteria

Regional Significance

This is a traditional bridge type, which offers less unique significance than the other alternatives. The structure does offer a good transition between the haunched concrete panels of nearby Adams Street and the welded plate girders of Market Street.

> 2

Aesthetic Impact

The aesthetic options for this alternative are subtle. Aesthetic enhancements for this option are likely to take the form of railing type and paint color. With the support system below the deck it does offer an open feel. It correlates well with other local bridges.

> 2

Flexibility of Use

The large, 20-foot useable width for this option offers good flexibility of use. This width offers enough space to have permanent seating or temporary installations for events. With a multi-beam support system, this bridge can also be more easily modified for future uses or widening.

> 5

Cost

This has the lowest cost of the three alternatives.

> 4

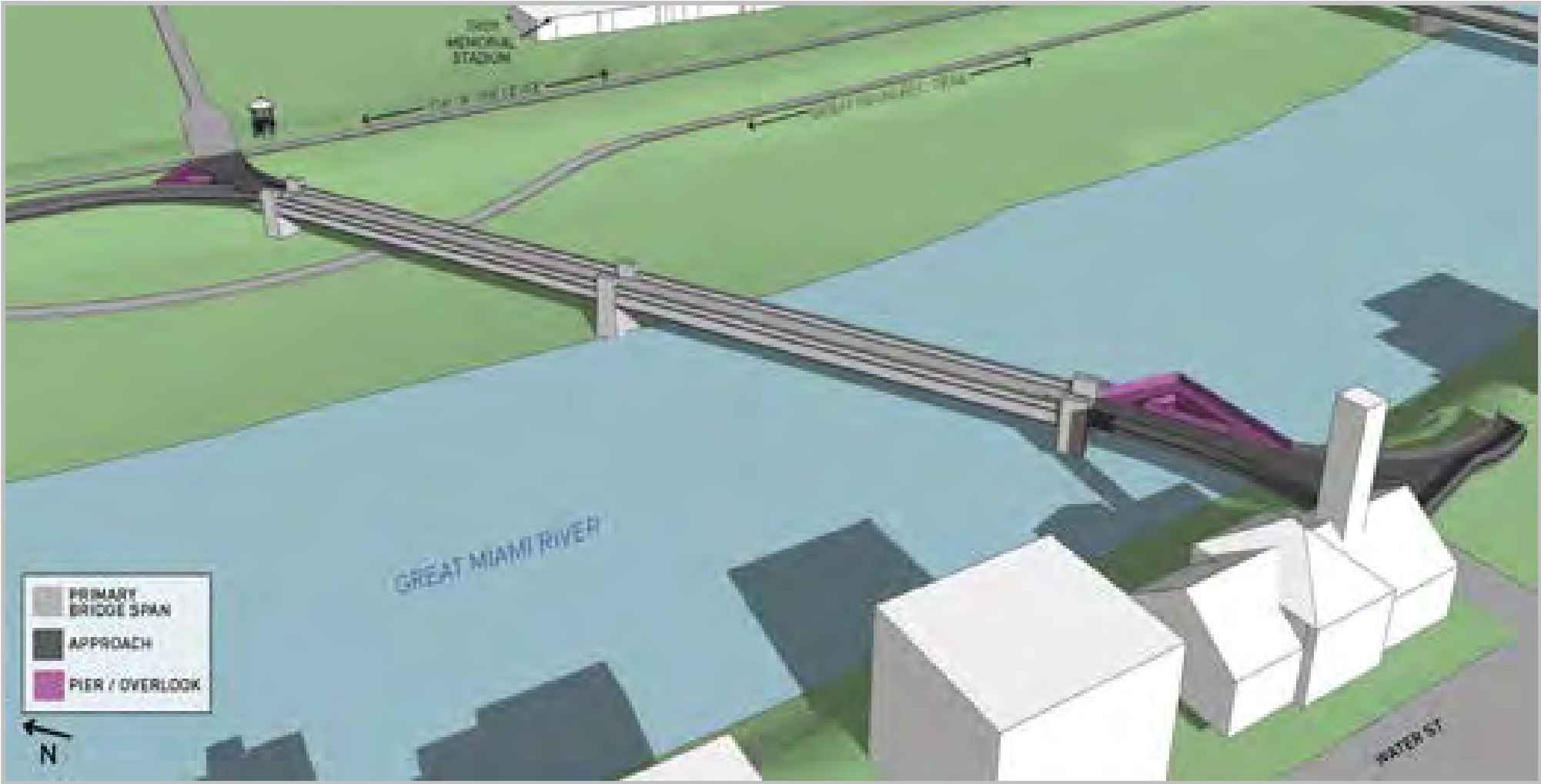
COMPOSITE SCORE

> 3.4



STRUCTURE TYPE STUDY: ALTERNATIVE 3 – CONSTANT DEPTH THRU GIRDERS

ALTERNATIVE 3 – CONSTANT DEPTH THRU GIRDERS



Thru Girder Bridge example – Bostanli Footbridge and Sunset Lounge - Bostanli, Turkey,

CONCEPT SUMMARY

The thru girder alternative is modeled after rail bridges where the steel trusses carry the bridge deck of the primary span atop the bottom flange of the truss. This allows greater exposure of the structure to the bridge user and allows the truss to be used for part or all of the railing system. This system provides subtle yet potentially evocative design possibilities while the assumed width (20 feet) affords flexibility in programming for seating and planting.

Sub-alternates not explored: steel bowstring truss



ALTERNATIVE 3 – CONSTANT DEPTH THRU GIRDERS

Technical Summary

Alternative 3 is a constant depth thru girder bridge with a steel floor system and concrete deck. It will have a substantial feel with some of the structure being exposed above deck level. The concrete deck is supported between the thru girders by W24 stringers, which then transfer the loading to W30 floor beams and to the main girders. The two-girder system is non-redundant with a girder depth of 13’-4”. The deck width for this alternative is 20 feet. Some areas of the deck will have that width limited by bracing that will need to extend on the interior side of the girders. The large, 3-foot wide top flanges would have hand rail mounted to them.

The thru girders do not extend to as low an elevation as Alternative 2, but the area below top of levee is similar. This will lead to a hydraulic opening smaller than Alternative 1 and similar to Alternative 2.

The total bridge cost for this alternative, not including landscaping or lighting, is estimated to be \$5.14 M.

Evaluation Criteria

Regional Significance

The thru girder section is unique for a new pedestrian structure in the region. The industrial feel of the large welded plate girders correlates well with current and historic industries in Troy. The look will be similar to converted railroad bridges in the area.

> 3

Aesthetic Impact

The exposed structural elements of this option give it a solid, industrial feel. Additional aesthetic enhancement can be added in the form of railing, paint and other finishes.

> 3

Flexibility of Use

The large 20-foot useable width for this option offers good flexibility of use. This width offers enough space to have permanent seating or temporary installations for events, however this width will be reduced in some areas due to bracing requirements of the structural system. Future modifications will be more difficult with this alternative.

> 4

Cost

The cost for this alternative is between the other two alternatives.

> 3

COMPOSITE SCORE

> 3.2





APPENDIX A – COST ESTIMATES

ALTERNATIVES - SUMMARY TABLE			
	CABLE-STAYED BRIDGE ALTERNATIVE 1	HAUNCH GIRDER BRIDGE ALTERNATIVE 2	THROUGH GIRDER BRIDGE ALTERNATIVE 3
MAIN SPAN COST	\$ 11,464,060	\$ 3,779,049.67	\$ 3,887,453.60
APPROACH SPANS COST	\$ 673,670.28	\$ 673,670.28	\$ 673,670.28
OPTIONAL PIER OVERLOOK COST	\$ 452,706.43	\$ 452,706.43	\$ 452,706.43
APPROACH WORK - SHARED USE PATH AND RETAINING WALLS	\$ 125,184.36	\$ 125,184.36	\$ 125,184.36
LIGHTING COST	\$ 200,000.00	\$ 100,000.00	\$ 100,000.00
OPTIONAL UNDER LIGHTING FIXTURES	\$ 92,000.00	\$ 92,000.00	\$ 92,000.00
LANDSCAPING COST	\$ 906,800.00	\$ 982,000.00	\$ 982,000.00
OPTIONAL PIER OVERLOOK LANDSCAPING COST	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00
TOTAL CONSTRUCTION COST	\$ 13,974,421.23	\$ 6,264,610.73	\$ 6,373,014.66
DESIGN FEE (10%)	\$ 1,397,442.12	\$ 626,461.07	\$ 637,301.47
ENVIRONMENTAL DOCUMENTATION AND PERMITS	\$ 300,000.00	\$ 300,000.00	\$ 300,000.00
GRAND TOTAL	\$ 15,671,863.35	\$ 7,191,071.80	\$ 7,310,316.13

ESTIMATED QUANTITIES									
APPROACH SPANS									
SPANS: 75'-0", 75'-0"									
ITEM	TOTAL	UNIT	UNIT COST	TOTAL COST	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL
503		LUMP		\$ 5,000.00	UNCLASSIFIED EXCAVATION				
503		LUMP		\$ 10,000.00	COFFERDAMS AND EXCAVATION BRACING				
505		LUMP		\$ 10,000.00	PILE DRIVING EQUIPMENT MOBILIZATION				
507	1080	FT	\$ 25.00	\$ 27,000.00	STEEL PILES HP 10X42, FURNISHED	1080			
507	960	FT	\$ 8.00	\$ 7,680.00	STEEL PILES HP 10X42, DRIVEN	960			
509	35618	LB	\$ 0.95	\$ 33,837.22	EPOXY COATED REINFORCING STEEL, AS PER PLAN	13027		22591	
511	108	CU YD	\$ 500.00	\$ 53,789.19	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK			108	
511	109	CU YD	\$ 400.00	\$ 43,422.22	CLASS QC1 CONCRETE, ABUTMENT INCLUDING FOOTING	109			
512	128	SQ YD	\$ 20.00	\$ 2,561.11	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)	82		46	
513	164620	POUND	\$ 1.25	\$205,774.48	STRUCTURAL STEEL MEMBERS, LEVEL 3			164620	
513	1200	EACH	\$ 3.00	\$ 3,600.00	WELDED STUD SHEAR CONNECTORS			1200	
514	7246	SQ FT	\$ 2.00	\$ 14,491.15	FIELD PAINTING OF STRUCTURAL STEEL, INTERMEDIATE COAT			7246	
514	7246	SQ FT	\$ 1.25	\$ 9,056.97	FIELD PAINTING OF STRUCTURAL STEEL, FINISH COAT			7246	
514	7	EACH	\$ 310.00	\$ 2,170.00	FINAL INSPECTION REPAIR			7	
516	16	EACH	\$ 800.00	\$ 12,800.00	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)		16		
516	60	FT	\$ 360.00	\$ 21,600.00	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL			60	
517	300	FT	\$ 200.00	\$ 60,000.00	RAILING, MISC.:			300	
518	42	CU YD	\$ 75.00	\$ 3,138.89	POROUS BACKFILL WITH GEOTEXTILE FABRIC	42			
518	92	FT	\$ 7.00	\$ 644.00	6" PERFORATED CORRUGATED PLASTIC PIPE	92			
518	40	FT	\$ 4.00	\$ 160.00	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS	40			
526	100	SQ YD	\$ 180.00	\$ 18,000.00	REINFORCED CONCRETE APPROACH SLABS (T=12")				100
601	111	SQ YD	\$ 150.00	\$ 16,666.67	CONCRETE SLOPE PROTECTION	111			
			COST=	\$561,391.90					
			20% CONTINGENCY =	\$112,278.38					
			TOTAL COST	\$673,670.28					
			COST PER SQUARE FOOT =	\$ 179.65					

ESTIMATED QUANTITIES					
APPROACH WORK - SHARED USE PATH AND RETAINING WALLS					
ITEM	TOTAL	UNIT	UNIT COST	TOTAL COST	DESCRIPTION
203	103	CU YD	\$ 20.00	\$ 2,055.56	EXCAVATION
203	111	CU YD	\$ 25.00	\$ 2,777.78	EMBANKMENT
204	400	SQ YD	\$ 5.00	\$ 2,000.00	SUBGRADE COMPACTION
304	67	SQ YD	\$ 75.00	\$ 5,000.00	AGGREGATE BASE
407	20	GAL	\$ 4.00	\$ 80.00	TACK COAT
441	14	CU YD	\$ 325.00	\$ 4,513.89	1.25" ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448), PG 64-22
441	22	CU YD	\$ 300.00	\$ 6,664.00	2" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 2, (448)
509	13241	LB	\$ 0.95	\$ 12,578.70	EPOXY COATED REINFORCING STEEL
511	132	CU YD	\$ 500.00	\$ 66,203.70	CLASS QC1 CONCRETE, RETAINING/ WINGWALL INCLUDING FOOTING
518	100	FT	\$ 7.00	\$ 700.00	6" PERFORATED CORRUGATED PLASTIC PIPE
518	20	FT	\$ 4.00	\$ 80.00	6" NON-PERFORATED CORRUGATED PLASTIC PIPE, INCLUDING SPECIALS
659	333	SQ YD	\$ 5.00	\$ 1,666.67	SEEDING AND MULCHING
			COST=	\$ 104,320.30	
			20% CONTINGENCY =	\$ 20,864.06	
			TOTAL =	\$ 125,184.36	

PIER OVERLOOKS		
WIDTH	12	FT
LEG 1 LENGTH	30	FT
LEG 2 LENGTH	75	FT
NUMBER OF LOCATIONS	2	EACH
TOTAL AREA	2520	SQ FT
COST PER SQUARE FOOT	\$ 179.65	\$/ SQ FT
COST	\$452,706.43	

CABLE-STAYED BRIDGE COMPARSION SUMMARY								
BRIDGE NAME	LOCATION	TYPE	FACILITY CARRIED AND FEATURE INTERSECTED	LENGTH (FT)	WIDTH (FT)	AREA (SQ FT)	TOTAL COST	COST PER SQUARE FOOT
NORTH ATWATER BRIDGE	LOS ANGELES, CALIFORNIA	CABLE-STAYED PEDESTRIAN BRIDGE WITH ONE PYLON	TWO SHARED USE PATHS OVER THE LA RIVER	300	24	7200	\$ 12,500,000	\$ 1,736
HARBOR DRIVE PEDESTRIAN BRIDGE	SAN DIEGO, CALIFORNIA	PEDESTRIAN SUSPENSION BRIGE WITH ONE PYLON	PEDESTRIAN PATH OVER HARBOR DRIVE AND RAILROAD	531	19.5	10354.5	\$ 18,000,000	\$ 1,738
DUBLIN PEDESTRIAN BRIDGE	DUBLIN, OHIO	PEDESTRIAN SUSPENSION BRIGE WITH ONE PYLON	PEDESTRIAN PATH OVER SCIOTO RIVER	760	14	10640	\$ 22,100,000	\$ 2,077
RON VENDERLY FAMILY BRIDGE	FORT WAYNE, INDIANA	CABLE-STAYED PEDESTRIAN BRIDGE WITH TWO PYLONS	ST. JOE PATHWAY OVER ST. JOSEPH RIVER	550	12	6600	\$ 4,800,000	\$ 727
LANE AVENUE BRIDGE	COLUMBUS, OH	CABLE-STAYED HIGHWAY BRIDGE WITH ONE PYLON	LANE AVENUE OVER OLENTANGY RIVER	370	112	41440	\$ 20,800,000	\$ 502
U.S. GRANT BRIDGE	PORTSMOUTH, OH	CABLE-STAYED HIGHWAY BRIDGE WITH TWO PYLONS	US 23 OVER OHIO RIVER	2155	60	129300	\$ 34,500,000	\$ 267
TROY PEDESTRIAN BRIDGE	TROY, OH	CABLE-STAYED PEDESTRIAN BRIDGE WITH ONE PYLON	PEDESTRIAN PATH OVER GREAT MIAMI RIVER	610	16	9760	\$ 11,464,060	\$ 1,175

ESTIMATED QUANTITIES									
ALTERNATIVE 2 - HAUNCH GIRDER									
SPANS: 230'-0", 230'-0"									
ITEM	TOTAL	UNIT	UNIT COST	TOTAL COST	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL
503		LUMP		\$ 10,000.00	UNCLASSIFIED EXCAVATION				
503		LUMP		\$ 50,000.00	COFFERDAMS AND EXCAVATION BRACING				
505		LUMP		\$ 20,000.00	PILE DRIVING EQUIPMENT MOBILIZATION				
507	1440	FT	\$ 35.00	\$ 50,400.00	STEEL PILES HP 12X53, FURNISHED		1440		
507	960	FT	\$ 10.00	\$ 9,600.00	STEEL PILES HP 12X53, DRIVEN		960		
509	89753	LB	\$ 0.95	\$ 85,265.15	EPOXY COATED REINFORCING STEEL, AS PER PLAN		31318	58435	
511	278	CU YD	\$ 500.00	\$ 139,130.98	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK			278	
511	184	CU YD	\$ 500.00	\$ 92,111.11	CLASS QC1 CONCRETE WITH QC/QA, PIER		184		
512	336	SQ YD	\$ 20.00	\$ 6,719.07	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		195	141	
513	1552443	POUND	\$ 1.50	\$ 2,328,663.75	STRUCTURAL STEEL MEMBERS, LEVEL 5			1552443	
513	2760	EACH	\$ 3.00	\$ 8,280.00	WELDED STUD SHEAR CONNECTORS			2760	
514	41768	SQ FT	\$ 2.00	\$ 83,536.00	FIELD PAINTING OF STRUCTURAL STEEL, INTERMEDIATE COAT			41768	
514	41768	SQ FT	\$ 1.25	\$ 52,210.00	FIELD PAINTING OF STRUCTURAL STEEL, FINISH COAT			41768	
514	13	EACH	\$ 310.00	\$ 4,092.00	FINAL INSPECTION REPAIR			13	
516	9	EACH	\$ 1,200.00	\$ 10,800.00	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)		9		
516	40	FT	\$ 360.00	\$ 14,400.00	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL			40	
517	920	FT	\$ 200.00	\$ 184,000.00	RAILING, MISC.:			920	
			COST=	\$ 3,149,208.06					
			20% CONTINGENCY =	\$ 629,841.61					
			TOTAL=	\$ 3,779,049.67					
			COST PER SQUARE FOOT =	\$ 410.77					

ESTIMATED QUANTITIES									
ALTERNATIVE 3 - THROUGH GIRDER									
SPANS: 230'-0", 230'-0"									
ITEM	TOTAL	UNIT	UNIT COST	TOTAL COST	DESCRIPTION	ABUTMENTS	PIERS	SUPERSTRUCTURE	GENERAL
503		LUMP		\$ 10,000.00	UNCLASSIFIED EXCAVATION				
503		LUMP		\$ 50,000.00	COFFERDAMS AND EXCAVATION BRACING				
505		LUMP		\$ 20,000.00	PILE DRIVING EQUIPMENT MOBILIZATION				
507	1440	FT	\$ 35.00	\$ 50,400.00	STEEL PILES HP 12X53, FURNISHED		1440		
507	960	FT	\$ 10.00	\$ 9,600.00	STEEL PILES HP 12X53, DRIVEN		960		
509	86750	LB	\$ 0.95	\$ 82,412.94	EPOXY COATED REINFORCING STEEL, AS PER PLAN		29807	56944	
511	271	CU YD	\$ 500.00	\$ 135,580.46	CLASS QC2 CONCRETE WITH QC/QA, BRIDGE DECK			271	
511	175	CU YD	\$ 500.00	\$ 87,666.67	CLASS QC1 CONCRETE WITH QC/QA, PIER		175		
512	314	SQ YD	\$ 20.00	\$ 6,284.86	SEALING OF CONCRETE SURFACES (EPOXY-URETHANE)		174	141	
513	1202940	POUND	\$ 2.00	\$ 2,405,879.58	STRUCTURAL STEEL MEMBERS, LEVEL 6			1202940	
513	1973	EACH	\$ 3.00	\$ 5,920.00	WELDED STUD SHEAR CONNECTORS			1973	
514	51148	SQ FT	\$ 2.00	\$ 102,295.90	FIELD PAINTING OF STRUCTURAL STEEL, INTERMEDIATE COAT			51148	
514	51148	SQ FT	\$ 1.25	\$ 63,934.94	FIELD PAINTING OF STRUCTURAL STEEL, FINISH COAT			51148	
514	9	EACH	\$ 310.00	\$ 2,769.33	FINAL INSPECTION REPAIR			9	
516	6	EACH	\$ 1,400.00	\$ 8,400.00	ELASTOMERIC BEARING WITH INTERNAL LAMINATES AND LOAD PLATE (NEOPRENE)		6		
516	40	FT	\$ 360.00	\$ 14,400.00	STRUCTURAL EXPANSION JOINT INCLUDING ELASTOMERIC STRIP SEAL			40	
517	920	FT	\$ 200.00	\$ 184,000.00	RAILING, MISC.:			920	
			COST=	\$ 3,239,544.67					
			20% CONTINGENCY =	\$ 647,908.93					
			TOTAL =	\$ 3,887,453.60					
			COST PER SQUARE FOOT =	\$ 422.55					

Bike Lane Roll Out Guide



Troy, Ohio

MKSK

Overview

Process



Prioritize and Organize

By examining the connections to nearby trail and bike networks as well as prioritizing destinations and capable streets, the creation of a bike network begins. This process will help guide the next steps of implementation.



Prototyping + Testing

Quickly built and community-interactive temporary bike lane installations will help local residents not only feel involved and invested, but will provide a period of time for the bike lanes to be tried out and experimented without serious commitment of resources and effort. Special events during the installation and operation of the temporary network will further the ingraining of the network within the community. This step will include slight interventions and reprogramming of the street to occur. Temporary buffers, signage, and on-street symbols are likely to be introduced here.



Permanent Installation

After assessing the success of the temporary bicycle infrastructure, more permanent installations and street rebuilds can take place. This step may include painted bike lanes, permanent buffer installations and completed connectivity to other networks.

Principles

- 1 | Connect network to key amenities and destinations.
- 2 | Focus on usability and rider safety
- 3 | Define metrics for success.
- 4 | Listen to what the users tell us.

Case Study

Macon Connects - *Macon, GA*

The city of Macon, working with several partners implemented the world's largest pop-up bicycle network. The bike network was implemented in a pop-up fashion for one week. During this week ridership was 9.5 times (854%) higher than during 'normal conditions.'

The implementation of the project itself was done by members of the community being the boots on the ground and doing the actual labor. This surely had an effect on the success of the project as well.

An associated 'Block Party' was held during the implementation and furthered the use of the bike lanes as a means of bringing the community together.

In addition to ridership data being recorded, surveys were taken of the riders and the results helped for future decisions related to permanent installations. Riders reflected on which types of bicycle infrastructure they enjoyed most and felt safest using, they also discussed their interest in cycling and the impact tangible infrastructure had on their desire to ride in Macon.

Survey Results

Respondents to the survey stated that 68% of them visited unfamiliar areas of the city and 75% reported seeing new shops and amenities they had not seen before. In regards to safety, 95% of respondents preferred physical barriers or buffers for the bike lanes as it provided the greatest sense of safety.

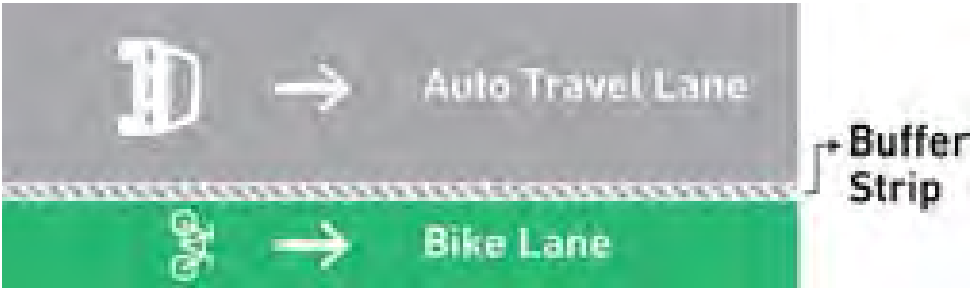


Source: 880cities.org - Macon Connects Street Makeover Report

Implementation Toolkit

How to Protect Bicyclists w/Buffers

Buffers are crucial to providing a safe environment for all users of the street. Bike lanes can be buffered from parking and auto travel lanes using a variety of techniques for temporary measures such as using cones, planters and paint, to permanent painted lines and physical barriers.

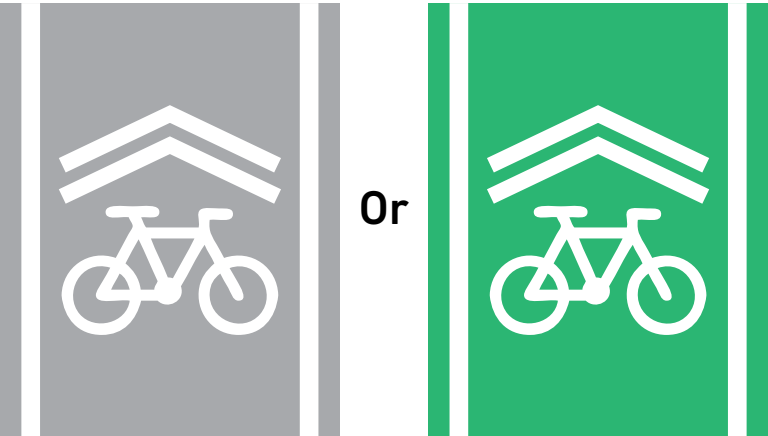


Buffers can be made of...

Cones or Bollards or Planters or Paint



Symbols and Markers



Bike Lane Markers (On Ground)

Green painted lanes help to make lanes more noticeable and different from the rest of the street, but likely won't happen until permanent implementation.



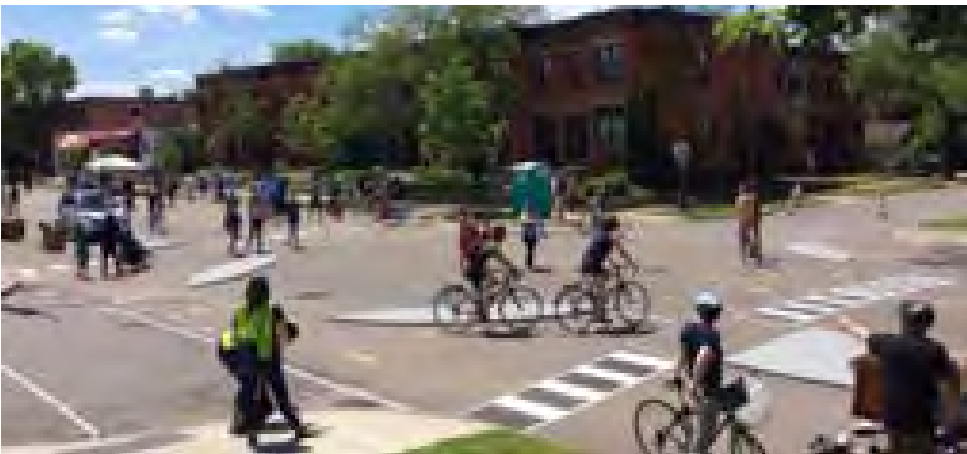
Shared Lanes (Sharrow)

A shared lane occurs when there is not enough space for bike lanes to be separate entities. Bikes and cars will share the lane and symbols like this on the lane reminds everyone to be aware.

Have Fun with it!

The bike lane markers can be fun too! Community-driven events produce results like this in Portland, Oregon where the bike riders were edited to look like celebrities and other unique people.

How to Handle Intersections



Intersecting cycle-tracks

While there are multiple ways to handle intersections with bicycle lanes, this method of crossing and waiting would be the easiest for early, easy implementation. Riders cross the intersection in their current direction and then wait to go in the new direction with the traffic.



Implementation Toolkit

Bike Racks

Bike racks are another necessary part of the implementation of bicycle infrastructure. Much like parking with cars, bike racks will be a concern to potential riders wanting to go to different destinations. Temporary racks can be implemented in a variety of creative ways.



Temporary Signage

Signage will be necessary in all phases wherever bike lanes are introduced. Signage can help in connecting to other bike networks but as well as providing helpful information related to directions and safety for riders and drivers of cars.



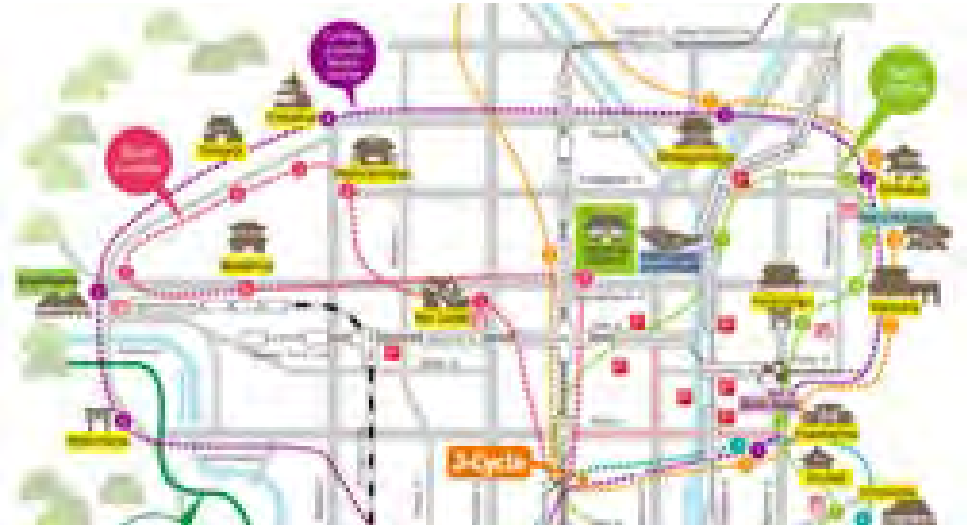
Implementation Toolkit

Materials

A variety of materials can be used in creating bike lanes. Lanes can be created from paint, planters, cones and more. Symbols can be done using temporary or more durable paint, chalk and more. Signs may also be created with a variety of materials.



Branding

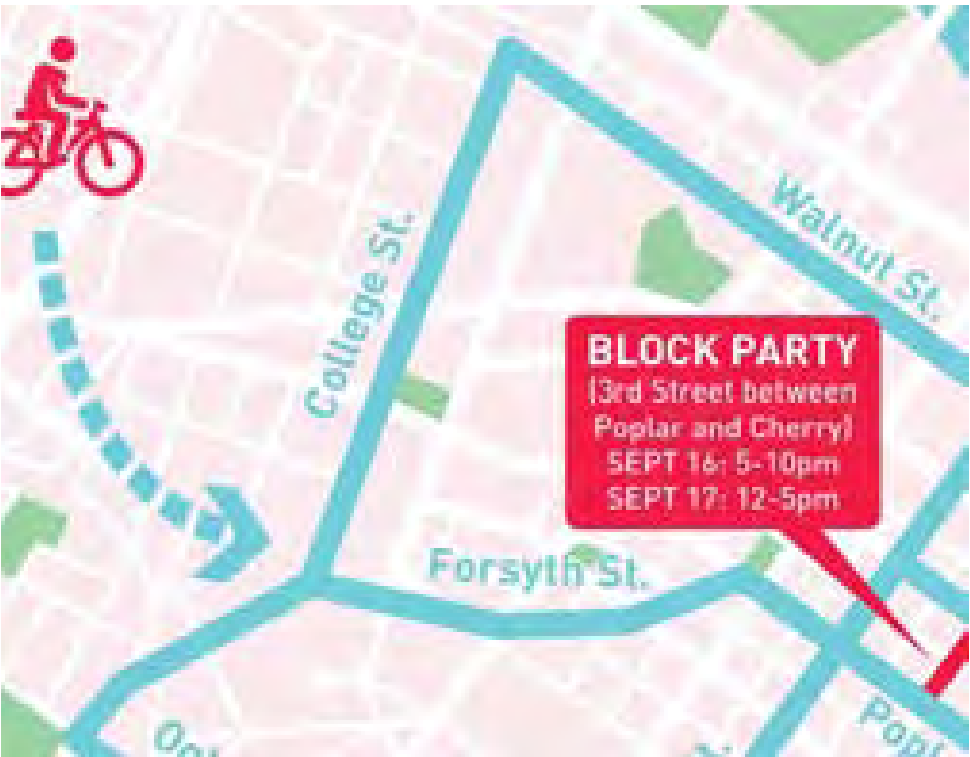
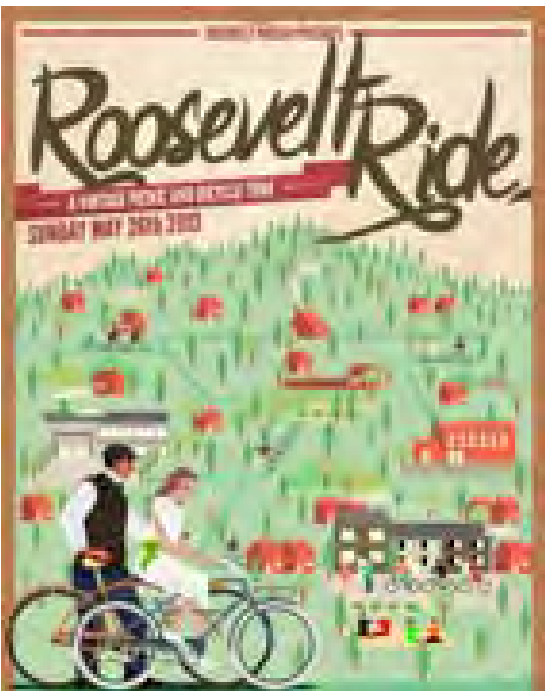


This type of investment can be branded and marketed through various print materials and digital ads to help market the new investment in infrastructure as well as to market events and bolster community relations.

Other Events



Hosting and encouraging events to take place in connection to the new bike lanes can not only bolster a stronger sense of community, but can boost the usage of the new infrastructure and can demonstrate the value of the investment.



Troy Bicycle Network

DESTINATIONS

- 1 TROY LUMBER BUILDING
- 2 LIBRARY
- 3 CULTURAL CENTER
- 4 COURTHOUSE
- 5 MAIN & MARKET CIRCLE;
PROUTY PLAZA
- 6 GRAIN ELEVATOR
- 7 TROY MEMORIAL STADIUM
- 8 TROY HIGH SCHOOL
- 9 HOBART ARENA

CONNECTIONS AND SHARED LANES

- A SHARED LANES (LIMITED SPACE)
- B CONNECTIONS
(MAY REQUIRE SPECIFIC DIRECTIONS)

DESIGNATED BIKE LANE



RIDING DIRECTION ↘

CONNECTION OR SHARROW



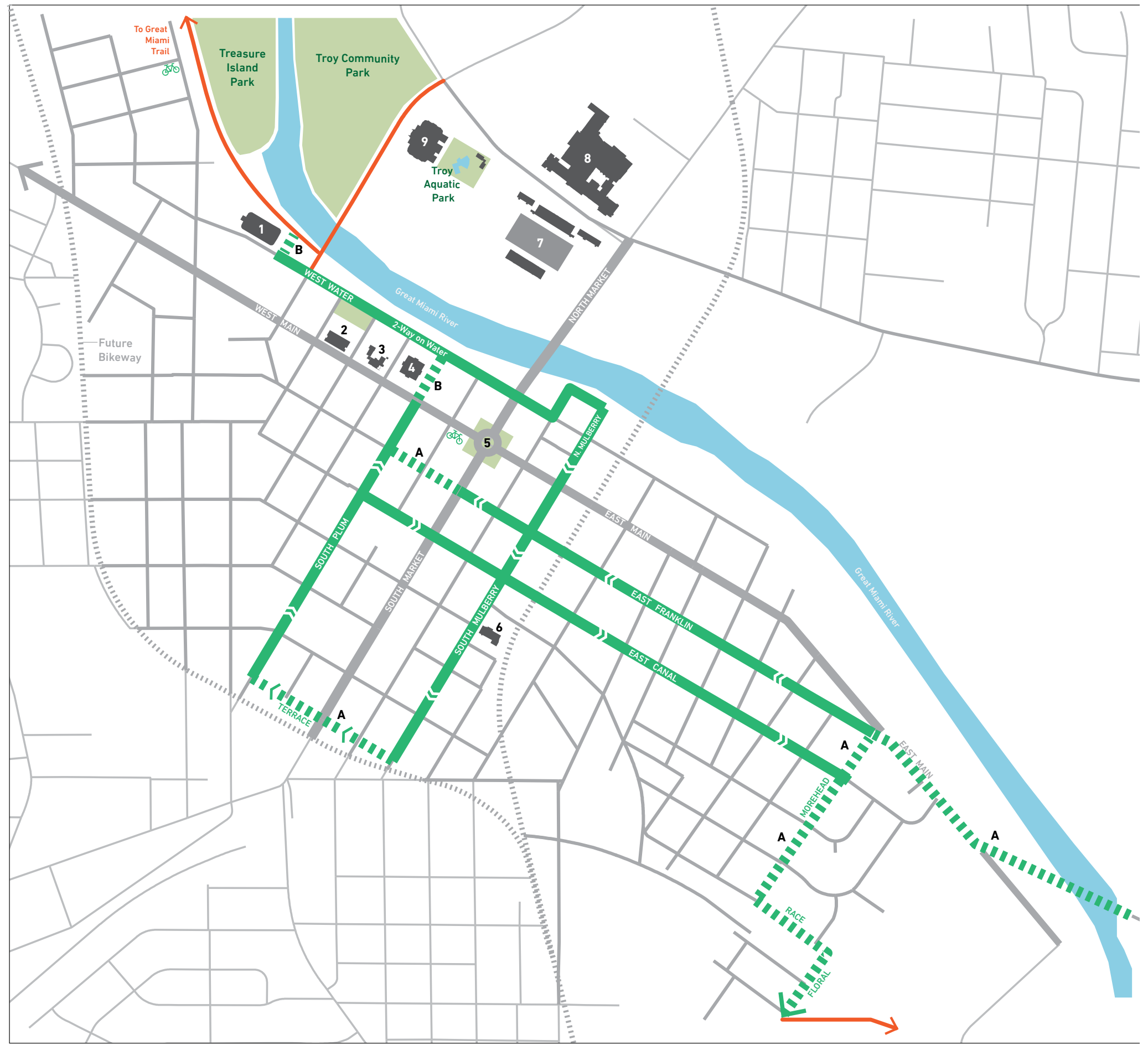
REGIONAL TRAIL NETWORK



RAIL LINE

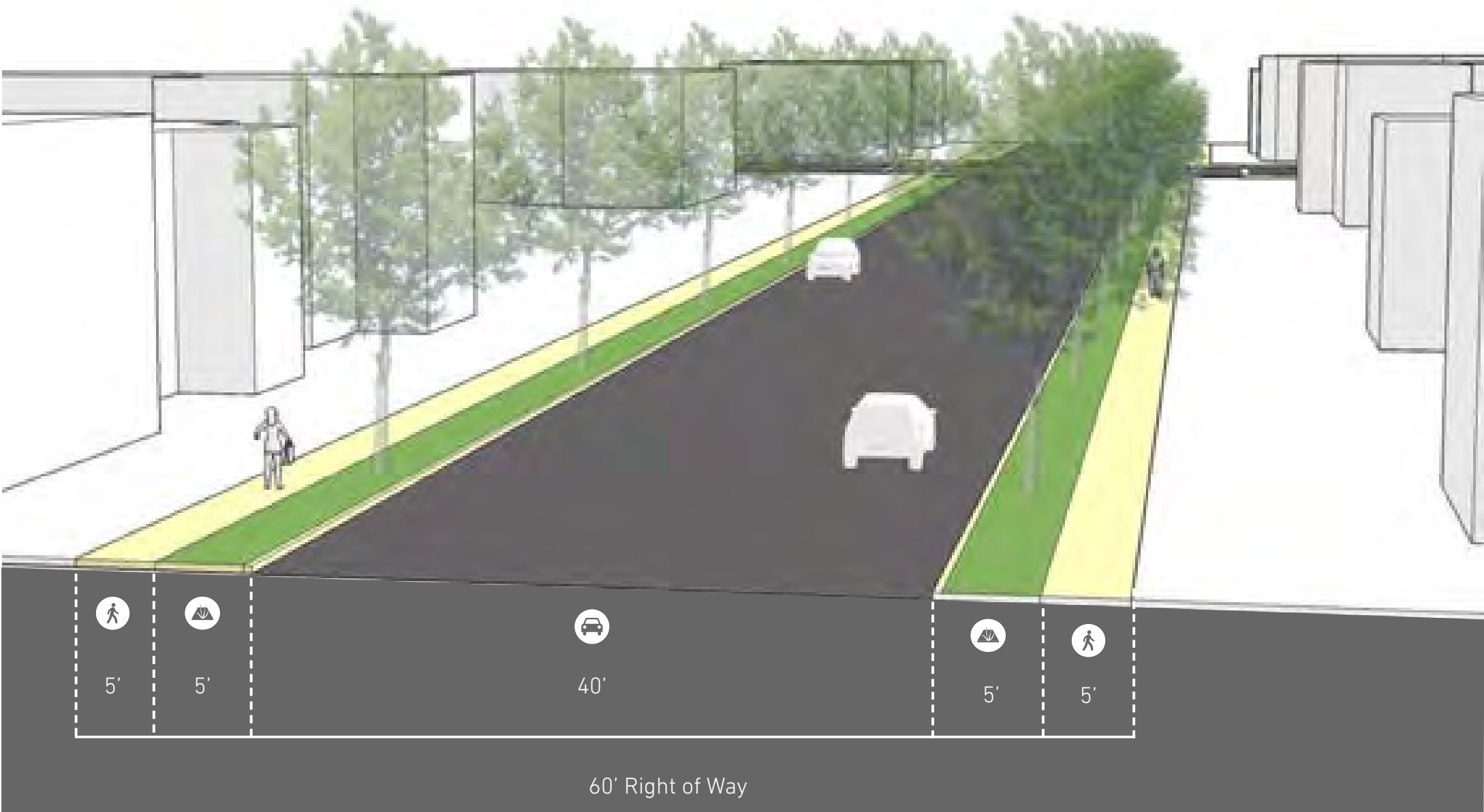


BIKE SHOP LOCATION



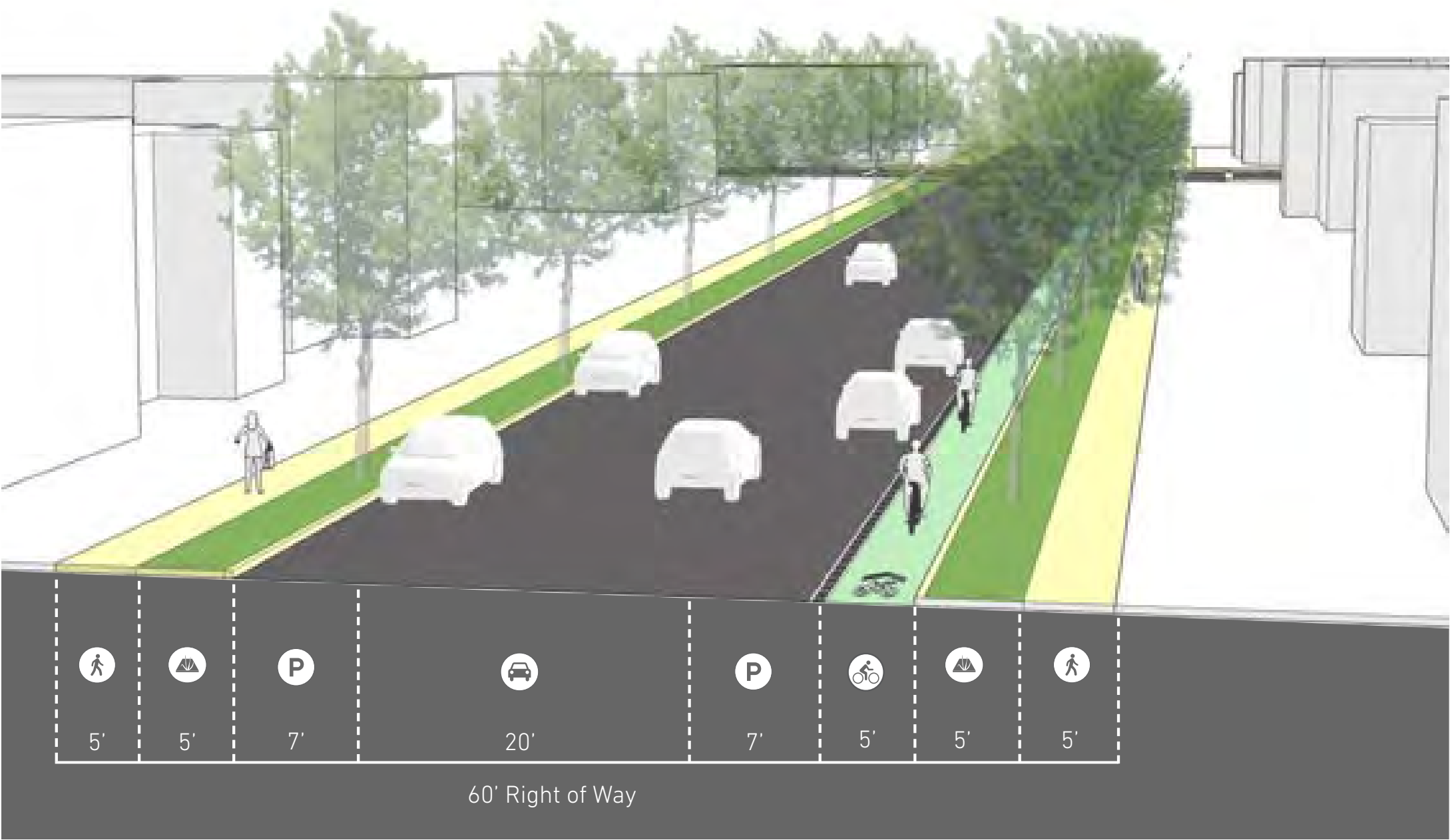
60' Streets (Existing)

Plum - Mulberry - Franklin - Canal

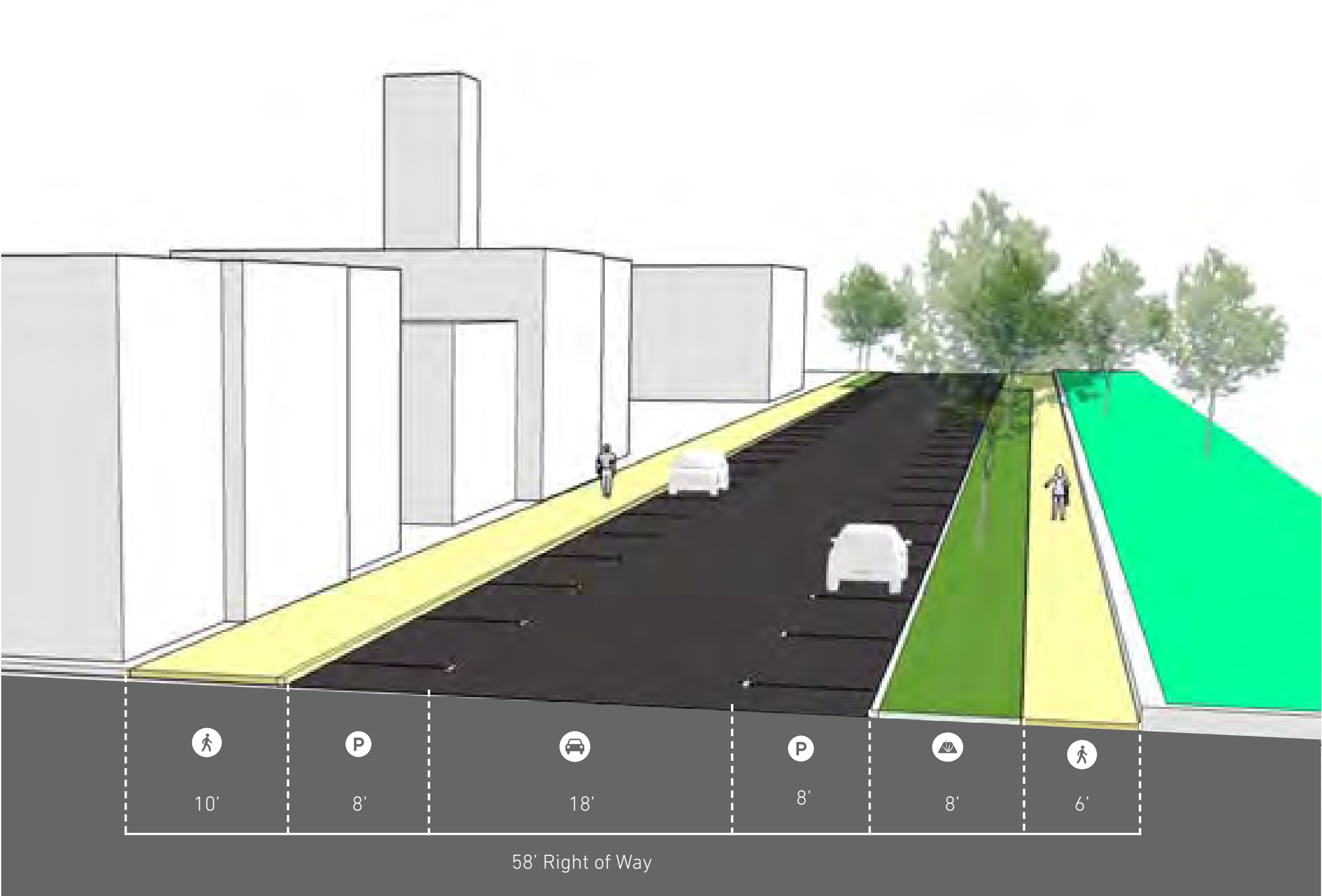


60' Streets (Proposed)

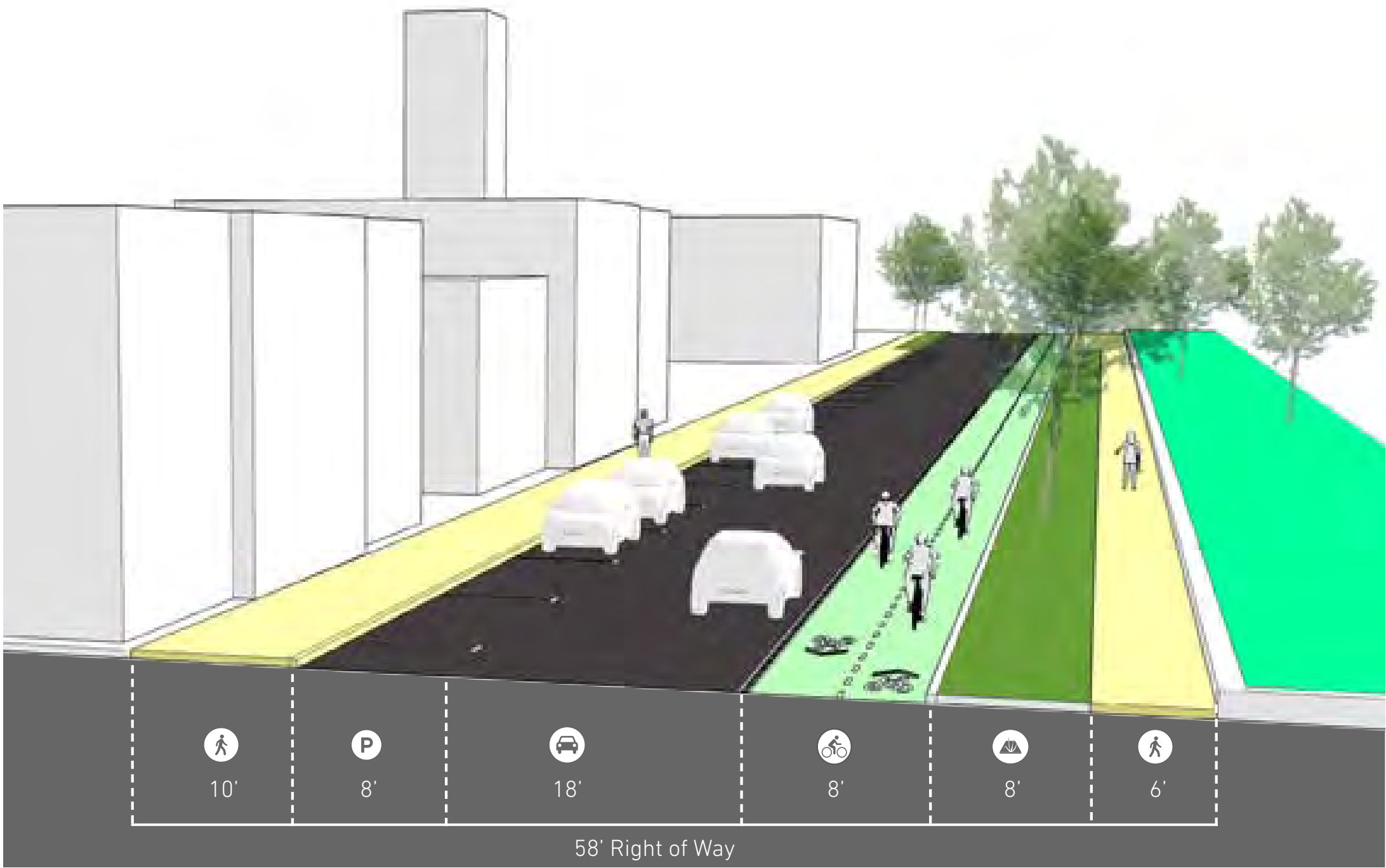
Plum - Mulberry - Franklin - Canal



W. Water Street (Existing)



W. Water Street (Proposed)



Connections and Confinements

Shared Lanes

In some cases, the streets may not have enough room to implement isolated bike lanes. In these cases in which the space is confined, shared lanes will be enacted.

Connections

Another crucial component of the network is the connections to other trail networks running near Troy. These connections will take place on side streets and off-street paths in order to complete the overall network. These paths will have a variety of solutions employed to make the connection, including shared lanes or “walk the bike” zones.

Street Locator Map



Shared Lanes Examples



Connections



For the Courthouse, an ‘off-bike’ zone where users have to dismount could be employed for a safe, direct connection. This area would also help riders to take in the symbolic courthouse building as they walk by on the plaza.

LIST OF STAKEHOLDERS

RECREATION & TOURISM

Provided insight on the impacts and opportunities surrounding tourism, hospitality, and recreation (formal and informal)

- » Ken Siler, Troy Recreation Department
- » Leiann Stewart, Miami County Visitors Bureau
- » Anthony Lombardo, Troy Hockey
- » Linda Lee Jolly, Hayner Cultural Center
- » Kathi Roetter, Troy Area Chamber
- » Chris Jackson, Adventures on the Great Miami
- » Tom Hilbig, Tom Foolery Outdoors
- » Jeremy Drake, City of Troy
- » Stan Kegley, City of Troy
- » Bobby Phillips, City of Troy
- » Bill Wolke
- » Kathy Slack
- » Todd Severt
- » Frosty Brown
- » Dave Pappas

RESIDENTIAL MARKET

Experts on housing supply, price points, absorption rates, product types, demand drivers, buyer profiles, missing market segments, aspirational markets, historic and future trends

- » Jessica Minesinger, Minesinger Companies
- » Tony Scott, Keystone Homes
- » Frank Harlow, Harlow Builders
- » Bart Denlinger, Denlinger Builders
- » Dick Messler, First Troy Corporation
- » Diane Miley, Southwest Historic District
- » Shirley Snyder, Galbreath Realty
- » Ben Denlinger, Denlinger Builders

- » Ben Redick, Brun Realty
- » Wade Westfall
- » Kent Frauenberger
- » Pam Barnhorst, HER Realty

COMMERCIAL/CORPORATE MARKET

Experts on retail supply, rents, performance, missing sectors/offerings, operator needs, buyer/customer needs, opportunities, historic and future trends, as well as small and large corporate real estate needs/opportunities, supply, rents, absorption, leadership/employee preferences, opportunities, historic/future trends.

- » Jordan Romberger, OCRD
- » Ben Redick, Bruns Realty
- » JC Wallace, Troy Development Council
- » Becky Rice, UVMC
- » Jeff Mason, Abott Labs
- » Steve Knostman, Hobart Brothers
- » Jeff Erwin, ConAgra
- » Jeff Dagley, Spinnaker Coating
- » Eric Wehrley, AHM Honda
- » Delane Sloan, F&P America
- » Gerard Smith, Miller Valentine GEM Real Estate
- » Tim Arnet, Walco Warehouse
- » Kohl Kirkland, MVG
- » Chris Eifert, The Avenue
- » Bud Holiga, Clopay Building Products
- » Ron Musilli, Troy Development Council

TECHNICAL/PUBLIC

Provided an understanding of current City initiatives, policies, and practices that influence the plan as well as issues and opportunities that the plan can effectively target.

- » Jill Rhodes, City of Troy Engineering

- » Christy Butera, City of Troy Parks
- » Jim Dando, City of Troy Development
- » Tim Davis, City of Troy Development
- » Gregg Harris, City of Troy Development
- » Doug Wenning, City of Troy GIS
- » Patrick Titterington, City of Troy Service & Safety
- » Scott Myers, Miami County Parks
- » Martin Kim, Miami Valley Regional Planning Commission
- » Angela Hippensteel, Miami Conservancy District
- » Donnie Knight, Wildlife Fish & Game

ADVOCACY

Champions of Troy and the region's current/future amenities, quality of life, built environment, natural environment, and its economic/creative development.

- » Jennifer Ruff, Miami County Locally Grown
- » Conor & Hannah Haren, Haren's Market
- » Amber Sower, ReU Juice Bar + Organic Kitchen
- » Larry Smith, Smith Boathouse
- » Brad Bixler, GNB
- » Kelly Snyder, The Rec
- » Amy Dingel/Jordan Hart, Metro Parks
- » Joyce & Dennis, J&D Bike Shop
- » Chris Jackson, Great Miami River Adventures Club
- » Mike Porter, Troy Family Bike Shop
- » Cheryl Channey
- » Jeff Schultz, Troy City Schools
- » Jim Stubs
- » Doug Thompson, Mutual Federal
- » Eric Stetzel, Main Source Bank
- » Mark Douglas, US Bank

INSTITUTIONAL

Local knowledge on current institutional master plans, community/neighborhood services, needs/issues/opportunities, and investment/funding/partnership opportunities.

- » Bill Lutz, New Path
- » Patrick Kennedy, Troy Historic Society
- » Shane Carter, Lincoln Community Center
- » Jessica Echols, Partners in Hope & MC Continuum of Care
- » Jack Baird, CAC
- » Scott Mazzulla, Hobart Institute of Welding Technology
- » Penny Hoekstra, First Place
- » Sharron Emerick, Riverside Development Disabilities
- » Kelly Snyder, The Rec
- » Eric Herman, Troy City Schools
- » Dr. Gary Wilber, Troy Christian Schools
- » Barbie Holman, Miami County Family Abuse Shelter
- » Linda Lee Jolie/Julie McMiller, Hayner Cultural Center
- » Dennis Propes, Miami County Public Health
- » Dick Steineman, The St. Patrick Soup Kitchen
- » Doub Tremblay
- » Rachelle Miller, Troy-Miami County Library
- » DeWayne Williams, ALN Senior Care & Home Services
- » Lauren Allen, First United Church of Christ
- » J. Kaster, First Presbyterian Church
- » David Leckrone, First United Methodist Church
- » Jim Duell, St. Pat's Catholic Church

LIST OF STAKEHOLDERS - CONTINUED

- » Ali Arbogast, Reading for Change
- » Troy Museum of History
- » Overfield Tavern Museum
- » Melinda Jeffrey/Shawnda Allen, Hobart Gallery of Welding History

DOWNTOWN BUILDING OWNERS / DEVELOPERS

Experts on the current issues and opportunities associated with delivering projects downtown and along the riverfront, providing insight on the relationships with land/building owners to understand who is doing what and what constraints, needs, or opportunities for investment might exist.

- » Frank Harlow
- » Michael Twiss, Troy Community Works
- » Ben Denlinger, Denlinger Builders
- » Wade Westfall
- » Allstate, Patty Rose
- » Jim Kaster
- » Dave Murray
- » Scott Oda, Edward Jones
- » Rob & Heather Davey
- » Bob Cole
- » Cheri Dinsmore
- » Jessica Minesinger, Minesinger Companies
- » Anthony Scott, Keystone Homes
- » Matt Erwin, Erwin Chrysler
- » Jay Harris
- » Joe & Candy Goodall, CG Architect
- » Beth Kerber, Three Weird Sisters
- » David Fair
- » Jeremy Tomb, Tomb Law
- » Ethan Smith
- » John Wilson, Troy Main Street
- » Redmen Lodge

- » Dave Fitzgerald, Elks Lodge
- » Marsha Klein Ryan, K's
- » Todd Uhler

INFLUENCERS

Creative movers, shakers, and innovators in the community to gain insights on the culture, values, and aspirations of part/all of the community.

- » Robert Shook
- » Melissa Kleptz, The Troy Foundation
- » Thom Robinson
- » Ali Arbogast, Reading for Change
- » Leib Lurie, Kids Read Now
- » Ozzie Haddad
- » Ted Mercer, Mercer Group
- » Lisa Bauer, Mayflower Arts Center
- » Dave Arbogast
- » Dave & Linda Arbogast
- » Karen & Terry Purke
- » Corie Schweser, Troy Strawberry Festival
- » Alan Kappers, Dungan Attorneys
- » Jim McGarry
- » Jeff Mason
- » Levi Fox
- » Will Harrelson, FHMS Law
- » Lucas Schulump, The Olive Oasis
- » Patrick Fleckenstein, Safeway Packaging
- » Luke Lindeman, Tabernacle of the Lord Jesus Christ
- » Jordan Hart
- » James Smith, Photos at Six
- » Greg Taylor, Troy Ford
- » Parker Behm
- » Doug Lins, ITW Food Equipment Group
- » Terrilynn Meece, Hayner Cultural Center

ELECTED OFFICIALS

Community, City and County representatives and leadership.

- » Mayor Michael Beamish, City of Troy
- » Martha Baker, City of Troy
- » Adam Hewitt
- » Bill Beagle
- » Steve Huggman
- » John Frigge, City of Troy
- » Jack Evans, Miami County
- » Grant Kerber, City of Troy
- » Tom Kendall, City of Troy
- » Doug Tremblay, City of Troy
- » John Schweser, City of Troy
- » Bobby Phillips, City of Troy
- » Bill Twiss, City of Troy
- » Brock Heath, City of Troy
- » John Twerwilliger, City of Troy
- » Robin Oda, City of Troy
- » Lynne Snee, City of Troy

DOWNTOWN BUSINESS OWNERS/ MERCHANTS

Merchants and retailers with physical locations Downtown and along the Riverfront.

- » Joyce & Dennis, J&D Bike Shop
- » Debbie Char, Troy Bulk Barn
- » Fred Minnich, Sunset Cleaners
- » Jean Dugan, Benefits Analysis
- » Phyliss Mering, The Patch
- » Ethan Smith
- » Larry Smith, Smith Boathouse
- » Lori Gunter, Browers
- » Ken & Rosaleen Rayman, Ray's Shoe Repair
- » Lindsay Woodruff, Pachamamma Market
- » Michelle Schulze, Color Loft Salon

- » Andy & Laura Carter, Raise Your Brush
- » Joe & Candy Goodall, CG Architect
- » Patty Rose, Allstate
- » Chuck Melvin, ARF
- » Dave Murray
- » Christy Shell
- » Mike & Jenny Anticoli, La Piazza
- » Steve Smith, The Caroline
- » Steve McCain & Margret Begg, Bakehouse Breads
- » Beth Kerber, Three Weird Sisters

0-2 YEARS | INFILL DEVELOPMENT



0-2 YEARS | TROY TRUCK YARD



2-5 YEARS | RIVER DISTRICT - PHASE 1



2-5 YEARS | ARTIST-IN-RESIDENCY



5-10 YEARS | RIVER DISTRICT - PHASE 2



5-10 YEARS | PLUM STREET PEDESTRIAN BRIDGE



10+ YEARS | PUBLIC SQUARE





Appendix M



Parking & Traffic Assessment

City of Troy, Ohio

Revised: February 10, 2017



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1 Introduction

This study is being prepared at the request of The City of Troy in association with an update to the *Downtown Troy Parking Assessment and Management Study* published in November 1996. The purpose of the parking portion of this study is to analyze the parking conditions within the study area to determine what, if any, parking deficiencies exist within the downtown area. The City of Troy downtown parking and traffic assessment study area is bounded by Water Street to the north, Mulberry Street to the east, Race Street to the south and Short Street to the west with the Square serving as the epicenter to the study area. The street system within the City of Troy downtown area is primarily a systematic grid of blocks that encompasses both on and off-street parking options. Within the study area, the City of Troy provides both angled and parallel on-street parking options, however these spaces are restricted to unmetered two (2) hour limits for the purpose of promoting parking turnover. Additionally, the City of Troy provides off-street public parking lots that primarily utilize two (2) hour time limits, however there are some parking spaces on the Square that utilize 15 minute parking restrictions. See Figure 1 on the following page for a map of the study area.

As a part of the parking study update, analysis was completed to evaluate the capacity of the roadways in the study area along with a review of the existing pedestrian signals at the four entry/exits of the Square. The roadways evaluated include North/South Market Street and West/East Main Street. The limits of the analysis on these roadways follow the bounds shown in Figure 1, Water Street to the north, Race Street to the south, Mulberry Street to the east and Short Street to the west. The Square was analyzed as a roundabout analysis since that was the best fit representation of the intersection configuration. The crash analysis followed the same limits in Figure 1 as well. Pedestrian activity was investigated at the Square to determine if the existing pedestrian signals are warranted. The traffic analysis is contained within Section 3.

Generally speaking, parking dynamics are complex, however they are primarily based on the human perception. It is a function of supply and demand that is governed by psychological (convenience expectations, ease of use and safety) and economic (value of time, user budgets, price of convenience, location and distance) variables, which is determined by the general parking public. The adaptation of these psychological and economic variables results in a truly distinctive parking behavioral pattern in a downtown urban environment. Thus, understanding these variables and how individuals use the parking supply within the City of Troy downtown area will help grasp the parking situation, and ultimately, evaluate perceived parking problems versus the actual parking problems, and which parking management strategies could be implemented to alleviate these issues. It is the goal to prioritize these factors through design to maximize the user's perception of parking options and availability.

STUDY AREA

WATER ST.

MAIN ST.

FRANKLIN ST.

CANAL ST.

RACE ST.

MULBERRY ST.

WALNUT ST.

CHERRY ST.

PLUM ST.

SHORT ST.

MARKET ST.

1

2

3

4

5

6

7

8

9

10

11

12

13

LEGEND

--- STUDY AREA

BLOCK NUMBER

FIGURE 1

STUDY AREA MAP

FEBRUARY 2017

GPD GROUP
Glaus, Pyle, Schomer, Burns & DeHaven, Inc.
Copyright: Glaus, Pyle, Schomer, Burns & DeHaven, Inc. 2015

2 Parking Data Analysis

2.1 Parking Existing Conditions

A comprehensive parking inventory was obtained from the City of Troy to identify the specific locations that have available on- and off-street parking spaces within the study area. Restrictions, locations, parking types and other applicable data was included as a part of the inventory process. In total, the inventory identified 397 publically available spaces within the study area.

As stated above, on-street parking spaces were counted as a part of the parking inventory. This inventory was performed for each block primarily along the Main Street, Market Street, Cherry Street, N. Short Street and the Water Street corridors within the study area. The parking inventory determined that of the 397 spaces within the study area, 230 are for the use of on-street parking, while the remaining 167 spaces are for the use of off-street parking. See Table 1 for a summary of the on-street parking capacity available within the study area.

Table 1: On-Street Parking Capacity	
On-Street Parking Location	Public Parking Capacity (Spaces)
Main Street Corridor	
Short Street to Plum Street	13
Plum Street to Cherry Street	27
Cherry Street to Market Street	12
Market Street to Walnut Street	13
Walnut Street to Mulberry Street	30
Market Street Corridor	
Race Street to Canal Street	21
Canal Street to Franklin Street	38
Franklin Street to Main Street	27
Main Street to Water Street	16
Short Street Corridor	
Main Street to Water Street	19
Water Street Corridor	
Short Street to Cherry Street	14
Totals	230

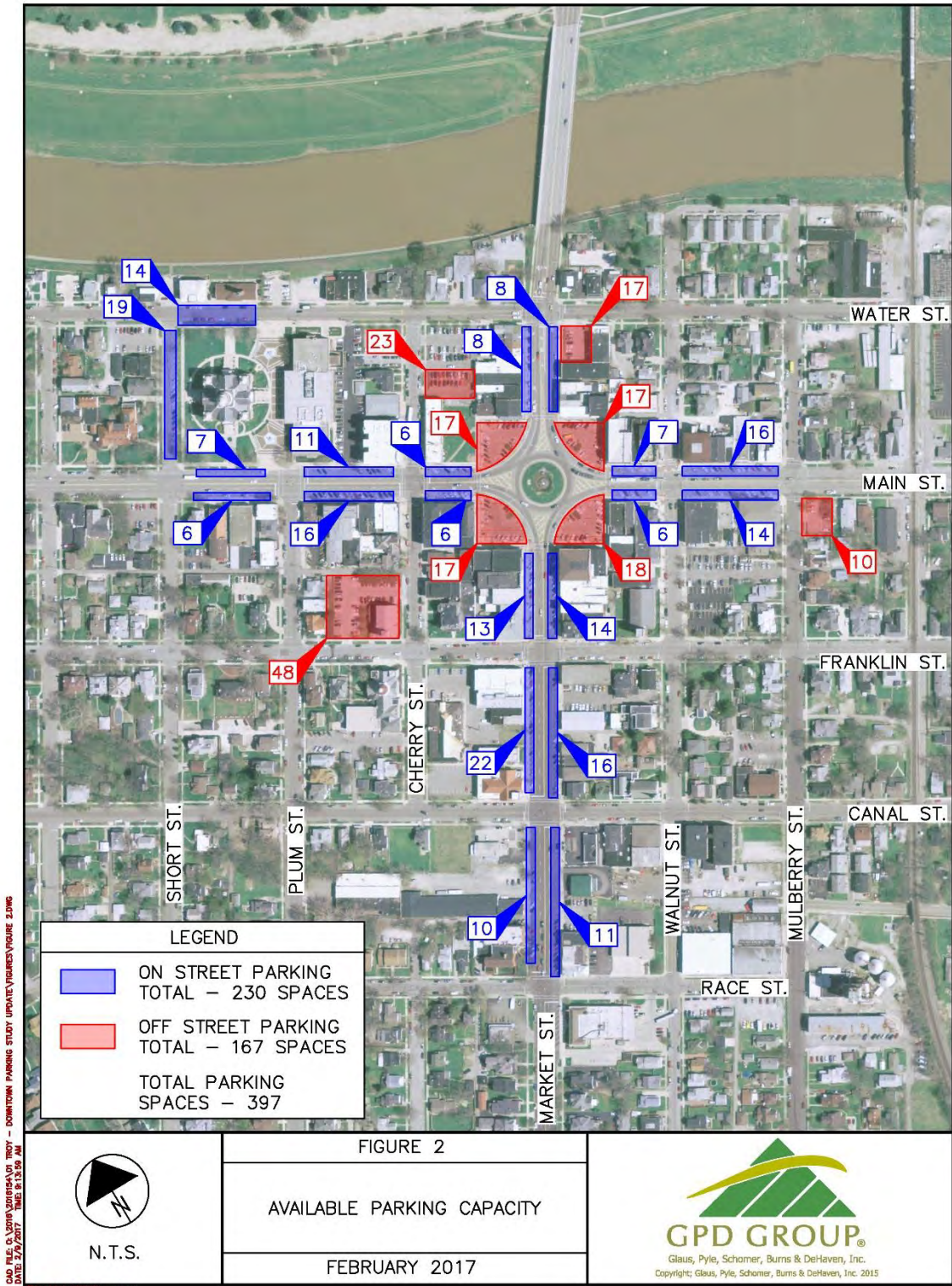
As shown in Table 1, the on-street parking inventory identified 230 general public parking spaces (approximately 58% of the publically available spaces within the study area).

In addition to the on-street parking spaces, the parking inventory included publicly accessible parking lots. The off-street parking inventory was performed for eight (8) public parking lots within the study area. The parking inventory determined that of the 397 publically available spaces within the study area, 167 are for the use of off-street parking. It is important to note that while private off-street parking exists within the study area, these spaces were not observed for occupancy levels. See Table 2 for a summary of the number of off-street parking spaces available within the study area.

Table 2: Off-Street Parking Capacity	
Parking Lot	Public Parking Capacity (Spaces)
Cherry Street Kiosk Lot	48
North Cherry Street Lot	23
Northwest Public Square Lot	17
Northeast Public Square Lot	17
Southeast Public Square Lot	18
Southwest Public Square Lot	17
Troy Rec Lot	17
Mulberry Lot	10
Totals	167

As shown in Table 2, the off-street parking inventory identified 167 general public parking spaces (approximately 42% of the publically available spaces within the study area). See Figure 2 on the following page for an aerial depicting the available parking capacity within the study area.

Figure 2: Available Parking Capacity



2.2 Parking Data

For this study, parking occupancy count data was obtained from the City of Troy Police Department. The recording of parking occupancy count data was performed for a two (2) week period for both on- and off-street parking locations within the study area. The following list outlines the days the City of Troy Police Department collected the parking occupancy data:

- Monday, March 7, 2016
- Tuesday, March 8, 2016
- Wednesday, March 9, 2016
- Thursday, March 10, 2016
- Friday, March 11, 2016
- Monday, March 14, 2016
- Tuesday, March 15, 2016
- Wednesday, March 16, 2016
- Thursday, March 17, 2016
- Friday, March 18, 2016

The parking occupancy counts were performed once per hour from 8:00 AM to 8:00 PM. This 12-hour period was selected due to the likelihood of capturing the peak parking period. The raw hourly parking occupancy data recorded by the City of Troy Police Department and is contained in **Appendix A**.

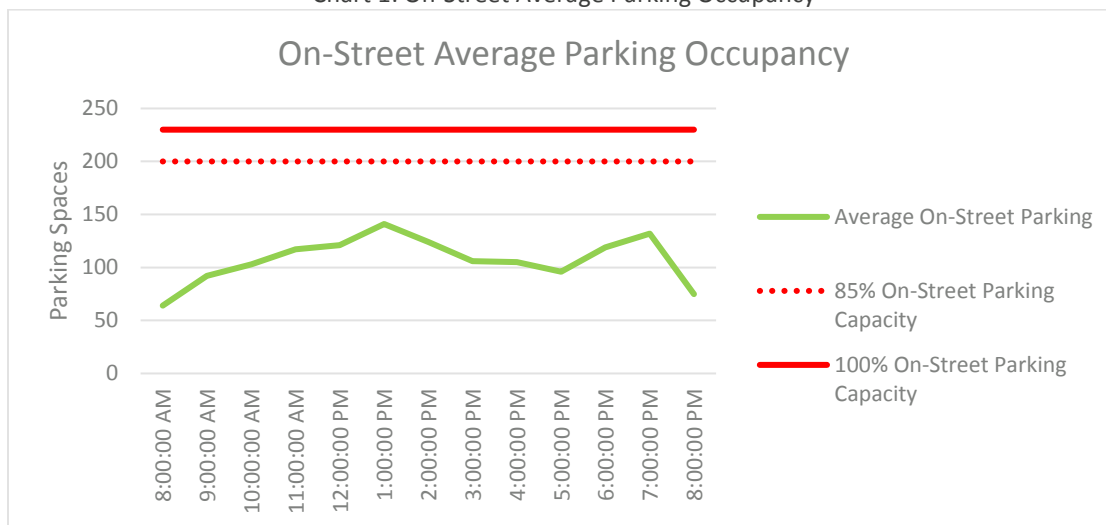
2.3 Parking Occupancy

Based on the two (2) week period of raw parking occupancy count data, an average parking occupancy count was compiled for each parking location within the study area for the purpose of determining the peak hour of occupancy for both on- and off-street locations. See Table 3 for a summary of the average parking occupancy data for the entire study area.

Table 3: Average Parking Occupancy														
	Time of Day													Available Capacity
	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	
On-street Occupancy	64	92	103	117	121	141	124	106	105	96	119	132	75	230
Off-Street Occupancy	34	54	73	87	107	104	88	83	86	91	118	121	87	167
Totals	98	146	176	204	228	245	212	189	191	187	237	253	162	397

Chart 1 details the number of occupied on-street parking spaces at each hourly interval for the study area. As specified in the Institute of Transportation Engineers (ITE) Parking Generation, 4th Edition handbook, a general guideline for parking capacity indicates that when on- and off-street parking locations reach an 85% occupancy rate, the parking location is perceived as full, as it becomes increasingly difficult to find a vacant spot when occupancy levels exceed this generalized threshold. Therefore this study will consider any on- or off-street parking location within the study area that exceeds an 85% occupancy rate to be at full capacity. The 85% and 100% capacity thresholds are delineated in the chart by a dashed and solid line respectively.

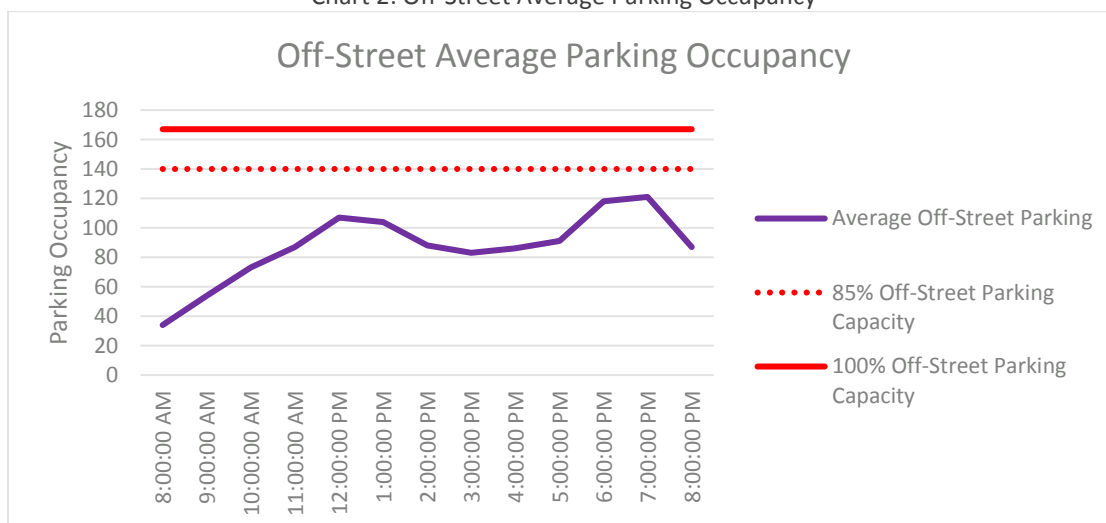
Chart 1: On-Street Average Parking Occupancy



As shown on Chart 1 and verified in Table 3, peak occupancy of the on-street parking conditions occurred during the 1:00 PM hour for an average weekday. The chart indicates a general increase in parking demand between 10:00 AM and 1:00 PM, as well as 5:00 PM and 7:00 PM. Note that on-street occupancy for the entire study area under the average weekday conditions never exceeded the 85% and 100% capacity thresholds, indicating spaces could be found throughout the study area during the highest hour of occupancy. While on-street parking spaces were found to be available during the peak hour, it is anticipated that locating an unoccupied space required users to dedicate more time and effort.

Chart 2 details the number of occupied off-street parking spaces at each hourly interval for the study area. In addition to showing the total number of occupied off-street parking spaces for the entire study area, the chart also displays the 85% and 100% capacity thresholds.

Chart 2: Off-Street Average Parking Occupancy



As shown on Chart 2 and verified in Table 3, peak occupancy of the off-street parking conditions occurred during the 7:00 PM hour for the average weekday. The chart indicates a general increase in parking demand between 8:00 AM and 12:00 PM, as well as 5:00 PM and 7:00 PM. Similar to the on-street average parking chart, off-street occupancy for the entire study area under average weekday conditions never exceeded the 85% and 100% capacity thresholds, indicating spaces could be found during the highest

hour of occupancy. Again, while off-street parking spaces were found to be available during the peak hour, it is anticipated that locating an unoccupied space required users to dedicate more time and effort.

The average peak occupancy count data (1:00 PM hour) for on-street parking locations within the study area were compared to the available parking capacity within each on-street parking corridor segment for the purpose of identifying general parking trends and locations of high parking utilization. See Table 4 for a summary of the on-street parking utilization within the study area.

Table 4: On-Street Parking Occupancy Summary		
On-Street Parking Location	Available Capacity	Weekday Peak Occupancy
Main Street Corridor		
Short Street to Plum Street	13	10 77%
Plum Street to Cherry Street	27	17 63%
Cherry Street to Market Street	12	10 83%
Market Street to Walnut Street	13	7 53%
Walnut Street to Mulberry Street	30	19 63%
Market Street Corridor		
Race Street to Canal Street	21	11 52%
Canal Street to Franklin Street	38	11 29%
Franklin Street to Main Street	27	12 44%
Main Street to Water Street	16	13 81%
Short Street Corridor		
Main Street to Water Street	19	18 95%
Water Street Corridor		
Short Street to Cherry Street	14	13 93%
Total	230	141 61%

Note: Occupancy rates: Blue = 0% – 49%, Green = 50% - 74%, Yellow = 75% - 84%, Red = 85% - 100%

As shown in Table 4, two (2) locations (Short Street Corridor: Main Street to Water Street and Water Street Corridor: Short Street to Cherry Street) were found to meet or exceed the 85% capacity threshold, indicating the availability of on-street parking spaces are limited near the immediate areas surrounding the Miami County Courthouse. Generally, this type of pattern is typical of any downtown area as parking locations near high destination areas are likely to have a greater occupancy rate than parking locations further away.

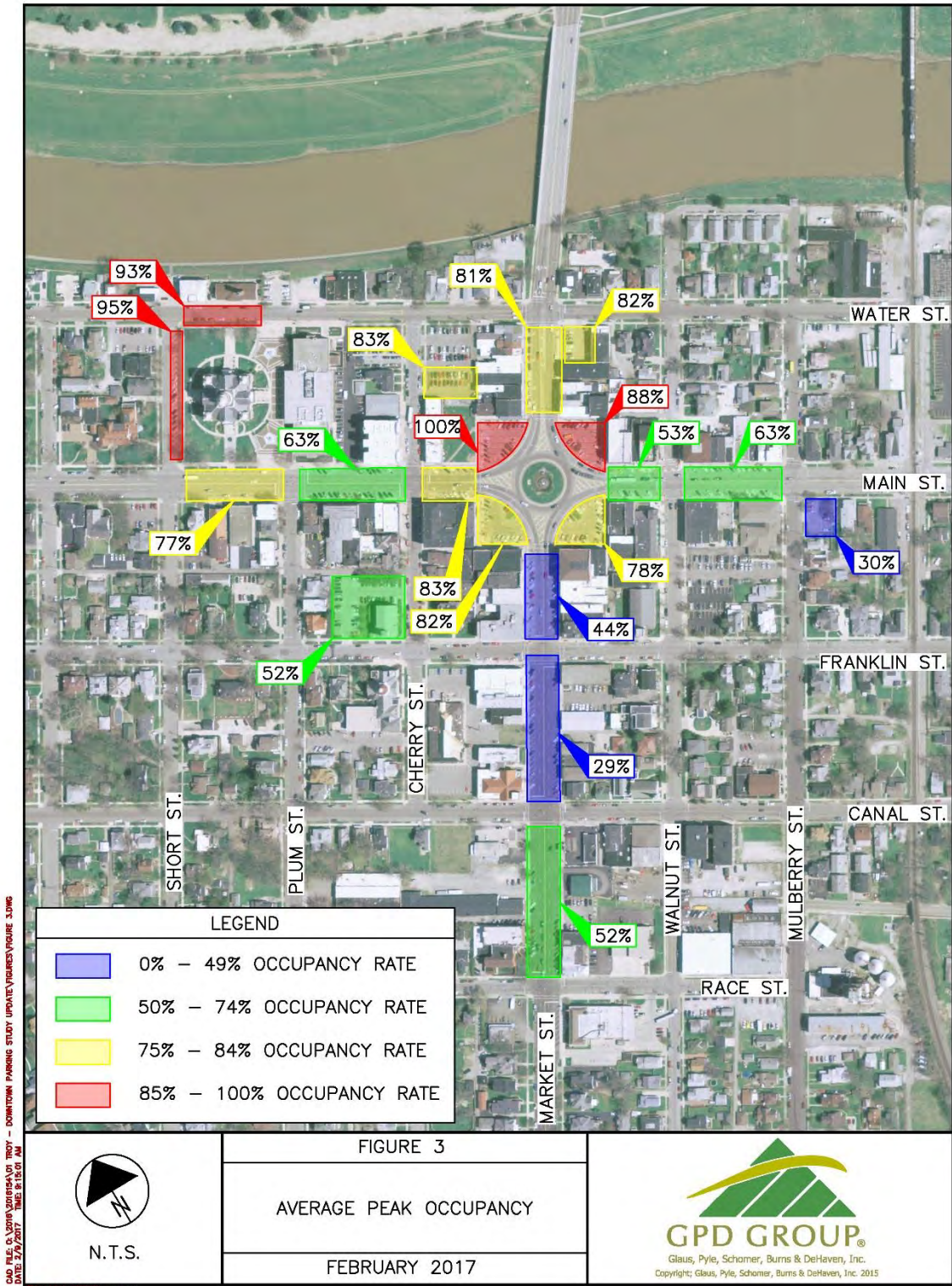
The average peak occupancy count data (7:00 PM hour) for off-street locations within the study area were compared to the available parking capacity within each off-street parking location, for the purpose of identifying general parking trends and locations of high parking utilization. See Table 5 for a summary of the off-street parking utilization within the study area.

Table 5: Off-Street Occupancy Summary		
Off-Street Parking Location	Available Capacity	Weekday Peak Occupancy
Cherry Street Kiosk Lot	48	25 52%
North Cherry Street Lot	23	19 83%
Northwest Public Square Lot	17	17 100%
Northeast Public Square Lot	17	15 88%
Southeast Public Square Lot	18	14 78%
Southwest Public Square Lot	17	14 82%
Troy Rec Lot	17	14 82%
Mulberry Street Lot	10	3 30%
Total	167	121 72%

Note: Occupancy rates: Blue = 0% – 49%, Green = 50% - 74%,
Yellow = 75% - 84%, Red = 85% - 100%

As shown in Table 5, two (2) locations (Northwest Public Square lot, Northeast Public Square Lot) were determined to exceed the 85% capacity threshold, with the Northwest Public Square Lot operating at a 100% occupancy rate. Similar to the results of the peak occupancy data for on-street parking locations, the total occupancy rates indicate that off-street parking is available within the study area during the highest period of occupancy, however, parking may not be immediately adjacent to the public's preferred destination. See Figure 3 for a map depicting the average peak occupancy count data for both on- and off-street parking locations.

Figure 3: Average Peak Occupancy



2.4 Parking Demand Analysis

In order to perform parking projections for the purpose of determining the anticipated parking demand within the study area, the City of Troy provided a comprehensive list of development and current land use data that included information regarding the businesses location, type of business, size in square feet, number of employees, general zoning information, and vacant land uses. This data was sorted by location and grouped into blocks corresponding to the downtown area. Using the Institute of Transportation Engineers (ITE) Parking Generation, 4th Edition handbook, which includes data from numerous parking studies of different land uses that have been performed by public agencies, developers, consulting firms and associations and submitted to ITE, a mathematical model was created for each block to forecast the anticipated future parking demand. The mathematical model projects the anticipated parking demand by multiplying a parking generation rate that is specific to a certain land use by the square footage the land use occupies. Note that the mathematical model will use a calibrated parking generation rate based on the data collected in the field to help establish the projected future parking demand for the City of Troy downtown area. Table 6 summarizes the recorded amount of 1st floor square feet for each respective downtown block within the study area, while Table 7 summarizes the calibrated parking rates established for The City of Troy versus the rates published by ITE. See **Appendix B** for a list of businesses within the study area, building square footage, number of employees, and zoning information.

Table 6: Summary of Land Use Gross Floor Area Square Footage

Land Use Category	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	Block 9	Block 10	Block 11	Block 12	Block 13
Health/ Fitness Club (LUC 492)	-	-	1,884	3,062	-	-	-	-	-	-	-	-	-
Recreational Center (LUC 495)	-	-	2,720	-	-	-	-	-	-	-	-	-	-
Church (LUC 560)	-	1,320	-	-	-	-	-	-	-	2,750	-	-	-
Library (LUC 590)	7,332	-	-	-	-	-	-	-	-	-	-	-	-
Office Building (LUC 701)	8,673	17,801	5,097	2,990	9,606	20,764	33,791	6,823	-	-	10,636	2,329	5,459
Government Office Building (LUC 730)	102,479	-	-	-	-	-	-	-	1,200	3,410	-	-	-
Shopping Center (LUC 820)	7,528	10,992	33,391	22,203	-	2,100	39,427	30,525	20,158	4,956	7,771	2,470	8,364
High-Turnover (Sit-Down) Restaurant (LUC 932)	-	16,485	7,420	4,600	-	11,217	14,420	-	-	-	-	-	-
Vacant	-	993	-	6,873	1,628	-	8,710	-	2,301	1,862	17,295	10,151	2,800

Table 7: Parking Rate Summary			
Land Use Category	Code	ITE Average Parking Rates (Spaces per 1,000 GFA)	Parking Rates Established for Troy (Spaces per 1,000 GFA)
Health/Fitness Club	492	3.93	1.80
Recreational Center	495	1.82	1.80
Church	560	3.88	1.50
Library	590	1.99	1.80
Office Building	701	2.24	2.00
Government Office Building	730	4.15	3.25
Shopping Center	820	2.20	2.00
High-Turnover (Sit-Down) Restaurant	932	3.86	3.86
Vacant	---	---	2.25

The ITE Parking Generation, 4th Edition handbook publishes a range of peak hour parking generation rates that are based on national statistical data. Because this data encompasses information from a variety of locations throughout the country that includes suburban areas with high growth and low pedestrian accessibility, these rates are generally considered to be overly conservative for downtown urban locations that support more specialized land uses with an emphasis on pedestrian accessibility. To more accurately model the anticipated future parking demand for the City of Troy downtown area, the parking rates specified by the ITE handbook have been calibrated based on data collected in the field and engineering judgment.

While no specified land use parking generation rate was utilized for the vacant land uses, it was determined that an average of all the land use parking generation rates would be utilized in an effort to model the potential land uses that may utilize these spaces in the future. While there are many diverse businesses in the City of Troy downtown area, it should be noted that the ITE manual has limited data for unique land uses. Businesses that may not meet the complete ITE description of the above land uses were classified and placed into the 'best fit' land use category.

The City of Troy's pedestrian friendly downtown area promotes the use of shared parking, where visitors and customers can park at one location and walk to multiple destinations. This indicates that each land use does not necessarily need its own dedicated supply of parking, as most land uses have different demands throughout the day (i.e. restaurants may utilize a peak period around dinner time, while an office may have a peak period earlier in the morning). If each land use built enough parking to accommodate the peak parking demand, then the supply of spaces would be underutilized. To model this type of activity, this study will utilize the guidelines and strategies specified in the Urban Land Institute's (ULI) Shared Parking Manual, 2nd Edition. Two reductions were considered applicable for this study, peak hour adjustments (adjusting the parking utilization for a land use under the specified peak hour) and a reduction in parking demand for internal capture (referred to as a noncaptive adjustment where visitors and customers will park once, and opt to walk to other destinations throughout the study area). It's important to note that the ULI Shared Parking Manual does not specify specific rates for noncaptive adjustments, therefore observations of the study area and engineering judgment were utilized to perform this reduction.

Utilizing the first floor gross floor area and the calibrated parking rates, two (2) parking generation scenarios were created. The first scenario will analyze the theoretical anticipated unadjusted parking demand for the purpose of providing a baseline analysis for the study area. Then, utilizing the guidelines specified in the ULI manual, the second scenario, which is dependent on the baseline analysis, will analyze the theoretical anticipated adjusted parking demand. The second scenario is anticipated to provide the most accurate model for the study area.

Both scenarios assume that the generated parking demand will not be dependent on parking availability, price and location. It is important to note that some businesses within the study area provide dedicated on-site private parking. It is assumed that these spaces will be utilized by either employees or customers and therefore the demand for these spaces will be removed from the parking demand calculations. Table 8 summarizes the theoretical weekday unadjusted parking demand calculations and details the current and future parking surplus and deficits that are anticipated to be experienced under the unadjusted baseline analysis conditions.

Table 8: Scenario 1 - Summary of the Theoretical Unadjusted Parking Demand														
Land Use Category	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	Block 9	Block 10	Block 11	Block 12	Block 13	Totals
Health/ Fitness Club (LUC 492)	-	-	4	6	-	-	-	-	-	-	-	-	-	10
Recreational Center (LUC 495)	-	-	5	-	-	-	-	-	-	-	-	-	-	5
Church (LUC 560)	-	2	-	-	-	-	-	-	-	5	-	-	-	7
Library (LUC 590)	14	-	-	-	-	-	-	-	-	-	-	-	-	14
Office Building (LUC 701)	18	36	11	6	20	42	68	14	-	-	22	5	11	253
Government Office Building (LUC 730)	334	-	-	-	-	-	-	-	4	12	-	-	-	350
Shopping Center (LUC 820)	16	22	67	45	-	5	79	62	41	10	16	5	17	385
High-Turnover (Sit-Down) Restaurant (LUC 932)	-	64	29	18	-	44	56	-	-	-	-	-	-	211
									Total Unadjusted Parking Demand					1235
Current Unadjusted Demand														
Current Unadjusted Demand	382	124	116	75	20	91	203	76	45	27	38	10	28	1422
Private Parking	200	5	-	1	12	9	1	-	40	49	12	4	5	338
Parking Supply	51	54	49	16	6	64	36	38	24	22	16	10	11	397
Current Unadjusted Parking Surplus / Deficit	-131	-65	-67	-58	-2	-18	-166	-38	19	44	-10	4	-12	-500
Future Unadjusted Demand														
Vacant (future)	-	3	-	16	4	-	20	-	6	5	39	23	7	123
Future Unadjusted Demand	382	127	116	91	24	91	223	76	51	32	77	33	35	1358
Private Parking	200	5	-	1	12	9	1	-	40	49	12	4	5	338
Parking Supply	51	54	49	16	6	64	36	38	24	22	16	10	11	397
Future Unadjusted Parking Surplus / Deficit	-131	-68	-67	-74	-6	-18	-186	-38	13	39	-49	-19	-19	-623

As shown in Table 8, the general trend in the theoretical unadjusted parking demand for both current and future conditions indicates a deficit of parking spaces within the study area. Note that Blocks 9 and 10 indicate a surplus of parking spaces as this is primarily driven by the private parking deductions (the assumption that customers and employees may utilize these spaces on a regular basis). Note that Blocks 1 and 7 have the highest deficit in parking supply and this correlates to the parking occupancy rates observed in the Parking Occupancy section of the report.

As previously stated in this report, the Urban Land Institute's (ULI) [Shared Parking Manual, 2nd Edition](#) outlines guidelines and strategies to model both peak hour and noncaptive adjustments. These adjustments will be applied to the unadjusted current and future parking demand totals for each land use for the purpose of modeling shared parking principles within the study area. Table 9 summarizes the anticipated shared parking adjustments made for the weekday current and future parking conditions and details the anticipated reduction of parking demand for both current and future conditions.

Table 9: Anticipated Shared Parking Adjustments					
Land Use Category	Code	Unadjusted Weekday Demand	Peak Hour Adjustment	Noncaptive Adjustment	Adjusted Demand
Health/Fitness Club	492	10	70%	100%	7
Recreational Center	495	5	70%	100%	4
Church	560	7	100%	100%	7
Library	590	14	100%	100%	14
Office Building	701	253	70%	80%	142
Government Office Building	730	350	70%	100%	245
Shopping Center	820	385	100%	70%	270
High-Turnover (Sit-Down) Restaurant	932	211	90%	80%	152
Vacant	---	123	80%	80%	79
Current Shared Parking Adjustments					
Total Current Parking Demand		1235			841
Reduction		32%			
Future Shared Parking Adjustments					
Total Future Parking Demand		1358			920
Reduction		32%			

As shown in Table 9, the shared parking calculations indicate a 32% calibration factor in the current and future parking demand for a typical weekday to best model the parking behavior.

The adjusted parking demand for each land use within the study area was redistributed back into their respective block based on a percentage of parking demand for each land use. For instance, the Health / Fitness Club land use is anticipated to have an unadjusted parking demand of 4 spaces in Block 3, and 6 spaces in Block 4. This means Block 3 has a 40% parking demand for this specific land use, while Block 4 has a 60% parking demand. The adjusted parking demand for the Health /Fitness Club was then redistributed based on these percentages. Table 10 summarizes the percentage of utilization based on land use.

Table 10: Percent of Utilization

Land Use	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	Block 9	Block 10	Block 11	Block 12	Block 13	Totals
Health/ Fitness Club (LUC 492)	-	-	40%	60%	-	-	-	-	-	-	-	-	-	100%
Recreational Center (LUC 495)	-	-	100%	-	-	-	-	-	-	-	-	-	-	100%
Church (LUC 560)	-	29%	-	-	-	-	-	-	-	71%	-	-	-	100%
Library (LUC 590)	100%	-	-	-	-	-	-	-	-	-	-	-	-	100%
Office Building (LUC 701)	7%	14%	4%	2%	8%	17%	27%	6%	-	-	9%	2%	4%	100%
Government Office * Building (LUC 730)	96%	-	-	-	-	-	-	-	1%	3%	-	-	-	100%
Shopping Center (LUC 820)	4%	6%	17%	12%	-	1%	21%	16%	11%	3%	4%	1%	4%	100%
High-Turnover (Sit-Down) Restaurant (LUC 932)	-	30%	14%	9%	-	21%	26%	-	-	-	-	-	-	100%
Vacant (future)	-	2%	-	13%	3%	-	16%	-	5%	4%	32%	19%	6%	100%

Using the percentages outlined in Table 10, the adjusted parking demand, shown on Table 9 was redistributed throughout the study area. Table 11 summarizes the theoretical adjusted parking demand calculations and details the current and future parking surplus and deficits that are anticipated to be experienced under the adjusted conditions (Scenario 2).

Table 11: Scenario 2 - Summary of the Theoretical Adjusted Parking Demand														
Land Use Category	Block 1	Block 2	Block 3	Block 4	Block 5	Block 6	Block 7	Block 8	Block 9	Block 10	Block 11	Block 12	Block 13	Totals
Health/ Fitness Club (LUC 492)	-	-	3	4	-	-	-	-	-	-	-	-	-	7
Recreational Center (LUC 495)	-	-	4	-	-	-	-	-	-	-	-	-	-	4
Church (LUC 560)	-	2	-	-	-	-	-	-	-	5	-	-	-	7
Library (LUC 590)	14	-	-	-	-	-	-	-	-	-	-	-	-	14
Office Building (LUC 701)	10	20	6	3	11	24	38	8	-	-	13	3	6	142
Government Office Building (LUC 730)	234	-	-	-	-	-	-	-	3	8	-	-	-	245
Shopping Center (LUC 820)	11	15	47	32	-	4	55	43	29	7	11	4	12	270
High-Turnover (Sit-Down) Restaurant (LUC 932)	-	46	21	13	-	32	39	-	-	-	-	-	-	151
									Total Adjusted Parking Demand					840
Current Adjusted Demand														
Current Adjusted Demand	269	83	81	52	11	60	132	51	32	20	24	7	18	840
Private Parking	200	5	0	1	12	9	1	0	40	49	12	4	5	338
Parking Supply	51	54	49	16	6	64	36	38	24	22	16	10	11	397
Current Adjusted Parking Surplus / Deficit	-18	-24	-32	-35	7	13	-95	-13	32	51	4	7	-2	-105
Future Adjusted Demand														
Vacant (future)	0	2	0	10	3	0	13	0	4	3	25	15	4	79
Future Adjusted Demand	269	85	81	62	14	60	145	51	36	23	49	22	22	919
Private Parking	200	5	0	1	12	9	1	0	40	49	12	4	5	338
Parking Supply	51	54	49	16	6	64	36	38	24	22	16	10	11	397
Future Adjusted Parking Surplus / Deficit	-18	-26	-32	-45	4	13	-108	-13	28	48	-21	-8	-6	-184

As shown in Table 11, with the theoretical adjusted parking demand, it is anticipated that the study area models an overall deficit of 105 parking spaces under the current conditions, and projects an overall deficit of 184 parking spaces under the future conditions. See Figure 4 for a map depicting the theoretical current generated parking surplus / deficit, while Figure 5 depicts the theoretical future generated parking surplus / deficit.

Figure 4: Current (Scenario 2) Theoretical Parking Surplus/Deficit

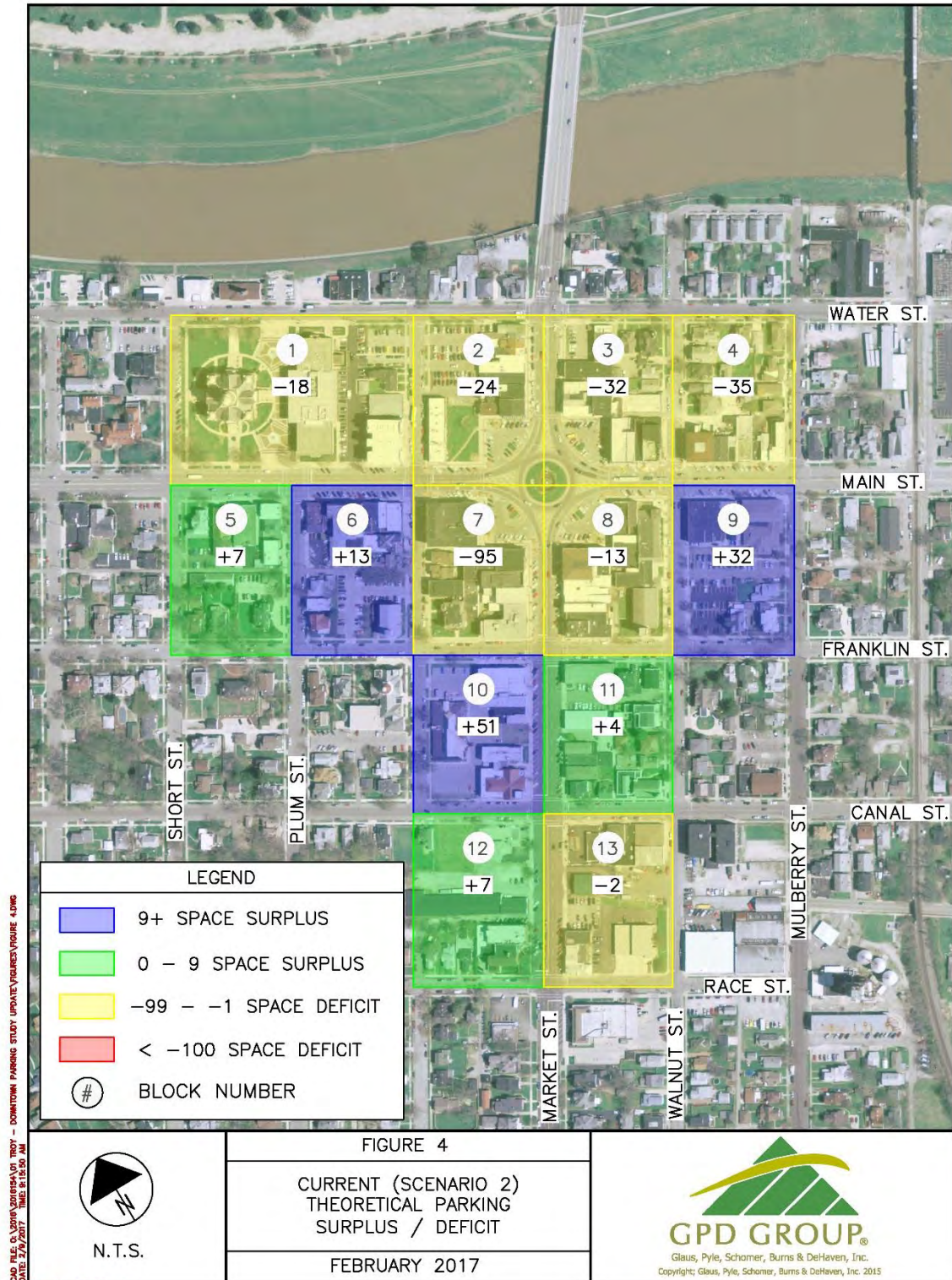
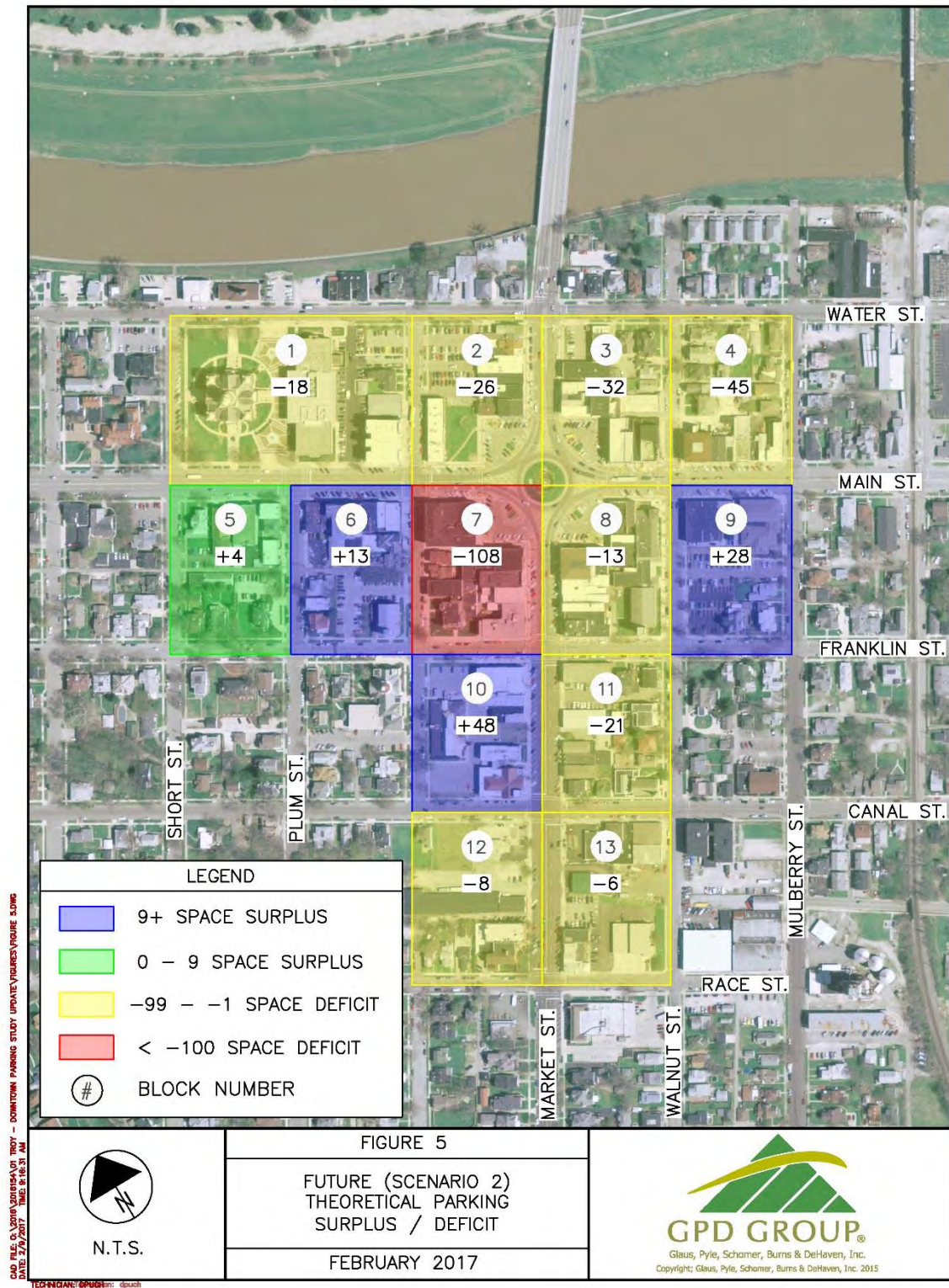


Figure 5: Future (Scenario 2) Theoretical Parking Surplus/Deficit



Note that scenario 2, (Figure 4 and Figure 5) is anticipated to represent a conservative, worse case modeled representation of the parking demand in the downtown area as the computations represent the maximum densities each land use utilizes (i.e. the mathematical model assumes every square foot of the land use is being utilized, and does not take into account unoccupied spaces that may not generate parking demand (i.e storage space). Again, this analysis method provides a worse case estimate of the future potential parking demand so the study will account for future maximum growth within the current land use buildings. Under these circumstances, this study believes the current parking situation is a perceived issue, however, the City of Troy should plan for the potential future growth of the parking demand in the downtown area.

2.5 Public Survey

As a part of this study, an online downtown parking survey was created to reach out to business owners within the study area for the purpose of gaining a qualitative input from the actual users of the parking system. The survey was administered utilizing the online software service [SurveyMonkey](#), which allows for the intuitive creation, administration and analysis of online surveys. The survey link was distributed within the downtown area by the City of Troy with an informative flyer that directed the respondent on how to access the survey along with the ultimate goal of addressing parking concerns.

Of the estimated 170 businesses within the study area, the online downtown parking survey received 55 responses. Of the 55 survey responses, the breakdown was as follows: 95% of the survey responses identified themselves as the Main Response (the business owner), 4% identified themselves as the Secondary Response (Business employee), while the remaining 1% identified themselves as a resident. The survey summary reports were analyzed for the purpose of gaining a better understanding of the similarities or differences of opinions and attitudes towards parking in the City of Troy downtown area. The detailed summary reports for each survey respondent are included in **Appendix C**.

A general summary of the findings revealed by the survey responses include:

- Business owners believe that the bulk of their employees attempt to utilize both on- and off-street parking locations, however the data indicates significantly more employees park on-street as opposed to off-street.
- Respondents indicate that 61% of their customers park on-street.
- The majority of customers are estimated to stay at a business either less than 1 hour (42%), or between 1 to 2 hours (35%).
- On a typical weekday, the majority of the respondents believe finding a parking space downtown is either somewhat easy, 1–3 minutes (38%) or somewhat difficult, 3-5 minutes (33%).
- On a typical weekday lunchtime, the majority of the respondents believe finding a parking space is either somewhat difficult, 3-5 minutes (36%) or difficult, greater than 5 minutes (44%).
- On a typical weekend or evening, the majority of the respondents believe finding a parking space is either somewhat easy, 1-3 minutes (24%) or somewhat difficult, 3-5 minutes (36%).
- 45% of respondents have observed employees parking in front of their businesses on a daily basis.
- 67% of the respondents believe that the current parking situation within the downtown area deters customers from their business.
- 59% of the respondents believe that on-street parking enforcement within the downtown area is inconsistent.

- 44% of the respondents believe that \$-.00 - \$-.50 per hour is a reasonable fee to pay for on- and off-street parking, while 38% of the respondents are not willing to pay for parking.
- 98% of the respondents believe the City/tax dollars should pay for the cost of building and maintaining parking facilities.
- Respondents either strongly agree or agree that there is insufficient parking in the downtown area.
- Respondents either strongly agree or agree that the time frame allowed for parking at one location is not long enough for customer's needs.
- Respondents either disagree or strongly disagree that better parking enforcement / increased fines for parking violations are needed.

The final question of the online downtown parking survey asked for respondents to provide any additional thoughts, comments and/or recommendations they may have regarding the current parking accommodations within the downtown area. The following list outlines some of the most common and repeated comments that were submitted as a part of the online downtown parking survey:

- One of the most predominant and repeated comments obtained from the final question of online downtown parking survey was the need for (or in support of) additional parking locations.
- Respondents are concerned with the 2 hour parking time restrictions. It is believed that this restriction keeps customers from walking downtown, eating lunch or dinner, or visiting multiple stores, without moving their vehicle multiple times. Business owners are concerned with the loss of commerce and revenue under the 2 hour time restrictions.
- Respondents are concerned with the number of employees parking in front of businesses within the downtown area, as it is believed that these occupied parking spaces are taking away from customer parking that promotes the utilization of the business. Respondents would like better parking enforcement to decrease the occurrence of this issue.
- Respondents are concerned with the lack of accessible and free places they may direct their employees to park.
- Respondents believe the Cherry Street Kiosk Lot metering system is confusing. They believe the payment kiosk has too many key prompts, and often times the kiosk does not work. Additionally, the lot is perceived as inaccessible to disabled users as the parking spaces are too far away from the payment kiosk. Respondents would like more/additional signage that delineates parking rates and fines.

2.6 Parking Management

While the observed field data indicates that parking spaces are available throughout the study area over the duration of an entire day, the perception, according to survey respondents, is that there is parking 'problem' in the downtown area. Parking dynamics in a downtown area are complex, but are fundamentally driven by human behavior. It is a function of supply and demand. A specific parking demand is governed by psychological (convenience expectations) and economic (value of time, price of convenience) variables determined by the general parking public. The outcome of these said variables results in distinctive parking behavioral patterns that governs the way users perceive a parking 'problem'. By attempting to understand these behavioral beliefs, it can be determined which parking management strategies are best suited to solve the problem.

In general, people want to park as close to their destination as possible and they are usually unwilling to search for extended period of time to find an available parking space. The type of trip destination also factors into this decision. A scheduled appointment will allow a longer duration to find parking while a shopping or restaurant trip is discretionary and lack of perceived available parking may change the trip destination. When occupancy rates are high, this leads circling, traffic congestion and an increased perception

that parking spaces are unavailable even when there are unoccupied parking spaces. Moreover, parking in a downtown setting is often times distributed amongst various blocks and streets and this requires users to actively search for spaces. Finally, the survey indicates downtown employees are occupying prime parking spaces that further challenges the ability to supply and meet parking expectations. All three issues define the parking ‘problem’ and are influenced by the expectation that a parking spot is only available if it’s within a distance from the destination that one is willing to walk.

Generally, strategies for managing parking within a downtown area go beyond just supplying parking spaces. It is the development of policies and practices that can accommodate high levels of parking demand within the constraints of limited geographic space. A comprehensive and well managed parking system should have the ultimate goal of providing convenient and available parking that can easily be found and clearly defines regulations and fines. An effective parking management system utilizes key elements that include parking strategies, policies and regulations, and the management and enforcement of those policies. The following list describes effective parking management strategies and potential ideas for the City of Troy to employ:

- Marketing

Marketing efforts should be directed towards downtown employers, employees and visitors to the downtown area. These initiatives could include providing brochures, maps, parking information kiosks and on-line information. The information contained in these initiatives should include parking regulations, parking locations (both on- and off-street), hours of enforcement, special event parking, fines, permits and payment information, along with any potential changes to the parking system. By providing these materials, visitor familiarity with the downtown area is enhanced which improves parking confidence and attracts more visitors to the downtown area.

- Parking Meters and Parking Enforcement

Strategies such as limiting free parking locations and adding parking meters or payment kiosks offer the ability to regulate the use of the parking spaces. If there is a disincentive for abusing parking regulations, then violators of those parking regulations may be deterred from abusing the posted regulations. Parking meters offer the ability to control occupancy through the use of pricing. Short term parking spaces in areas with high occupancy levels and demand should be priced higher than areas of lower occupancy in an effort to control occupancy levels and encourage longer-term parkers to park at another location further away from the high destination area. Parking meters have the ability to dynamically change rates to appropriately serve the community (i.e. reduced/free rates after a certain time during the day, or a change in rates for special events). Additionally, the revenue obtained from metered parking could be used to fund enforcement, marketing, and mobility management programs throughout the City. However, parking meters do have some potential drawbacks. First and foremost, if the metered parking is not managed or enforced, then the purpose behind the meter has been voided. Additionally, metered parking has an initial purchase and installation cost, the potential to clutter the streetscape and can be viewed as an overall eyesore.

Parking enforcement should cover the entire City parking system and should vigilantly enforce regulations. Parking enforcement should be firm, but should not deter customers from the downtown area. Good enforcement policies provides a fine structure that gives leniency to first time offenders, but penalizes repeat abusers. Monitoring these types of systems are often times aided with the help of computerized parking enforcement and handheld parking ticket writing systems.

- Shared Parking Techniques and Mobility Programs

Private parking in a downtown setting is often underutilized on certain days and times. The City of Troy could pursue shared parking techniques with local businesses, government offices and churches. An agreement or lease could be made with these types of land uses to allow visitors, customers and employees to park in these private parking locations during their respective off-peak periods. Some examples include the following:

- The City could attempt to lease parking from a Church property
- Permit the public to park in the reserved courthouse parking spaces on a non-court day such as weekends and sign the lots accordingly.
- Promote local businesses to share private parking thru the use of peak hour offsets (an office could allow employees at a restaurant to use their private parking after hours).

The City of Troy could consider mobility programs (shuttle services) from locations further away from the downtown area. The City could promote the use of parking lots near the Troy Aquatic Park, parks and baseball fields, and the fairgrounds where shuttle services could drop visitors and / or business employees off near the center of the downtown area. Additionally, parking lots could be constructed further away from the downtown area at a cheaper price and construction may be less impactful to the downtown area.

- On-Street Parking Conversions

On-street parking is a key factor in the economic development of a downtown area. Due to the fact that multiple motorists can utilize a single space throughout the duration of an entire day, on-street parking allows for an efficient way to directly access businesses located adjacent to the street. On-street parking promotes pedestrian activity and provides space between the edge of the traveled way and the sidewalk.

Throughout most downtown areas, three (3) general types of on-street parking configurations can be found on most streets. These three (3) types of on-street parking configurations, better known as parallel parking, angled parking, and back-in parking each have general advantages and disadvantages. The following outlines these advantages and disadvantages for each of the three (3) on-street parking configurations:

Parallel Parking – One of the most widely used types of on-street parking, parallel parking, has many advantages when used in an urban setting. Generally, motorists are familiar with this type of on-street parking configuration which promotes the utilization of the allotted space. Motorists can exit this type of parking space conveniently and are able to visually see conflicting vehicles rather easily. Additionally, parallel parking requires the least amount of encroachment to the curb and sidewalks. However, parallel parking does have disadvantages. While it is easy for motorists to exit a parallel parking space, it has been regarded as one of the more difficult spaces to enter. Entering vehicles generally cause a small amount of delay and traffic congestion. Finally, parallel parking utilizes the lowest parking density out of the three (3) types of on-street parking, making the conversion to parallel parking less desirable in locations with high parking demands.

Angled Parking – Similar to parallel parking, angled parking is another common type of on-street parking and also has many advantages when used in an urban setting. Again, motorists are familiar with this type of on-street parking configuration which promotes the utilization of the allotted space. Generally, angled parking is the easiest type of on-street parking space for a motorist to enter. When utilizing this space, motorist don't have to worry about opening their car door into traffic. Finally, angled parking utilizes a high parking density, as more parking stalls can be striped in an allotted amount of space compared to parallel parking. However, there are some drawbacks to angled parking. Visibility is low when exiting the space and while it is easy for motorist to enter the space, it can be difficult to exit due to the fact that motorist are backing into oncoming traffic. Exiting vehicles generally cause a small amount of delay and traffic congestion. Finally, angled parking requires more space to be taken from the curb and sidewalk.

Back-In Parking – Out of the three (3) types of on-street parking configurations, back-in parking is generally regarded as the least common. Motorists can exit this type of parking space conveniently and are able to visually see conflicting vehicles rather easily. When utilizing this space, motorists do not have to worry about opening their car door into traffic. Similar to angled parking, back-in parking utilizes a high parking density, as more parking stalls can be striped in an allotted amount of space compared to parallel parking. However, back-in parking does have drawbacks. It can be difficult for motorist to back into the parking stall. Additionally, due to the fact that motorist are required to back into the parking stall, vehicles wishing to park can cause a small amount of delay and traffic congestion similar to that associated with parallel parking.

The City of Troy could consider converting the parallel parking within the study area to angled parking in an effort to increase the amount of on-street parking available to the public. This could be completed by potentially converting the Square into a modern roundabout, and implementing a road diet along the Main Street and Market Street Corridors. Such modifications would typically entail the reduction from two (2) thru lanes in each direction to one (1) thru lane in each direction with the excess pavement used to provide left turn lanes and additional width for the conversion of parallel parking spaces to angled parking.

Additionally, if in the future the City wishes to implement bike lanes within the downtown area to complement the City of Troy's Trail System, then the AASHTO Guide for the Development of Bicycle Facilities (2012) should be utilized. This Guide states "Bike lanes should normally not be placed adjacent to conventional front-in diagonal parking, since drivers backing out of parking spaces have poor visibility of a bicyclist in the bike lane. The use of back-in diagonal parking can help mitigate the conflicts normally associated with bike lanes adjacent to angle parking." Under these specifications, the City should consider back-in angled parking if future bike lanes are constructed within the study area. Note that bike lanes and other active transportation initiatives may allow for an increase in walking and bike trips and a potential decrease in parking space dependency. See **Appendix D** for the City of Troy's Trail Connectivity Master Plan.

- **Form a Downtown Parking Committee**

Managing the parking within the downtown area should be advertised and coordinated amongst the City of Troy Public Service staff, business owners, stakeholders and residents. The purpose behind forming these committees are to create stronger coordination, collaboration, and respect amongst the entities that utilize parking within the downtown area on a regular basis. Delegating responsibilities such as voicing input on long term parking improvements as well as monitoring day-to-day parking needs may offer the city invaluable information that will directly benefit the community.

Moreover, cities, for instance the City of Columbus, are organizing parking advisory teams that include representatives of the business community, tourism and recreational neighborhoods whose purpose is to advise and recommend improvements and changes to the city about the current downtown parking situation.

- **Residential Parking and City Zoning**

Previously, the City of Troy managed parking in front of residential properties through the use of parking meters. It was determined in the 1996 *Downtown Troy Parking Assessment and Management Study* that these meters were placed in an inconsistent manner with varying time limits and costs. This resulted in complaints from residents in the downtown area and the City of Troy was faced with the issue of either removing the meters in front of residential properties, potentially increasing the long term parking for employees but potentially decreasing the parking availability for residents, or keeping the meters in place which would seemingly be unresponsive to residential needs. Ultimately, the 1996 study recommended to keep the meters in place, price the meters consistently and designate some of the on-street spaces as two (2) hour free zones. Later, the City of Troy opted to remove parking meters in front of residential properties and converted many of these spaces to unrestricted use.

Today, the City of Troy is again faced with balancing the parking needs of visitors, employees and residents of the downtown area. Currently, the City of Troy Zoning code, Section 1155.04, Subsection (a),(b) and (d) stipulate that single and multi-family dwellings must provide a minimum of two (2) parking spaces for each dwelling unit, and Rooming Houses shall provide one (1) parking space for each two (2) roomers or boarders based on the designed capacity of the building plus two (2) spaces for a resident owner or resident manager. These rates specified in the Troy City Zoning Code are comparable to the ITE Parking Generation, 4th Edition handbook, as it estimates the need for two (2) parking spaces per single-family housing and approximately one (1) space for low/mid-rise apartment dwelling. This indicates that the City of Troy's zoning code accurately represents to the anticipated parking demand generated by these land uses.

According to ITE Trip Generation Manual, 9th Edition, the two (2) parking spaces that are anticipated to be needed by a single-family house are anticipated to generate approximately ten (10) trips throughout the day (5 entering and 5 exiting). For example, two (2) people leaving for work would represent 4 trips (2 trips to work and 2 trips from work). This land use has the highest trip generation rate per dwelling unit of all residential uses because they are the largest units in size and have more residents and vehicles than any other residential land uses. Note that this trip generation rate is geared towards suburban residential subdivisions and it is anticipated that the projected daily trips could be less than 10 trips given the denser land use and other modes of travel (i.e. walking, bikes and ride sharing).

When investigating apartment dwellings, the one (1) space that is anticipated to be needed is anticipated to generate approximately six (6) trips throughout the day (3 entering and 3 exiting). These rates and number of trips generated by each residential land use are used to gain a sense of the magnitude of utilization of the number of spaces that are generated by the land use.

The current zoning within the downtown area does not restrict the development of residential properties, which indicates there is a potential demand for long term parking within the downtown area. A potential issue is that the urban downtown environment provides little opportunity to expand the long term parking supply. Research indicates numerous cases where communities with an urban downtown area provide a residential parking permit program. These permit programs grant overnight parking privileges (8 PM – 8 AM) to residents of the downtown area for spaces that typically have hourly restrictions. Generally, applicants must provide proof of residency, such as piece of mail with the applicant's name, address, and postmarked within the last 30 days, picture identification, such as a driver's licenses, and a copy of the vehicle registration for which they wish to display the permit. Generally, cities within these case studies charge annual or monthly fees to renew the permit.

Typically, within the resident parking permit program timeframe (8 PM – 8 AM), land uses that compete for parking demand would include the end of the dinner period (restaurant land use) and land uses that offer evening entertainment (theatres, community halls etc.). Land uses such as government and business offices, fitness and recreational centers, libraries and a significant portion of retail uses typically offer little parking demand during this period, indicating much of the short term parking is available for use in the downtown area. Cities are now serving residential parking needs within downtown areas by better utilizing the current supply of parking spaces by dynamically changing short term parking regulations during off-peak period.

Finally, cities are now placing some responsibility on the private developer to provide dedicated long term parking that is integrated into the newly constructed residential development. If the private developer does not provide the specified amount of parking spaces, then cities may have the option to make the private developer financially responsible for every space short of the requirements.

An additional case study published by the Mid-Ohio Regional Planning Commission (MORPC) on good parking management strategies can be found in **Appendix E**. Additional citywide parking case studies can also be found in **Appendix E**.

In addition to effective parking management strategies, this study investigated the handicap accommodations for the seven (7) off-street parking locations. Americans with Disability Act (ADA) requires one (1) handicap space for parking lots that utilize 1 – 25 spaces, and two (2) handicap spaces for parking lots that utilize 26 – 50 spaces, where of the two (2) spaces handicap spaces provided, one (1) handicap space must be van accessible. These spaces must be a minimum of eight (8) feet wide and must have a minimum accessible aisle of five (5) feet. Van accessible spaces must have either an eleven (11) foot wide space with a five (5) foot wide aisle or an eight (8) foot wide space with an eight (8) foot aisle. Table 12 outlines the required number of ADA handicap spaces for the off-street locations within the study area.

Table 12: Off-Street Handicap Space Summary				
Off-Street Parking Location	Number of Parking Spaces Provided	Number of Required Handicap Spaces	Number of Provided Handicap Spaces	ADA Compliant
Cherry Street Kiosk Lot	48	2	2	Yes
Northwest Public Square Lot	17	1	1	Yes
Northeast Public Square Lot	17	1	1	Yes
Southeast Public Square Lot	18	1	1	Yes
Southwest Public Square Lot	17	1	1	Yes
Troy Rec Lot	17	1	1	No
Mulberry Street Lot	10	1	1	Yes

The photos below show the available ADA accessible parking spaces in the various surface lots throughout the study area.



Troy Rec Lot (Non-ADA compliant) - A delineated aisle dedicated to the user does not exist.



Cherry Street Kiosk Lot – Two (2) ADA compliant spaces share one (1) accessible aisle.



Southwest Public Square Lot – One (1) ADA compliant space with an accessible aisle and dedicated curb ramp.



Southeast Public Square Lot – One (1) ADA compliant space with an accessible aisle and dedicated curb ramp.

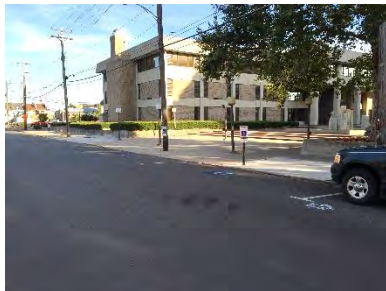


Northeast Public Square Lot – One (1) ADA compliant space with an accessible aisle and dedicated curb ramp.



Northwest Public Square Lot – One (1) ADA compliant space with an accessible aisle and dedicated curb ramp.

ADA requirements must also be provided for on-street parking locations. There are 253 on-street parking spaces within the study area. For 201 – 300 parking spaces, ADA standards require seven (7) handicap spaces, where one (1) of those spaces must provide van accessible parking. The study area provides eight (8) handicap on-street spaces with the handicap space in Block 7 representing the van accessible space, however one (1) handicap space on Main Street (within Block 1) does not provide a delineated accessible aisle or an appropriate curb ramp, and two (2) handicap spaces on Water Street (Block 1) do not provide a flush accessible aisle or curb ramp. Additionally, one (1) handicap space on Main Street (Block 7) does not meet the ADA requirements for a properly sized accessible aisle. The photos below demonstrate both ADA compliancy and violations for some of the available ADA accessible parking spaces within the study area.



Water Street (Block 1) – Sidewalk is not flush with parallel handicap parking spaces. Accessible path and curb ramp is not in a convenient location.



Water Street (Block 1) – Sidewalk is not flush with parallel handicap parking spaces.



Main Street (Block 7) – The handicap space does not provide an ADA compliant accessible aisle.



Market Street (Block 8) – The handicap space meets ADA requirements.



Market Street (Block 7) – The handicap space meets ADA requirements and could be considered a van accessible space.

The City of Troy should evaluate and modify the existing handicap parking spaces within the study area to ensure the spaces are in compliance with current ADA requirements and are adequately signed. Additionally, the City should also continue to evaluate ADA slope requirements for the accessible ramps. Further information on the requirements for both on- and off-street ADA parking standards can be found in the [2010 ADA Standards for Accessible Design](#).

2.7 Parking Signage

An important feature of any downtown metropolitan parking system is the way in which the parking public is informed of on and off-street parking locations, parking rates, and if any restrictions exist at the desired parking locations. As a part of this study, the delineation and location of parking signage throughout the City of Troy downtown area was assessed. It was determined that there are potential shortfalls with the parking signage in the City of Troy downtown area. However, there are current plans to implement a wayfinding project in the City of Troy.

Generalized observations determined that the off-street public parking lots within the City of Troy downtown area do not have adequate lot identification, as parking signage is either not present or it is not easily identifiable. Directional parking and vehicular wayfinding signs are not prevalent within the City of Troy downtown area, leaving visitors who are unfamiliar with the City without a sense of guidance and confidence when attempting to find available parking. In addition to the issues described above, the online downtown parking survey determined that existing signs denoting where and how to pay for off-street public parking that are managed by kiosk payment stations in the City of Troy downtown area utilize an unclear message and have the potential to confuse the parking public, in some cases leading to unintentional parking violations and fines.

Generally speaking, downtown areas often use three (3) types of parking signs to inform motorists of public parking locations, while also increasing parking efficiency. These types of signs are as follows:

- **Identification** – Generally, identification signs are placed at the entryway of surface public parking lots. These type of signs typically identify the name of the parking lot, indicate the hours of operation and inform the parking public if any parking fares exist.



- **Directional / Location** – Directional / Location signage offers advanced information on directing motorist to off-street public parking lots. These signs utilize the conventional parking “P” icon and are accompanied by a directional arrow. Often times, these signs are placed at systematic locations throughout the city and provide a sense of direction for visitors who may be unfamiliar with parking locations within the downtown area.



D4-1

D4-1. Digital image. OMUTCD, 13 Jan. 2012. Web. 9 Aug. 2016.

- **Vehicular Wayfinding** – Vehicular Wayfinding signage offers advanced information on places of interest, parking locations, public buildings, landmarks and attractions within the downtown area. These signs are limited to conventional roads, offer a directional arrow and are intended to help motorist orient themselves with the downtown area.



Wayfinding Sign. Digital image. OMUTCD, 13 Jan. 2012. Web. 9 Aug. 2016.



Wayfinding Sign. Digital image. OMUTCD, 13 Jan. 2012. Web. 9 Aug. 2016.

Each of these three (3) types of signs should use common and conventional logos, color and text style. These signs should utilize reflective sheeting materials to help aid motorists during hours of low visibility and should be placed in a location of high visibility. Signs specifying where and how to pay for parking that are managed by kiosk payment stations at off-street public parking locations should depict a brief, clear and concise message. When each of these types of signs are used properly, it decreases the time a motorist spends searching for a parking spot; therefore reducing vehicular circulation, driver inattentiveness of the road, and achieves lower fuel consumption rates. Proper signage also provides a sense of confidence and eliminates the potential for the parking public to become confused by an unclear sign message.

The following list outlines effective practices when implementing signage throughout a downtown area:

- A system of identification, direction / location, and vehicular wayfinding signs should be developed that utilize consistent logos, color and text style, that markets the available parking options within the downtown area.
- Identification signs should be used for the purpose of notifying visitors of what off-street parking lots are available to the public as well as hours of operation, restrictions and parking fares. Identification signs should be placed at the entrance of the off-street parking lot in locations of high visibility.
- Directional / Location signs should be erected in the downtown area that direct visitors to public parking lots. These signs should be placed in systematic locations (intersections) of high visibility, and should offer advanced warning prior to when the motorist reaches their parking destination.
- While not mandatory, vehicular wayfinding signs should be considered in the City of Troy downtown area that highlights and promotes places of interest, parking locations, public buildings and attractions within the downtown area.
- The City of Troy should consider systematically reevaluating on-street parking signage for the purpose of verifying consistency in message and location of signs, verifying mounting height and sign angle as specified in the Ohio Manual of Uniform Traffic Control Devices (OMUTCD) and checking for general sign wear.
- For the Cherry Street Kiosk lot, the City of Troy should consider removing the existing signage and simplifying the payment method. The existing signage should be replaced with an identification sign at the entrance of the lot, specifying hours of operation, restrictions and parking fares. Additionally, the City should place signs around the lot specifying the parking public to “Pay at Machine” with directive arrows to the kiosk station. In lieu of requiring motorists to input their license plate number, the City



The Cherry Street Kiosk lot identification sign. The sign is lengthy and confusing. The City should consider simplifying verbiage. (Example below)



should consider numbering the parking spaces within the lot and require motorists to input their respective parking stall number.

See **Appendix F** for the implementation of a wayfinding system for the City of Troy.

2.8 City Parking Options

There are three (3) distinct components of the parking solution / improvement in downtown Troy. They are as follows:

1. Parking for employees of downtown businesses. (Long Term)
2. Parking for customers and other visitors to the downtown area. (Short term)
3. Parking for residents in the downtown area. (Overnight)

These three (3) components function somewhat dependently, as the currently observed employee parking behavior demonstrates that there appears to be the perception of limited long term parking options so they park in prime locations on the street and space hop every two hours. This space hopping then effects the availability of short term parking for customers. Forcing these employees out of the downtown area then effects the parking availability for residence. Additionally, the City of Troy has expressed their concern with the available parking that accommodates both employees and visitors of the Miami County Courthouse. Currently, there are forty-six (46) individuals that are on a waiting list to get a permit for the Courthouse private parking. The following list outlines options and recommendations to help manage the parking situation in the City of Troy downtown area.

Short Term Recommendations

1. Convert the Cherry Street Kiosk system to a more conventional 'pay per hour' for a specific spot versus the current 'pay per a timeframe' for any spot system.

The survey respondents indicate people think the current system is cumbersome and it does not support higher levels of parking turnover. According to the field observation, the lot is underutilized, operating at an average peak hour occupancy rate 52% (approximately 25 parked cars). It is believed that by converting the operating system to simpler format, users may opt into utilizing the lot more frequently. Additionally, with the 'pay per hour' system, drivers can visually see if a parking spot is unoccupied, as there is no preconceived notion that a parking spot may not be available even if the spot currently unoccupied (as the current system promotes the notion that a vehicle can leave a parking spot and still have the spot reserved when it returns).

1A. To implement this recommendation, the City of Troy needs to remove the signage associated with the 'pay per timeframe' system and erect signage that locates the payment kiosk. Additionally, parking spaces need to be numbered through the use of pavement markings or signs.

1B. The City of Troy should also consider moving the payment kiosk in closer proximity of handicap accessible spaces.

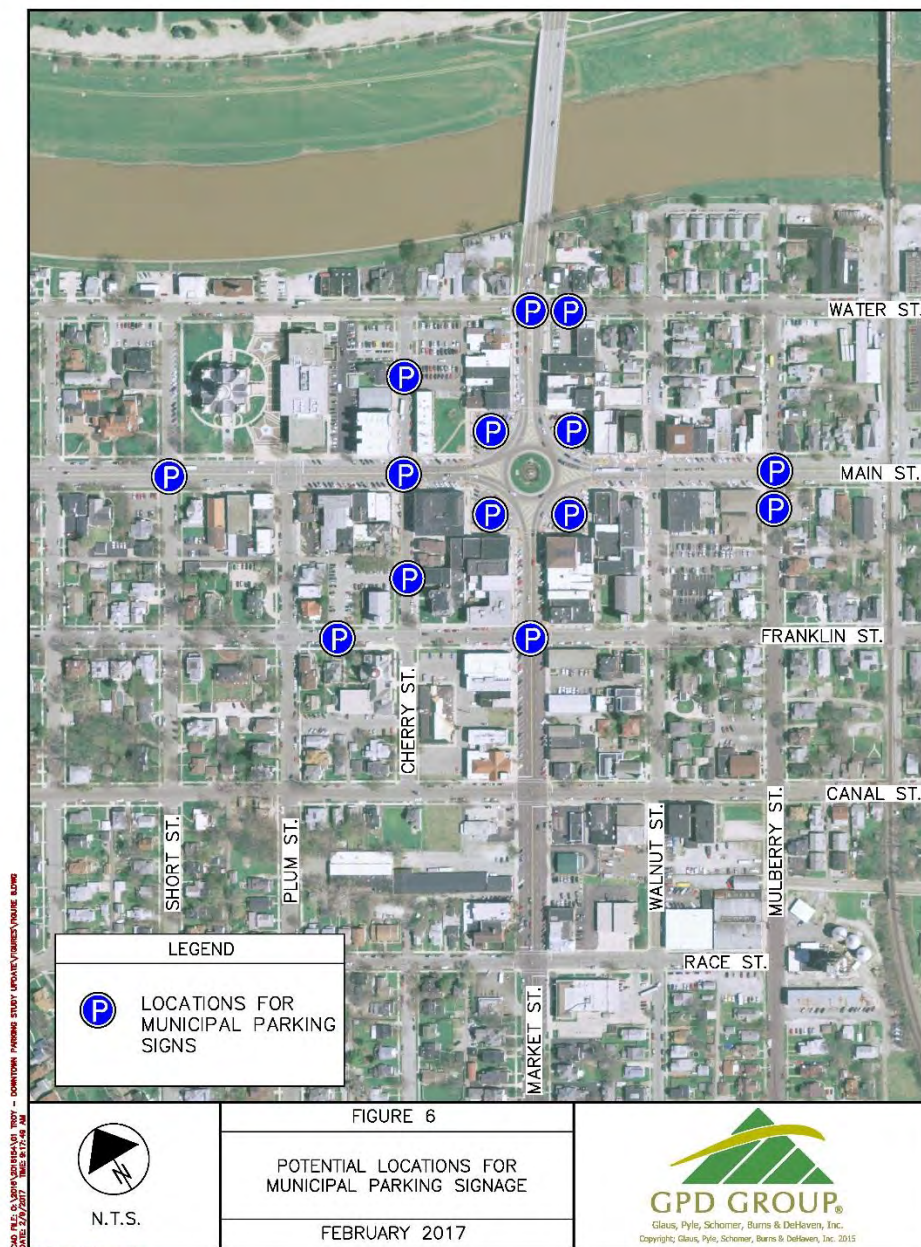
2. The City of Troy should undertake a coordinated program to increase awareness of the existing parking supply.

A key element of parking strategies is assuring that customers and visitors of the downtown area clearly understand where public parking is available and what restriction apply to the parking. To accomplish this, the City of Troy should consider the following:

2A. Develop the wayfinding system outlined in **Appendix F** that includes the implementation of identification, directional / location, and wayfinding signs throughout the downtown area. The design of these signs should complement one another and should follow a consistent scheme. This signing system will help drivers who are unfamiliar with the downtown area find parking locations and it will guide users to underutilized parking lots. The

system will help direct court house visitors to underutilized lots, such as the Cherry Street Kiosk Lot, by placing advanced signage on Main Street and Market Street. Visitors then have the option to follow the guidance signs to an off-street parking location. Prior to implementing this recommendation, the City of Troy should consider developing a wayfinding plan. This plan should look beyond just the signage needed for parking, accounting for elements such as information kiosks, banners, and general branding efforts. Figure 6 indicates viable and recommended locations for the implementation of municipal parking signage. Note that each public off-street parking lot should utilize an identification sign that clearly specifies parking regulations. Municipal parking directional and location signs should be placed on main corridors of the study area, such as Main Street and Market Street, and should utilize complementing signs to guide users from these corridors to public parking lots.

Figure 6: Potential Locations for Municipal Parking Signage



2B. Market all of the available public parking options by creating a map and placing it in a brochure. The map should depict location of public parking (including locations that offer long term parking opportunities, such as the Cherry Street Kiosk Lot) hours of enforcement, parking rates. This map should be posted online on The City of Troy's website and the brochure should be printed on paper to distribute to visitors, employers and employees of the downtown area. Below is an example of a parking brochure for the City of Savannah, Georgia. Note that while Savannah has a larger downtown area than the City of Troy, the concepts on how parking information is conveyed remains the same.

SMART CARDS

Smart cards are prepaid parking cards that can be used at pay-and-display meters in addition to coins, currency and credit cards. Smart cards are available in denominations of \$25, \$50, \$75 and \$100 and can be purchased at Mobility & Parking Services in the Bryan Street Garage, 283rd and Abernethy Streets. Pay-and display meters are located in the general area bounded by River Street, Oglethorpe Avenue, Martin Luther King Jr. Boulevard, and East Broad Street.

DISABILITY PARKING

The City provides disability parking spaces for the exclusive use of vehicles displaying the appropriate permit. The spaces are dispersed in all areas of the city and include free spaces as well as metered spaces. The permit is located on the front of the vehicle. The permit is valid for the duration of the trip. The permit is valid for the duration of the trip. The permit is valid for the duration of the trip.

METERED SPACES

The City provides 3,000 metered spaces in Savannah's Historic District with time limits ranging from 30 minutes to 18 hours. The cost per hour for parking on the meters ranges from \$30 per hour to \$100 per hour depending on the location of the meter. Parking meter rates in the three River Street parking lots are \$100 per hour.

Parking meters and time limit zone regulations are enforced Monday through Friday from 8AM to 5PM. Safety regulations, the hydrants, fire lanes, yellow lines, etc., are enforced 24 hours a day seven days a week by Mobility & Parking Services and the Metro Police Department.

COMMERCIAL VEHICLE DECAL

A commercial vehicle parking permit (decal) can be purchased to park business vehicles in metered freight zones, lots or ways or at off-street parking meters for the purpose of loading or unloading merchandise or providing maintenance, repair, or construction services. The fee is \$150.00 annually.

FIRE HYDRANTS

Blocking a fire hydrant could prevent fire equipment from reaching its destination and could cause serious property damage and loss of life. Never park within 15 feet of a fire hydrant.

PASSENGER LOADING ZONES

Passenger loading zones accommodate the receiving and discharging of passengers at downtown establishments. Parking is limited to the expedient loading and unloading of passengers.

SEMI-TRUCKS

Semi-trucks provide pedestrian a safe place to walk. Parking any portion of your vehicle on a sidewalk is prohibited.

CONVEYANCE

Please keep driveways open by not blocking or parking in front of them. A sign is not needed to enforce this regulation. Vehicles may need the full width of the driveway to get to and from the street.

STREET CLEANING

Be on the lookout for street sweeping signs when parking in the city. Certain hours are set aside to allow easy passage for street cleaning vehicles.

YELLOW LINES

To prevent traffic congestion or to allow for turning of larger vehicles, please do not park at yellow lines.

TRAFFIC SIGNALS, TRAFFIC SIGNALS AND INTERSECTIONS

For safety reasons, traffic signals, crosswalks and intersections must be visible to motorists and pedestrians. Blocking visibility at a corner can result in a serious accident.

PARKING GARAGES

ROBINSON GARAGE (912) 651-6470
Location: York and Montgomery Streets
Hours of Operation: 24 hours a day 7 days a week
Daily Rate: \$1.00 per hour or portion thereof, a minimum \$10 per day
Evening Rate: Monday - Friday 6PM to 7AM, flat rate of \$2, before 6PM and after 7AM the daily rate applies.
Weekend Rate: 7AM Saturday until 7AM Sunday a flat rate of \$3 per day.
7AM Sunday until 7AM Monday a flat rate of \$3 per day after 7AM the daily rate applies.

BRYAN STREET GARAGE (912) 651-6477
Location: Bryan and Abernethy Streets
Hours of Operation: 24 hours a day 7 days a week
Daily Rate: \$1.00 per hour or portion thereof, a minimum \$10
Evening Rate: Monday - Friday 6PM to 7AM, flat rate of \$2, before 6PM and after 7AM the daily rate applies.
Weekend Rate: 7AM Saturday until 7AM Sunday a flat rate of \$3 per day.
7AM Sunday until 7AM Monday a flat rate of \$3 per day after 7AM the daily rate applies.

STATE STREET GARAGE (912) 651-6473
Location: State and Abernethy Streets
Hours of Operation: Sunday-Friday 8AM to 1AM
Saturday 8AM to 1AM
Daily Rate: \$1.00 per hour or portion thereof, a minimum \$10
Evening Rate: Monday - Friday 6PM to 7AM, flat rate of \$2, before 6PM and after 7AM the daily rate applies.
Weekend Rate: 7AM Saturday until 7AM Sunday a flat rate of \$3 per day.
7AM Sunday until 7AM Monday a flat rate of \$3 per day after 7AM the daily rate applies.

LIBERTY STREET GARAGE (912) 644-5934
Location: Liberty and Montgomery Streets
Hours of Operation: Sunday-Friday 8AM to 1AM
Saturday 8AM to 1AM
Daily Rate: \$1.00 per hour or portion thereof, a minimum \$10
Evening Rate: Monday - Friday 6PM to 7AM, flat rate of \$2, before 6PM and after 7AM the daily rate applies.
Weekend Rate: 7AM Saturday until 7AM Sunday a flat rate of \$3 per day.
7AM Sunday until 7AM Monday a flat rate of \$3 per day after 7AM the daily rate applies.

WYTHAMER STREET GARAGE (912) 525-2820
Location: Wythamer Street just past City Hall
Hours of operation: 24 hours a day seven days a week
Daily Rate: \$2 per hour, a minimum daily rate \$16 per day
Monthly Rate: Monday through Friday 8AM to 6PM, \$80
Unlimited access during hours of operation, 8PM
Reserved spaces, unlimited access 24/7, \$200

SPECIAL EVENT RATES FOR ALL GARAGES
Rates: \$5 to \$20 depending on event

PARKSMART DOWNTOWN

The City of Savannah welcomes you as a resident, visitor, business owner and/or student to Greater Downtown Savannah. To ensure that your visit is pleasant and to answer questions you may have regarding parking and traffic regulations within our downtown area, we have provided the following information to assist you. Enjoy your experience in downtown Savannah!

RESIDENTIAL PERMIT PARKING

The City provides permits for residents who live on metered streets. The permit allows residents to park free on meters within the block on which they live and one additional block in each direction.

RESIDENTIAL PARKING PERMITS

Residential parking permits are available for students. To qualify, a student must live on a metered block and within the City limits. For more information and cost call Mobility & Parking Services.

HOV 2+ AND OVER

Participating merchants subsidize parking for downtown shoppers with \$10 and \$100 stamps good at all five City garages. Look for details in store windows and ask merchants for details about their individual program.

VISITOR WEEKEND PARKING

Tourists may purchase for \$12.00 a two-day parking pass or for \$7.00 a single day parking pass from the Savannah Visitors Center, the Mobility & Parking Services Department and various hotels and inns. The pass authorizes free parking on meters of one hour or more free parking in the City's lots and parking garages upon availability and allows exceeding the time limit in time-limited zones. Visitor Day Passes must be filled out with appropriate information to be valid and will not be honored during special events.

PUBLIC PARKING INFORMATION

REDUCED RATE CIVIC CENTER PARKING

The City offers discounted parking at the Civic Center parking lot located at Liberty and Montgomery Streets. The parking rate is \$30 per hour. Free weekday shuttle services are offered at the Liberty Street Garage to the downtown area. For more information, visit our website at www.savannahga.gov. Parking is enforced in the Civic Center Parking Lot 24 hours a day seven days a week. (Civic Center parking is limited and/or prohibited during Civic Center events.)

HUTCHINSON ISLAND

The City offers free permitted parking at the International Trade & Convention Center on Hutchinson Island. Employees can park their vehicles on Hutchinson Island and take the ferry to their workplace. A limited number of spaces are available.

REDUCED EVENING MONTHLY PARKING RATE

Monthly parking is available in the Robert F. Robinson, Bryan Street and Whitaker Street Garages seven days a week from 3PM to 6AM for \$35 per month. For more information, call (912) 651-6477.

MOBILITY OPTIONS
Downtown Transportation—referred to as dot—is Savannah's fare-free mobility system that gets you where you want to go when you need to get there, in and around the Historic District. Components of dot include the shuttle, stroller and ferry. Please note the following operating hours for dot:

- Express Shuttle: Operating seven days a week, 11AM to 9PM.
- River Street Stroller: Operating Thursday-Sunday, 12 noon to 8PM.
- Ferry: Operating seven days a week from 7AM to midnight.

Please refer to the map for these routes. For more information visit dot's website at www.connectordot.com or call (912) 447-4026.

Chatham Area Public Transit (CAT) has been providing transportation in Chatham County since 1987 and is only \$1.50 a ride. Pick up a bus book with complete routes and schedule information at convenient locations around town or call one of their transit agents at 912-233-5767. CAT's transit agents are ready to assist you in planning your next trip...to work, shopping, the movies etc... anywhere! Catika CAT just \$1.50 and you're riding. CAT's downtown shuttle provides Historic District transportation for residents and visitors free of charge. For more information visit CAT's website at www.catcat.org or call (912) 236-2111.

Legend:

- Public Parking Garages and Lots
- Visitor Information Center
- Ferry Landing
- dot Shuttle Stop
- dot Stroller Stop
- TideWatch Bridge
- Elevator

WHAT TO DO...

IF YOU GET A TICKET

The City provides five business days for you to pay your fine. After five business days, a \$120.00 penalty is added to the fine. A parking ticket not paid within 30 calendar days after the date of issue receives an additional \$170.00 penalty. Failure to pay tickets can subject you to a court summons and/or non-compliance of your vehicle. Tickets can be paid by check, Visa, MC or online.

TO CONVERT A TICKET AND FINE

Take the ticket within five business days of the ticket date to Mobility & Parking Services in the Bryan Street Parking Garage at 100 E. Bryan Street, or call Mobility & Parking Services at (912) 651-6470.

IF YOUR VEHICLE IS BOOTED

The boot is used to encourage compliance with parking regulations and payment of tickets and fees. Once the boot is placed, it will not be removed until you've paid your delinquent tickets, late penalties and the boot removal fee. Payment must be made for the release of a vehicle within 24 hours of the date and time of immobilization. If payment has not been made, the vehicle will be towed and impounded at the owner's expense.

IF YOUR VEHICLE IS TOWED

Vehicles parked on properly marked private property may be towed at the request of the property owner. Vehicles parked in a tow away zone will be towed because they interfere with pedestrians, cause safety hazards, and/or obstruct the flow of traffic. If your vehicle is towed from private property, call the telephone number of the company listed on the sign in the lot. Mobility and Parking Services or the Savannah Chatham Metropolitan Police Department at (912) 651-6476. Some violations for which your car may be towed include but are not limited to the following: parking on private property, failure to pay tickets once a vehicle has been immobilized, and parking in driveways or fire lanes.

FOR YOUR INFORMATION

General Parking Info: (912) 651-6470
Parking Enforcement: (912) 651-6474
Booting Information: (912) 644-7995
Abandoned Cars: (912) 651-6470
Non-Emergency Number: (912) 652-6500
Chatham Area Transit (CAT): (912) 236-2111
Emergency Number: 911
Police/Fire/Ambulance: 24 hours a day

Source: ParkSmart Downtown Brochure, savannahga.org. Accessed 12 Jan. 2017.

2C. The City of Troy should review and revise, where necessary, the signing and curb painting for on-street parking spaces to assure that drivers have an understanding of where parking is permitted and what restrictions may apply.

3. The City of Troy should reevaluate parking meter rates.

The occupancy data indicates the North Cherry Street Lot and the Troy Rec Lot both have average peak occupancy rates of greater than 80%, while the Cherry Street Kiosk Lot and the Mulberry Street lot have average occupancy rates of approximately 50% or less. Currently, parking rates for the North Cherry Street lot (greater than 80% average peak occupancy) are 0.10 cents an hour while the Cherry Street Kiosk Lot (approximately 50% average peak occupancy) are 0.25 cents an hour, indicating it is cheaper to park in a more convenient downtown location. The North Cherry Street Lot and the Troy Rec Lot should focus on parking turnover rather than parking duration and should be priced accordingly. Without a change in parking meter rates, parking behavior will not change. To facilitate this change, the City of Troy should consider the following:

3A. The City of Troy should consider increasing the parking meter price at the North Cherry Street Lot and Troy Rec Lot to 0.50 cents an hour to emphasize parking turnover. This is at the upper limit of what the survey respondents believe is an acceptable price.

3B. Keep pricing at the Cherry Street Kiosk Lot the same and offer lower meter rates at the Mulberry Street Lot (0.10 cents to 0.25 cents) to entice more motorists and visitors to utilize this lot.

3C. Occupancy rates at the Public Square Lots are over or approaching an 85% occupancy rate. This parking is intended to be utilized as short term parking for visitors. As a way to enforce this concept and emphasize turnover, the City of Troy should consider implementing paid parking kiosks that use the rate of 0.50 cents per hour at these locations.

3C. The City should periodically track occupancy rates and reassess parking meter fees accordingly until parking utilization for off-street lots stabilizes.

4. The City of Troy should consider a more proactive management of the supply of short term parking to maximize its availability for customers and visitors to the downtown area.

The survey responses suggest that employees are parking in locations that are designated for short term use limiting the availability of these spaces for customers and visitors in the downtown area. Therefore, it is essential that the existing supply of two (2) hour parking be managed to maximize the availability of this parking for customer use. To accomplish this, the City of Troy should consider the following:

4A. The City of Troy should undertake a cooperative program to discourage employees from using the short term parking supply, including the space hopping throughout the day. This program should include an effort to identify and educate employees who regularly park in the short term spaces about the importance of having customer parking available in the downtown area.

4B. The City should consider developing an ordinance to stop employees from space hopping every two (2) hours which occupies short term parking opportunities designated for customers and visitors in the downtown area. The following is an excerpt of an ordinance used in La Crosse, WI, Chapter 44, Article IV, Section 44-103, Subsection (b):

“In an area where parking on the street or in a parking ramp or lot is restricted to two hours or less at a time, and signs are properly posted to indicate such parking time limitations, any vehicle parked along a single block face, as herein defined, or in the same parking ramp or lot in excess of the time restriction, shall be considered to have continuously parked, and shall be subject to citation for violation of such parking time restriction. A block face shall be defined as one side of a single street between two consecutive intersecting streets. For example, the south side of the 300 block of Main Street would be a single block face, and the west side of 3rd Street between Main Street and State Street would be a single block face.”

The creation of this ordinance enables the city to legally issue parking citations to address the problematic parking behavior.

4C. The City of Troy should continue to consistently enforce the short term parking regulations with an emphasis on motorists who park for long periods of time or space hop within the short term parking locations.

5. The City of Troy should work cooperatively with property owners within the downtown area to expand the supply of long term employee parking.

The City of Troy is at a critical decision point with respect to parking in the downtown area. While the occupancy data indicates that spaces can be found throughout the study area over the duration of a day, there is limited availability for long term employee parking as most of these spaces are designated for short term use. It is recommended that the City of Troy and the private property owners work together to expand the supply of long term, employee parking opportunities. To accomplish this, the City of Troy should consider the following:

5A. The City of Troy could attempt to lease weekday parking from St. Patrick’s Church. There appears to be approximately 100 parking spaces in the parking lot adjacent to St. Patrick’s Church. This lot is four (4) blocks from the center of the downtown area and could serve as a location for long term employee parking usage.

5B. The City of Troy could attempt to lease weekday parking from First Church of the Nazarene. There appears to be approximately 29 parking spaces in the parking lot adjacent to the Church. This lot is two (2) blocks from the center of the downtown area and could also serve as a location for long term employee parking usage.

6. The City of Troy should permit controlled overnight parking in locations with short term hourly regulations to increase the supply of residential parking in the downtown area.

As previously stated in this study, the City of Troy removed parking meters in front of residential properties years ago, and it is not recommended to reverse policy on this issue. The current zoning within the downtown area does not restrict the development of residential properties, which indicates there is a potential demand for long term parking within the downtown area. Currently, many spaces within the downtown area are regulated with two (2) hour parking restrictions, which prohibits long term overnight usage by residents. The occupancy data indicates a steady decline in occupied spaces after 7:00 PM. Therefore, the City of Troy should consider the following:

6A. The City of Troy should consider a permit programs that grants overnight parking privileges to residents of the downtown area for spaces that typically have two (2) hour restrictions. The conditions of the overnight parking program should permit residents to park their cars in these restricted locations between the hours of 8 P.M. and 8 A.M, when occupancy levels in the downtown area are at their lowest. This program would require users to verify the location of their residents, and register their vehicle with the City of Troy. Permits can then be issued to the user for a nominal monthly fee.

Medium and Long Term Recommendations

1. The City of Troy could consider expanding the supply of long term parking away from the center of the downtown area.

A key piece in the City of Troy's parking management strategy is managing the supply of short term parking, and implementing new city code that prohibits the practice of space hopping every two (2) hours. By addressing either of these parking issues, the City of Troy is effectively limiting the locations available for long term parking. For the above strategies to work, the City of Troy should designate areas for employees to park. In general these lots should be placed away from the center of the study area and should serve as a long term opportunity for employees to park and general parking overflow.

Similar to short term parking, there are few opportunities to easily expand the supply of long term parking within the study area. Because land acquisition can be rather difficult to accomplish this study will locate areas of vacant or low land density usage. The following aerial photograph indicates vacant parcels that could be utilized as a parking lot devoted to long term employee parking or parking overflow.



As shown in the aerial photograph, the vacant parcels are located on the corner of Market Street and Canal Street and represent approximately 0.80 acres of land that could be converted into a municipal long term parking lot for employees and general parking overflow.

Additionally, the following locations were also considered for long term parking. The photo below indicates vacant parcels that could be utilized as a parking lot devoted to long term employee parking or parking overflow.



The above potential long term parking opportunities are located on Mulberry Street between Main Street and Franklin Street. While these parcels are rather small, measuring in at approximately 0.13 acres for the southern potential lot and 0.15 acres for the northern potential lot, they do add the opportunity to supply additional long term parking locations. Interestingly enough, the northern potential lot is directly adjacent to the Mulberry Street lot, and the City of Troy could consider expanding the amount of spaces. The occupancy data indicates the Mulberry Street lot is underutilized and the City could consider extending the parking regulations to include long term parking.

2. The City could consider converting the Square to a modern roundabout, implementing a road diet on Main and Market Street, and increasing the number of short term on-street parking spaces along these roadway corridors.

In general there are few opportunities to easily expand the supply of conveniently located, short term parking in the City of Troy downtown area. However, by converting the Square into a modern roundabout and implementing a road diet that would propose to reduce the number of lanes on the Main Street and Market Street corridors, additional lateral space between the curbs could be reallocated for converting the existing parallel parking to angled parking. This potential improvement could add approximately 43 new on-street parking spaces within the study area.

Under this potential improvement, Block 1 (and west of Short Street) could add eleven (11) additional parking spaces along Main Street to help mitigate the potential parking deficit. Both Block 2 and Block 3 could each add six (6) additional parking spaces along Market Street, and two (2) spaces in the Northwest and Northeast Public Square Lots. Block 5 (and west of Short Street) could add ten (10) additional parking spaces along Main Street. Block 7 and Block 8 could add two (2) additional parking spaces in the Southwest and Southeast Public Square Lots, while two (2) additional parking spaces could be added along Market Street in Block 12.

3. The City of Troy could consider constructing a parking garage.

The construction of a parking garage was investigated as a way to add additional parking. The potential parking garage would ideally be located within 1 or 2 blocks of the square, where parking demand is higher. However the city does not currently own property in the vicinity of the square large enough to construct a garage. Parking lots in the vicinity of the square do exist but again, are not owned entirely by the City. If an area of similar size to the existing lots were to be purchased (110 feet by 165 feet), it would occupy roughly a quarter of a block and contain roughly 45 to 50 parking

spaces. A garage with only a single deck and one ramp, would be challenging to construct due to the short length available for the ramp to the upper level, resulting in steeper than desired ramp grades or diminished number of overall parking spaces to provide acceptable ramp slopes within the parking structure. Additionally the ramp would occupy space previously available for parking on the ground level. A 2 level garage (ground and 1 elevated level) might yield a total of 70 to 80 parking spots, an increase of roughly 30 parking spots. Costs for a garage are estimated to be around \$35,000 per elevated parking space. For the 2-level garage described, costs are likely to be as follows:

- Elevated structure with 40 spaces \$1,400,000
- Ground level site work \$125,000

Cost for parking garages can vary depending on configuration and construction methods. Costs shows are planning level estimates to show order of magnitude and indicate substantial costs to gain a relatively limited number of parking stalls. Additionally, a new parking garage is similar to a bridge in respect to ongoing maintenance costs for the life of the structure. The new city facility will require yearly inspections and annual maintenance (lighting costs, security, fire suppression, ventilation based on the size, snow and salt removal, additional insurance premiums and will have to be staffed to some level operationally even with automated entry and exit controls.

4. The City of Troy could consider reconstructing the North Cherry Street Parking Lot at Water Street.

Existing parking lots on west and east sides of North Cherry Street at Water Street have 61 and 48 parking spots respectively, equaling 109 plus 3 on street parking spots adjacent to the lots on North Cherry Street, 112 total spots. North Cherry Street could be closed and both parking lots reconfigured to stretch across Cherry Street. This would result in about 135 total parking spaces, an increase of 23 parking spaces. Note that neither existing parking lots are under city ownership or control. This parking lot reconstruction option would likely require the vacation of North Cherry Street to move forward with this option. This may be problematic for the city to vacate public right-of-way for a privately owned and operated parking lot. To advance this option may require that the city assume ownership of both private parking lots and the operations of the expanded design.

3 Traffic and Pedestrian Data Analysis

3.1 Roadway Existing Conditions

The roadway classification for both Main Street and Market Street is Urban Minor Arterial with a 25 miles per hour (mph) speed limit through the study area. Main Street runs east/west and connects the City of Troy to Interstate 75 to the west. West Main Street is a four lane roadway and has angled and parallel parking within the study area. East Main Street is a three lane roadway just east of the Square with angled on-street parking. The Ohio Department of Transportation (ODOT) reported Annual Daily Traffic (ADT) volumes of 5,035 Vehicles per Day (VPD) and 14,945 VPD for the East and West side of the Square, respectively. Market Street runs north/south and connects the City of Troy to the City of Piqua to the north and also to Interstate 75 on the north and south. ODOT reported ADT volumes of 14,392 VPD and 11,330 VPD for the north and south side of the Square. Table 13 shows the volumes in a tabular format.

Table 13: 2015 Volumes	
Street	2015 ADT
East Main Street	5,035
West Main Street	14,945
North Market Street	14,392
South Market Street	11,330

Crash data was extracted from ODOT's website using the GIS Crash Analysis Tool (GCAT) using a three (3) year time period from 2013-2015. The area of concern was along Main Street from Mulberry Street to Short Street and along Market Street from Water Street to Race Street. There were 150 crashes reported and of those 150, 43 occurred in 2013, 53 in 2014, and 54 in 2015. There were 13 injury crashes and 137 property damage crashes. There is further analysis contained within Section 3.5.

There is a sense of a walkable community in the Square area. For this reason there are traffic signals in place at the entry of the Square on all four approaches. These traffic signals provide a reassurance to a pedestrian they will be able to cross the roadway safely. A pedestrian traffic signal will cause delays along the roadway that could impede traffic flow along a corridor. Traffic signal warrants were conducted at each of the four approaches to determine if a signal was warranted for the pedestrian activity. The City of Troy collected pedestrian counts for the anticipated peak four (4) hours within a typical weekday (Tuesday, Wednesday, or Thursday) for two (2) consecutive days. The data is used to analyze the need for a traffic signal for the pedestrian traffic. The collected pedestrian volumes in Pedestrians per Hour (PPH) are shown in Table 14.

Table 14: Pedestrian Count Volumes								
Time Period	East Leg		West Leg		North Leg		South Leg	
	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2
	PPH		PPH		PPH		PPH	
11:15 AM-12:15 PM	18	14	11	27	14	22	37	24
12:15-1:15 PM	23	17	27	40	24	37	33	41
4:15-5:15 PM	21	16	18	37	37	30	21	17
5:15-6:15 PM	37	19	37	17	33	23	30	16

3.2 Traffic Data

The traffic data utilized by this study consisted of video turning movement counts. The counts were collected by Cummins Consulting Services on Wednesday, November 30, 2016 at ten (10) intersections along the Market Street and Main Street corridors.

The count sheets are included in **Appendix G**. The intersections are:

1. Market Street and Main Street
2. Adams Street and E. Main Street
3. Canal Street and S. Market Street
4. Cherry Street and W. Main Street
5. Franklin Street and S. Market Street
6. Monroe Street and W. Main Street
7. Plum Street and E. Main Street
8. Race Street and S. Market Street
9. Walnut Street and E. Main Street
10. Water Street and N. Market Street

The peak hour traffic data was utilized in calculating the Average Daily Traffic (ADT) volumes. The hourly profile for an urban minor arterial was obtained from ODOT's functional classification charts. The hourly profile for an urban minor arterial is included in **Appendix H**. The peak hour accounts for 8.4% of the ADT. This percentage was used to determine the 2016 ADT's listed within Table 15. Miami Valley Regional Planning Commission (MVRPC) provided an expected growth in the study area of 11% from 2010 to 2040, which computes to 0.367% linear growth per year. The anticipated ADT volumes during the horizon year (2036) are also shown in Table 15.

Table 15: Projected ADT Volumes			
Street	Direction	2016 ADT	2036 ADT
East Main Street	Eastbound	3388	3637
	Westbound	3005	3226
West Main Street	Eastbound	6903	7410
	Westbound	6633	7120
North Market Street	Northbound	8200	8802
	Southbound	6443	6916
South Market Street	Northbound	7676	8239
	Southbound	6538	7018

The peak hour analysis was performed using the peak hour volume counts along each side of the Square. The peak hour volumes for the 2036 year were obtained by growing the 2016 traffic counts with a linear growth rate 0.367%. The peak hour for the years 2016 and 2036 were listed in Table 16. These volumes are used for capacity analysis of the Main Street and Market Street corridors.

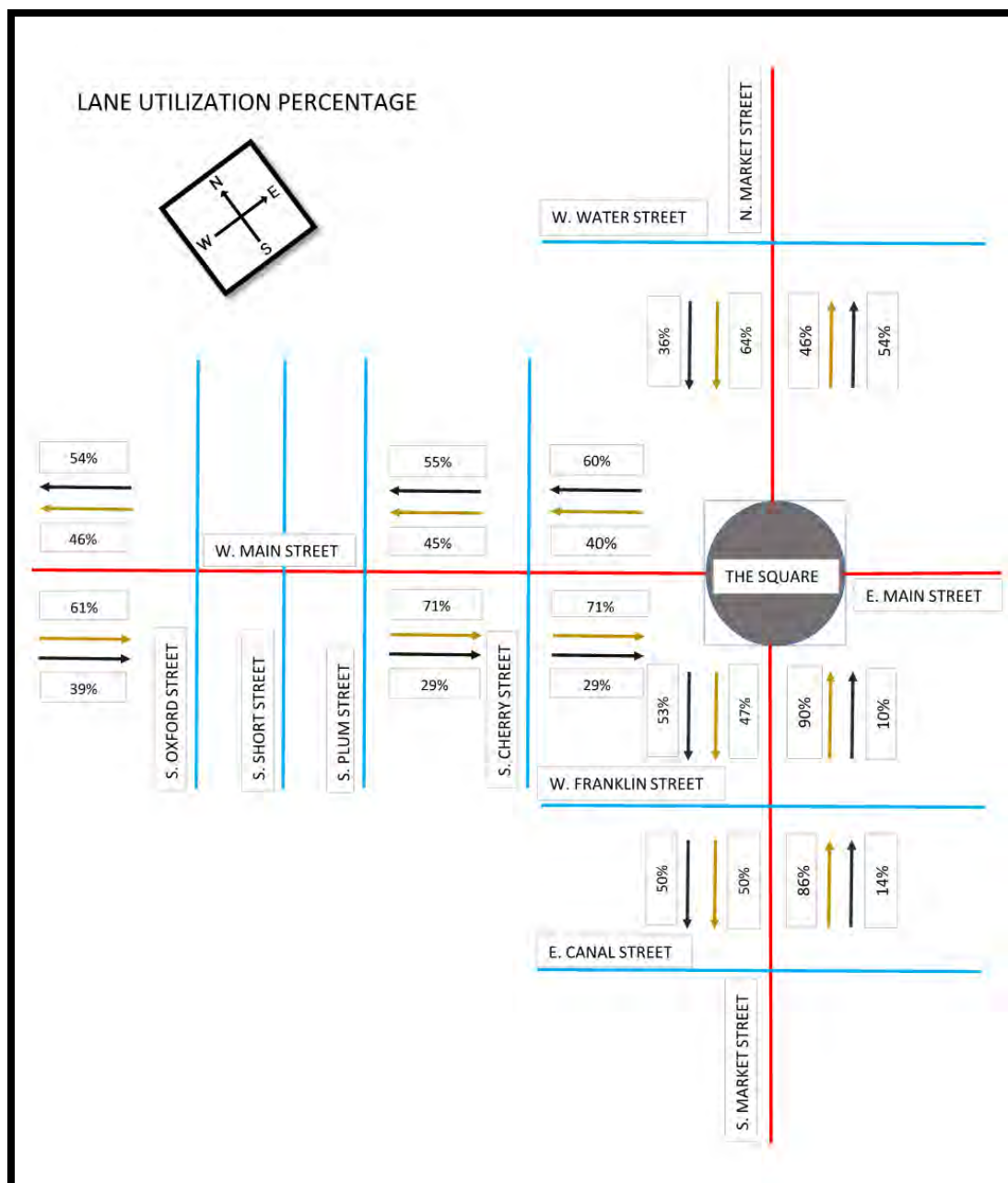
Table 16: Peak Hour Volumes			
Street	Direction	Peak Hour (VPH)	
		2016	2036
East Main Street	Eastbound	280	300
	Westbound	257	276
West Main Street	Eastbound	603	647
	Westbound	534	573
North Market Street	Northbound	680	730
	Southbound	550	591
South Market Street	Northbound	639	685
	Southbound	555	596

The traffic counts collected for the Square (Market Street and Main Street) were grown by the linear growth rate of 0.367% to determine the 2036 turning movement volumes. Table 17 outlines the turning movement volumes utilized for analysis for the years of 2016 and 2036.

Table 17: Turning Movement Volumes			
Direction	Movement	Hourly Turning Movement Volumes (VPH)	
		2016	2036
Eastbound	Left	232	249
	Through	196	210
	Right	175	188
Westbound	Left	58	62
	Through	163	175
	Right	36	39
Northbound	Left	166	178
	Through	412	442
	Right	61	65
Southbound	Left	23	25
	Through	322	346
	Right	205	220

Lane utilization counts were conducted at six (6) road segments along the study area and shown in Figure 7. The count sheets are included in **Appendix I**. The locations included Main Street between Monroe Street and Oxford Street, between Plum Street and Cherry Street, and between Cherry Street and Market Street. The counts also included Market Street between Water Street and Main Street, between Main Street and Franklin Street, and between Franklin Street and Canal Street. The majority of the vehicles traveling towards the Square were utilizing the inside lane away from the curb and there is almost an equal share of lane utilization by the vehicles leaving the Square. Along Main Street angled on-street parking begins just east of Plum Street, this is where the eastbound traffic appears to favor the inside lane. Westbound traffic in this area slightly favors the curb lane but this is likely attributed to a single exiting lane from the square that dumps into the curb lane and the inside lane acts as a left turn lane at Cherry Street and Plum Street. Similar tendencies were found along Market Street with traffic favoring the inside lane traveling northbound towards the square.

Figure 7: Lane Utilization Percentage



3.3 Pedestrian Data

The City of Troy collected pedestrian counts on Wednesday, May 18, 2016 and Thursday, May 19, 2016 at all four (4) approaches of the Square. The counts were taken in 15 minute increments for a total of four (4) hours during each day. The periods collected were from 11:15 AM-1:15 PM and 4:15-6:15 PM. The raw counts are included in **Appendix J**. The peak hour varied per leg of the Square and per day. The bolded values in Table 18 represent the peak hour for the particular day and leg of the Square.

Table 18: Pedestrian Peak Hours								
Time Period	East Leg		West Leg		North Leg		South Leg	
	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2	Day 1	Day 2
	PPH		PPH		PPH		PPH	
11:15 AM-12:15 PM	18	14	11	27	14	22	37	24
12:15-1:15 PM	23	17	27	40	24	37	33	41
4:15-5:15 PM	21	16	18	37	37	30	21	17
5:15-6:15 PM	37	19	37	17	33	23	30	16

In order to compare the Square to a conventional intersection the legs were all totaled to also analyze the pedestrian signal as if there were not four (4) different signals but one (1) centralized traffic signal for the Square. Table 19 shows the totals for both days if the intersection were operated by one (1) centralized traffic signal.

Table 19: Pedestrian Total Count Volumes		
Time Period	Total Pedestrians at the Square	
	Day 1	Day 2
	PPH	
11:15 AM-12:15 PM	80	87
12:15-1:15 PM	107	135
4:15-5:15 PM	97	100
5:15-6:15 PM	137	75

3.4 Roadway Capacity

The capacity of each side of the Square was computed along with the Square itself. East Main Street extends from the Square to Mulberry Street, West Main Street extends from the Square to Adams Street, North Market Street extends from the Square to Water Street and South Market Street extends from the Square to Race Street. The roadway segments were analyzed as their existing 4-lane condition as well as a proposed 3-lane configuration. The 3-lane configuration would allow for a center turn lane and longer parking stalls to reduce the conflicts of parked vehicles hanging out into the roadway. The Square was analyzed as a roundabout since the intersection most closely resembles that type of intersection. The pedestrian signals were not included in the analysis since having a traffic signal right at the entry of a roundabout is not a typical configuration. It should be noted that the capacity of the roundabout is expected to be slightly worse than shown due to these signals at the entry.

Level of Service (LOS) is a letter designation that describes a range of operating conditions. The traffic flow conditions are categorized by:

- A- Free Flow
- B- Reasonably Free Flow
- C- Stable Flow
- D- Approaching unstable Flow
- E- Unstable Flow
- F- Forced or Breakdown Flow

Standards for LOS typically are governed by the maintaining agency for the roadway. In the urban downtown type environment of the City of Troy a D would be considered an acceptable LOS for the peak periods of travel.

The *Highway Capacity Manual (HCM) 2010* provides guidance on determining the LOS of a particular segment of roadway. Chapter 14 'Multilane Highways' provides an exhibit to determine the LOS for a segment of roadway by determining the density of that particular roadway segment. The exhibit 14-5 from the HCM 2010 is shown in Chart 3.

Chart 3: Exhibit 14-5- HCM LOS

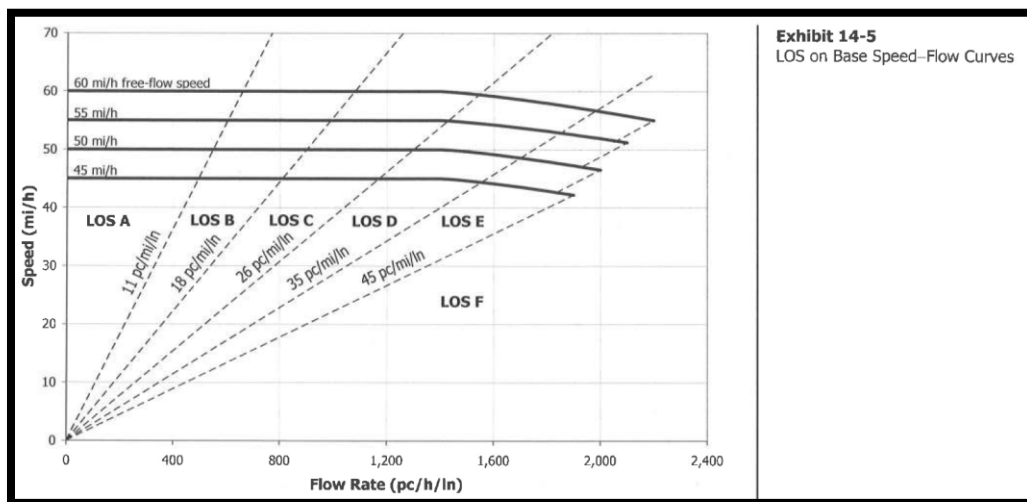


Table 20 shows the results of utilizing Chart 3 to plot the density of the existing roadway configuration (4-lanes) on the graph.

Table 20: HCM Existing Level of Service (4-Lane)					
Street	Direction	2016		2036	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
East Main Street (Ex. 3-Lane)	Eastbound	11.4	B	12.2	B
	Westbound	12.7	B	13.6	B
West Main Street	Eastbound	22.5	C	24.2	C
	Westbound	20.3	C	21.3	C
North Market Street	Northbound	23.4	C	25.1	C
	Southbound	17.1	B	18.3	C
South Market Street	Northbound	22.4	C	24.0	C
	Southbound	20.4	C	21.8	C

The LOS for each segment of roadway are operating at either “reasonably free flow” (LOS B) or “stable flow” (LOS C) conditions for both the current (2016) year and the horizon (2036) year.

Table 21 shows the results of utilizing Chart 3 to plot the density of the build configuration (3-lanes) with the same traffic volumes as the existing roadway configuration.

Table 21: HCM Build Level Of Service (3-Lane)					
Street	Direction	2016		2036	
		Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
East Main Street	Eastbound	10.1	B	10.8	B
	Westbound	11.7	B	12.6	B
West Main Street	Eastbound	25.4	C	27.3	D
	Westbound	23.6	C	24.7	C
North Market Street	Northbound	28.2	D	30.4	D
	Southbound	21.2	C	22.7	C
South Market Street	Northbound	26.4	D	28.3	D
	Southbound	24.0	C	25.7	C

The LOS for each segment of roadway still operates at an acceptable level for an urban condition. During the 2036 build condition (3-lane) the LOS degrades slightly but still maintains a D or better on every roadway segment.

Roundabout analysis was completed for the Square using the Highway Capacity Software (HCS) 2010. HCS allows inputs such as the number of entry lanes, bypass lanes, circulating lanes, and turning movement volumes. The results are based upon the criteria outlined in Table 22 for an unsignalized/roundabout intersection control. The results of the HCS analysis was also compared to Table 23 for a signalized intersection control. The theory behind comparing this to the delay parameters for a signalized intersection is that if the intersection did not have a roundabout type control then the intersection would be controlled by a traffic signal. This is a more realistic snapshot of how the delay is perceived by the driver.

Table 22: Unsignalized/Roundabout LOS Criteria	
Level of Service	Control Delay (seconds/vehicle)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Table 23: Signalized LOS Criteria	
Level of Service	Control Delay (seconds/vehicle)
A	0-10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

The results of the HCS analysis for the existing 4-lane and the build 3-lane option are shown in Table 24 and in **Appendix K**. The 3-lane option was modeled to consist of one entry lane and one exit lane at the eastbound and northbound approaches and dual entry lanes with a dedicated turn lane at the westbound and northbound approaches. The LOS criteria utilized was from Table 22, for an unsignalized/roundabout intersection control.

Table 24: HCS Roundabout Analysis (Main Street and Market Street Square)			
Direction	Year	LOS (Delay in Sec)	
		Existing (4-Lane)	Build (3-Lane)
Eastbound (Main Street)	2016	B(14.1)	B(13.5)
	2036	C(16.8)	C(16.0)
Westbound (Main Street)	2016	C(16.2)	B(13.0)
	2036	C(19.4)	B(14.8)
Northbound (Market Street)	2016	D(34.8)	C(18.5)
	2036	F(53.7)	C(23.8)
Southbound (Market Street)	2016	B(10.7)	C(24.2)
	2036	B(12.1)	D(33.5)
Intersection LOS	2016	C(19.9)	C(17.9)
	2036	D(27.3)	C(23.0)

The LOS for the existing 4-lane and build 3-lane configuration is acceptable as the approaches and the total intersection LOS are all D or better. The 2036 existing roadway configuration for northbound Market Street is deficient but improves in the build 3-lane roadway configuration. The deficiency is indicated in red in Table 24.

For comparison, the same delay indicated in Table 24 was compared to the criteria found in Table 23 since the intersection would be a signalized intersection if the Square was not a roundabout type control. The results are found in Table 25.

Table 25: Signalized Approach LOS (Main Street and Market Street Square)			
Direction	Year	LOS (Delay in Sec)	
		Existing (4-Lane)	Build (3-Lane)
Eastbound (Main Street)	2016	B(14.1)	B(13.5)
	2036	B(16.8)	B(16.0)
Westbound (Main Street)	2016	B(16.2)	B(13.0)
	2036	B(19.4)	B(14.8)
Northbound (Market Street)	2016	C(34.8)	B(18.5)
	2036	D(53.7)	C(23.8)
Southbound (Market Street)	2016	B(10.7)	C(24.2)
	2036	B(12.1)	C(33.5)
Intersection LOS	2016	B(19.9)	B(17.9)
	2036	C(27.3)	C(23.0)

Intersection capacity analysis was performed utilizing Synchro Version 9 for the ten (10) counted intersections listed in Section 3.2. The PM peak hour for all intersections was analyzed. The studied scenarios were 2016 Existing condition (4-lane)/Build condition (3-lane) and 2036 Existing condition (4-Lane)/Build condition (3-Lane). The results of the analysis generally showed either a very minor increase in delay of 2.5 seconds at Main Street and Cherry Street to an improvement in delay at the Square of 4.7 seconds. The results are shown in Table 29.

Table 26: Summary of PM Peak Hour Capacity Analysis					
Int #	Intersection	PM Peak Hour			
		2016 Existing (4-Lane)	2016 Build (3-Lane)	2036 Existing (4-Lane)	2036 Build (3-Lane)
1	S. Market Street & Race Street	A-5.5	A-6.2	A-5.6	A-6.5
2	S. Market Street & Canal Street	A-5.5	A-5.9	A-5.5	A-6.0
3	S. Market Street & Canal Street	A-5.5	A-6.0	A-5.6	A-6.2
4	The Square (Roundabout)	C-21.3	C-18.9	D-29.8	C-24.5
5	N. Market Street & Water Street	A-9.3	B-10.9	A-9.6	B-11.5
6	E. Main Street & Walnut Street	B-12.8	B-12.8	B-12.5	B-13.0
7	W. Main Street & Cherry Street	A-6.7	A-8.9	A-6.9	A-9.4
8	W. Main Street & Plum Street	A-8.3	A-3.3	A-9.1	A-3.4
9	W. Main Street & Monroe Street	A-8.5	A-4.0	A-8.7	A-4.7
10	W. Main Street & Adam Street	B-11.4	B-12.0	B-12.2	B-12.9

The volume to capacity (V/C) ratio is referred to as degree of saturation. The V/C ratio represents the sufficiency of an intersection to accommodate the vehicular demand. A V/C of less than 0.85 corresponds to an intersection operating under capacity and excessive delays are not experienced. A V/C ratio between 0.85 and 0.95 resembles an intersection operating near capacity, but continuously increasing queues should not occur. A V/C ratio between 0.95 and 1.0 corresponds to an intersection experiencing unstable flow results and intersection improvements will be required soon to avoid excessive delays. A V/C ratio greater than 1.0 resembles an intersection with demand that exceeds capacity and excessive delays and queuing are anticipated. The V/C ratios for all intersections are reported within the Synchro reports included in **Appendix L**. The Square (Roundabout) intersection for the 2036 Existing (4-Lane) configuration reports a maximum V/C ratio of 1.023 for the northbound left/through lane. In the 2036 Build (3-lane) configuration the lane assignment was altered based on the lane utilization and the V/C ratios were improved to 0.293 for the northbound left and 0.73 for the northbound through/right lane. The 2036 Build (3-Lane) configuration reports a maximum V/C ratio of 0.906 for the southbound left/through/right lane indicating that the approach is anticipated to operate near capacity in the 2036 horizon year. The remaining lanes do not exceed a V/C ratio of 0.72 indicating that the lanes are not expected to operate below capacity.

3.5 Crash History

The crash history was pulled from ODOT's GCAT system and was found that during the last three (3) years (2013-2015) within the study area. A total of 150 crashes were reported and of those 150, 43 occurred in 2013, 53 in 2014, and 54 in 2015. There were 13 injury crashes and 137 property damage crashes. ODOT's Crash Analysis Module (CAM) Tool provided the type of crash breakdown as shown in Table 27. The CAM tool results are provided in **Appendix M**.

Table 27: Study Area Type of Crash		
Type of Crash	Number	%
Rear End	37	24.7%
Parked Vehicle	31	20.7%
Angle	27	18.0%
Backing	25	16.7%
Sideswipe-Passing	18	12.0%
Fixed Object	8	5.3%
Left Turn	3	2.0%
Sideswipe-Meeting	1	0.7%
Total	150	100%

The crashes that occurred within the study area were investigated for patterns of common reasons the crashes happened. Table 28 shows the breakdown of reasons for the rear end and sideswipe-passing/parked vehicle type crashes.

Table 28: Study Area Reason for Crash		
Reason for Crash	Type of Crash	
	Rear End	Sideswipe-Passing/ Parked Vehicle
Stopped for pedestrian signal at the Square	5	
Vehicles backing out of parking spaces	8	
Hitting the vehicles that are parked in adjacent parking spot	10	
Swerving to miss a parked vehicle hanging out of a parking spot		1
Hitting parked vehicles hanging out of parking spots		16 (8 on West Main Street)
Total	23 (15%)	17 (11%)

Of the 150 crashes throughout the study area 5 rear end crashes were due to a vehicle stopping for the pedestrian signal, 8 were due to vehicles backing out of parking spaces and 10 occurred when a vehicle was backing out of a parking space and hit a vehicle in an adjacent parking spot. These rear end crashes attributed to 15% of the total crashes in the study area.

Of the 150 crashes throughout the study area 1 sideswipe-passing/parked vehicle crash was due to a vehicle swerving to miss a parked vehicle that was hanging out of a parking spot into the travel lane and 16 were due to vehicles hitting parked vehicles that were hanging out of a parking spot. These two reasons are ultimately the same and attribute to 11% of the total crashes in the study area. Along West Main Street it was found that 50% of the crashes involved sideswipe-passing/parked vehicles. It should be noted that just by increasing the parking spot depth along Main and Market Streets, it should lower the occurrence of crashes related to parked vehicles.

The crash history was pulled separately from ODOT's GCAT system for each of the four sides of the Square during the same three year period (2013-2015). East Main Street from Mulberry Street to the Square had a total of 12 crashes reported and of those 12, 5 occurred in 2013, 1 in 2014, and 6 in 2015. There was 1 injury crash and 11 property damage crashes. ODOT's Crash Analysis Module (CAM) Tool provided the type of crash breakdown as shown in Table 29.

Table 29: East Main Street Type of Crash		
Type of Crash	Number	%
Backing	4	33.3%
Rear End	3	25.0%
Angle	2	16.7%
Sideswipe-Passing	2	16.7%
Parked Vehicle	1	8.3%
Total	12	100%

West Main Street from Short Street to the Square had a total of 41 crashes reported and of those 41, 12 occurred in 2013, 14 in 2014, and 15 in 2015. There were 2 injury crashes and 39 property damage crashes. ODOT's Crash Analysis Module (CAM) Tool provided the type of crash breakdown as shown in Table 30.

Table 30: West Main Street Type of Crash		
Type of Crash	Number	%
Parked Vehicle	14	34.1%
Rear End	9	22.0%
Backing	6	14.6%
Angle	6	14.6%
Sideswipe-Passing	4	9.8%
Left Turn	1	2.4%
Fixed Object	1	2.4%
Total	41	100%

North Market Street from Water Street to the Square had a total of 7 crashes reported and of those 7, 3 occurred in 2013, 2 in 2014, and 2 in 2015. There was 1 injury crash and 6 property damage crashes. ODOT's Crash Analysis Module (CAM) Tool provided the type of crash breakdown as shown in Table 31.

Table 31: North Market Street Type of Crash		
Type of Crash	Number	%
Backing	3	42.9%
Sideswipe-Passing	2	28.6%
Angle	1	14.3%
Parked Vehicle	1	14.3%
Total	7	100%

South Market Street from Race Street to the Square had a total of 55 crashes reported and of those 55, 13 occurred in 2013, 19 in 2014, and 23 in 2015. There were 5 injury crashes and 49 property damage crashes. ODOT’s Crash Analysis Module (CAM) Tool provided the type of crash breakdown as shown in Table 32.

Table 32: South Market Street Type of Crash		
Type of Crash	Number	%
Parked Vehicle	13	23.6%
Rear End	12	21.8%
Backing	10	18.2%
Angle	10	18.2%
Sideswipe-Passing	7	12.7%
Left Turn	2	3.6%
Fixed Object	1	1.8%
Total	55	100%

3.6 Pedestrian Signal Warrants

The Ohio Manual on Uniform Traffic Control Devices (OMUTCD) was utilized to complete traffic signal warrants for the traffic signals that are at the Square. There are nine (9) different traffic signal warrants within the OMUTCD. Warrant #4, Pedestrian Volume is the warrant of interest. Figure 4C-5 and 4C-7 in the OMUTCD are shown in Chart 4 and Chart 5.

Chart 4: Figure 4C-5. Warrant 4, Pedestrian Four-Hour Volume

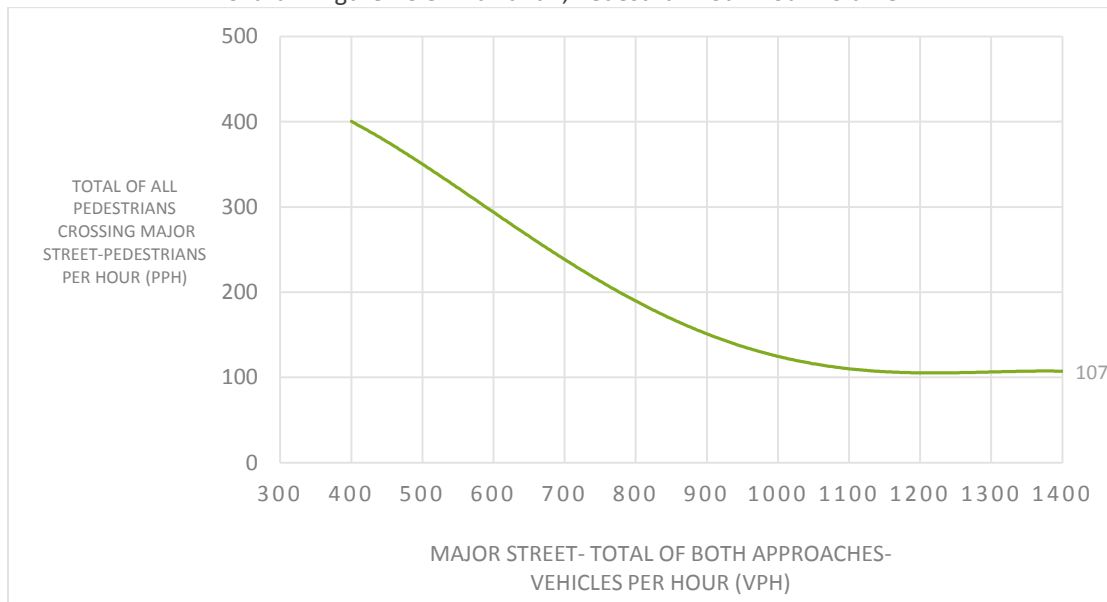
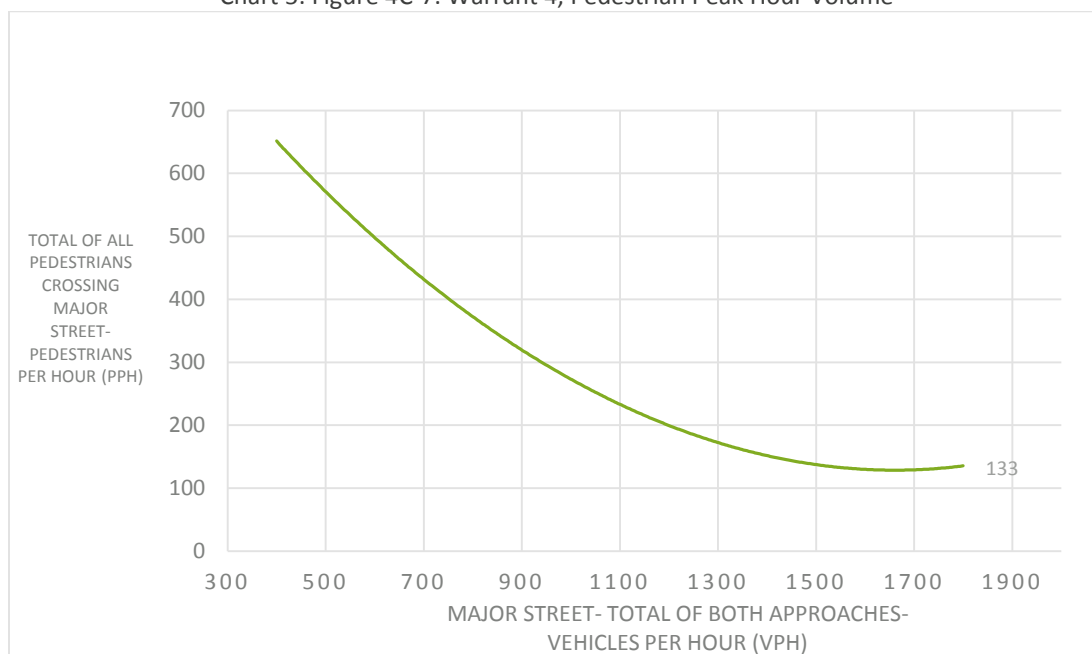


Chart 5: Figure 4C-7. Warrant 4, Pedestrian Peak Hour Volume



The traffic signals at the Square are standalone signals so the first warrant analysis scenario applies to looking at each of the four (4) signals individually to determine if a traffic signal is warranted. Table 33 shows the results of plotting the pedestrian volumes on Chart 4 and Chart 5. The 2016 VPH were developed from using the ODOT hourly profile as described in Section 3.1 for the 11AM, 12PM, 4PM, and 5PM hours.

Table 33: Warrant #4 Pedestrian Volume												
Time Period	East Leg			West Leg			North Leg			South Leg		
	Day 1	Day 2	2016 VPH	Day 1	Day 2	2016 VPH	Day 1	Day 2	2016 VPH	Day 1	Day 2	2016 VPH
	PPH			PPH			PPH			PPH		
11:15 AM-12:15 PM	18	14	364	11	27	772	14	22	835	37	24	810
12:15-1:15 PM	23	17	396	27	40	839	24	37	908	33	41	881
4:15-5:15 PM	21	16	518	18	37	1096	37	30	1186	21	17	1151
5:15-6:15 PM	37	19	537	37	17	1137	33	23	1230	30	16	1194
Four Hour Warrant	0	0	Not Warranted	0	0	Not Warranted	0	0	Not Warranted	0	0	Not Warranted
Peak Hour Warrant	0	0	Not Warranted	0	0	Not Warranted	0	0	Not Warranted	0	0	Not Warranted

The results shown in Table 33 show that the traffic signals at each of the four (4) entries of the Square are not warranted. Each of the four (4) entries (signals) were analyzed separately resulting in lower pedestrian volumes.

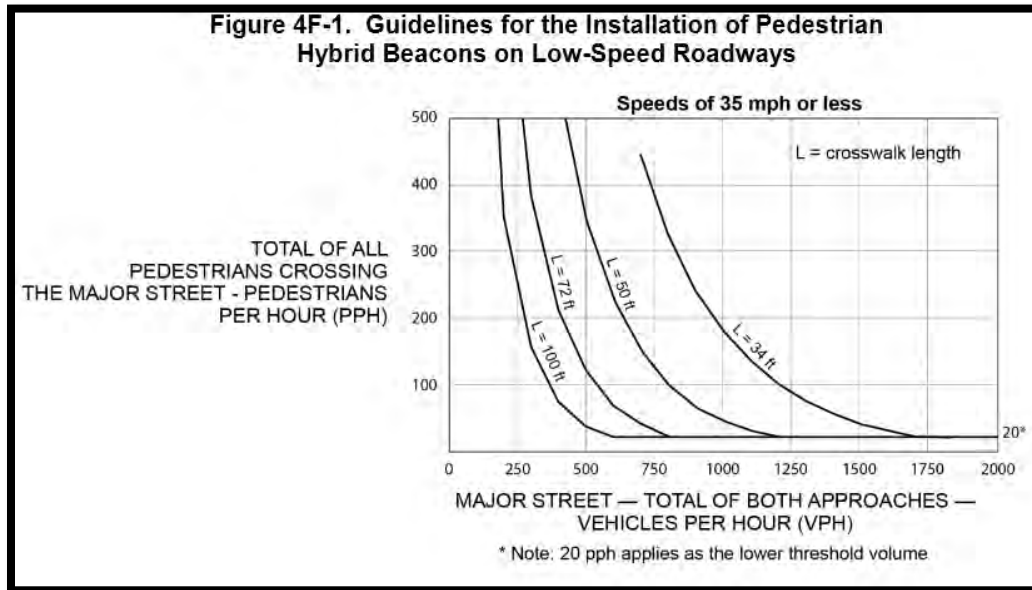
In Table 34 the total pedestrian count that entered the intersection was compared to Chart 4 and Chart 5. This would be how the pedestrian warrant would be conducted for a typical intersection.

Table 34: Total Intersection			
Hour of the day	Day 1	Day 2	2016 VPH (West and North Leg)
	PPH		
11:15 AM-12:15 PM	80	87	1,607
11:15 AM-12:15 PM	107	135	1,747
4:15-5:15 PM	97	100	2,282
5:15-6:15 PM	137	75	2,367
Four Hour Warrant	2	1	Not Warranted
Peak Hour Warrant	1	1	Warranted

Since the pedestrian volumes were not above the minimum threshold of 107 for the four studied hours throughout one day, the four hour warrant was not met. The peak hour warrant was met for one hour out of the four hours collected on each day, since the pedestrian count was above the minimum threshold of 133 pedestrians. It should also be noted that just because a traffic signal is warranted does not mean it has to be installed. Engineering judgment should be used when necessary.

The OMUTCD provides additional guidance on installation of Pedestrian Hybrid Beacons. A Pedestrian Hybrid Beacon is used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street at a marked crosswalk. Figure 4F-1 in the OMUTCD is shown as Chart 6. This figure shows the recommended guidelines to install a hybrid beacon based upon the crosswalk length, vehicles per hour and the number of pedestrians crossing per hour.

Chart 6: Figure 4F-1



The Table 35 shows the results of plotting the collected data on Chart 6. The OMUTCD states this should be used as a guide for locations that do not meet a traffic signal warrant but have pedestrian activity. The crosswalk lengths for each leg are indicated on the table.

Table 35: Pedestrian Hybrid Beacon												
Time Period	East Leg (46' length)			West Leg (45' length)			North Leg (57' length)			South Leg (44' length)		
	Day 1	Day 2	2016 VPH	Day 1	Day 2	2016 VPH	Day 1	Day 2	2016 VPH	Day 1	Day 2	2016 VPH
	PPH			PPH			PPH			PPH		
11:15 AM-12:15 PM	18	14	364	11	27	772	14	22	835	37	24	810
12:15-1:15 PM	23	17	396	27	40	839	24	37	908	33	41	881
4:15-5:15 PM	21	16	518	18	37	1096	37	30	1186	21	17	1151
5:15-6:15 PM	37	19	537	37	17	1137	33	23	1230	30	16	1194
Number of Hours	0	0	Not Considered	0	0	Not Considered	2	3	Consider	0	0	Not Considered

The north leg of the intersection shows that a pedestrian hybrid beacon could be considered at that location. At the east, west and south leg a pedestrian hybrid beacon does not need to be considered at those locations.

4 Findings and Recommendations

4.1 City Parking Findings

This study is being prepared at the request of The City of Troy in association with an update to the *Downtown Troy Parking Assessment and Management Study* published in November 1996. The purpose of the parking portion of this study is to analyze the parking conditions within the study area to determine what, if any, parking deficiencies exist within the downtown area.

In Summary,

1. Occupancy count data was obtained from the City of Troy Police Department, where it was determined that the peak hour of occupancy for on-street parking locations occurred during the 1:00 PM hour for while the peak hour of occupancy for off-street parking locations occurred the 7:00 PM hour.
2. Two (2) on-street locations (Short Street Corridor: Main Street to Water Street and Water Street Corridor: Short Street to Cherry Street) were found to meet or exceed the 85% capacity threshold, while two (2) off-street locations (Northwest Public Square lot, Northeast Public Square Lot) were determined to exceed the 85% capacity threshold, with the Northwest Public Square Lot operating at a 100% occupancy rate.
3. The total occupancy rates indicate that both on- and off-street parking is available within the study area during the highest period of occupancy; however, parking may not be immediately adjacent to the public's preferred destination and may require more effort and time to locate a space.
4. Two (2) scenarios were created to model the theoretical parking demand within the study area. It was determined that Scenario 2, representing the adjusted parking demand based on the guidelines and strategies specified in the Urban Land Institute's (ULI) Shared Parking Manual, 2nd Edition, would represent the most accurate assessment of parking demand within the downtown area. The Scenario 2 adjusted parking demand computations, indicate that the study area models an overall deficit of 105 parking spaces under the current conditions, and projects an overall deficit of 184 parking spaces under the future conditions. However, the scenario 2 computations are anticipated to represent a conservative, worse case representation of the parking demand in the downtown area as the computations represent the maximum densities each land use utilizes (i.e. the mathematical model assumes every square foot of the land use is being utilized, and does not take into account unoccupied spaces that may not generate parking demand (i.e storage space)). Again, this analysis method provides a worse case estimate of the future potential parking demand so the study will account for future maximum growth within the current land use buildings. Under these circumstances, this study believes the current parking situation is a perceived issue, however, the City of Troy should plan for the potential future growth of parking demand in the downtown area.
5. Of the estimated 170 businesses within the study area, the online downtown parking survey received 55 responses. Of the 55 survey responses, the breakdown was as follows: 95% of the survey responses identified themselves as the Main Response (the business owner), 4% identified themselves as the Secondary Response (Business employee), while the remaining 1% identified themselves as a resident.

6. The online downtown parking survey indicates **business owners** believe the downtown area has a parking problem. Respondents either strongly agree or agree that there is insufficient parking in the downtown area. 67% of respondents believe the current parking situation deters customers from their business. The respondents indicated that lunchtime was the most difficult timeframe to find a place to park. Almost half (45%) the respondents believe employees are parking in front of businesses in the downtown area, reducing the amount of parking capacity for customers. Over half (59%) of the respondents believe that on-street parking enforcement within the downtown area is inconsistent. Finally, respondents believe the Cherry Street Kiosk Lot metering system is cumbersome and confusing. They believe the payment kiosk has too many key prompts, and often times the kiosk does not work. Additionally, the lot is perceived as inaccessible to disabled users as the parking spaces are too far away from the payment kiosk. Respondents would like more/additional signage that delineates parking rates and fines.
7. The Study identifies attributes of an effective parking management system that includes key elements such as parking strategies, policies and regulations, and the management and enforcement of those policies.
8. The Study identifies that the City of Troy is providing an adequate number of handicap parking spaces for the study area, however the Troy Rec Lot handicap space is not ADA compliant as no delineated aisle exists for the dedicated use of the user. The handicap space on Main Street (Block 1) near the courthouse is also not ADA compliant as no accessible aisle exists and the appropriate curb ramps are not provided. The two (2) handicap spaces on Water Street (Block 1) near the courthouse do not have an accessible aisle flush with the parking spaces. Finally, one (1) handicap space on Main Street (Block 7) does not meet the ADA requirements for a properly sized accessible aisle.
9. It was determined that off-street public parking lots within the City of Troy downtown area do not have adequate lot identification, as parking signage is either non-existent or not easily identifiable. Directional parking and vehicular wayfinding signs do not exist within the City of Troy downtown area. Visitors who are unfamiliar with the City are left without a sense of guidance and confidence when attempting to find available parking. Additionally, some patrons of the Cherry Street Kiosk Lot have identified the parking signage and payment method to be confusing.

4.2 City Parking Recommendations

Based on the information and parking analysis in this study, the following outlines recommendations for the City of Troy downtown parking area:

1. The current parking situation within the downtown area is a perceived problem. However, the City of Troy should proactively plan for the future growth of parking demand in the downtown area.
2. The City of Troy should update the ADA deficient handicap parking spaces to compliance and implement and regularly reevaluate these spaces for appropriate signage.
3. The City should consider converting the Cherry Street Kiosk system to a more conventional 'pay per hour' for a specific spot versus the current 'pay per a timeframe' for any spot system.
 - The survey respondents indicate people think the current system is cumbersome and it does not support higher levels of parking turnover. According to the field observation, the lot is underutilized, operating at an average peak hour occupancy rate 52% (approximately 25 parked cars). It is believed that by converting the operating system to simpler format, users may opt into utilizing the lot more frequently. Additionally, with the 'pay per hour' system, drivers can visually see if a parking spot is unoccupied, as there is no preconceived notion that a parking spot may not be available even if the spot currently unoccupied (as the current system promotes the notion that a vehicle can leave a parking spot and still have the spot reserved when it returns).
 - To implement this recommendation, the City of Troy needs to remove the signage associated with the 'pay per timeframe' system and erect signage that locates the payment kiosk. Additionally, parking spaces need to be numbered through the use of pavement markings or signs.
 - The City of Troy should also consider moving the payment kiosk in closer proximity of handicap accessible spaces.
4. The City of Troy should consider undertaking a coordinated program to increase awareness of the existing parking supply.
 - Develop the wayfinding system outlined in **Appendix F** that includes the implementation of identification, directional / location, and wayfinding signs throughout the downtown area. The design of these signs should complement one another and should follow a consistent scheme. This signing system will help drivers who are unfamiliar with the downtown area find parking locations and it will guide users to underutilized parking lots and handicap parking. The system will help direct court house visitors to underutilized lots, such as the Cherry Street Kiosk Lot, by placing advanced signage on Main Street and Market Street. Visitors then have the option to follow the guidance signs to an off-street parking location. Prior to implementing this recommendation, the City of Troy should consider developing a wayfinding plan. This plan should look beyond just the signage needed for parking, accounting for elements such as information kiosks, banners, and general branding efforts.
 - Market all of the available public parking options by creating a map and placing it in a brochure. The map should depict location of public parking (including locations that offer long term parking opportunities, such as the Cherry Street Kiosk Lot) hours of enforcement, parking rates. This map should be posted online on The City of Troy's website and the brochure should be printed on paper to distribute to visitors, employers and employees of the downtown area. A window static sticker version can be provided to business to further promote the available parking areas.
 - The City of Troy should review and revise, where necessary, the signing and curb painting for on-street parking spaces to assure that drivers have an understanding of where parking is permitted and what restrictions may apply.

5. The City of Troy should reevaluate parking meter rates.
 - The City of Troy should consider increasing the parking meter price at the North Cherry Street Lot and Troy Rec Lot to 0.50 cents an hour to emphasize parking turnover. This is at the upper limit of what the survey respondents believe is an acceptable price and is comparable to meter rates within case studied cities. Note that without a change in parking meter rates, parking behavior will not change.
 - The City of Troy should consider keeping pricing at the Cherry Street Kiosk Lot the same and offer lower meter rates at the Mulberry Street Lot (0.10 cents to 25 cents) to entice more motorists and visitors to utilize this lot.
 - Occupancy rates at the Public Square Lots are over or approaching an 85% occupancy rate. This parking is indented to be utilized as short term parking for visitors. As a way to enforce this concept and emphasize turnover, the City of Troy should consider implementing paid parking kiosks that use the rate of 0.50 cents per hour at these locations.
 - The City of Troy should consider periodically tracking occupancy rates and reassess parking meter fees accordingly until parking utilization for off-street lots stabilizes.
6. The City of Troy should consider a more proactive management of the supply of short term parking to maximize its availability for customers and visitors to the downtown area.
 - The City of Troy should consider undertaking a cooperative program to discourage employees from using the short term parking supply, including the space hopping throughout the day. This program should include an effort to identify and educate employees who regularly park in the short term spaces about the importance of having customer parking available in the downtown area.
 - The City should consider developing an ordinance to stop employees from space hopping every two (2) hours which occupies short term parking opportunities designated for customers and visitors in the downtown area.
 - The City of Troy should continue to consistently enforce the short term parking regulations with an emphasis on motorists who park for long periods of time or space hop within the short term parking locations.
7. The City of Troy should consider working cooperatively with property owners with the downtown area to expand the supply of long term parking.
 - The City of Troy could attempt to lease weekday parking from St. Patrick's Church. There appears to be approximately 100 parking spaces in the parking lot adjacent to St. Patrick's Church. This lot is four (4) blocks from the center of the downtown area and could serve as a location for long term employee parking usage.
 - The City of Troy could attempt to lease weekday parking from First Church of the Nazarene. There appears to be approximately 29 parking spaces in the parking lot adjacent to the Church. This lot is two (2) blocks from the center of the downtown area and could also serve as a location for long term employee parking usage.

8. The City of Troy should consider implementing a residential parking permit program that permits controlled overnight parking in locations with short term hourly regulations to increase the supply of residential parking in the downtown area.

The City of Troy should consider a permit programs that grants overnight parking privileges to residents of the downtown area for spaces that typically have two (2) hour restrictions. The conditions of the overnight parking program should permit residents to park their cars in these restricted locations between the hours of 8 P.M. and 8 A.M, when occupancy levels in the downtown area are at their lowest. This program would require users to verify the location of their residents, and register their vehicle with the City of Troy. Permits can then be issued to the user for a nominal monthly fee.

9. The City of Troy could consider expanding the supply of long term parking away from the center of the downtown area.

A key piece in the City of Troy's parking management strategy is managing the supply of short term parking, and implementing new city code that prohibits the practice of space hopping every two (2) hours. By addressing either of these parking issues, the City of Troy is effectively limiting the locations available for long term parking. For the above strategies to work, the City of Troy should designate areas for employees to park. In general these lots should be placed away from the center of the study area and should serve as a long term opportunity for employees to park and general parking overflow.

Similar to short term parking, there are few opportunities to easily expand the supply of long term parking within the study area. Because land acquisition can be rather difficult to accomplish, this study located areas of vacant or low land density usage. The following aerial photograph indicates vacant parcels that could be utilized as a parking lot devoted to long term employee parking or parking overflow.



As shown in the aerial photograph, the vacant parcels are located on the corner of Market Street and Canal Street and represent approximately 0.80 acres of land that could be converted into a municipal long term parking lot for employees and general parking overflow.

Additionally, the following locations were also considered for long term parking. The photo below indicates vacant parcels that could be utilized as a parking lot devoted to long term employee parking or parking overflow.



The above potential long term parking opportunities are located on Mulberry Street between Main Street and Franklin Street. While these parcels are rather small, measuring in at approximately 0.13 acres for the southern potential lot and 0.15 acres for the northern potential lot, they do add the opportunity to supply additional long term parking locations. Interestingly enough, the northern potential lot is directly adjacent to the Mulberry Street lot, and the City of Troy could consider expanding the amount of spaces. The occupancy data indicates the Mulberry Street lot is underutilized and the City could consider extending the parking regulations to include long term parking.

10. The City could consider converting the Square to a modern roundabout, implementing a road diet on Main and Market Street, and increasing the number of Short term on-street parking spaces along these roadway corridors. Figure 10 shows the build 3-lane configuration. Figure 11 - Figure 13 show a closer view of the build configuration and the additional parking that will be gained.

In general there are few opportunities to easily expand the supply of conveniently located, short term parking in the City of Troy downtown area. However, by converting the Square into a modern roundabout and implementing a road diet that would propose to reduce the number of lanes on the Main Street and Market Street corridors, additional lateral space between the curbs could be reallocated for converting the existing parallel parking to angled parking. This potential improvement could add approximately 43 new on-street parking spaces within the study area.

Under this potential improvement, Block 1 (and west of Short Street) could add eleven (11) additional parking spaces along Main Street to help mitigate the potential parking deficit. Both Block 2 and Block 3 could each add six (6) additional parking spaces along Market Street, and two (2) spaces in each of the quadrants of the Public Square Lots (remove trees and widen the parking area by roughly 5 feet). Block 5 (and west of Short Street) could add ten (10) additional parking spaces along Main Street. Block 7 and Block 8 could add two (2) additional parking spaces could be added along Market Street in Block 12.

11. The City of Troy could consider constructing a parking garage.

The construction of a parking garage was investigated as a way to add additional parking. The potential parking garage would ideally be located within 1 or 2 blocks of the square, where parking demand is higher. However the city does not currently own property in the vicinity of the square large enough to construct a garage. Parking lots in the vicinity of the square do exist but again, are not owned entirely by the City. If an area of similar size to the existing lots were to be purchased (110 feet by 165 feet), it would occupy roughly a quarter of a block and contain roughly 45 to 50 parking spaces. A garage with only a single deck and one ramp, would be challenging to construct due to the short length available for the ramp to the upper level, resulting in steeper than desired ramp grades or diminished number of overall parking spaces to provide acceptable ramp slopes within the parking structure. Additionally the ramp would occupy space previously available for parking on the ground level. A 2 level garage (ground and 1 elevated level) might yield a total of 70 to 80 parking spots, an increase of roughly 30 parking spots. Costs for a garage are estimated to be around \$35,000 per elevated parking space. For the 2-level garage described, costs are likely to be as follows:

- Elevated structure with 40 spaces \$1,400,000
- Ground level site work \$125,000

Cost for parking garages can vary depending on configuration and construction methods. Costs shown are planning level estimates to show order of magnitude and indicate substantial costs to gain a relatively limited number of parking stalls. Additionally, a new parking garage is similar to a bridge in respect to ongoing maintenance costs for the life of the structure. The new city facility will require yearly inspections and annual maintenance (lighting costs, security, fire suppression, ventilation based on the size, snow and salt removal, additional insurance premiums and will have to be staffed to some level operationally even with automated entry and exit controls. Yearly maintenance costs can range from 10% to 15% of the construction costs for automated gates and hire if a cashier is present.

12. The City of Troy could consider reconstructing the North Cherry Street Parking Lot at Water Street.

Existing parking lots on west and east sides of North Cherry Street at Water Street have 61 and 48 parking spots respectively, equaling 109 plus 3 on street parking spots adjacent to the lots on North Cherry Street, 112 total spots. North Cherry Street could be closed and both parking lots reconfigured to stretch across Cherry Street. This would result in about 135 total parking spaces, an increase of 23 parking spaces. Note that the majority of the parking lots in this area are owned by the county and not the City, though the City does own the southern half of the parking lot on the east side of the street. Based on current auditor values, the city could expect to pay around \$150,000 to acquire all of the parking lots. Additionally, the public right-of-way of North Cherry Street would need to be vacated which could be problematic given existing utilities.

4.3 City Traffic and Pedestrian Findings

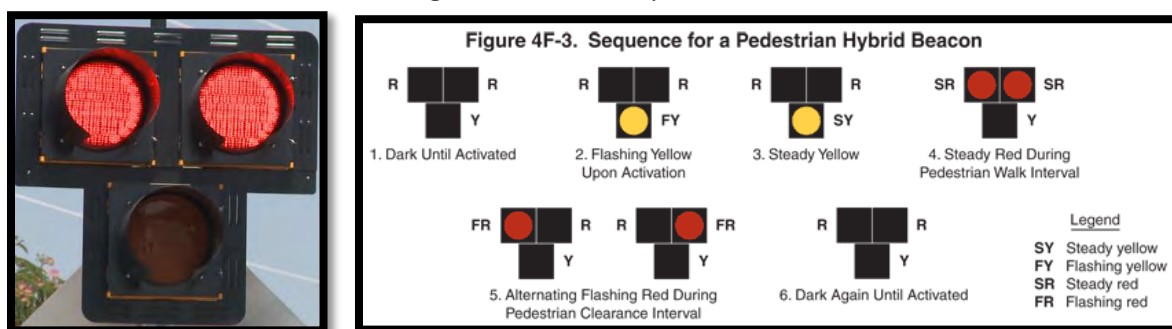
As a part of the parking study update, analysis was completed to evaluate the roadways in the study area along with a review of the existing pedestrian signals at the four entry/exits of the Square.

In Summary,

1. Turning movements were collected at ten (10) intersections along Market Street and Main Street. ADT volumes were determined by using the ODOT hourly profile for an urban minor arterial. The volumes were grown from the collected 2016 volumes to 2036 using a 0.367% linear growth rate per year. The growth rate was provided by MVRPC. The collected traffic counts were used for the peak hour volumes for 2016 and grown to 2036 for the studied intersections along Main Street and Market Street.
2. Pedestrian counts were collected by the City of Troy for a period of four (4) hours for two (2) days. The volumes were used to complete pedestrian signal warrant analyses.
3. Lane utilization counts were collected at six (6) different locations along Main Street and Market Street. The utilization was summarized as percentage of vehicles using the curb lane versus the inside lane. The majority of the vehicles traveling towards the square were using the inside lane.
4. Roadway capacity was conducted for each roadway segment around the Square along with the intersection of the roadways that create the Square. An LOS of a D or better was used as an acceptable level of service for the urban downtown environment.
5. Capacity analysis utilized 2016 and 2036 traffic volumes and compared the existing 4-lane roadway configuration with a build 3-lane configuration.
6. The HCM was utilized to determine the LOS of the roadway segments. The existing 4-lane and build 3-lane configurations all met an acceptable LOS of D or better. The build 3-lane configuration is a viable option for implementation.
7. In converting to a 3-lane roadway North Market Street parking could be converted into angled (or back in) parking rather than the existing parallel parking. This would help add parking to the desired downtown area. Other areas along Main Street would also benefit from converting the parallel parking to angled or back-in parking.
8. The Square was analyzed in HCS as a roundabout to compute the LOS of the intersection. The pedestrian signals were ignored (standard crosswalks included in the analysis) since this is not a typical configuration and later was found the signals were not required due to the lack of pedestrian volumes.
9. The Square was found to have LOS an acceptable level on all approaches except for the northbound direction in the existing (4-lane) configuration. The build (3-lane) configuration improved the northbound LOS and lowered the 2036 total intersection LOS by almost 5 seconds of delay. The LOS results were also compared to a signalized approach and all approaches were at an acceptable level of D or better.
10. Capacity analysis was completed for the ten (10) intersections within the study area. The analysis showed minor decreases in delay from the existing (4-lane) configuration to the build (3-lane) configuration.

11. The maximum V/C ratio was analyzed for both the 2036 existing (4-lane) and 2036 build (3-lane) configurations. The 2036 existing (4-lane) configuration resulted in a maximum V/C ratio of 1.023 for the northbound left/through lane. In the 2036 build (3-lane) configuration the northbound lane assignment was altered and the V/C ratios were improved to 0.293 for the northbound left and 0.73 for the northbound through/right lane. The 2036 build (3-lane) configuration reports a maximum V/C ratio of 0.906 for the southbound left/through/right lane indicating that the approach is anticipated to operate near capacity in the 2036 horizon year.
12. The crash history shows that there were 150 crashes within the study area from 2013 to 2015 where almost a quarter of all the crashes were due to rear end and 20% were due to parked vehicles. In order to reduce rear end crashes, the amount of stopping points should be reduced. Almost 15% of the rear end crashes, occurring within the study area, were caused by the pedestrian signals at the Square. The parked vehicle crashes could be reduced by creating longer parking stalls along the roadways to reduce the amount a vehicle would stick out into the roadway. With the implementation of a 3-lane roadway section along the study area there would also be a designated center turn lane at each intersection which would reduce the amount of sudden stopping in the inside through lane, which may reduce the rear end crash occurrence. The 3-lane roadway may also reduce the sideswipe-passing crash type, occurring 18 times within the 3 year period, since the majority of those crashes were caused by parked vehicles hanging out into the roadway.
13. The OMUTCD was utilized to determine if a traffic signal was warranted due to pedestrian activity. The warrant showed that when looking at each leg's pedestrian volumes separately Warrant #4 (Pedestrian Volume) was not met for either the four hour or the peak hour criteria. The intersection was then studied by totaling all four legs together to determine if the total pedestrians at the Square would warrant a signal if it was a normal intersection. The warrant was not met for the four hour but it did meet the warrant for the peak hour criteria for one hour out of the day. Even though the warrant was met engineering judgment should be considered. Other mitigative measures such as a pedestrian hybrid beacon or a pedestrian rapid flash beacon are suggestions that the City should consider.
14. The OMUTCD was also utilized to determine if a pedestrian hybrid beacon should be considered for this location. The guidelines were met for the north leg of the intersection. The east, west and south legs were not met. The pedestrian hybrid beacon would be a smoother transition away from the pedestrian signals for the public rather than completely removing the traffic signals at the four entry points of the Square. However, if a 3-lane roadway is implemented it will shorten the crossing distance, which then eliminates the need for the pedestrian hybrid beacon based on the guidance provided in the OMUTCD. Figure 8 shows a pedestrian hybrid beacon along with the sequence of operation that is included in the OMUTCD.

Figure 8: Pedestrian Hybrid Beacon



15. An alternative to the pedestrian hybrid beacon is a pedestrian rapid flash beacon. This device when activated by a pedestrian pushing the pushbutton, flashes the lights under the sign shown in Figure 9. These lights warn drivers that a pedestrian may be in the roadway and they will need to yield to the pedestrian. These devices can be solar powered so this mitigative measure is relatively inexpensive to install and maintain. This is a second option if the pedestrian signals are removed that would still provide the public with a smoother transition away from the signals.

Figure 9: Pedestrian Rapid Flash Beacon



4.4 Traffic and Pedestrian Recommendations

Based on the information from the traffic and pedestrian analysis in this study, the following outlines recommendations for the City of Troy:

- Convert the existing 4-lane roadways in the study area to 3-lane roadways. This is expected to reduce the number of rear end, parked vehicles, and sideswipe type crashes that have occurred in the study area by adding additional length to the current parking stalls. A 3-lane roadway would also reduce the crossing distance for a pedestrian to cross the roadway. There is an opportunity to add an additional 43 parking spaces along Main and Market Streets with a 3-lane roadway. Figure 10 shows the build 3-lane configuration. Figure 11 - Figure 13 show a closer view of the build configuration and the additional parking that will be gained. The following outlines the design of the roadway alignment and parking stalls along each block of Main and Market Streets:
 - Main Street at Adams Street/Hobart Drive- Eastbound through/right turn lane converts to a right turn only to begin the 3-lane section heading east.
 - Adams Street to Plum Street- Angled parking is set at 30 degrees since the roadway width is slightly narrower in this section of Main Street. Parallel parking to remain on the south side of Main Street between Monroe Street and Oxford Street due to existing driveways that prohibit a benefit to convert to angled parking stalls. The through lanes are 10.5 feet with a 10 foot center turn lane/two-way-left-turn-lane. Widening of the roadway by 5' would allow for 45 degree angled parking and 11 foot wide travel lanes.
 - Plum Street to Mulberry Street- Angled parking is set at 45 degrees which allows for 11 foot through lanes and a 10 foot center turn lane/two-way-left-turn-lane. At the square the eastbound approach opens up to two approach lanes (shared left/through and right). The westbound approach at the square is a one lane approach.
 - Market Street at Race Street- The northbound inside lane converts to a left turn lane and the right lane remains a shared through/right turn lane.
 - Race Street to Water Street- Angled parking is set at 45 degrees which allows for 11 foot through lanes and a 10 foot center turn lane/two-way-left-turn-lane. At the square the northbound approach opens up to two approach lanes (left and shared through/right). The southbound approach at the square is a one lane approach.
 - Market Street at Water Street- The southbound through/right turn lane converts to a right turn only to begin the 3-lane section heading south.
- Remove the pedestrian traffic signals at the four entry points of the Square. These signals are not needed and cause congestion at the Square. Install Pedestrian Rapid Flash Beacons at each crosswalk point outside of the roundabout.
- Add raised pedestrian refuge islands in the center lane of the 3-lane section on the north and east legs to allow pedestrians with the ability to cross the roadway while only looking for a gap in traffic from one direction at a time. This should only be done if the pedestrian signals are removed. Example images can be found below.



4.5 Plan for Implementation

The recommendations presented in the City Parking section should be considered as an integrated package, rather than single standalone options. It is the intent to provide coordinated implementation as many of the recommendations have a direct cause-and-effect relationship that, if separated from one another may result in less optimal or negative results. Moreover, adequate time must be allowed for the implementation of the parking recommendations to occur and for the users of the parking system (employees, visitors and residents) to adjust to the changes.

The recommendations of this report can be implemented over a number of years. The items which should be considered immediately to either eliminate a problem or safety concern include:

1. Review the existing handicap parking spaces for ADA compliance and implement a plan for any necessary modifications.
2. Restripe to 3-lanes and use painted islands at first as opposed to raised islands. Portable short planters with low level plants can be set in the painted island areas to further define them. Planters and plantings should be kept below 18" in height to avoid obscuring children using the crosswalks. This will allow for extension of the angled parking and help reduce the number of crashes. Additionally it will add 35 parking spaces. This should be done in conjunction with the removal of the pedestrian signals and installation of Rapid Flash Beacons where the pedestrian signals were located. (Note that with the restriping, the layout/design of the roundabout should be further studied beyond this study to insure semi-trucks can still navigate the square. This may require the reconstruction of the brick apron on the center of the circle to allow trucks to use it as a truck apron.)
3. Reconstruct the center parking area in each of the four quadrants of the square to remove the trees and expand the available parking area by 5 feet in width. This will add two (2) additional parking spaces in each quadrant in the highest demand areas. Lower level plantings could be provided around the parking areas to offset the removal of the trees.
4. Implement wayfinding signage to direct the public to the parking available in the City.
5. Begin discussions with council on ordinances to discourage employee parking in the area of the square.
6. Adjust parking rates and modify the Cherry Street kiosk to be more user friendly.

Figure 10: Build 3-Lane Configuration



Figure 11: Main Street Build 3-Lane Configuration

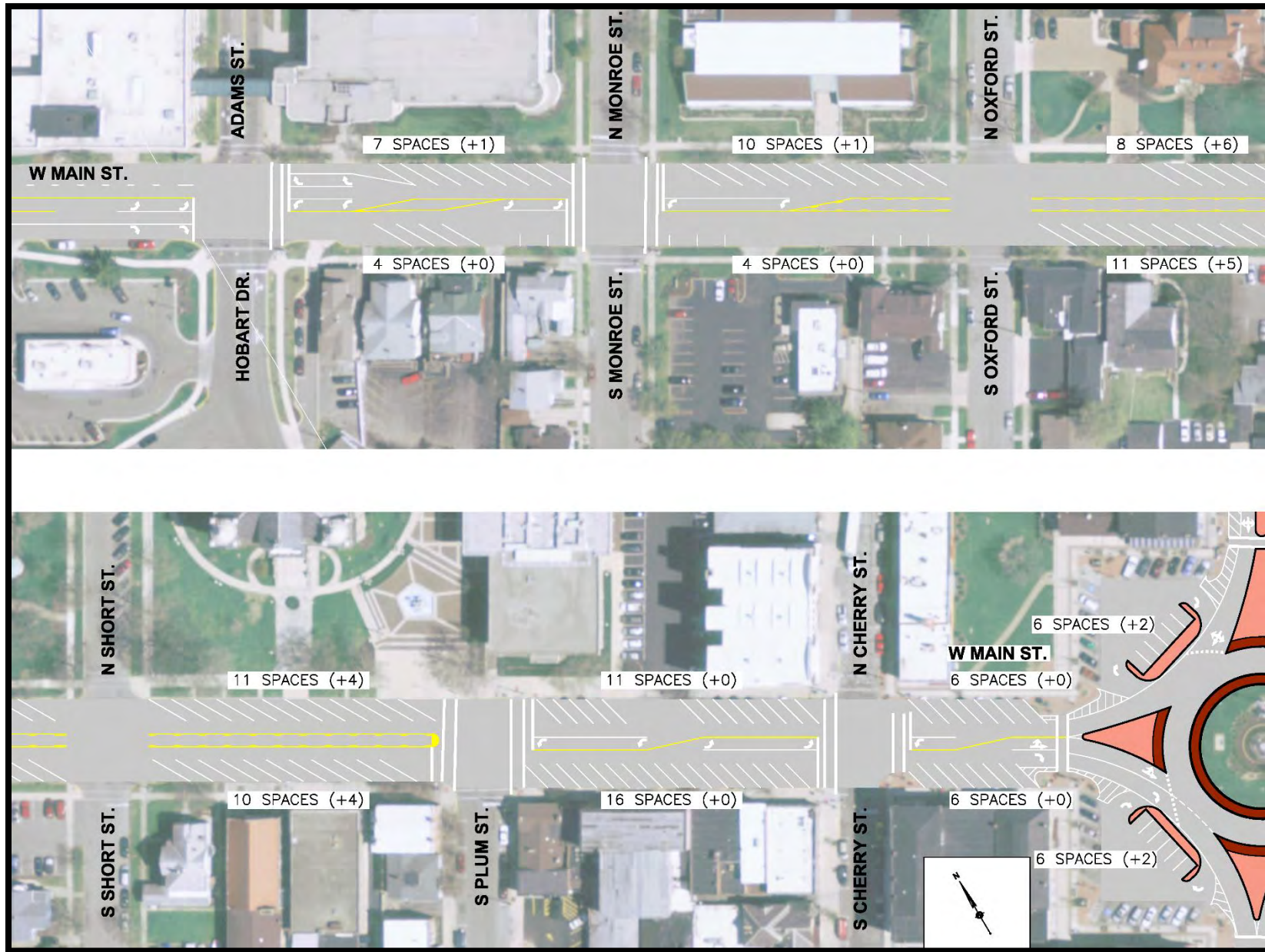


Figure 12: The Square Build 3-Lane Configuration

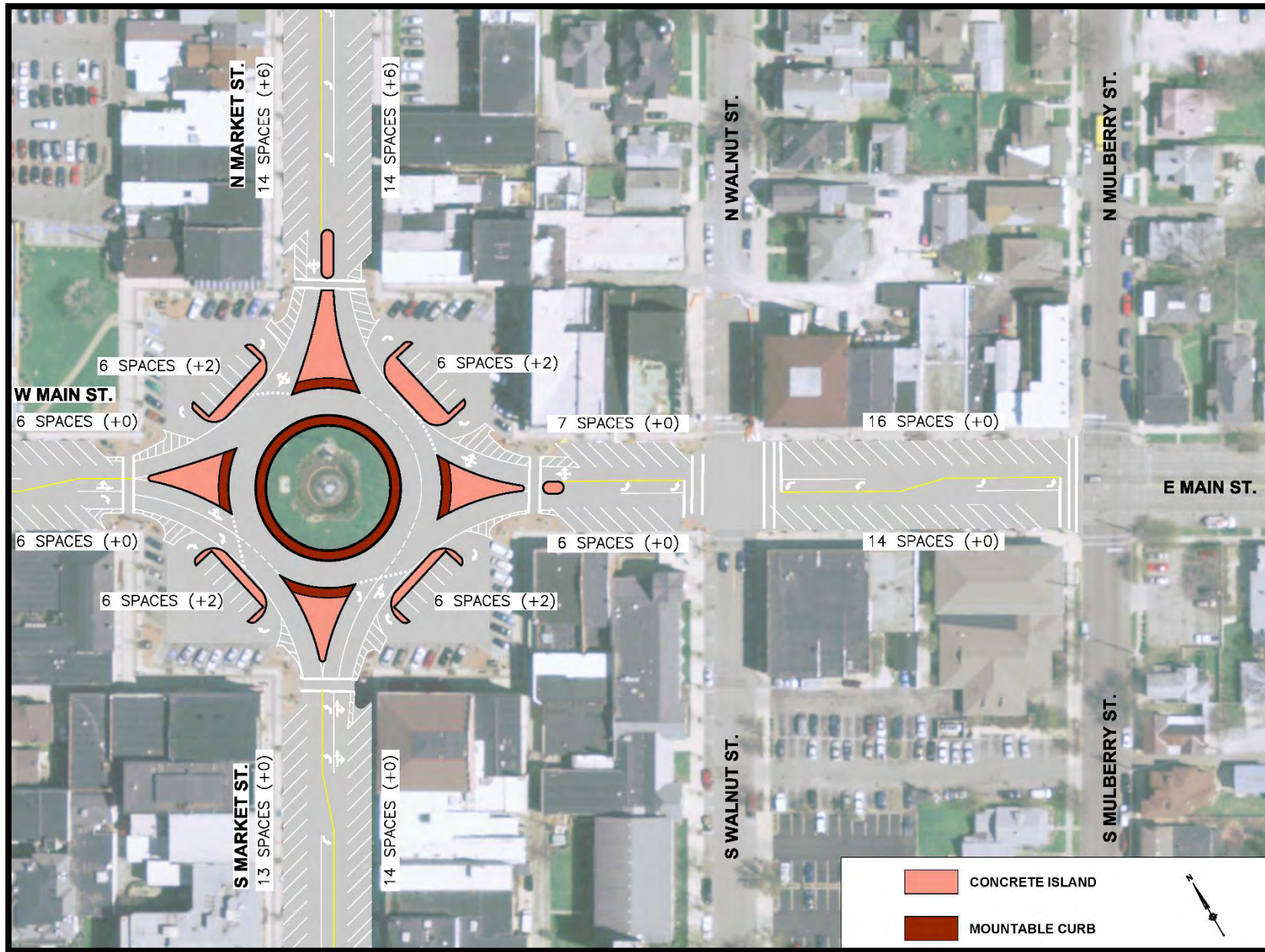
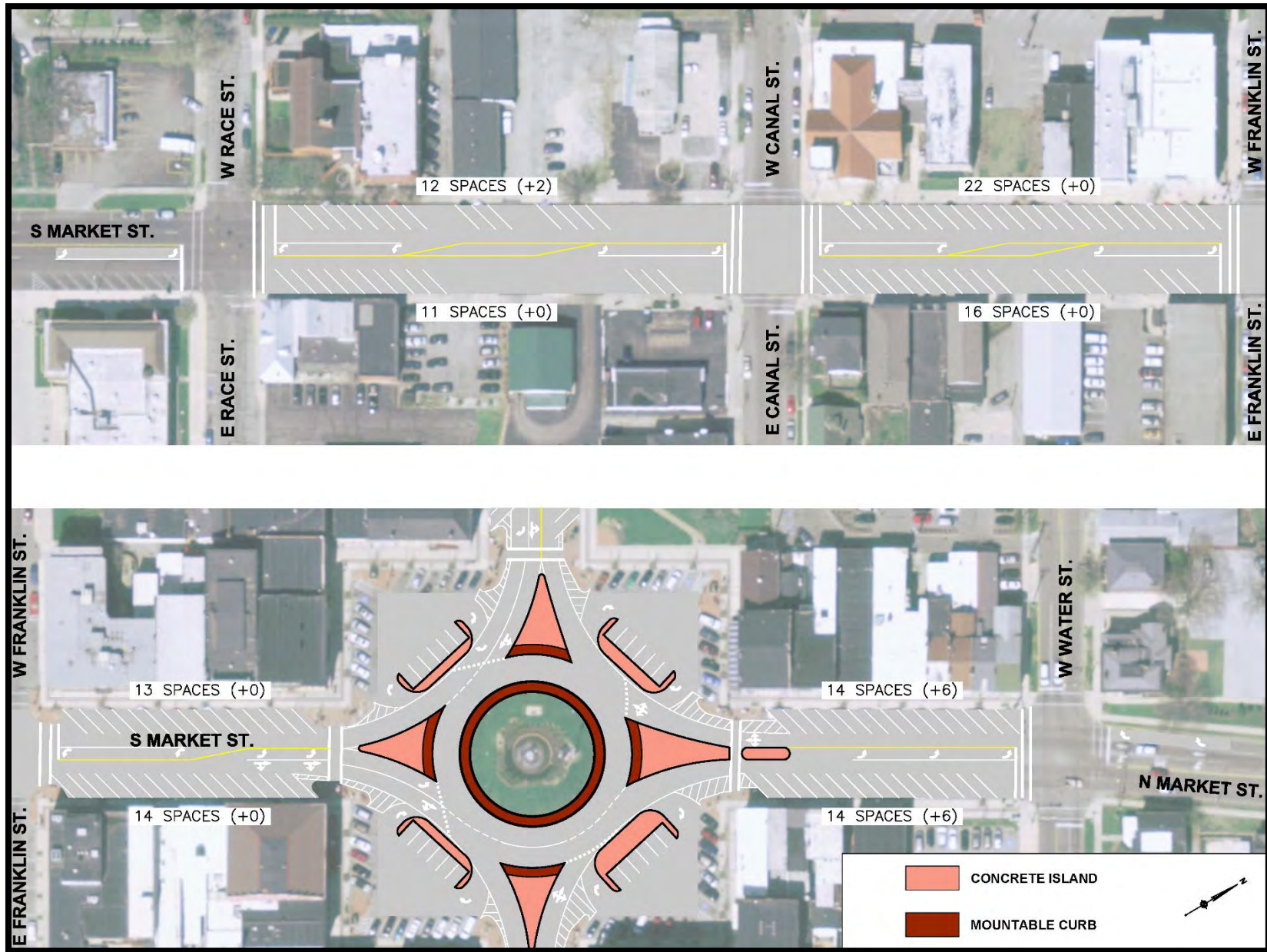


Figure 13: Market Street Build 3-Lane Configuration



APPENDIX A: PARKING OCCUPANCY COUNT DATA

3/18/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	4	5	9	9	5	5	9	5	3	0	0	N/A	1
Plum St. to Cherry St.	7	8	9	18	15	20	18	19	14	8	12	N/A	5
Cherry St. to Market St.	3	4	7	7	9	11	5	5	7	3	11	N/A	7
Market St. to Walnut St.	0	3	4	8	11	11	10	9	9	3	4	N/A	5
Walnut St. to Mulberry St.	13	26	19	16	21	28	12	10	21	21	25	N/A	22
Market Street Corridor													
Race St. to Canal St.	1	5	10	9	11	10	7	8	7	2	2	N/A	1
Canal St. to Franklin St.	1	2	4	14	12	11	20	9	11	3	13	N/A	5
Franklin St. to Main St.	5	5	10	11	15	12	6	10	7	13	23	N/A	18
Main St. to Water St.	9	6	9	11	14	14	11	9	10	11	12	N/A	8
Short Street Corridor													
Main St. to Water St.	4	10	17	16	8	11	11	5	2	1	1	N/A	1
Water Street Corridor													
Short St. to Cherry St.	11	12	2	9	8	9	10	11	7	2	4	N/A	0

3/17/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	9	11	8	7	5	12	6	5	4	3	3	8	6
Plum St. to Cherry St.	7	13	16	12	10	14	20	16	12	12	14	15	13
Cherry St. to Market St.	0	4	4	2	11	9	7	8	4	5	11	10	4
Market St. to Walnut St.	2	1	4	9	6	11	9	2	9	13	12	9	5
Walnut St. to Mulberry St.	9	12	15	13	29	25	18	17	23	23	27	26	29
Market Street Corridor													
Race St. to Canal St.	1	3	3	10	9	10	11	9	12	8	7	6	3
Canal St. to Franklin St.	1	2	6	5	7	7	8	5	7	6	11	4	3
Franklin St. to Main St.	4	8	5	9	9	16	10	7	26	20	24	22	12
Main St. to Water St.	7	6	7	8	16	15	12	14	8	16	16	10	7
Short Street Corridor													
Main St. to Water St.	19	12	14	15	5	19	15	15	5	6	7	13	9
Water Street Corridor													
Short St. to Cherry St.	13	13	12	12	9	13	13	12	4	1	3	8	4

3/16/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	3	12	11	6	5	11	9	6	3	2	0	2	N/A
Plum St. to Cherry St.	4	14	22	18	16	19	16	13	5	11	9	12	N/A
Cherry St. to Market St.	5	7	10	10	10	10	6	7	3	6	9	10	N/A
Market St. to Walnut St.	1	4	2	5	8	12	8	3	8	5	9	13	N/A
Walnut St. to Mulberry St.	7	17	14	10	23	15	13	10	11	22	19	22	N/A
Market Street Corridor													
Race St. to Canal St.	1	3	3	8	6	14	14	15	14	12	8	7	N/A
Canal St. to Franklin St.	3	5	9	14	6	7	7	6	6	6	16	16	N/A
Franklin St. to Main St.	4	5	6	9	11	9	10	6	7	12	26	22	N/A
Main St. to Water St.	7	6	5	8	15	14	7	5	14	11	16	15	N/A
Short Street Corridor													
Main St. to Water St.	14	18	16	15	11	17	15	14	6	7	6	8	N/A
Water Street Corridor													
Short St. to Cherry St.	12	12	12	9	7	13	11	10	11	3	4	4	N/A

3/15/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	9	7	3	9	7	11	10	5	3	1	5	9	N/A
Plum St. to Cherry St.	4	12	12	14	11	15	20	13	11	8	11	18	N/A
Cherry St. to Market St.	1	4	7	7	7	8	2	4	3	6	9	8	N/A
Market St. to Walnut St.	2	2	3	3	3	4	4	3	7	10	12	12	N/A
Walnut St. to Mulberry St.	13	12	15	11	21	19	12	7	14	20	25	27	N/A
Market Street Corridor													
Race St. to Canal St.	0	2	2	4	9	13	13	13	10	9	10	8	N/A
Canal St. to Franklin St.	2	10	12	12	11	15	11	8	9	6	2	12	N/A
Franklin St. to Main St.	3	7	3	11	14	8	8	7	11	12	21	27	N/A
Main St. to Water St.	7	5	6	9	13	13	7	8	8	11	12	16	N/A
Short Street Corridor													
Main St. to Water St.	19	19	7	9	7	16	19	10	12	4	2	0	N/A
Water Street Corridor													
Short St. to Cherry St.	13	13	12	12	11	13	13	12	9	7	13	11	N/A

3/14/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	7	10	12	5	5	11	8	8	3	2	1	0	0
Plum St. to Cherry St.	2	10	12	12	12	21	14	11	11	6	5	7	4
Cherry St. to Market St.	2	4	3	4	4	11	5	4	1	2	2	7	7
Market St. to Walnut St.	0	1	2	2	2	1	1	1	1	4	2	1	2
Walnut St. to Mulberry St.	9	10	11	16	16	16	11	8	6	8	17	16	6
Market Street Corridor													
Race St. to Canal St.	0	2	1	1	1	2	8	5	5	4	1	3	2
Canal St. to Franklin St.	6	4	7	12	12	10	6	6	9	7	9	9	3
Franklin St. to Main St.	3	6	9	9	9	10	10	12	12	22	24	19	7
Main St. to Water St.	5	5	5	9	9	13	8	10	11	12	12	15	7
Short Street Corridor													
Main St. to Water St.	6	9	9	16	16	19	15	8	2	1	2	11	7
Water Street Corridor													
Short St. to Cherry St.	13	13	13	11	11	13	12	10	8	3	4	3	2

3/11/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	1	5	10	7	9	8	9	7	7	3	0	1	1
Plum St. to Cherry St.	2	4	9	10	6	6	16	19	17	9	17	21	16
Cherry St. to Market St.	1	4	2	5	12	10	3	7	6	8	7	11	9
Market St. to Walnut St.	0	3	4	7	13	10	13	11	8	8	12	13	9
Walnut St. to Mulberry St.	17	18	23	18	26	17	26	21	27	22	30	29	24
Market Street Corridor													
Race St. to Canal St.	1	8	12	10	11	13	13	12	9	8	2	2	2
Canal St. to Franklin St.	4	9	11	17	7	10	16	7	9	10	8	10	6
Franklin St. to Main St.	5	6	10	12	14	12	11	11	13	16	17	27	15
Main St. to Water St.	6	9	11	10	16	14	15	10	10	13	16	15	15
Short Street Corridor													
Main St. to Water St.	3	13	14	18	7	19	19	15	19	5	8	6	7
Water Street Corridor													
Short St. to Cherry St.	12	13	13	12	11	12	12	11	10	8	5	5	3

3/10/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	12	7	9	9	6	11	7	5	7	5	1	0	1
Plum St. to Cherry St.	9	15	14	14	9	20	15	18	11	4	18	25	13
Cherry St. to Market St.	1	1	2	4	8	10	6	7	8	4	7	10	5
Market St. to Walnut St.	0	3	5	8	8	6	8	3	6	7	12	13	3
Walnut St. to Mulberry St.	5	10	7	19	26	14	15	11	15	19	28	26	18
Market Street Corridor													
Race St. to Canal St.	1	1	5	8	8	12	15	11	10	8	5	5	0
Canal St. to Franklin St.	4	7	5	6	10	15	12	16	10	5	2	4	6
Franklin St. to Main St.	4	7	9	14	12	12	10	4	11	13	17	21	7
Main St. to Water St.	8	4	6	10	16	11	9	12	12	10	15	11	6
Short Street Corridor													
Main St. to Water St.	19	18	17	15	10	19	17	14	14	4	3	8	2
Water Street Corridor													
Short St. to Cherry St.	13	12	12	12	10	14	13	9	8	2	2	6	2

3/9/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	0	6	8	7	6	11	10	7	0	9	1	3	6
Plum St. to Cherry St.	2	8	17	20	14	18	16	13	14	8	11	17	20
Cherry St. to Market St.	1	4	6	4	3	11	5	2	6	6	10	9	7
Market St. to Walnut St.	1	2	7	2	3	5	7	11	7	7	12	11	4
Walnut St. to Mulberry St.	9	16	17	15	19	18	11	11	15	26	22	20	8
Market Street Corridor													
Race St. to Canal St.	3	0	2	10	8	14	9	12	17	0	9	13	4
Canal St. to Franklin St.	5	1	7	10	13	3	7	7	4	8	9	9	4
Franklin St. to Main St.	2	4	6	5	10	12	4	12	5	4	23	21	16
Main St. to Water St.	3	4	9	6	13	15	12	2	9	12	16	15	12
Short Street Corridor													
Main St. to Water St.	8	19	18	15	7	14	15	19	9	6	6	10	6
Water Street Corridor													
Short St. to Cherry St.	12	13	13	13	11	14	14	12	9	3	5	4	2

3/8/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	6	7	7	11	6	10	10	10	6	3	5	10	0
Plum St. to Cherry St.	5	11	17	18	16	20	16	11	8	10	12	7	13
Cherry St. to Market St.	2	1	2	5	10	9	5	5	4	4	8	10	3
Market St. to Walnut St.	0	1	4	7	9	7	1	2	9	8	9	13	4
Walnut St. to Mulberry St.	10	9	11	13	19	23	18	9	18	22	25	23	11
Market Street Corridor													
Race St. to Canal St.	0	1	1	5	4	11	14	11	15	11	12	6	3
Canal St. to Franklin St.	1	1	9	22	9	12	11	11	10	1	3	0	2
Franklin St. to Main St.	5	4	4	5	17	8	12	8	6	15	24	23	8
Main St. to Water St.	5	4	4	10	14	14	8	8	12	12	11	16	13
Short Street Corridor													
Main St. to Water St.	17	14	15	13	12	18	16	8	11	4	10	16	4
Water Street Corridor													
Short St. to Cherry St.	12	13	11	9	7	12	11	7	8	4	7	8	6

3/7/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Main Street Corridor													
Short St. to Plum St.	2	11	11	8	10	8	10	9	4	N/A	5	4	0
Plum St. to Cherry St.	0	16	20	16	8	12	19	14	14	N/A	8	8	6
Cherry St. to Market St.	0	1	5	3	1	3	6	6	3	N/A	6	10	2
Market St. to Walnut St.	2	3	4	4	4	1	2	3	3	N/A	2	0	2
Walnut St. to Mulberry St.	8	21	12	13	11	13	9	11	12	N/A	16	7	7
Market Street Corridor													
Race St. to Canal St.	0	5	2	2	2	5	8	4	9	N/A	6	5	1
Canal St. to Franklin St.	1	2	17	22	14	16	17	7	8	N/A	7	19	2
Franklin St. to Main St.	2	6	7	9	11	13	18	7	6	N/A	16	12	3
Main St. to Water St.	5	4	5	5	14	7	5	5	9	N/A	13	11	3
Short Street Corridor													
Main St. to Water St.	9	15	19	16	10	19	18	17	8	N/A	19	19	0
Water Street Corridor													
Short St. to Cherry St.	11	12	14	10	11	11	1	10	8	N/A	2	4	2

3/18/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	6	20	27	31	32	32	28	29	27	23	33	N/A	38
Cherry St North Lot	2	6	8	12	18	20	17	20	15	19	18	N/A	14
NW Pub. Sq. Lot	6	8	9	6	16	16	14	11	15	14	14	N/A	17
NE Pub. Sq. Lot	2	4	7	10	15	12	11	10	14	15	13	N/A	16
SE Pub. Sq. Lot	5	6	8	9	7	10	7	12	11	8	17	N/A	13
SW Pub. Sq. Lot	14	15	16	12	13	17	17	13	15	6	15	N/A	14
Troy Rec Lot	1	3	2	4	10	10	6	8	10	9	4	N/A	8
S. Mulberry Lot	2	2	2	1	1	2	1	1	1	1	3	N/A	3

3/17/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	6	22	29	28	26	26	30	31	27	18	20	21	21
Cherry St North Lot	3	10	17	18	18	19	19	14	14	18	21	21	13
NW Pub. Sq. Lot	3	5	7	7	17	10	11	9	10	16	17	11	9
NE Pub. Sq. Lot	4	6	9	14	15	16	12	10	10	11	16	12	7
SE Pub. Sq. Lot	2	5	7	10	15	13	8	7	9	16	18	17	10
SW Pub. Sq. Lot	7	10	9	14	16	16	15	13	16	15	16	15	13
Troy Rec Lot	0	3	2	3	13	16	7	5	7	17	16	9	8
S. Mulberry Lot	2	2	2	1	1	3	1	1	2	1	4	5	2

3/16/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	1	8	32	32	31	20	18	15	15	17	29	30	N/A
Cherry St North Lot	2	6	12	17	19	20	17	13	18	15	19	20	N/A
NW Pub. Sq. Lot	3	6	4	5	16	15	7	2	5	10	16	18	N/A
NE Pub. Sq. Lot	3	4	8	14	15	9	11	13	9	16	15	15	N/A
SE Pub. Sq. Lot	3	9	9	11	14	11	6	12	9	8	16	16	N/A
SW Pub. Sq. Lot	9	3	15	15	17	14	12	8	11	13	16	16	N/A
Troy Rec Lot	2	2	3	2	6	10	7	7	10	13	15	17	N/A
S. Mulberry Lot	2	2	2	2	1	0	0	0	0	0	1	0	N/A

3/15/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	0	9	18	23	23	25	28	28	22	20	31	37	N/A
Cherry St North Lot	4	8	12	16	18	18	16	17	16	16	23	23	N/A
NW Pub. Sq. Lot	1	2	3	6	13	16	5	4	9	13	14	17	N/A
NE Pub. Sq. Lot	5	7	6	7	12	13	8	2	5	11	16	17	N/A
SE Pub. Sq. Lot	3	5	11	8	7	7	6	7	13	14	16	17	N/A
SW Pub. Sq. Lot	14	10	14	14	11	15	14	10	8	13	16	17	N/A
Troy Rec Lot	0	4	2	2	7	5	6	10	10	13	16	14	N/A
S. Mulberry Lot	2	2	2	2	0	1	2	1	2	2	1	4	N/A

3/14/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	2	9	13	19	19	18	18	17	16	15	20	19	11
Cherry St North Lot	3	7	11	14	14	18	15	13	13	14	17	20	7
NW Pub. Sq. Lot	0	5	6	5	5	12	4	4	12	11	11	16	8
NE Pub. Sq. Lot	2	3	2	4	4	12	3	4	4	10	10	15	7
SE Pub. Sq. Lot	4	8	8	10	10	8	7	7	11	6	7	8	8
SW Pub. Sq. Lot	6	10	12	13	13	16	11	13	14	10	12	11	4
Troy Rec Lot	0	1	3	3	3	8	3	4	8	5	11	14	4
S. Mulberry Lot	2	2	2	2	2	1	1	1	1	2	1	1	0

[illegible]

3/10/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	9	17	26	23	23	20	27	23	22	13	17	15	9
Cherry St North Lot	5	11	16	18	18	19	19	10	12	15	19	18	13
NW Pub. Sq. Lot	1	2	6	8	15	12	17		9	5	16	17	7
NE Pub. Sq. Lot	4	5	6	7	16	9	15	8	10	11	17	17	10
SE Pub. Sq. Lot	3	3	4	10	6	7	9	10	7	6	8	13	12
SW Pub. Sq. Lot	11	14	10	13	15	14	17	15	15	7	11	16	6
Troy Rec Lot	0	4	3	6	17	11	8	7	7	15	12	14	16
S. Mulberry Lot	2	3	3	2	1	1	0	0	1	0	1	2	1

3/9/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	0	5	11	15	16	17	11	11	16	13	20	33	29
Cherry St North Lot	1	3	8	15	19	17	14	11	8	18	19	20	19
NW Pub. Sq. Lot	6	7	12	7	14	12	10	8	10	4	17	17	4
NE Pub. Sq. Lot	2	2	5	9	10	13	13	8	7	12	15	15	8
SE Pub. Sq. Lot	3	4	9	12	11	12	7	9	13	6	12	15	6
SW Pub. Sq. Lot	9	9	14	15	16	14	11	10	7	13	14	14	6
Troy Rec Lot	0	2	3	2	8	7	4	6	5	10	15	14	4
S. Mulberry Lot	2	2	2	1	2	3	2	2	1	1	2	2	0

3/8/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	2	8	21	27	23	24	19	22	19	20	21	25	18
Cherry St North Lot	3	6	8	16	20	16	12	13	12	17	18	19	13
NW Pub. Sq. Lot	2	5	5	6	18	13	12	13	11	11	16	17	11
NE Pub. Sq. Lot	2	4	6	6	12	9	5	7	9	8	15	16	11
SE Pub. Sq. Lot	4	5	5	9	7	10	8	8	9	11	12	14	15
SW Pub. Sq. Lot	11	9	6	14	14	15	11	13	13	10	16	14	9
Troy Rec Lot	0	4	3	4	11	9	7	6	8	4	15	16	13
S. Mulberry Lot	2	2	2	2	2	1	1	0	1	1	2	2	2

3/7/2016													
Date/Time	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
Location	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars	# of Cars
Cherry St. Lot	3	9	19	24	27	24	18	19	16	N/A	15	18	18
Cherry St North Lot	3	10	16	14	16	12	13	10	15	N/A	17	2	13
NW Pub. Sq. Lot	2	7	8	3	6	11	8	6	13	N/A	13	17	8
NE Pub. Sq. Lot	1	2	3	4	10	6	3	3	2	N/A	11	6	6
SE Pub. Sq. Lot	3	3	10	8	8	11	9	8	7	N/A	9	1	3
SW Pub. Sq. Lot	8	13	13	15	12	13	16	14	9	N/A	11	7	7
Troy Rec Lot	0	2	3	4	11	9	3	6	4	N/A	11	10	0
S. Mulberry Lot	2	2	2	2	1	1	1	2	2	N/A	2	1	0



APPENDIX B: LIST OF DOWNTOWN BUSINESSES

ADDRESS	BLOCK	ADDRESS2	NAME	PHONE	STREET NUMBER	DIRECTION	STREET NAME	NUMBER OF EMPLOYEES	NUMBER OF EMPLOYEE PARKING SPACES NEEDED	NUMBER OF EMPLOYEE PARKING SPACES PROVIDED	TYPE OF ASSUMED LAND USE	NUMBER OF CUSTOMER PARKING SPACES NEEDED	NUMBER OF CUSTOMER PARKING SPACES PROVIDED	SQUARE FOOTAGE	ZONING	PRECLASS
201 W MAIN ST	1		MIAMI COUUNTY SAFETY BUILDING	937-418-8335	201	W	MAIN	200	200	150	Office	30	0	68,679	B-3 Central Business District	Church
206 W MAIN ST	5	SUITE 1	NOLAN GIERE & CO ACCOUNTANTS, FINANCIAL SERVICES	937-339-3118	206	W	MAIN	10	10	0	Office	5	0	4,725	B-3 Central Business District	Service
210 W MAIN ST	5		DUNGAN & LEFEVRE CO LPA ATTORNEYS	937-339-0511	210	W	MAIN	21	10	10	Office	10	0	2,788	B-3 Central Business District	Available
214 W MAIN ST	5		SPACE AVAILABLE		214	W	MAIN	0	0	0	Future	0	0	1,628		Service
215 W MAIN ST	1		MIAMI COUNTY COURTHOUSE	937-440-6050	215	W	MAIN	50	50	50	Office	100	0	33,800	B-3 Central Business District	Service
220 W MAIN ST	5		ALLSTATE INSUURANCE- PATTY ROSE		220	W	MAIN	2	0	2	Office	4	0	2,093		
100 W MAIN ST	1		TROY-MIAMI COUNTY HISTORICAL LIBRARY	937-33-4082	100	W	MAIN	3	3	0	Library	5	0	7,332	B-3 Central Business District	Government
106 W MAIN ST	6		HITTLE'S JEWELERS & WATCHMAKERS	937-339-3210	106	W	MAIN	4	2	0	Retail	6	0	2,100	M-2 Light Industrial District	Non-Profit / Office
105 W MAIN ST	1		HOME COMFORT GALLERY & DESIGN CENTER	937-335-1849	107	W	MAIN	3	4	0	Retail	5	0	7,528	OR-1 Off.-Res.: 3,000 SqFt./DU	Service
107 W MAIN ST	1	SECOND FLOOR	TROY MASONIC TEMPLE LODGE	937-339-4946	107	W	MAIN				Office			8,673	OR-1 Off.-Res.: 3,000 SqFt./DU	Service
108 W MAIN ST	6		LEAF & VINE CAFE	937-332-0773	108	W	MAIN	3	2	0	Restaurant	20	0	2,097	OR-1 Off.-Res.: 3,000 SqFt./DU	Service
110 W MAIN ST	6		KEY II SECURITY INVESTIGATIONS	937-339-8530	110	W	MAIN	2	2	0	Office	1	0	2,856	OR-1 Off.-Res.: 3,000 SqFt./DU	Service
112 W MAIN ST	6		CASTLE BAIL BONDS	937-335-3572	112	W	MAIN	1	1	0	Office	2	0	1,682	OR-1 Off.-Res.: 3,000 SqFt./DU	Service
116 W MAIN ST	6		THE TARVERN DOWNTOWN		112	W	MAIN	7	3	4	Restaurant	20	0	9,120	OR-1 Off.-Res.: 3,000 SqFt./DU	Available
120 W MAIN ST	6		GUDORF LAW GROUP		122	W	MAIN	1	1	0	Office	2	0	7,167	OR-1 Off.-Res.: 3,000 SqFt./DU	Service
124 W MAIN ST	6		Klein, Tomb & Eberly, LLP	937-339-3939	122	W	MAIN	10	1	5	Office	5	3	4,207		Service
8 W MAIN ST	7		AROUND ABOUT BOOKS	937-339-1707	8	W	MAIN	3	1	0	Retail	6	0	1,720		Service
9 W MAIN ST	-		CENTERPOINT CHURCH		9	W	MAIN	1	1	0	Church	5	0	1,320	B-3 Central Business District	Service
11 W MAIN ST	2		MAYFLOWER THEATER	937-339-3456	11	W	MAIN	1	1	0	Retail	5	0	1,320	B-3 Central Business District	Service
12 W MAIN ST	7		TROY FAMILY BIKE SHOP	937-335-5800	12	W	MAIN	2	2	0	Retail	3	0	9,768		
10 W MAIN ST	7		WINANS FINE CHOCOLATES & COFFEE HOUSE	937-335-9119	10	W	MAIN	5	5	0	Restaurant	3	0	2,444		Service
2 W MAIN ST	7		FOR ALL SEASONS GIFT BOUTIQUE		2	W	MAIN	2	1	0	Retail	0	0	4,207	B-3 Central Business District	Service
4 W MAIN ST	7		TROY BULK BARN/DELI		4	W	MAIN	2	2	0	Restaurant	12	0	3,300	B-3 Central Business District	Restaurant
1 E MAIN ST	3		CAN DANCE STUDIO (Not yet open)		1	E	MAIN	0	0	0	Health and Fitness	0	0	1,884	B-3 Central Business District	Service
6 E MAIN ST	8		LION & LAMB YARN BOUTIQUE		6	E	MAIN	1	0	0	Retail	2	0	1,884	B-3 Central Business District	Retail
9 E MAIN ST	3		SWEENEY TODD SALON		9	E	MAIN	9	6	0	Retail	30	0	1,804	B-3 Central Business District	Government
11 E MAIN ST	3		HER REALTORS		11	E	MAIN	16	1	0	Office	2	0	3,522	R-7 MF Res 3,000 SqFt./DU	Non-Profit / Office
11 E MAIN ST	4		TROJAN NUTRITION	937-875-2500	111	E	MAIN	2	1	0	Retail	2	0	3,477		
2 E MAIN ST	8		DAVID FAIR ON THE SQUARE	937-335-8383	2	E	MAIN	5	2	0	Retail	10	0	7,594		
5 E MAIN ST	3		THE 3 WEIRD SISTERS		5	E	MAIN	3	3	0	Retail	3	0	3,256	B-3 Central Business District	Restaurant
7 E MAIN ST	3		THE OLIVE OASIS		7	E	MAIN	3	2	0	Restaurant	5	0	4,620		
110 1/2 E MAIN ST	4		VACANT		110	E	MAIN	0	0	0	Future	0	0	240	B-3 Central Business District	Government
121 E MAIN ST	4		WE LOVE BIRTHDAY PARTIES		121	E	MAIN	1	1	0	Retail	2	0	3,530	B-3	Other
104 E MAIN ST	9		STAFFORD'S SPORTING GOODS		100	E	MAIN	1	0	0	Retail	2	0	14,145		Other
100 E MAIN ST	9		THE CABINET SHOP OF TROY	937-339-4264	100	E	MAIN	2	1	0	Retail	2	0	1,716	B-3 Central Business District	Other
108 E MAIN ST	9		BLUE BOW BOUTIQUE		100	E	MAIN	2	1	0	Retail	2	0	3,062	B-3 Central Business District	Service
103 E MAIN ST	4		YELLOW TREE YOGA		101	E	MAIN	1	1	0	Health and Fitness	10	0	3,062	B-3 Central Business District	Service
105 E MAIN ST	4		VACANT		101	E	MAIN	0	0	0	Future	0	0	5,313	OR-1 Off.-Res.: 3,000 SqFt./DU	Church
101 E MAIN ST	4		TOTAL TEAM SPORTS	937-335-7004	101	E	MAIN	1	1	1	Retail	1	0	2,990	B-3 Central Business District	Service
103 1/2 E MAIN ST	4		REDMANS LODGE ASSOCIATION	937-339-1076	101	E	MAIN	3	0	0	Office	0	0	2,990	B-3 Central Business District	Service
109 E MAIN ST	4	AND 107 E MAIN	MOJO'S BAR & GRILL		109	E	MAIN	10	8	0	Restaurant	30	0	2,990	B-3 Central Business District	Service
110 E MAIN ST	9		ODYSSEY SALON	937-339-9600	110	E	MAIN	4	4	0	Retail	8	0	1,235	OR-1 Off.-Res.: 3,000 SqFt./DU	Non-Profit / Office
112 E MAIN ST	9		SPACE AVAILABLE		112	E	MAIN	0	0	0	Future	0	0	2,301	B-3	Retail
113 E MAIN ST	4		PRIMM N PROPER (TEMPORARILY CLOSED)		113	E	MAIN	0	0	0	Future	0	0	1,320	B-3 Central Business District	Retail
117 E MAIN ST	4		K'S HAMBURGER SHOP	937-339-3902	117	E	MAIN	20	5	0	Restaurant	8	0	1,610		Retail
124 E MAIN ST	9		TROY POLICE DEPARTMENT	937-339-7525	120	E	MAIN	49	49	40	Office	5	0	1,200	B-3 Central Business District	Available
123 E MAIN ST	4		PANDORAS YARN		121	E	MAIN	1	1	0	Retail	2	0	12,206		Retail

ADDRESS	BLOCK	ADDRESS2	NAME	PHONE	STREET NUMBER	DIRECTION	STREET NAME	NUMBER of EMPLOYEES	NUMBER OF EMPLOYEE PARKING SPACES NEEDED	NUMBER OF EMPLOYEE PARKING SPACES PROVIDED	TYPE OF ASSUMED LAND USE	NUMBER OF CUSTOMER PARKING SPACES NEEDED	NUMBER OF CUSTOMER PARKING SPACES PROVIDED	SQUARE FOOTAGE	ZONING	PRECLASS
201 S MARKET ST	13		WES'S TROY MUFFLER AND AUTO SERVICE	937-339-0098	203	S	MARKET	2	2	2	Retail	7	7	2,470		Service
206 S MARKET ST	12		RELIBLE TENT RENTAL		206	S	MARKET	1	0	1	Retail	0	0	2,470		Service
210 S MARKET ST	12		SPACE AVAILABLE		210	S	MARKET	0	0	0	Future	0	0	10,151	B-3 Central Business District	Government
211 S AMRKET ST	13		ONE STOP DRIVE THRU	937-335-1115	211	S	MARKET	5	2	2	Retail	0	0	2,975	B-3 Central Business District	Service
235 S MARKET ST	13		WAGMORE PET SALON		235	S	MARKET	4	3	0	Retail	2	0	1,610		
233 S MARKET ST	13		UNITED WAY OF TROY OHIO INC	937-335-8410	217	S	MARKET	2	1	1	Office	0	0	2,975	B-3 Central Business District	Retail
223 S MARKET ST	13		GIACOMO'S SALON & DAY SPA	937-339-6748	217	S	MARKET	18	6	0	Retail	6	0	1,309		
229 S MARKET ST	13		MOFFATT INSURANCE AGENCY	937-335-2838	217	S	MARKET	2	2	0	Office	2	0	2,484	B-3 Central Business District	Service
224 S MARKET ST	12		TROY DAILY NEWS	937-339-7514	224	S	MARKET	20	15	3	Office	3	0	2,329	B-3 Central Business District	Service
311 S MARKET ST	13	SUITE A	SPACE AVAILABLE	937-339-3931	311	S	MARKET	0	0	0	Future	0	0	700		
311 S MARKET ST	13	SUITE B	SPACE AVAILABLE	937-339-3931	311	S	MARKET	0	0	0	Future	0	0	700	B-3 Central Business District	Service
311 S MARKET ST	13	SUITE C	SPACE AVAILABLE	937-339-3931	311	S	MARKET	0	0	0	Future	0	0	700		
311 S MARKET ST	13	SUITE D	SPACE AVAILABLE	937-339-3931	311	S	MARKET	0	0	0	Future	0	0	700	B-3 Central Business District	Service
103 S MARKET	11		VACANT		103	S	MARKET	0	0	0	Future	0	0	1,377		Restaurant
114 S MARKET ST	10		WINNER'S COMPUTER LLC		114	S	MARKET	2	1	1	Retail	1	0	1,190		Retail
116 S MARKET ST	10		PACHAMAMA MARKET		116	S	MARKET	1	1	0	Retail	5	0	1,904		Service
100 S MARKET ST	10		CITY HALL	937-335-1725	100	S	MARKET	41	41	48	Office	10	0	3,410	B-3 Central Business District	Service
105 S MARKET ST	11		VACANT		101	S	MARKET	0	0	0	Future	0	0	3,410	B-3 Central Business District	Service
101 S MARKET ST	11		ARK & ECHO		101	S	MARKET	7	3	2	Retail	4	0	3,410	B-3 Central Business District	Service
11 S MARKET ST	11		VACANT		11	S	MARKET	0	0	0	Future	0	0	17,192		Non-Profit / Office
115 S MARKET ST	11		CARR INSURANCE		115	S	MARKET	2	2	5	Office	2	3	17,192		Non-Profit / Office
117 S MARKET ST	11		VACANT		115	S	MARKET	0	0	0	Future	0	0	1,932		Service
12 S MARKET ST	10		UP AND RUNNING		12	S	MARKET	3	2	0	Retail	2	0	1,862		Available
12 1/2 S MARKET ST	10		SPACE AVAILABLE		12	S	MARKET	0	0	0	Future	0	0	1,862		Available
120 S MARKET ST	10		FIRST UNITED CHURCH OF CHRIST	937-339-5871	120	S	MARKET	4	0	5	Church	0	0	2,750		Restaurant
121 S MARKET ST	11		PRINCI & KING LAW OFFICES	937-339-2651	123	S	MARKET	5	3	3	Office	2	0	2,040		Retail
123 S MARKET ST	11		SAMOZREJME DIAPERS & GIFTS	937-308-1262	123	S	MARKET	3	2	1	Retail	2	0	1,225		Service
125 S MARKET ST	11		2 PM STYLE		125	S	MARKET	4	1	0	Retail	2	0	1,300	B-3 Central Business District	Retail
127 S MARKET ST	11		PICTURE IT FRAMED GALLERY	937-339-1823	125	S	MARKET	1	1	1	Retail	1	0	1,836		Restaurant
131 S MARKET ST	11		SPACE AVAILABLE	937-339-2222	131	S	MARKET	0	0	0	Future	0	0	1,980		Available
4 S MARKET ST	8		INSIGHTFUL EYEWEAR	937-339-2020	4	S	MARKET	4	4	0	Retail	4	0	3,780		Service
15 S MARKET ST	7		AMISH COUNTRY FURNITURE	937-335-4764	15	S	MARKET	1	1	1	Retail	3	0	1,980		Retail
16 S MARKET ST	8		BROWER STATIONERS OFFICE PRODUCTS	937-335-2117	16	S	MARKET	5	5	0	Retail	10	0	2,090		Service
5 S MARKET ST	7		THE CAROLINE RESTAURANT	937-552-7676	5	S	MARKET	45	20	0	Restaurant	100	0	2,356		Available
6 S MARKET ST	7		EXPRESSIONS FOR THE HOME GIFT SHOP	937-332-9227	6	S	MARKET	1	2	0	Retail	5	0	2,356		Retail
9 S MARKET ST	8		VILLIAGE SALON	937-335-9969	9	S	MARKET	0	0	0	Retail	0	0	3,260	B-3 Central Business District	Service
7 S MARKET ST	8		RAISE YOUR BRUSH		9	S	MARKET	2	2	0	Retail	10	0	1,914	B-3 Central Business District	Service
8 S MARKET ST	7		US BANK	937-339-2234		S	MARKET	3	3	0	Office	3	0	3,609	M-2 Light Industrial District	Available

ADDRESS	BLOCK	ADDRESS2	NAME	PHONE	STREET NUMBER	DIRECTION	STREET NAME	NUMBER of EMPLOYEES	NUMBER OF EMPLOYEE PARKING SPACES NEEDED	NUMBER OF EMPLOYEE PARKING SPACES PROVIDED	TYPE OF ASSUMED LAND USE	NUMBER OF CUSTOMER PARKING SPACES NEEDED	NUMBER OF CUSTOMER PARKING SPACES PROVIDED	SQUARE FOOTAGE	ZONING	PRECLASS
1 N MARKET ST	3		RUBY'S BEAUTY SALON	937-339-3104	1	N	MARKET	6	3	0	Retail	6	0	8,735	B-3 Central Business District	Retail
10 N MARKET ST	2	SUITE A	CLARK SCHAFFER HACKETT & CO ACCOUNTANTS	937-339-3099	10	N	MARKET	1	1	0	Office	2	0	8,735	B-3 Central Business District	Other
10 N MARKET ST	2	SUITE B	ROBERTS KELLY & BUCIO LLP ATTORNEYS	937-332-9300	10	N	MARKET	3	3	1	Office	5	0	1,321		Available
11 N MARKET ST	3		THE REC RECREATIONAL CENTER	937-339-1923	11	N	MARKET	15	6	0	Rec Center	40	0	2,720	B-3 Central Business District	Service
14 N MARKET ST	2		SUBMARINE HOUSE BAR & GRILL	937-335-6479	14	N	MARKET	30	8	0	Restaurant	10	0	6,593	B-3 Central Business District	Restaurant
16 N MARKET ST	2		LIMELIGHT SALON		16	N	MARKET	9	9	0	Retail	20	0	4,033		Retail
18 N MARKET ST	2		BASIL'S ON MARKET		18	N	MARKET	25	30	0	Restaurant	50	20	1,218		Retail
2 1/2 N MARKET ST	2		Primal Forces Massage Therapy	937-671-5036	3	N	MARKET	1	0	0	Retail	0	0	1,768		0
2 N MARKET ST	2		LA PIAZZA ITALIAN RESTAURANT	937-339-5553	2	N	MARKET	50	10	0	Restaurant	100	0	8,674		
20 1/2 N MARKET ST	2		SPACE AVAILABLE	937-875-0545	20	N	MARKET	0	0	0	Future	0	0	993	B-3 Central Business District	Government
22 N MARKET ST	2		NORTH MARKET BARBER SHOP	937-335-2895	22	N	MARKET	1	1	0	Retail	2	0	1,148		Service
24 N MARKET ST	2		COMFORT KEEPERS	9375529322	24	N	MARKET	6	8	4	Retail	2	0	1,148		Service
24 N MARKET ST	2		CHRIS WESNER LAW		24	N	MARKET	1	1	0	Office	2	0	2,893	B-3 Central Business District	Government
3 N MARKET ST	3		TOKYO PEKING CHINESE RESTAURANT	937-339-7118	3	N	MARKET	4	2	0	Restaurant	10	0	2,800	B-3 Central Business District	Service
8 N MARKET ST	2		WILLOUGHBY'S HOLLOW		8	N	MARKET	1	1	0	Retail	3	0	1,575		Service
9 N MARKET ST	3		DEL CID SATELLITES, INC.		9	N	MARKET	10	8	0	Office	3	0	1,575		Service
12 S CHERRY ST	7		FAUST HARRELSON FULKER MCCARTHY & SCHLEMMER	937-335-8324	10	S	CHERRY	19	19	0	Office	5	0	4,852	B-2 General Business District	Service
15 S CHERRY ST	6		THE FRANCIS AGENCY INC. INSURANCE	937-339-1525	15	S	CHERRY	3	2	0	Office	4	0	4,852	B-2 General Business District	Retail
16 S CHERRY ST	7	C	SPACE AVAILABLE	937-339-2836	16	S	CHERRY	0	0	0	Future	0	0	1,300		Service
16 S CHERRY ST	7	A	DAVID TREADWAY	937-335-5252	16	S	CHERRY	1	1	0	Office	2	0	3,120		Restaurant
16 S CHERRY ST	7	B	JOHN R BOSSE & CO., INC.	937-339-9500	16	S	CHERRY	1	1	0	Office	2	0	1,040		Restaurant
16 S CHERRY ST	7	D	BACK TO BASICS HEALTH SHOPPE	937-332-8499	16	S	CHERRY	1	1	0	Retail	2	0	2,754		Service
101 PUBLIC SQUARE NW	2		EDWARD JONES INVESTMENTS -SCOTT ODA	937-335-3663	101	NW	PUBLIC	2	2	0	Office	2	0	4,852	B-2 General Business District	Available
121 PUBLIC SQUARE NE	3	SUITE 10	LORI MIDDLETON INTERIORS	937-335-7583	121	NE	PUBLIC	1	1	0	Retail	2	0	16,310	B-2 General Business District	Non-Profit / Office
117 PUBLIC SQUARE NE	3		RAY'S SHOE REPAIR	937-335-4174	117	NE	PUBLIC SQUARE	2	0	0	Retail	2	0	3,286	B-2 General Business District	Service
305 PUBLIC SQUARE SE	8	SUITE 4	TOWNE TITLE & ESCROW	937-339-0110	305	SE	PUBLIC	2	2	0	Office	6	0	6,823		Service
217 PUBLIC SQUARE SE	8		WILLIAM AND BOSS JEWELERS	937-335-6755	217	SE	PUBLIC	3	0	0	Retail	2	0	6,823		Retail
221 PUBLIC SQUARE SE	8		DAVID FAIR ON THE SQUARE ANNEX	937-440-8232	221	SE	PUBLIC	3	0	0	Retail	2	0	3,180	OR-1 Off.-Res.: 3,000 SqFt./DU	Available

APPENDIX C: ONLINE DOWNTOWN PARKING SURVEY RESPONSES

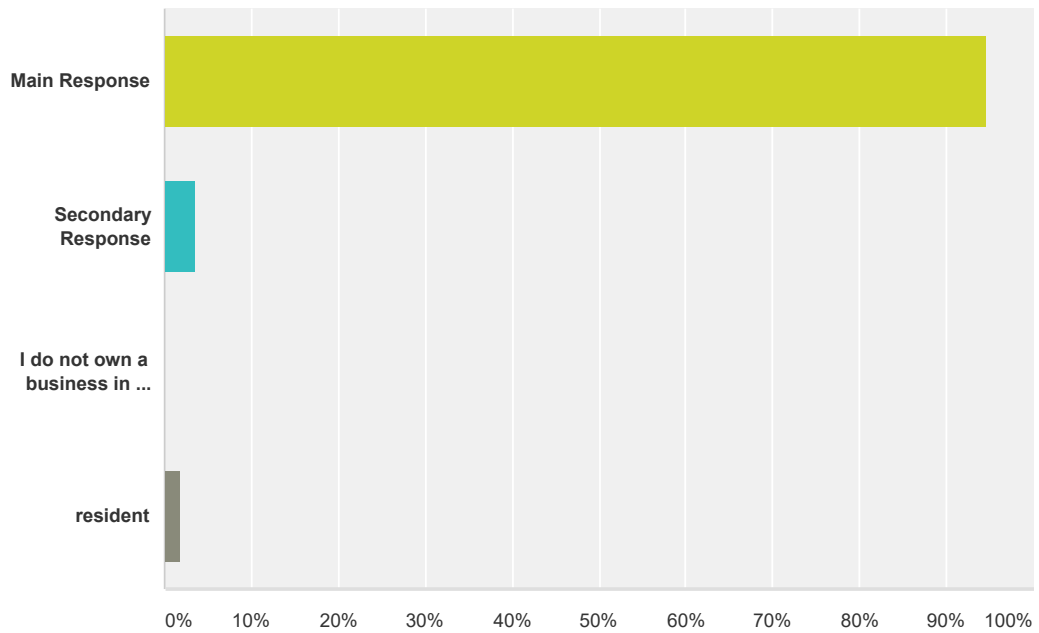
Q1 Business Information

Answered: 55 Skipped: 0

Answer Choices	Responses	
Owner	100.00%	55
Name of Business	100.00%	55
Type of Business	100.00%	55
Address	100.00%	55
City/Town	0.00%	0
State/Province	0.00%	0
ZIP/Postal Code	0.00%	0
Country	0.00%	0
Email Address	100.00%	55
Phone Number	100.00%	55

Q2 Please indicate your affiliation with the business

Answered: 55 Skipped: 0



Answer Choices	Responses	
Main Response	94.55%	52
Secondary Response	3.64%	2
I do not own a business in the study area	0.00%	0
resident	1.82%	1
Total		55

Q3 Address

Answered: 37 Skipped: 18

Answer Choices	Responses	
Name	91.89%	34
Company	89.19%	33
Address	89.19%	33
Address 2	13.51%	5
City/Town	94.59%	35
State/Province	94.59%	35
ZIP/Postal Code	94.59%	35
Country	89.19%	33
Email Address	89.19%	33
Phone Number	91.89%	34

Q4 How many employees do you have at your location?

Answered: 54 Skipped: 1

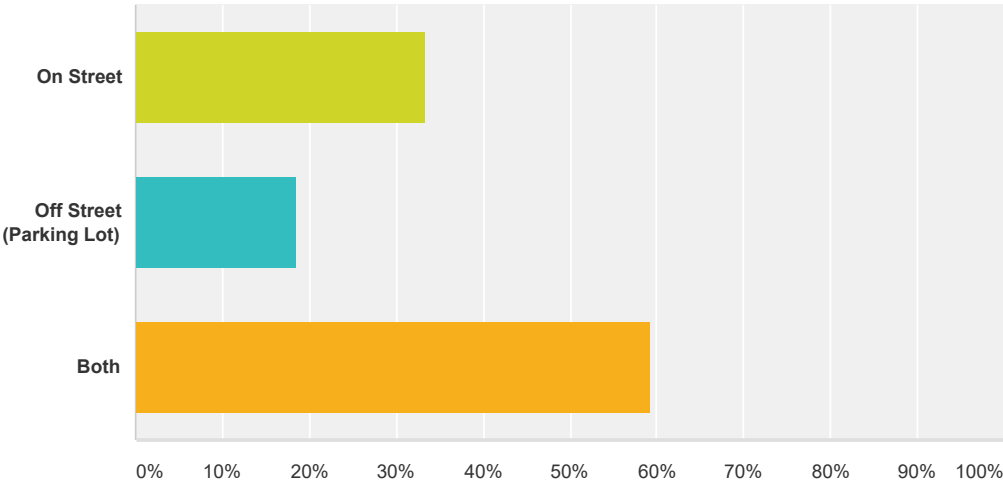
#	Responses	Date
1	5 Employees and 4 tenants	7/6/2016 8:41 AM
2	4	6/30/2016 12:50 PM
3	4	6/30/2016 8:50 AM
4	16	6/29/2016 12:50 PM
5	16	6/29/2016 10:37 AM
6	2	6/28/2016 10:03 AM
7	4	6/23/2016 5:10 PM
8	30	6/23/2016 2:56 PM
9	15	6/23/2016 2:11 PM
10	1	6/22/2016 7:46 PM
11	2	6/22/2016 5:51 PM
12	2	6/22/2016 12:22 PM
13	2	6/22/2016 9:19 AM
14	14	6/21/2016 5:08 PM
15	9	6/21/2016 4:11 PM
16	5	6/21/2016 1:13 PM
17	2	6/21/2016 11:40 AM
18	2	6/21/2016 11:22 AM
19	19	6/21/2016 9:49 AM
20	1	6/21/2016 8:13 AM
21	5	6/21/2016 8:02 AM
22	8	6/21/2016 6:15 AM
23	8	6/20/2016 8:32 PM
24	4	6/20/2016 7:48 PM
25	3	6/20/2016 12:55 PM
26	3	6/20/2016 11:59 AM
27	8	6/20/2016 11:26 AM
28	19	6/20/2016 9:39 AM
29	5	6/20/2016 9:27 AM
30	20 full and part time	6/18/2016 10:59 PM
31	3	6/18/2016 2:03 PM
32	11	6/18/2016 7:40 AM
33	4	6/17/2016 5:39 PM
34	3	6/17/2016 2:33 PM

City of Troy Downtown Parking Study Update Survey

35	10	6/17/2016 1:30 PM
36	21	6/17/2016 1:21 PM
37	15	6/17/2016 1:03 PM
38	1	6/17/2016 12:20 PM
39	3	6/17/2016 11:23 AM
40	one	6/17/2016 10:52 AM
41	1	6/17/2016 10:19 AM
42	4	6/17/2016 10:15 AM
43	1 - Just me	6/17/2016 9:44 AM
44	6	6/17/2016 8:12 AM
45	40	6/16/2016 8:05 PM
46	2	6/16/2016 6:15 PM
47	3	6/16/2016 5:54 PM
48	6	6/16/2016 5:33 PM
49	12	6/16/2016 4:42 PM
50	2	6/16/2016 4:19 PM
51	1	6/16/2016 3:45 PM
52	10	6/16/2016 2:33 PM
53	1.5	6/16/2016 1:13 PM
54	17	6/16/2016 10:59 AM

Q5 Where do your employees park?

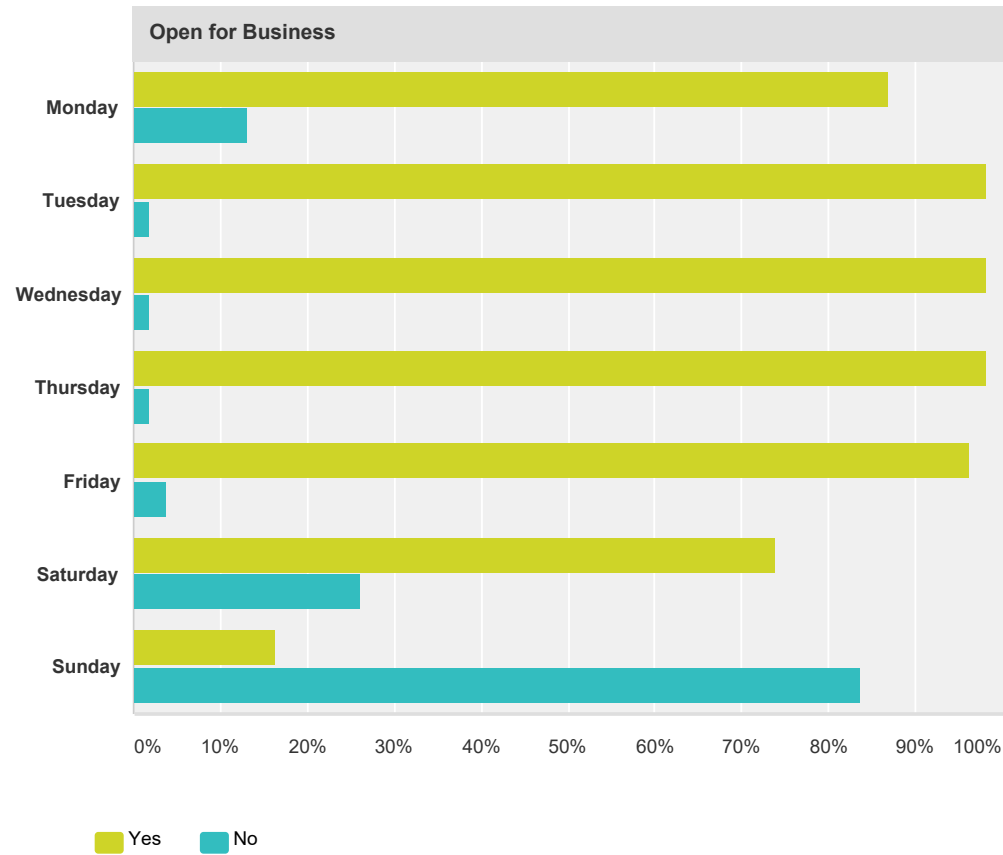
Answered: 54 Skipped: 1



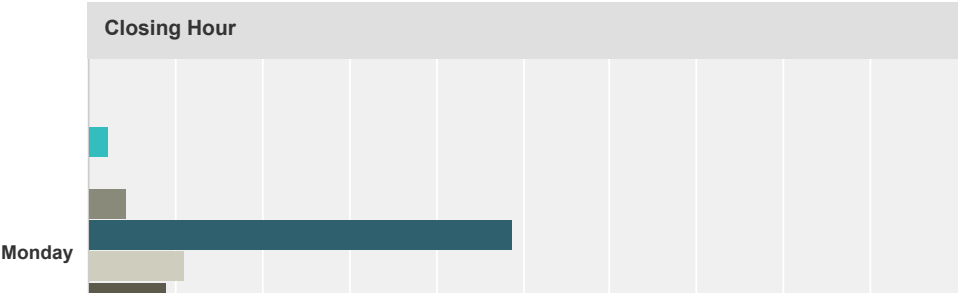
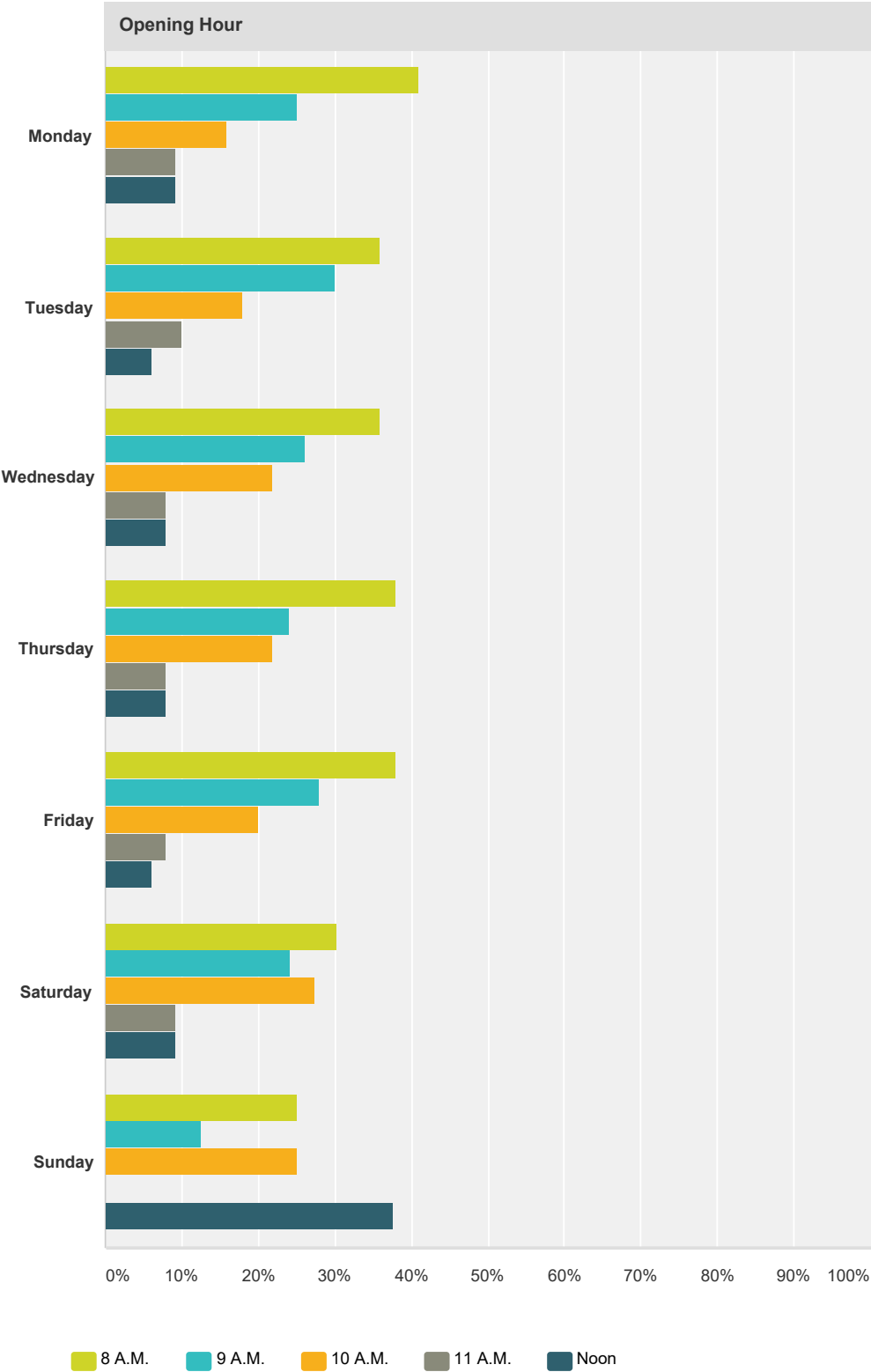
Answer Choices	Responses	
On Street	33.33%	18
Off Street (Parking Lot)	18.52%	10
Both	59.26%	32
Total Respondents: 54		

Q6 What are your days and hours of operation?

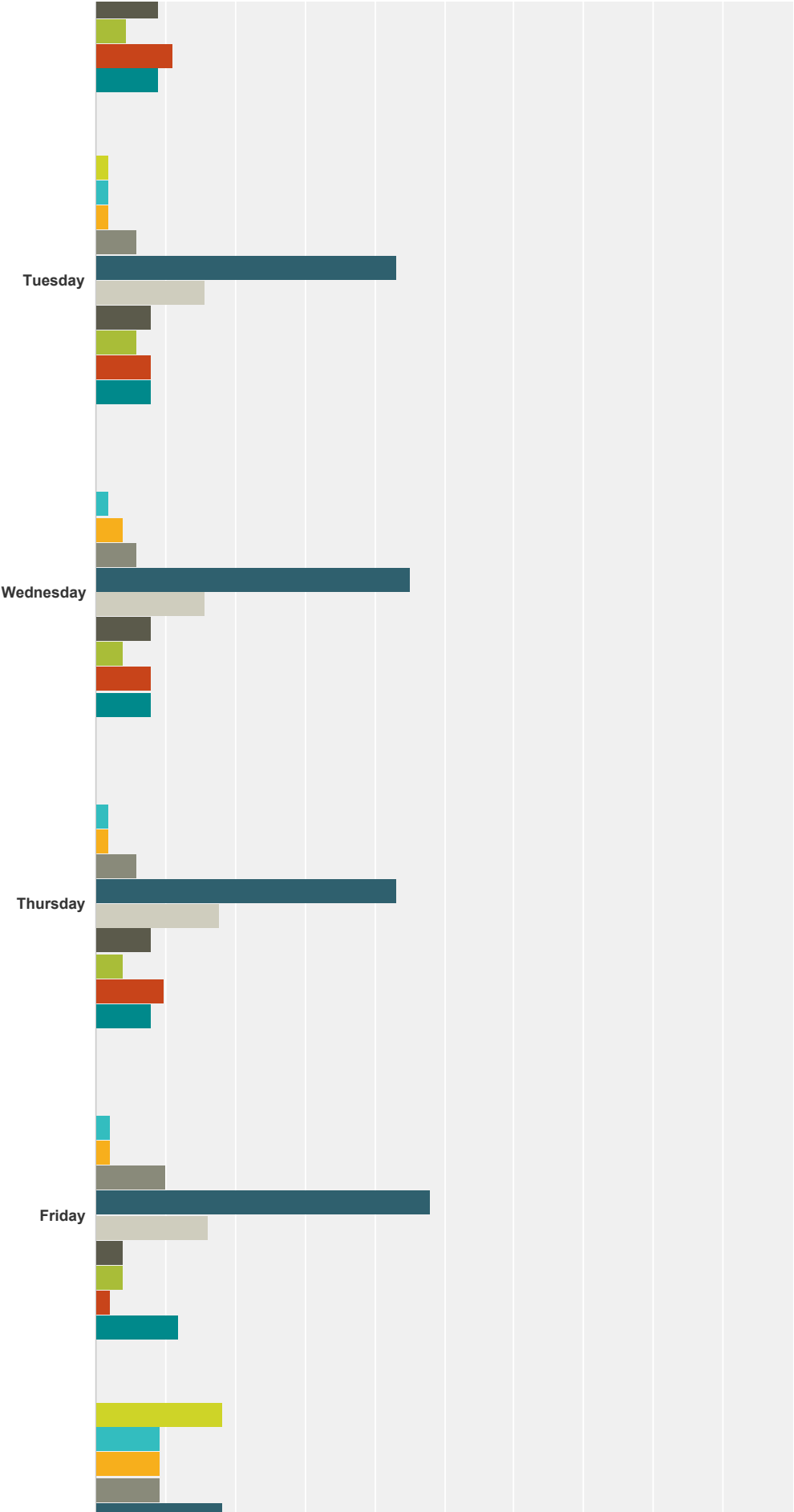
Answered: 53 Skipped: 2



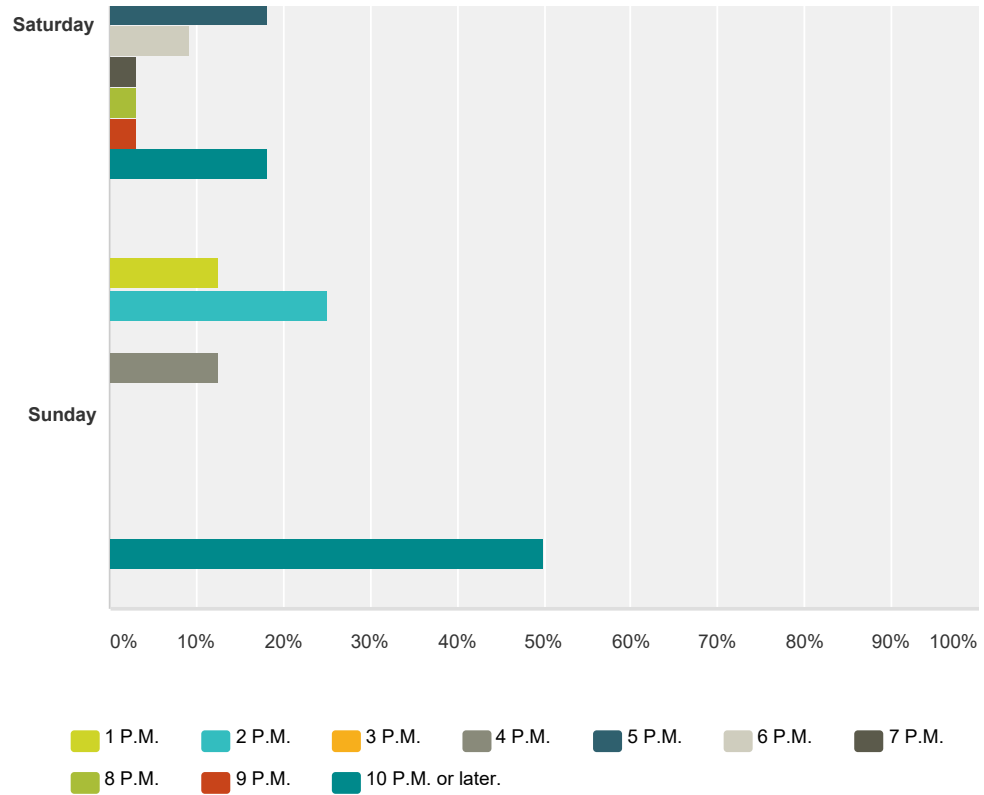
City of Troy Downtown Parking Study Update Survey



City of Troy Downtown Parking Study Update Survey



City of Troy Downtown Parking Study Update Survey



Open for Business			
	Yes	No	Total
Monday	86.79% 46	13.21% 7	53
Tuesday	98.11% 52	1.89% 1	53
Wednesday	98.04% 50	1.96% 1	51
Thursday	98.11% 52	1.89% 1	53
Friday	96.23% 51	3.77% 2	53
Saturday	73.91% 34	26.09% 12	46
Sunday	16.28% 7	83.72% 36	43

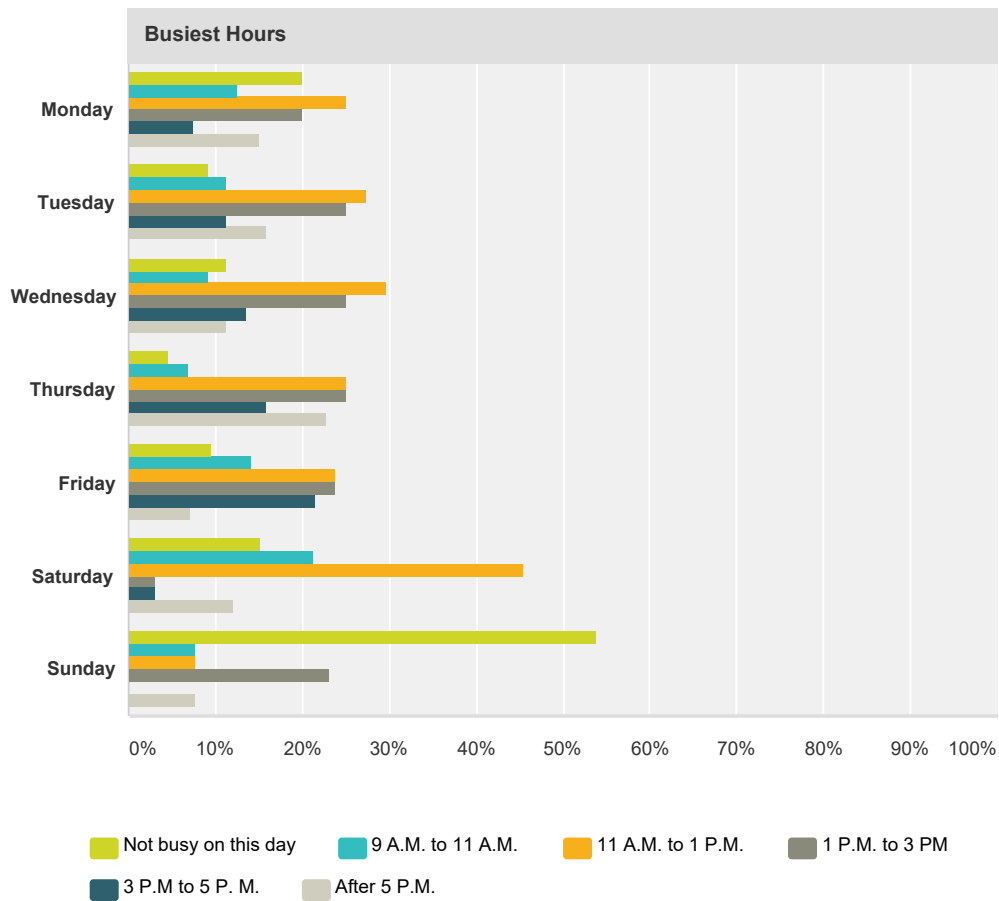
Opening Hour						
	8 A.M.	9 A.M.	10 A.M.	11 A.M.	Noon	Total
Monday	40.91% 18	25.00% 11	15.91% 7	9.09% 4	9.09% 4	44
Tuesday	36.00% 18	30.00% 15	18.00% 9	10.00% 5	6.00% 3	50
Wednesday	36.00% 18	26.00% 13	22.00% 11	8.00% 4	8.00% 4	50
Thursday	38.00% 19	24.00% 12	22.00% 11	8.00% 4	8.00% 4	50

City of Troy Downtown Parking Study Update Survey

Friday		38.00% 19		28.00% 14		20.00% 10		8.00% 4		6.00% 3		50
Saturday		30.30% 10		24.24% 8		27.27% 9		9.09% 3		9.09% 3		33
Sunday		25.00% 2		12.50% 1		25.00% 2		0.00% 0		37.50% 3		8
Closing Hour												
	1 P.M.	2 P.M.	3 P.M.	4 P.M.	5 P.M.	6 P.M.	7 P.M.	8 P.M.	9 P.M.	10 P.M. or later.	Total	
Monday	0.00% 0	2.22% 1	0.00% 0	4.44% 2	48.89% 22	11.11% 5	8.89% 4	4.44% 2	11.11% 5	8.89% 4	45	
Tuesday	1.96% 1	1.96% 1	1.96% 1	5.88% 3	43.14% 22	15.69% 8	7.84% 4	5.88% 3	7.84% 4	7.84% 4	51	
Wednesday	0.00% 0	1.96% 1	3.92% 2	5.88% 3	45.10% 23	15.69% 8	7.84% 4	3.92% 2	7.84% 4	7.84% 4	51	
Thursday	0.00% 0	1.96% 1	1.96% 1	5.88% 3	43.14% 22	17.65% 9	7.84% 4	3.92% 2	9.80% 5	7.84% 4	51	
Friday	0.00% 0	2.00% 1	2.00% 1	10.00% 5	48.00% 24	16.00% 8	4.00% 2	4.00% 2	2.00% 1	12.00% 6	50	
Saturday	18.18% 6	9.09% 3	9.09% 3	9.09% 3	18.18% 6	9.09% 3	3.03% 1	3.03% 1	3.03% 1	18.18% 6	33	
Sunday	12.50% 1	25.00% 2	0.00% 0	12.50% 1	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	50.00% 4	8	

Q7 What are your busiest days and hours of the week?

Answered: 46 Skipped: 9



Busiest Hours							
	Not busy on this day	9 A.M. to 11 A.M.	11 A.M. to 1 P.M.	1 P.M. to 3 P.M.	3 P.M. to 5 P.M.	After 5 P.M.	Total
Monday	20.00% 8	12.50% 5	25.00% 10	20.00% 8	7.50% 3	15.00% 6	40
Tuesday	9.09% 4	11.36% 5	27.27% 12	25.00% 11	11.36% 5	15.91% 7	44
Wednesday	11.36% 5	9.09% 4	29.55% 13	25.00% 11	13.64% 6	11.36% 5	44
Thursday	4.55% 2	6.82% 3	25.00% 11	25.00% 11	15.91% 7	22.73% 10	44
Friday	9.52% 4	14.29% 6	23.81% 10	23.81% 10	21.43% 9	7.14% 3	42
Saturday	15.15% 5	21.21% 7	45.45% 15	3.03% 1	3.03% 1	12.12% 4	33
Sunday	53.85% 7	7.69% 1	7.69% 1	23.08% 3	0.00% 0	7.69% 1	13

**Q8 On average, during these busiest times,
how many customers do you estimate
frequent your business?**

Answered: 49 Skipped: 6

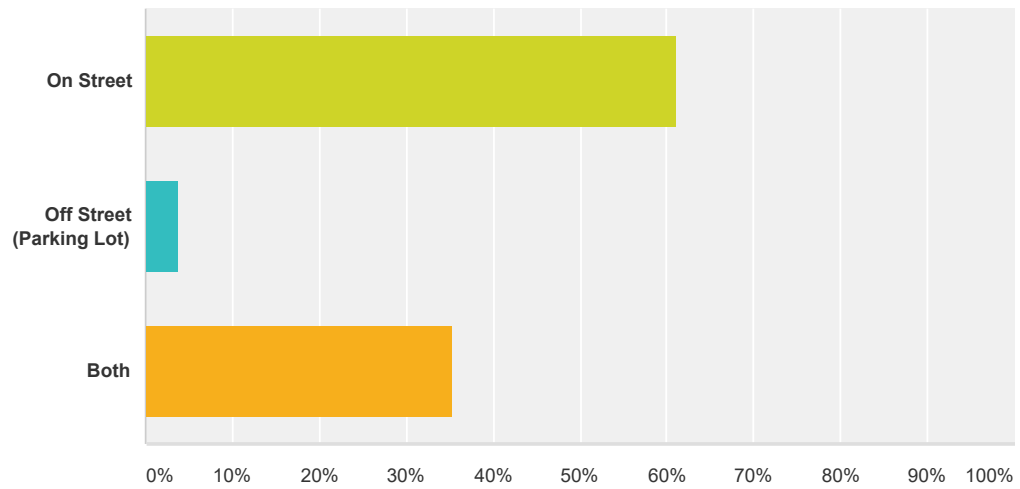
#	Responses	Date
1	30	7/6/2016 8:41 AM
2	15	6/30/2016 12:50 PM
3	20	6/30/2016 8:50 AM
4	we are typically appointment only, appointments could be up to 8 people for closings	6/29/2016 12:50 PM
5	3	6/28/2016 10:03 AM
6	100	6/23/2016 5:10 PM
7	100-225 we do not open until 4--	6/23/2016 2:56 PM
8	10	6/23/2016 2:11 PM
9	2	6/22/2016 7:46 PM
10	3-5	6/22/2016 5:51 PM
11	4	6/22/2016 9:19 AM
12	10	6/21/2016 5:08 PM
13	35	6/21/2016 4:11 PM
14	3-4	6/21/2016 1:13 PM
15	5-7	6/21/2016 11:22 AM
16	5-8	6/21/2016 9:49 AM
17	20-100	6/21/2016 8:13 AM
18	60	6/21/2016 8:02 AM
19	5-10	6/21/2016 6:15 AM
20	10	6/20/2016 8:32 PM
21	17-20	6/20/2016 7:48 PM
22	1 or 2	6/20/2016 12:55 PM
23	37 regulars plus 45 irregulars	6/20/2016 11:59 AM
24	2-4	6/20/2016 11:26 AM
25	7 per day	6/20/2016 9:39 AM
26	100+ We open at 7am Mon thru Sat	6/18/2016 10:59 PM
27	25-30	6/18/2016 7:40 AM
28	depends	6/17/2016 5:39 PM
29	12	6/17/2016 2:33 PM
30	25	6/17/2016 1:30 PM
31	10+	6/17/2016 1:21 PM
32	30	6/17/2016 1:03 PM
33	10-12	6/17/2016 12:20 PM

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34	15	6/17/2016 11:23 AM
35	25	6/17/2016 10:52 AM
36	5+	6/17/2016 10:19 AM
37	n/a most business done by phone or email	6/17/2016 10:15 AM
38	0	6/17/2016 9:44 AM
39	10-25	6/17/2016 8:12 AM
40	80-100	6/16/2016 8:05 PM
41	After 12:00	6/16/2016 6:15 PM
42	10-30 customers	6/16/2016 5:54 PM
43	35	6/16/2016 5:33 PM
44	5	6/16/2016 4:42 PM
45	1-3	6/16/2016 4:19 PM
46	Two	6/16/2016 3:45 PM
47	3-4	6/16/2016 2:33 PM
48	one	6/16/2016 1:13 PM
49	20	6/16/2016 10:59 AM

Q9 Where do you believe your customers park?

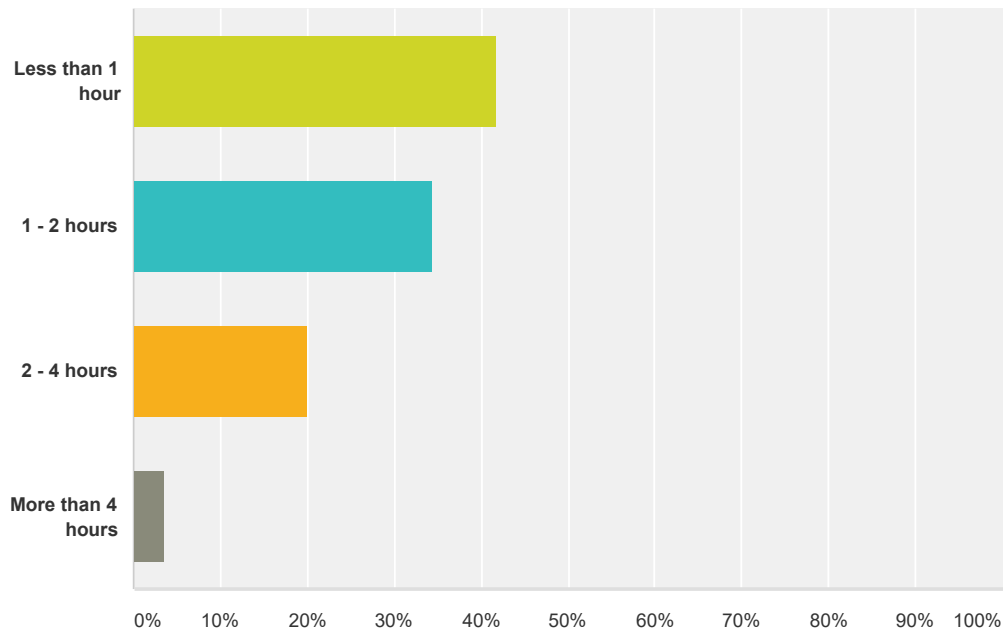
Answered: 54 Skipped: 1



Answer Choices	Responses	
On Street	61.11%	33
Off Street (Parking Lot)	3.70%	2
Both	35.19%	19
Total Respondents: 54		

Q10 What is the estimated duration your customers spend at your establishment?

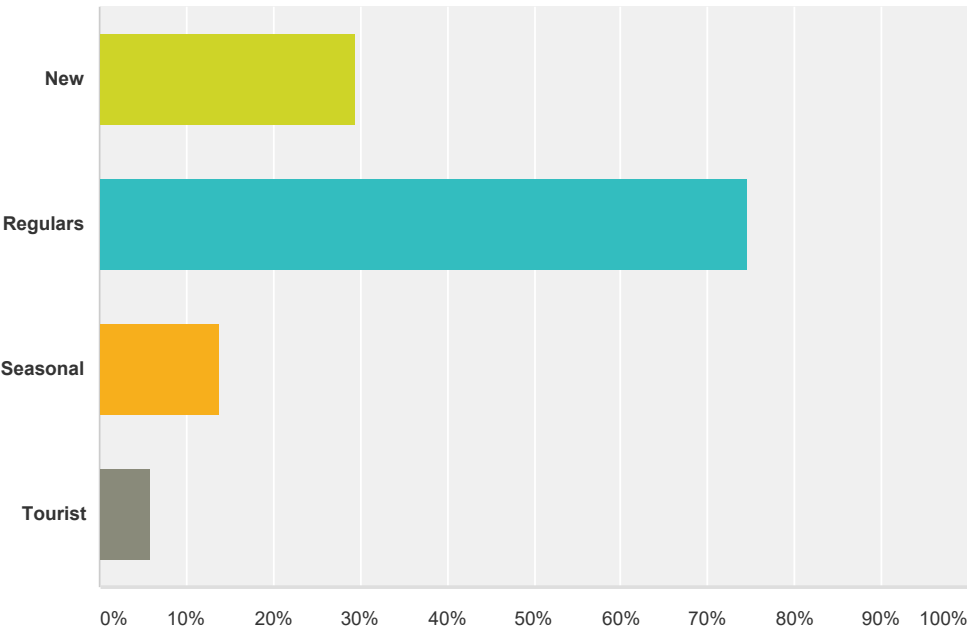
Answered: 55 Skipped: 0



Answer Choices	Responses	
Less than 1 hour	41.82%	23
1 - 2 hours	34.55%	19
2 - 4 hours	20.00%	11
More than 4 hours	3.64%	2
Total		55

Q11 Are the majority of your customers:

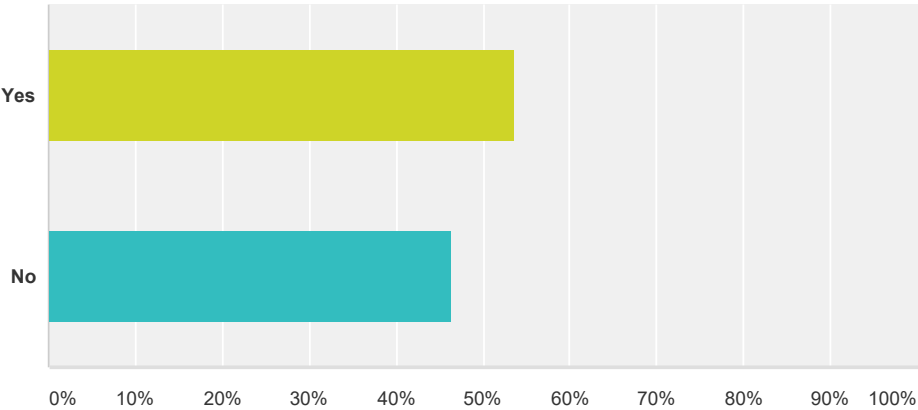
Answered: 51 Skipped: 4



Answer Choices	Responses	
New	29.41%	15
Regulars	74.51%	38
Seasonal	13.73%	7
Tourist	5.88%	3
Total Respondents: 51		

Q12 Do you foresee the need for additional parking in the future due to the growth or expansion of your business?

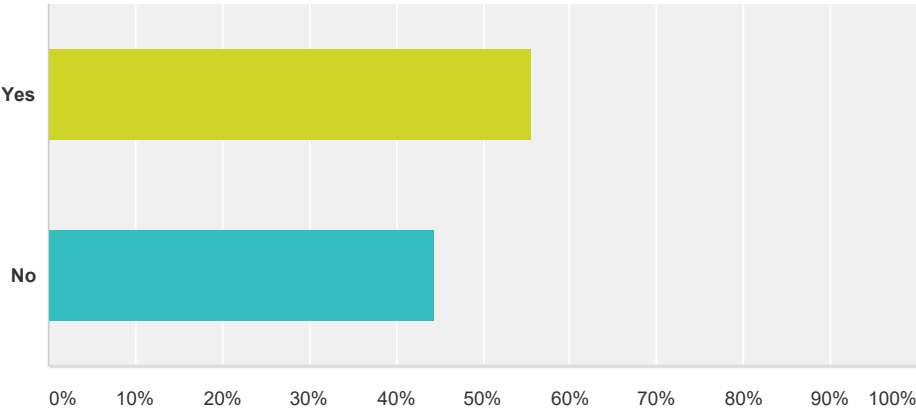
Answered: 54 Skipped: 1



Answer Choices	Responses	
Yes	53.70%	29
No	46.30%	25
Total		54

Q13 Do you occasionally sponsor events that draw more customers than usual?

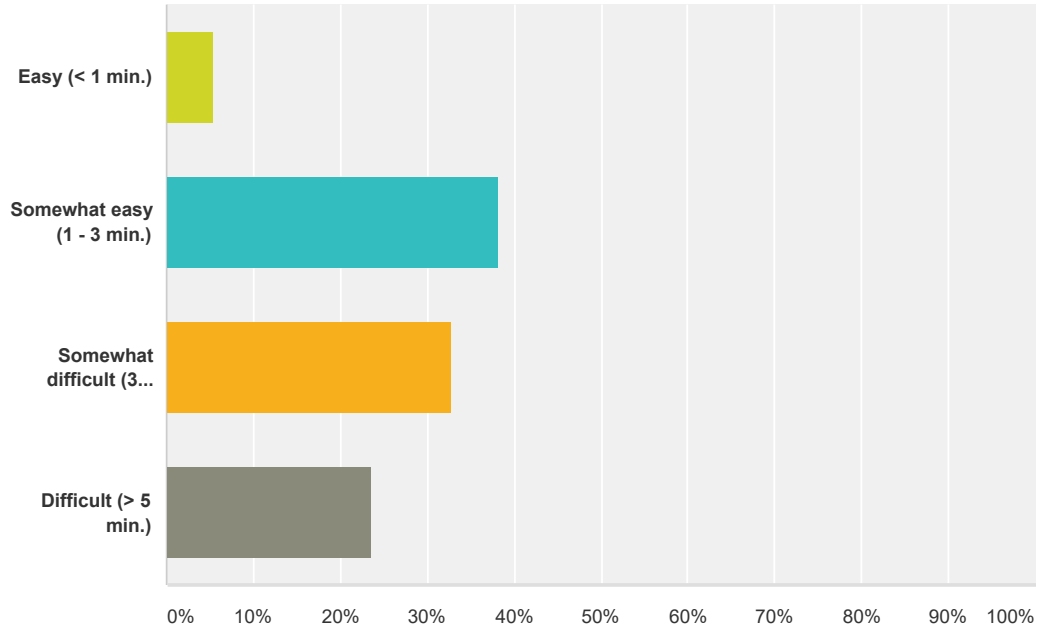
Answered: 54 Skipped: 1



Answer Choices	Responses	
Yes	55.56%	30
No	44.44%	24
Total		54

Q14 How would you characterize the ability of your customers to find a parking space downtown on a typical weekday?

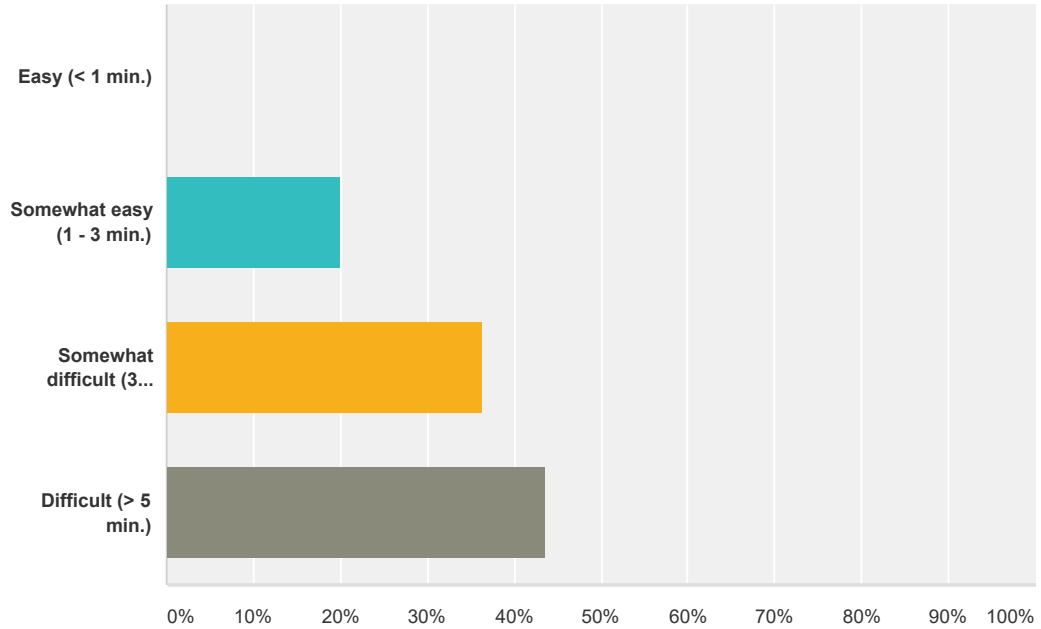
Answered: 55 Skipped: 0



Answer Choices	Responses	
Easy (< 1 min.)	5.45%	3
Somewhat easy (1 - 3 min.)	38.18%	21
Somewhat difficult (3 - 5 min.)	32.73%	18
Difficult (> 5 min.)	23.64%	13
Total		55

Q15 How would you characterize your ability to find a parking space downtown on a typical weekday lunchtime?

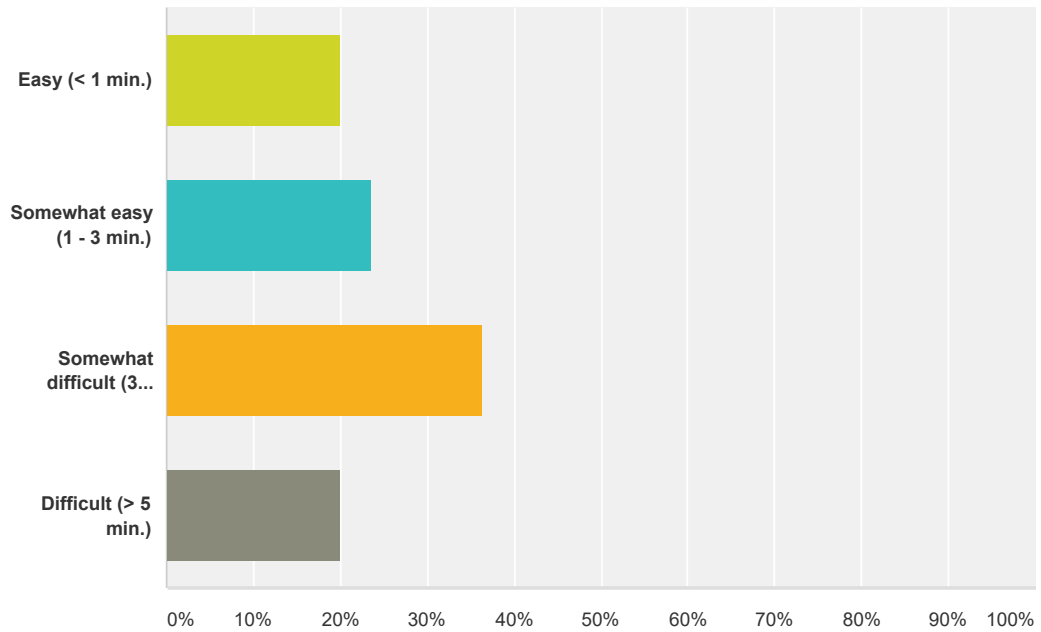
Answered: 55 Skipped: 0



Answer Choices	Responses	
Easy (< 1 min.)	0.00%	0
Somewhat easy (1 - 3 min.)	20.00%	11
Somewhat difficult (3 - 5 min.)	36.36%	20
Difficult (> 5 min.)	43.64%	24
Total		55

Q16 How would you characterize your ability to find a parking space downtown on a typical evening or weekend?

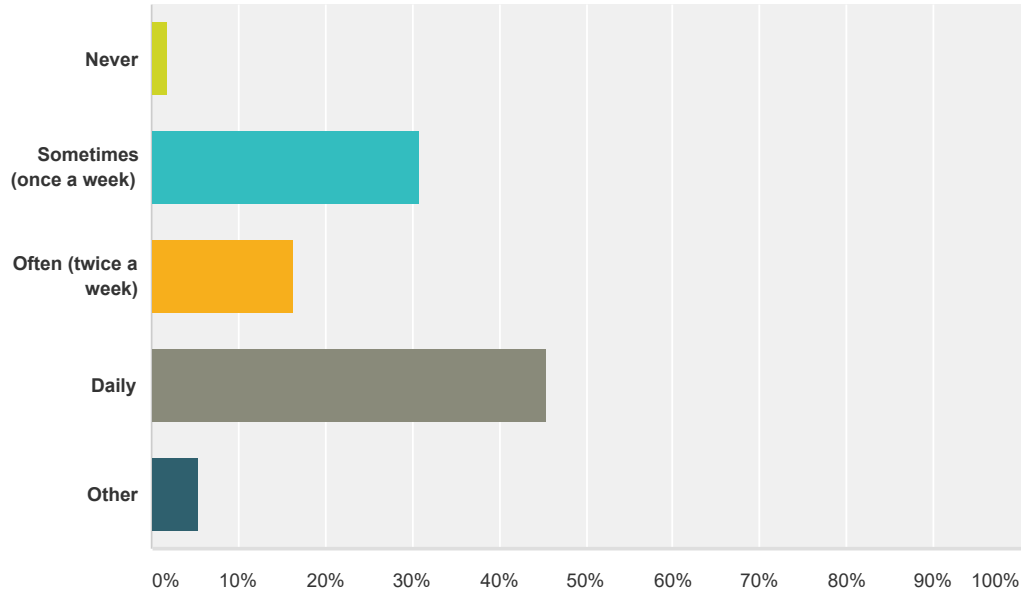
Answered: 55 Skipped: 0



Answer Choices	Responses	
Easy (< 1 min.)	20.00%	11
Somewhat easy (1 - 3 min.)	23.64%	13
Somewhat difficult (3 - 5 min.)	36.36%	20
Difficult (> 5 min.)	20.00%	11
Total		55

Q17 Have you noticed other employees from surrounding businesses parking in front of your business?

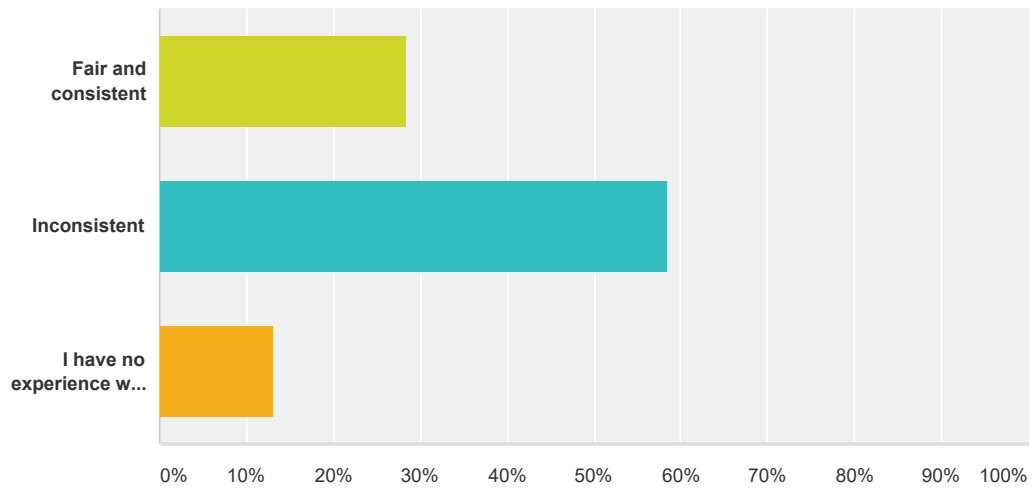
Answered: 55 Skipped: 0



Answer Choices	Responses
Never	1.82% 1
Sometimes (once a week)	30.91% 17
Often (twice a week)	16.36% 9
Daily	45.45% 25
Other	5.45% 3
Total	55

Q18 How would you describe enforcement of on-street parking regulations?

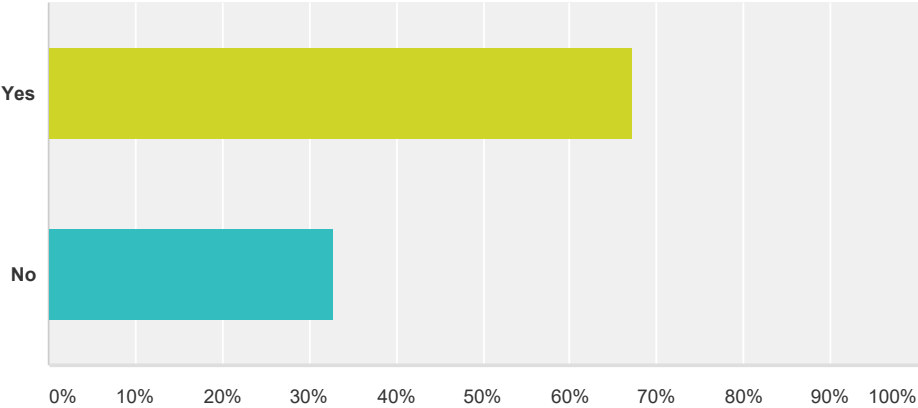
Answered: 53 Skipped: 2



Answer Choices	Responses	
Fair and consistent	28.30%	15
Inconsistent	58.49%	31
I have no experience with parking enforcement	13.21%	7
Total		53

Q19 Do you feel the current parking situation deters customers from your business?

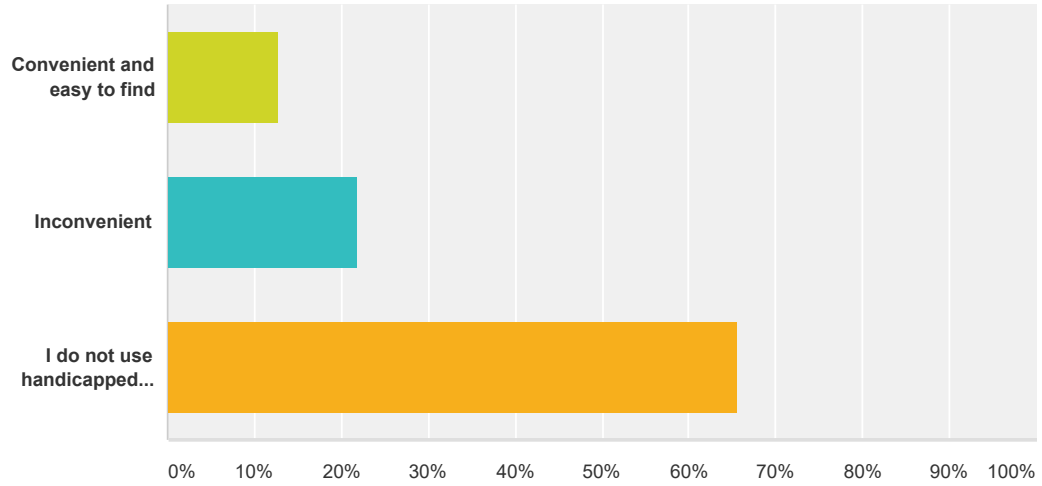
Answered: 55 Skipped: 0



Answer Choices	Responses	
Yes	67.27%	37
No	32.73%	18
Total		55

Q20 How would you describe the availability and use of downtown handicapped parking?

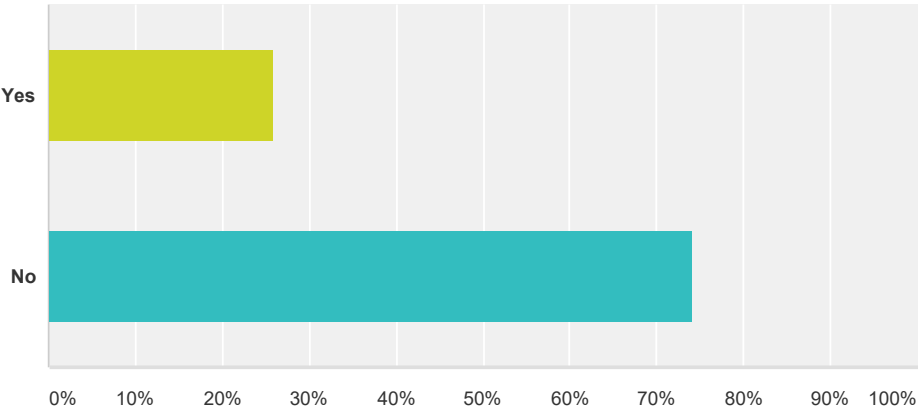
Answered: 55 Skipped: 0



Answer Choices	Responses	
Convenient and easy to find	12.73%	7
Inconvenient	21.82%	12
I do not use handicapped parking	65.45%	36
Total		55

Q21 Would your business financially participate in the improvements to off-street parking?

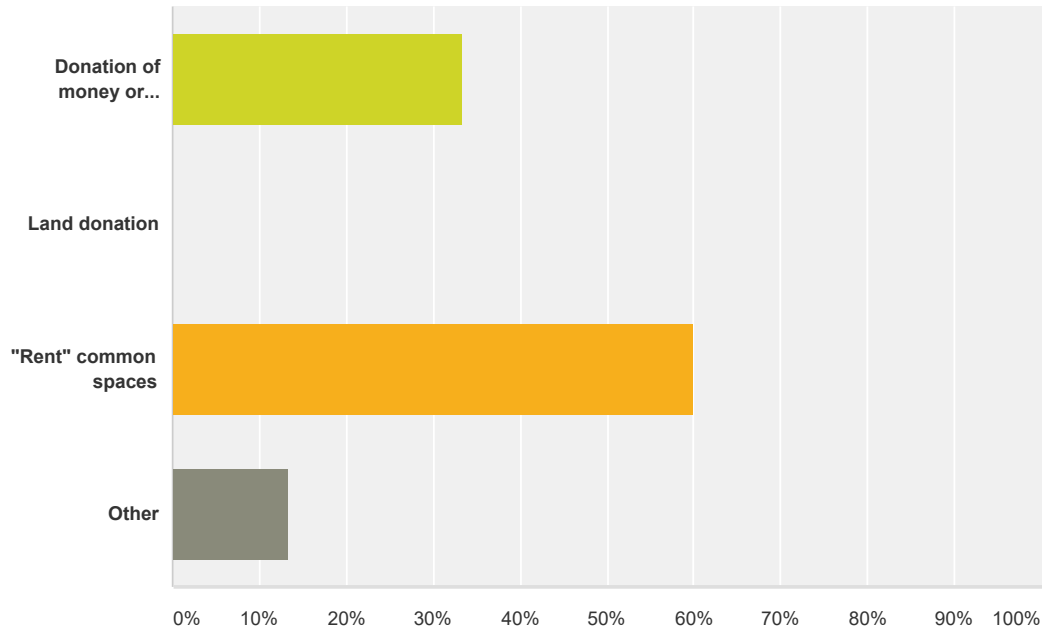
Answered: 54 Skipped: 1



Answer Choices	Responses	
Yes	25.93%	14
No	74.07%	40
Total		54

**Q22 If you answered "Yes" to Question 21,
how would your business financially
participate in the improvements to off-street
parking?**

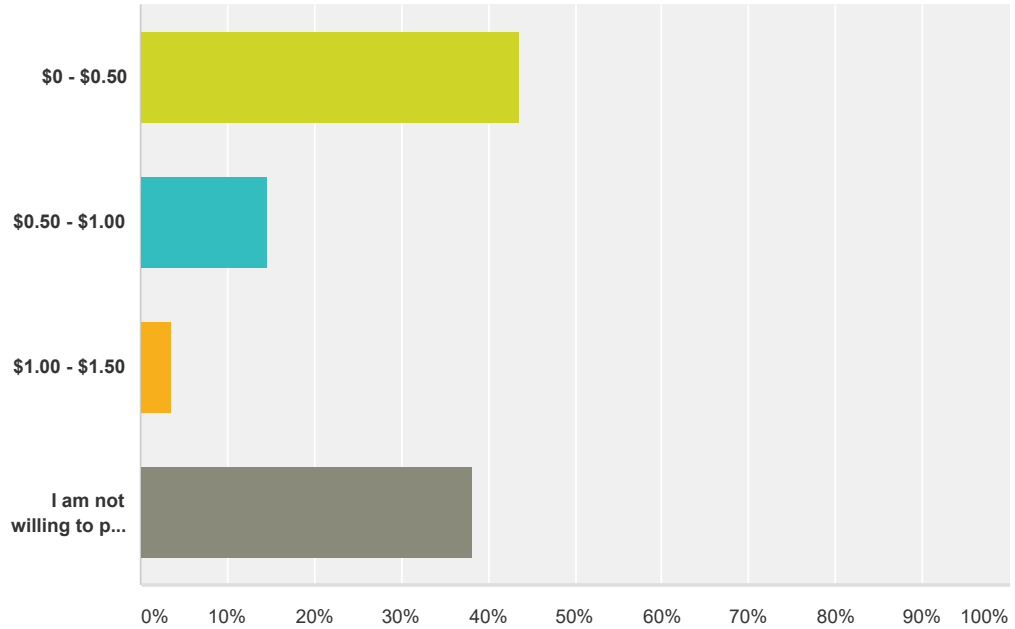
Answered: 15 Skipped: 40



Answer Choices	Responses	
Donation of money or in-kind service	33.33%	5
Land donation	0.00%	0
"Rent" common spaces	60.00%	9
Other	13.33%	2
Total Respondents: 15		

Q23 What do you consider to be a reasonable hourly fee for parking on and off-street?

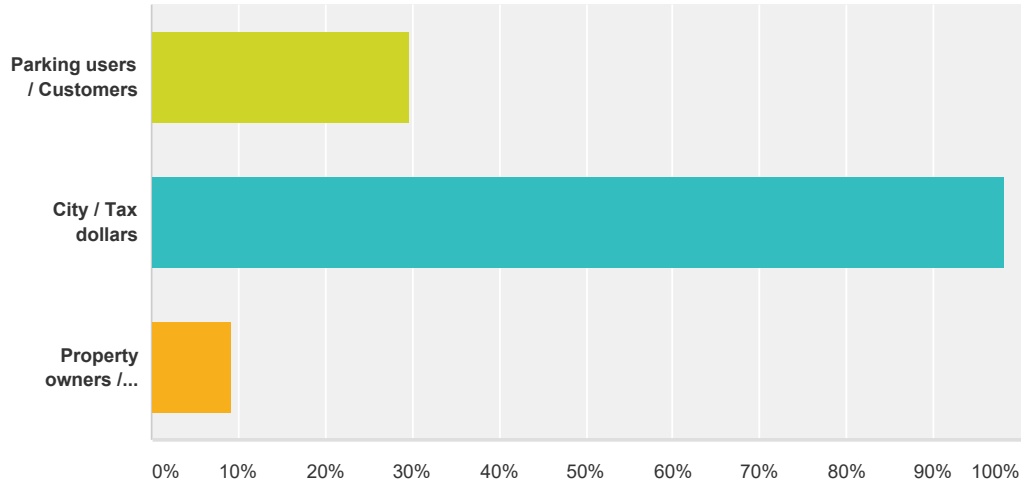
Answered: 55 Skipped: 0



Answer Choices	Responses	
\$0 - \$0.50	43.64%	24
\$0.50 - \$1.00	14.55%	8
\$1.00 - \$1.50	3.64%	2
I am not willing to pay for parking	38.18%	21
Total		55

Q24 In your opinion, who should pay the cost of building and maintaining public parking facilities? (Check all that apply)

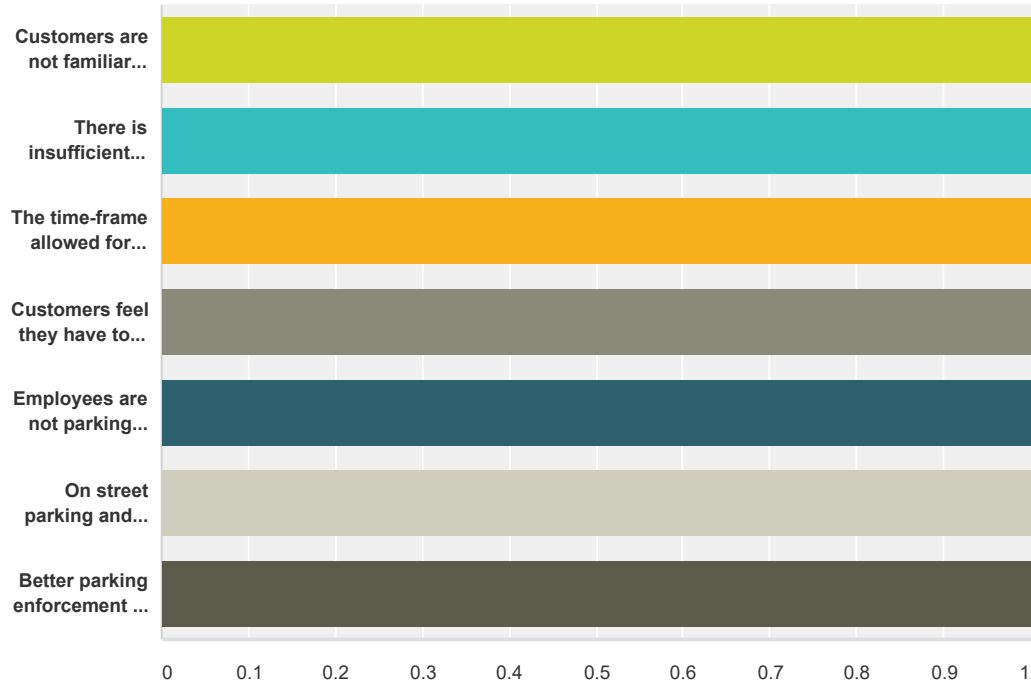
Answered: 54 Skipped: 1



Answer Choices	Responses	
Parking users / Customers	29.63%	16
City / Tax dollars	98.15%	53
Property owners / Business owners	9.26%	5
Total Respondents: 54		

Q25 Please rate the following in terms of their relevance to your patrons' experiences with parking in downtown Troy:

Answered: 53 Skipped: 2



	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree	Total	Weighted Average
Customers are not familiar with all parking options available to them.	25.00% 13	48.08% 25	13.46% 7	11.54% 6	1.92% 1	52	1.00
There is insufficient parking in the Downtown area.	47.17% 25	41.51% 22	1.89% 1	7.55% 4	1.89% 1	53	1.00
The time-frame allowed for parking at one location is not long enough for customer's needs.	43.40% 23	32.08% 17	18.87% 10	5.66% 3	0.00% 0	53	1.00
Customers feel they have to park too far away from their destination.	22.64% 12	37.74% 20	30.19% 16	7.55% 4	1.89% 1	53	1.00
Employees are not parking where they are supposed to park making it more difficult for customers to find parking.	24.53% 13	30.19% 16	26.42% 14	15.09% 8	3.77% 2	53	1.00
On street parking and parking lot signage is poor/confusing.	24.53% 13	26.42% 14	33.96% 18	15.09% 8	0.00% 0	53	1.00
Better parking enforcement / increased fines for parking violations are needed.	3.77% 2	3.77% 2	28.30% 15	33.96% 18	30.19% 16	53	1.00

Q26 Please provide any additional thoughts, comments, and/or recommendations you may have regarding the parking accommodations in Downtown Troy:

Answered: 32 Skipped: 23

#	Responses	Date
1	If frequenting several businesses in the downtown, I may need more than the current 2-hour limit. #23 - depending on how long I need to be there, or how many days I may need to come into the downtown area for business. This cost racks up pretty quick.	7/6/2016 7:03 PM
2	My shop is a destination business. Half of our customers are from 30 minutes away in Dayton/surrounding suburbs. Many are from Troy, but we also attract people from Indianapolis to Columbus, Toledo to KY. When families drive that distance, they spend the day in Troy. Families with small children in carseats do NOT want to buckle everyone in just to move their cars every two hours. People sometimes leave me their keys. By the time we talk cloth diapers and fit them for baby carriers and they feed baby and change diapers (maybe more than once), it's easy for them to spend 2-3 hours in my shop alone. Then I send them downtown to eat and shop with map and guides in hand. We need those people to be able to spend their time and money in Troy without worry. In the past, the parking enforcement officer who drove the golf-cart-type car used to basically accost customers who were BUCKLING THEIR CHILDREN in to move at the 2-hour mark. He'd pull up behind people who were BACKING OUT at the 2-hour mark, almost causing accidents. He would spend 15 minutes lecturing my customers about parking times. I do NOT want to see anything like that happening again. I do think that parking ON the square and within the first block surrounding the square should absolutely be enforced in some way. Those spots need to be for customers only. I don't feel my block needs to be as strictly monitored. My business is growing, but if employees don't park in my spaces, I am blessed by my location to have enough. When I don't have enough is during the winter because the streets are not plowed well enough to encourage people to shop. Families juggling children cannot step over the snow wall created at the edge of the sidewalk by city snow plows (IF the parking spaces get plowed at all). Thank you for doing this.	6/30/2016 8:50 AM
3	I will say this. Some of the complaints that I have heard that stem from parking I don't think is the biggest issue. I think what our retail businesses really struggle the most with as far as buyer traffic is that they are retail establishments open during business hours which limits the buyer availability. You are targeting then people who don't have jobs, stay at home parents who really aren't going to bring their kiddos to your store, retirees (which may shop) or those willing to take off of work to shop your store which is unrealistic. In the evenings we have a vibrant downtown. I think the biggest issues though that plagues these businesses are their inconvenient hours of operation for the general public realistically more than a lack of parking. I understand the city does not establish this nor regulate this (as they shouldn't) but the employees and general public shouldn't have to be penalized financially for this concern either.	6/29/2016 12:50 PM
4	We are a church. Most of these questions do not apply. However our elderly congregation finds it difficult to access the Canal street/handicapped entrance because city workers park there every day but the weekend.	6/23/2016 5:10 PM
5	we can have successful events downtown w/o closing main quadrants and losing all the parking spots	6/23/2016 2:56 PM

City of Troy Downtown Parking Study Update Survey

6	If I get downtown before 11a I try for a meter, so I'm not running out to move my car between massage sessions. The nature of my business commands peace and fluidity, not allowing my clients to watch my concern to run to my car. If I need to move to a new "spot" between 12-2p it is simply too difficult to do easily. If I arrive at work after 11:30a, I modify by riding my bicycle or getting a ride, so as to not juggle continuous interruptions by having to move the car. Finding a metered spot is virtually impossible after 12:00, unless you have good timing :) I hope you find this input helpful. Thank you for you time and efforts! Michele Cremeans, LMT	6/22/2016 7:46 PM
7	Make sure to take into consideration the thoughts and opinions of other downtown businesses and points of interest. We are located just outside of your study, but our parking situations are the same (if not worse than downtown).	6/22/2016 5:51 PM
8	Thanks for coordinating this effort	6/21/2016 5:08 PM
9	The front of my store is used for Court House patrons and my clients have difficulty finding a place to park especially on Court days. My employees don't feel they have a place to park and they could be with a client and have to leave to move their vehicle.	6/21/2016 1:13 PM
10	The newly installed kiosk in the parking lot nearest is confusing our clients daily and doesn't work a lot of the time. The old meters were MUCH less confusing!	6/21/2016 9:49 AM
11	In addition to what is currently available, I believe the downtown is in need of a multi-level parking garage within easy walking distance to the Square. Many retail locations, including The Greene in Beavercreek, offer on-street metered parking and garage parking at no cost to the patron. Merchants should not have to bear the cost of parking in any form. As an entertainment facility, offering concerts, movies, performances and other events, the Mayflower Arts Center is growing in its potential to bring more patrons downtown on weekends (Fri, Sat). Currently our theater seats 137 and we average 30-40% capacity and our patrons complain about parking. As we continue to grow and become more known in the community, we will have an increased need for parking that already competes with the downtown restaurants and bars. It has been our long-term vision to renovate the original theater which could accommodate 500+ patrons. One key to success would be adequate parking. At this time, a 500+ seat venue cannot be supported downtown.	6/21/2016 8:13 AM
12	Build a muti-level parking garage to eliminate the perception it is to hard to park downtown. Also reduce fines to \$10 and increase parking time to 4 hours.	6/21/2016 8:02 AM
13	Get the County employees a garage to park in and 90% of business hours parking congestion goes away.	6/21/2016 6:15 AM
14	we have more difficulty because of the bank next door.....people park there for the ATM machine.....also the on sttreet parking is hard to back out of, vision is difficult	6/20/2016 8:32 PM
15	The main issue I have is that with the type of business I have my clients do fast drop off and pick up of their pets and often have to circle the block waiting for a space to open up. If we had one space that was a 15 min spot in front of our shop that would change. With the hair salon and other business next to us the spaces in front of our salon are typically full from 9:00 until the end of business.	6/20/2016 7:48 PM
16	People who work downtown are parking in the two hour free spaces and then moving their vehicles every two hours, which takes away the store front parking from potential customers. The paid parking lots need to be opened back up to downtown workers to park at with a free parking permit.	6/20/2016 12:55 PM
17	1. Our customers are residents who live downtown 24/7. 2. We have 18 residents with cars (of which 4 are disabled), who park downtown night & day (all hours). 3. It would be nice if we could rent two spaces from First Place for parking of our seriously disabled residents. 4. For the able body elderly we rent space from the Presbyterian Church.	6/20/2016 11:59 AM
18	The parking/availability is ridiculous. there are not any extra places to park and/or available. we have on orientation class we pay for them to park. We could have up to 6 in a class and for 7 hours per day. our employees do not have a place to park unless they pay. how fair is it to employees to have to pay to go to their own employers office?	6/20/2016 11:26 AM
19	Our major complaint is the residents in the area who either take up to much parking space to limit the amount of cars that can utilize the spots or the threatening manner we receive because we have to park in front of their residences.	6/20/2016 9:39 AM
20	In response to the last question, ONLY the people working in the downtown areas should get increased fines for parking in front of the downtown shops. My employees never park in front of the shops, they know that parking is only for our customers.	6/20/2016 9:27 AM
21	Cherry St parking lot metering system is cumbersome, with two many key prompts. Lot is underused, the hourly rate should be reduced to .50. To increase use. Handicap slots are furtherest the from pay-station, not handicapped friendly.	6/18/2016 10:59 PM
22	I feel some of these questions are not necessary at all or don't apply. I also feel depending on the time of day affects everyone. Being handicap myself parking is really bad for me.I hope there are answers with all questions about parking for downtown.Good luck with this.	6/18/2016 2:03 PM

City of Troy Downtown Parking Study Update Survey

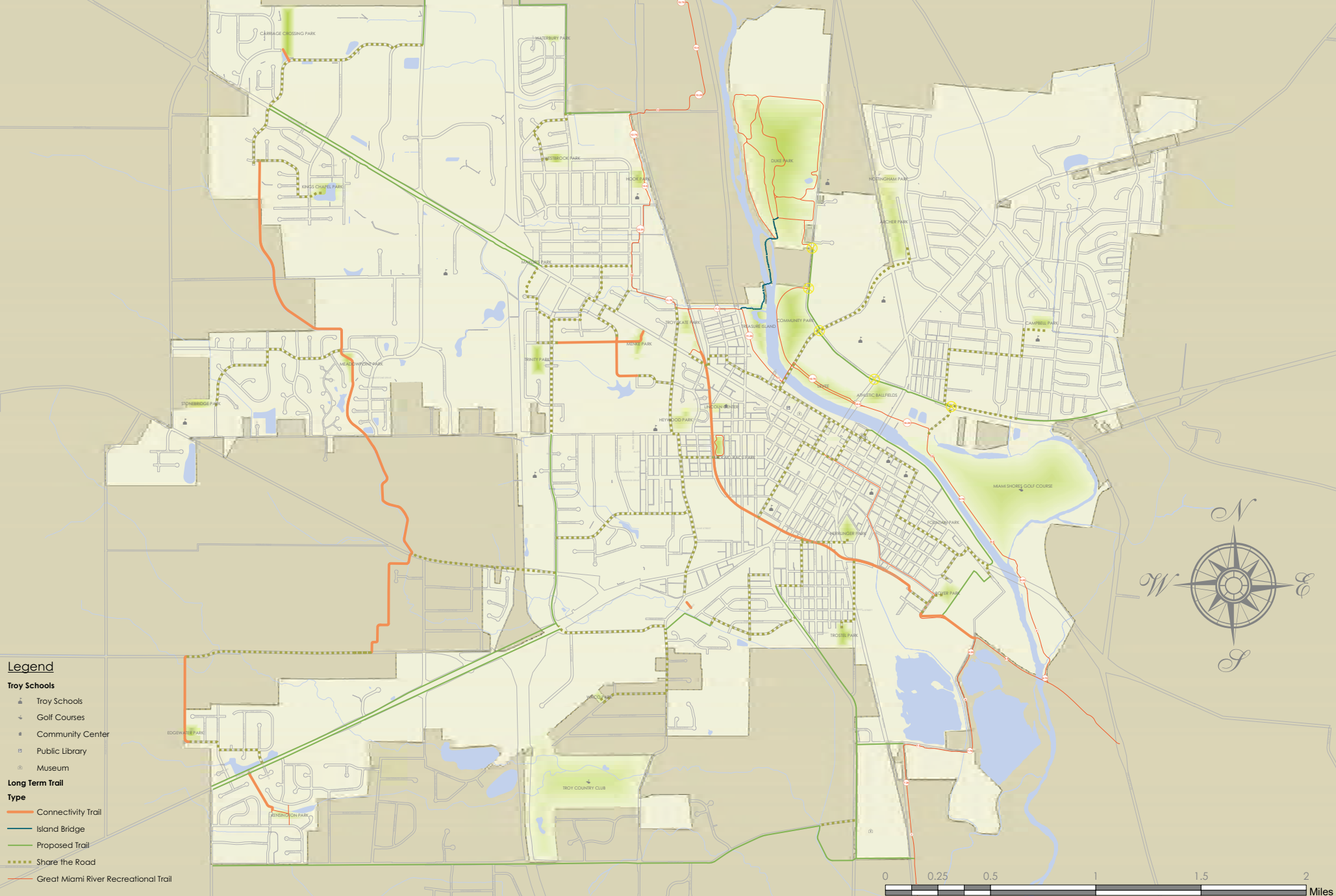
23	There is a need for a downtown parking lot or garage. More people would frequent the downtown if more parking was available.	6/18/2016 7:40 AM
24	Employees of downtown businesses SHOULD NOT park in other businesses customers parking spots.	6/17/2016 2:33 PM
25	We need a centrally located parking garage! That would alleviate so many problems with downtown parking. Also, the 2 hour limit does not allow for anyone to stay downtown for very long. If they want to eat and then shop or participate in an activity, they have to move their car or chance getting a ticket. I would also be in favor of a parking "pass" that could be purchased for employees and downtown residents. It gets expensive paying for parking every day. And then the off days when I forget to put enough money in the meter, I get a ticket. We are a rental venue as well, and it is really difficult for our guests to find parking close by.	6/17/2016 1:03 PM
26	While I am a bit further from the square and most of my customers don't have parking issues, the 2 hour limit keeps customers from walking about downtown, eating lunch or dinner, visiting other stores, etc. Customers feel like they have to rush through my store or skip visiting other businesses.	6/17/2016 12:20 PM
27	post amount of fine on parking lot signage.	6/17/2016 11:23 AM
28	My customers had no issues parking until parking enforcement ended. Now i daily have employees and business owners park in 2 hr spots for 4-6 or more hours. Parking enforcement is greatly needed.	6/17/2016 10:19 AM
29	I believe that \$1.75 or \$2.00 per day to park in Cherry St. lot is too much for many employees including a couple of my employees. However, I use that lot everyday but my income is greater than some.	6/17/2016 10:15 AM
30	I would appreciate paying a monthly fee to park in the Cherry St lot and have an assigned spot nearest Cherry St. at the rear of the "gym" building. I come and go from my work location at all hours of the day and night.	6/17/2016 9:44 AM
31	It would be nice to have a "pass" to somehow give out of town visitors a polite thank you for your business and here is a one time warning instead of a ticket. Or the business owners get a certain amount "golden tickets" to waive the cost of tickets for unhappy out of town customers who would otherwise leave with a negative experience in Troy. If customers get tickets they do not tend to come back, it would be nice to somehow ticket the locals (who know about the limits when they park there) and be a little more forgiving of out of town plates. We get a lot of groups meeting for lunch and there is no time to shop if they are worried about getting tickets. I am not sure about paying for parking (question #23. It depends on what parking is offered)	6/16/2016 5:33 PM
32	Change the parking times for downtown from 2 hour to 3 hour parking...build a parking garage. Bus city and county employees from the fairgrounds. They all come in at the same time and they leave at the same time.	6/16/2016 10:59 AM



APPENDIX D: CITY OF TROY TRAIL CONNECTIVITY MASTER PLAN

Trail Connectivity Master Plan

Troy, Ohio



APPENDIX E: MORPC PARKING MANAGEMENT CASE STUDY



10. PARKING MANAGEMENT

10.1 Introduction

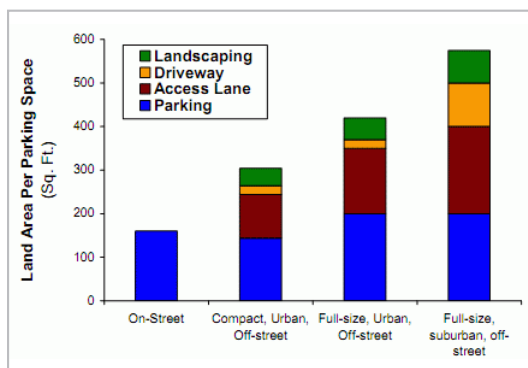
In the United States, parking is often considered a key amenity for commuters, residents, and visitors. When designing neighborhoods and cities with Complete Streets in mind, there are several things that should be considered related to parking.

On-street parking can contribute to the quality of a complete street. It can offer an amenity for drivers while serving as a buffer between traffic lanes and sidewalks. However, in many contexts, parking is provided outside the street right-of-way. Even these surface parking lots deserve attention, as they can serve as a barrier between the street and the building entrance. Effectively mitigating the impact of the gap between the street and the building entrance can improve accessibility for all modes of transportation.

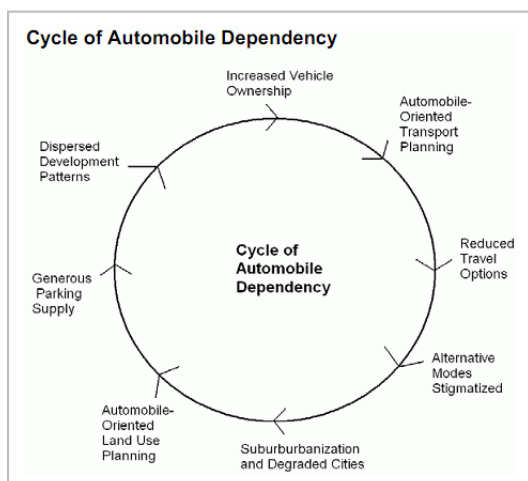
In the United States, 99 percent of all automobile trips include free parking (Shoup, 1999). When something is offered free of charge, its perceived demand can seem almost infinite. Accommodating parking in a context-sensitive matter may require one or more of the approaches below depending on the scale (site, corridor, district and municipal) and local conditions (capacity for implementation, monitoring, and enforcement).



This retail parking lot remains unused throughout much of the year. Source: MORPC.



Land area required for typical parking facilities. Source: VTPI, 2010.



Generous levels of parking contribute to automobile dependency. Source: VTPI, 2010.

10.2 Parking Supply

If the environment indicates that more parking spaces are necessary to accommodate residents and visitors, it is important to clearly define parking demand as well as strategies that could reduce the demand. Parking requirements are a standard part of most zoning codes, but research shows that many codes actually require too much parking (Shoup, 1999; Shoup, 2006). The standards referenced in such codes are often based on studies from suburban locations at peak periods.

These same parking requirements often only allow parking that is “on-site” (see definition below) to count against this parking demand. Solutions that capture some or all of this demand off-site may be overlooked.

The urban form that results from this approach is characterized by buildings surrounded by parking. These buildings are isolated from the street and from each other, defeating the accessibility gains of streets that are otherwise complete. Accurately measuring and mitigating parking demand can help to mitigate this problem. Shoup (2005) has compiled a lengthy reference on parking and zoning that fully describes this phenomenon as *The High Cost of Free Parking*.

10.2.1 On-site Parking

On-site parking refers to the parking available on the same piece of property as the building or use. Excessive on-site parking requirements tend to result in buildings being separated by large parking lots, thus increasing automobile dependence that induces further demand (VTPI, 2010 and Shoup, 2005). It is therefore recommended to apply other strategies to break this cycle. Litman (2006) details these strategies, and a summary of the strategies is available through the Victoria Transport Policy Institute (VTPI, 2010).

Structured parking refers to multi-level above or below ground structures that allow more vehicle parking on-site than would be possible at the surface. The structures may or may not be incorporated into a building.

While such structures are often cost-prohibitive, they allow for the integration of parking into a more compact land use pattern that supports a mix of residential and business units.

In locations with high land acquisition cost and higher density (existing or under construction), it is possible to support the construction, operation, and maintenance of a parking structure.

Of the different structured parking types available, underground structures are more expensive due to the ventilation and structural requirements (Balboni, 2007; VTPI, 2009).



This structured parking lot blends in with the historic district and offers street-level interest by including retail space. Source: Andy Taylor. Lincoln, NE.

10.2.2 Peripheral/Remote Parking

Peripheral or remote parking refers to parking lots outside the business area. Remote lots can serve employees or fulfill other long-term parking needs. Access to the destination can be provided by shuttle or transit service. Such lots can offset the need to design parking lots to meet high peak-period demand, which allows for smaller surface parking lots and a more compact land use pattern. This strategy is described in more detail by Litman (2006) and the Congress for the New Urbanism (2001).

Remote parking is a good strategy where compact, mixed-use land patterns are desired, but the high capital cost of building structured parking is not feasible. However, ongoing operation of a shuttle service should be weighed against the cost of adding more parking. This strategy also works well for special events in historic town centers, which were not designed around the car.



The sidewalk (top) allows pedestrians to avoid walking through access aisles. Striping is another method to highlight pedestrian travel through parking lots (bottom). Sources: NNECAPA, Lexington, MA (top); MORPC, Columbus, OH (bottom).

10.2.3 Parking Lot Design

Taking driveway entries, aisle access, landscaping, and the parking space itself, each space in a parking lot requires 300-400 square feet. Small parking lots tend to be less efficient in terms of square feet per space because fewer spaces share set entry and access square footage.

Municipalities can suggest landscaping and stormwater facilities that require less space for the same effect, depending on the context. Landscaping can also be combined with pedestrian and bike access in and through parking lots, which is especially important for lots with high turnover rates.

Depending on the dimensions of the land available for parking and the access points, angled parking can be more efficient space than perpendicular parking because access aisles only allow one-way traffic. However, perpendicular parking with two-way access aisles is easier to navigate, especially for visitors.

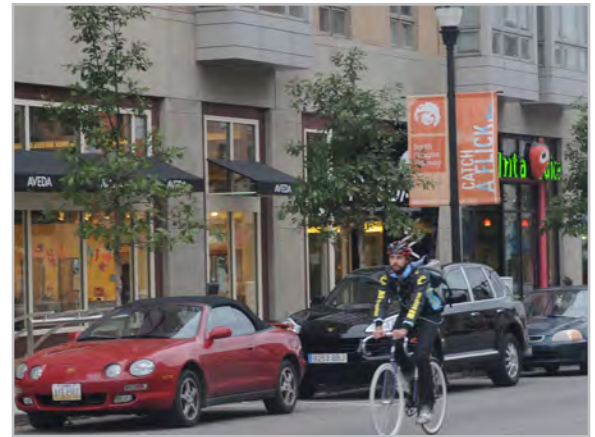
Some city codes specify one set of dimensions for all parking spaces. However, a more flexible coding system is preferred, as different users require different levels of service. For example, a 9' wide space may consume too much of the limited land available for parking. High-turnover spaces, as can be found in a retail parking lot, should only require 8'6" wide spaces. Spaces 8' wide should suffice for low-turnover spaces, such as those used once a day by office employees.

More information on parking space dimensions can be found in the Planning and Urban Design Standards (APA, 2006) and The Dimensions of Parking (ULI, 2009).

10.2.4 On-Street Parking

On-street parking refers to the space for parked vehicles that is permitted as a part of the public right-of-way at curb. If a roadway has sufficient right-of-way on each side, angled curb parking can add to the parking supply by as much as 50 percent compared to parallel parking (Robertson, 2007). Back-in angled parking is another option which requires additional navigation for those parking, but removes the blind spot during departure, and thus reduces potential conflicts with bikes.

Parallel parking can be accommodated on roadways without space for angled parking. Careful tradeoffs must be made between traffic lanes, bike lanes (door zone issue), and on-street parking. Traffic speed must also be considered because the maneuver to park requires backing in. Striping parallel parking spots can make them more inviting to the short-term user, but will take away from the total supply (i.e., the typical car is 16'6" long, while a striped parallel space requires 22').



On-street parking near Ohio State University. Source: MORPC. Columbus, OH.

10.3 Parking Supply Management

Adding to the overall parking supply may be a worthy goal. However, as noted above, it is not without negative impacts to compact and walkable urban form. Additionally, it may not be practical for all sites, in terms of layout or cost.

In cases where adding to the overall parking supply is desired, but not possible or practical, strategies to better manage the existing parking supply should be used to meet goals of improved vehicle accessibility. It can also facilitate property reuse and infill by accommodating more users on a site that would otherwise require a parking variance.

10.3.1 Flexible Parking Requirements

Most zoning codes require a certain number of parking spots for a building based on size and use. However, other factors impact the amount of parking a destination should supply. For example, if a location is well served by transit, it should merit a reduction. The strategies discussed below may also merit a reduction (Litman, 2006; VTPI, 2010).

10.3.2 Shared Parking

Parking demand for different land uses peaks during different periods of the day. This can allow neighboring uses to pool their parking supply, requiring less than the sum of the others in isolation.

Smith (2005) provides a detailed process to determine the appropriate amount of shared parking. Others offer an abbreviated version of this process (APA, 2006; Center for Applied Transect Studies, 2009).

Shared lots have other efficiencies in terms of size and layout. Small lots for a single use or building may each require their own driveway access and landscaping that could otherwise be shared among more spaces in a larger lot.

In contexts where parking supply is limited, shared parking might be most effective in the form of public, off-street parking lots (Robertson, 2007). Where parking is not immediately adjacent to the destination, clear signage is important to ease wayfinding. Maps and online information can also prepare area visitors for their parking options.

TABLE 11: Parking Calculations. The Shared Parking Factor for two Functions, when divided into the sum of the two amounts as listed on the Required Parking table below, produces the Effective Parking needed for each site involved in sharing. Conversely, if the Sharing Factor is used as a multiplier, it indicates the amount of building allowed on each site given the parking available.

REQUIRED PARKING (See Table 10)				SHARED PARKING FACTOR	
	T2 T3	T4	T5 T6	Function with Function	
RESIDENTIAL	2.0 / dwelling	1.5 / dwelling	1.0 / dwelling	RESIDENTIAL	RESIDENTIAL
LODGING	1.0 / bedroom	1.0 / bedroom	1.0 / bedroom	LODGING	LODGING
OFFICE	3.0 / 1000 sq. ft.	3.0 / 1000 sq. ft.	2.0 / 1000 sq. ft.	OFFICE	OFFICE
RETAIL	4.0 / 1000 sq. ft.	4.0 / 1000 sq. ft.	3.0 / 1000 sq. ft.	RETAIL	RETAIL
CIVIC	To be determined by Warrant				
OTHER	To be determined by Warrant				

Shared Parking Factor included in the Center for Applied Transect Studies' Smart Code. Source: Center for Applied Transect Studies, 2009.

10.3.3 Regulations/Restrictions

Time-based restrictions are common in many districts with limited parking supply, but official enforcement requires staff resources from public safety departments. Some business districts issue unofficial warnings to frequent offenders (Congress for the New Urbanism, 2001).

Permit parking is common in many districts with limited parking supply and a high proportion of residential properties. Permit parking lots privilege the needs of residents (and sometimes employees) over area visitors who are important for many businesses. Creating permit areas can artificially decrease the parking supply in mixed-use districts (Congress for the New Urbanism, 2001). Careful consideration should be given to the business mix (i.e., retail, restaurants, and office) and the expectations of the residents (i.e., rates of car ownership, availability of off-street parking). Metering can be a good alternative to keep turnover rates high.

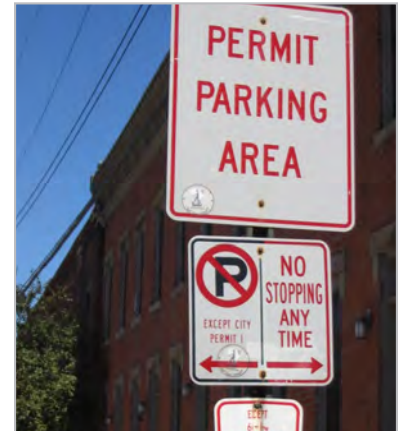
10.3.4 Preferential Parking

Preferential parking refers to the spaces reserved nearest the associated destination for a specific set of users. Offering this type of prime parking to carpools or vanpools encourages efficient use of the parking supply by adding another incentive to share a ride - and a parking spot.

10.3.5 Parking for Other Users

Bicycle parking can be encouraged or required by local parking code. If on-street bicycle parking is used, several bicycles will fit in the space occupied by one automobile. If off-street bicycle parking is provided, care must be taken to ensure the parking area does not encroach on pedestrian access. A good resource to consult is the Bicycle Parking Guidelines, published by the Association of Pedestrian and Bicycle Professionals. It can be found online at: www.apbp.org/?page=Publications.

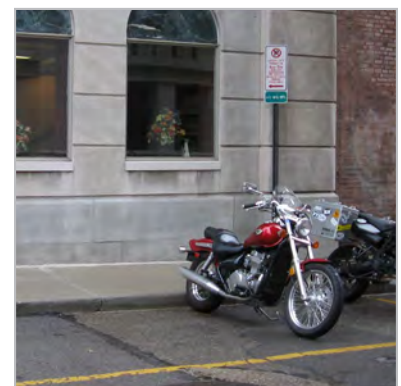
Motorized two-wheel vehicles, such as scooters and motorcycles, can also have dedicated parking spaces. Downtown Columbus has several such areas.



Parking regulations are clearly marked by appropriate signs. Source: Andy Taylor. Grove City, OH.



Preferential parking can be reserved for carpools and energy-efficient vehicles, among others. Source: Andy Taylor. Columbus, OH.



On-street scooter and motorcycle parking. Source: MORPC. Columbus, OH.

10.4 Parking Demand

Reducing demand for parking can have the same benefits as better managing the physical supply, such as retaining compact and walkable urban form or encouraging property reuse where parking supply may be physically restrained.

The goal of the following strategies is to reduce the demand for parking without reducing the number of users reaching their destination. This can be accomplished when, for example, vehicles bring more users or visit for shorter periods of time.



Modern parking meters accept credit cards. Source: MORPC. Columbus, OH

10.4.1 Metering

Metering on-street spaces encourages turnover in the most convenient and visible locations. It is easier to enforce than posted time-based restrictions.

The most effective way to reduce demand for parking is to charge users based on time parked. This can be a contentious issue for businesses and residents who may expect parking to be free. Robertson (2007) observes that users fail to understand that the cost of supplying parking is factored into their destination's overhead, similar to rent or utilities. When that destination is designed around the car and not hemmed in by other properties, this cost may be marginal. The cost is far from marginal when that destination is in a location where property is scarce or expensive.

"Parking benefit districts" can increase the acceptance of parking fees. In these districts, revenues collected from the meters pay for public improvements in the district, such as sidewalk repair. Common opponents of metered pricing, such as businesses and residents, can now see the direct local benefit of these fees (Shoup, 2006).

10.4.2 Cash Out Employer Paid Parking

Even in contexts where parking is priced, employers often subsidize the cost, making parking free or at least cheaper for their employees. A "cash out" program offers employees a portion of that subsidy as cash in lieu of free parking.

As an example, if a space costs an employer \$75 per month, the employee is offered \$50 per month. The employee who accepts the \$50 no longer has free parking at the workplace. The employee who does not accept the \$50 continues to have free parking. Under such a program, an employee has an incentive to find an alternate mode of travel and the employer saves a portion of what they would otherwise be spending on parking every month.



APPENDIX F: CITY OF TROY WAYFINDING SYSTEM



CITY OF TROY, OHIO ICONOGRAPHY & WAYFINDING SYSTEM

The Olivine Design Studio

July 14, 2016

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INSIGHTS

Tuesday, April 12, 2016: Wayfinding Strategy Discussion & Review

- Review walking map
- Discuss suggested wayfinding strategy & existing conditions
- Review iconography concepts
- Review signage system concepts
- Review bike rack options

INNOVATE

Concept Review

- Review refined iconography concepts
- Review refined signage system concepts
- Review refined bike rack options

We Are Here.

NEXT STEPS

Implementation

- Documentation and implementation
- Production art preparation
- Signage placement study

DOWNTOWN & TREASURE ISLAND PARK ICONOGRAPHY
Refreshed Troy, Ohio Logo



vibrant



historic



sophisticated

“A wayfinding system conveys not only locational information, but also a sense that the locations are all a part of a connected branded place.”



PROPOSED SIGNAGE PLACEMENT

● City Entrance Sign

EXISTING SIGNS: 6

- 1. S. Dorset & W. Main
- 2. N. Elm
- 3. N. Market & W. Staunton
- 4. State Route 41
- 5. S. Market & S. Clay
- 6. W. Market

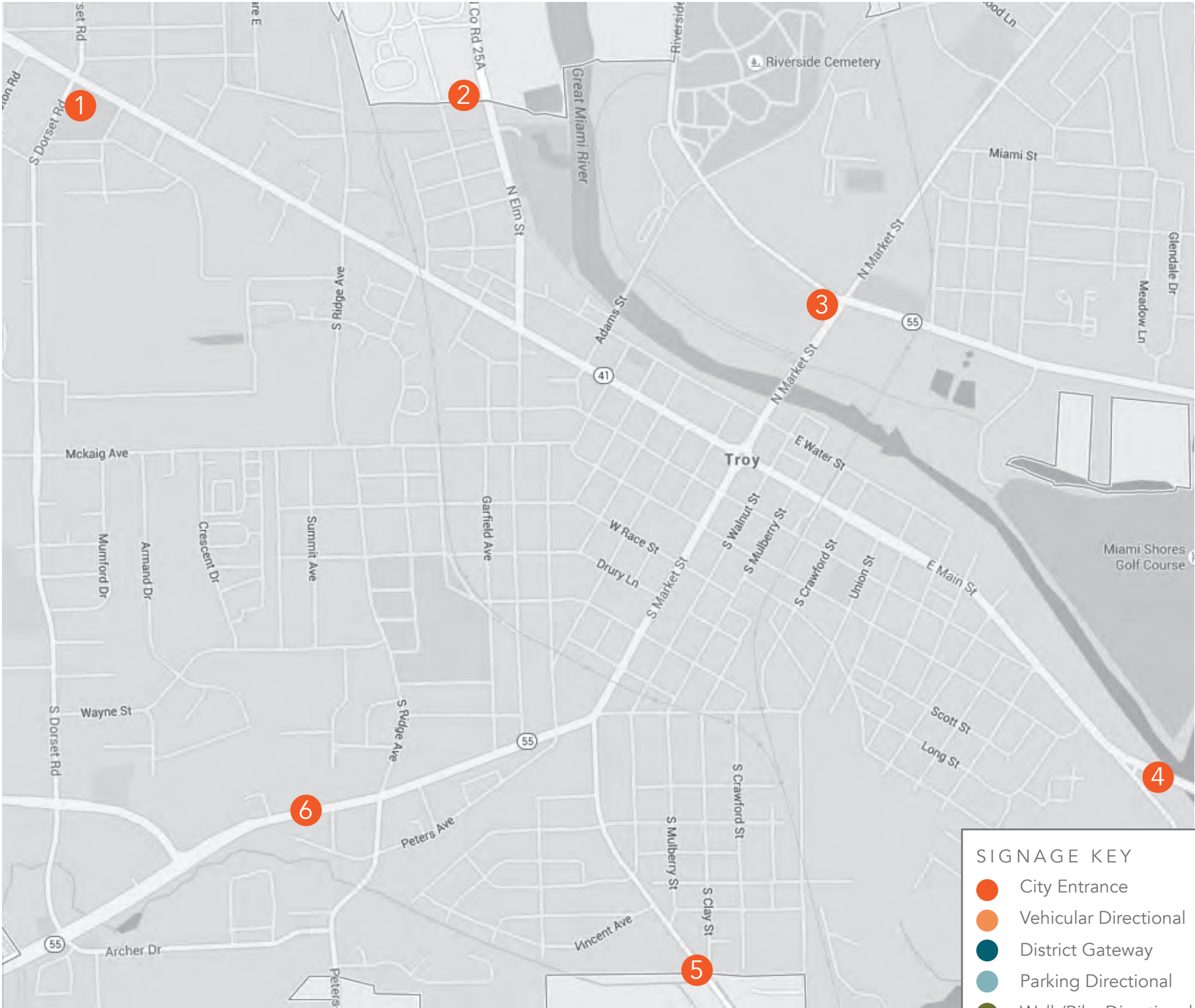
PROPOSED: refresh all 6 existing signs

- paint existing signage structure black
- remove existing wood frame on street side
- remove decorative piece at bottom
- replace top disc with updated logo
- add banner arms + new banner
- add teal welcome signage



DIMENSIONS

- TBD based on field dimensions / existing conditions
- Dimensions provided are for conceptual reference only.
- NOT FOR CONSTRUCTION



SIGNAGE KEY	
●	City Entrance
●	Vehicular Directional
●	District Gateway
●	Parking Directional
●	Walk/Bike Directional

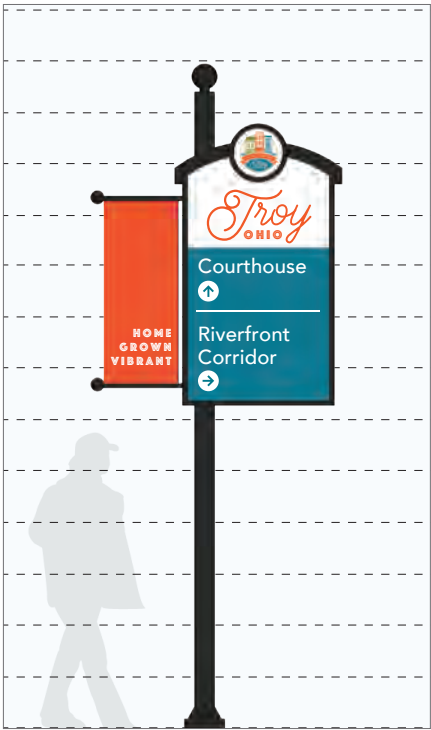
PROPOSED SIGNAGE PLACEMENT

● Vehicular Directional Sign

EXISTING SIGNS: 0

PROPOSED: 7

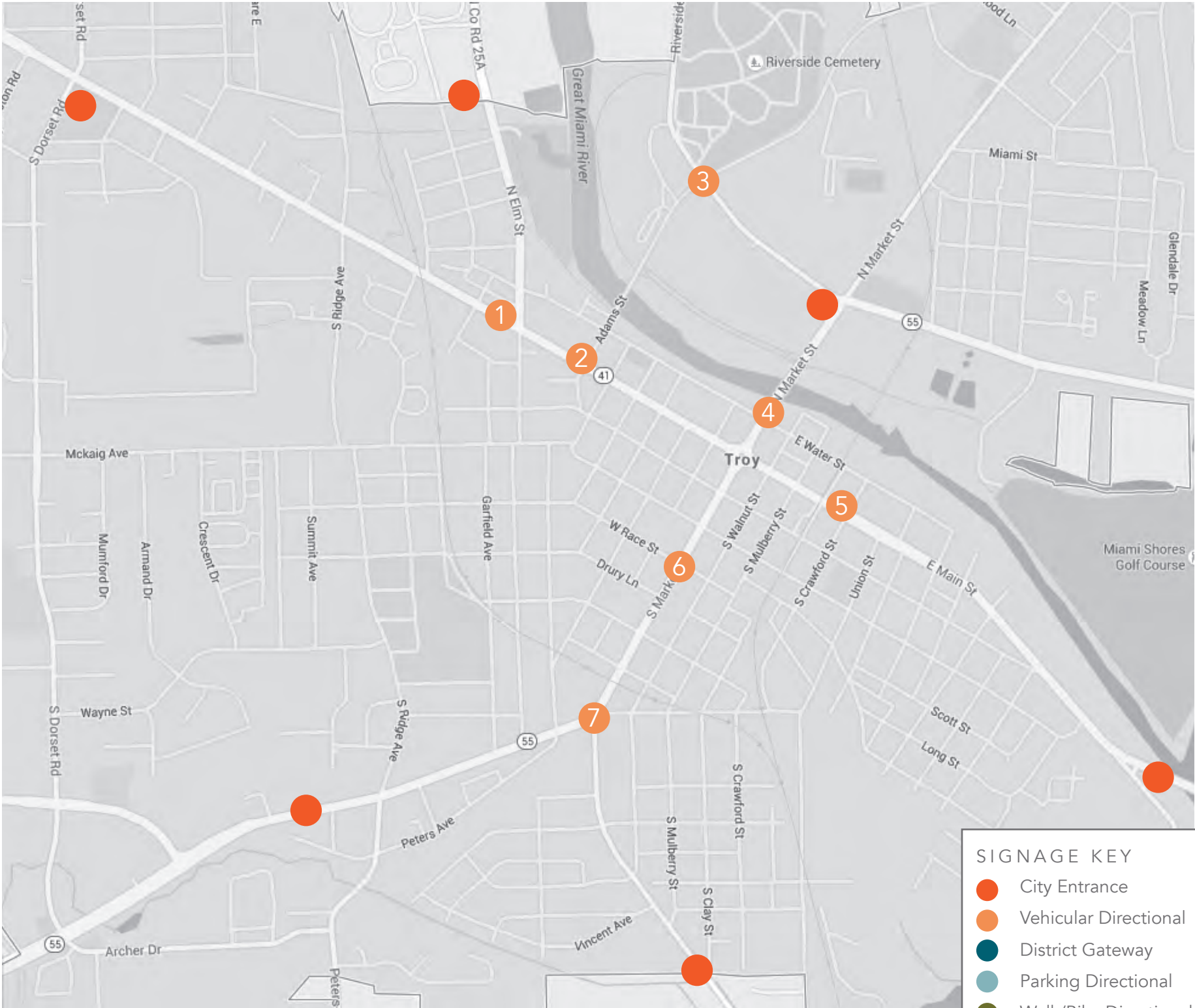
- 1. W. Main & N. Elm
- 2. W. Main & Adams
- 3. Adams & W. Staunton
- 4. N. Market & W. Water
- 5. E. Main & N. Crawford
- 6. S. Market & W. Race
- 7. W. Market / S. Market / E. West



Double Panel Option

DIMENSIONS

- Approximately 4'-10" wide x 12'-11" high
- Dimensions provided are for conceptual reference only.
- NOT FOR CONSTRUCTION



SIGNAGE KEY

●

City Entrance

●

Vehicular Directional

●

District Gateway

●

Parking Directional

●

Walk/Bike Directional

PROPOSED SIGNAGE PLACEMENT

District Gateway Signage

EXISTING SIGNS: 0

PROPOSED: 3

- 1. W. Main & Adams
- 2. E. Main & S. Mulberry
- 3. S. Market & W. Race



DIMENSIONS

- Approximately 8'-2" wide x 9'-10" high
- Dimensions provided are for conceptual reference only.
- NOT FOR CONSTRUCTION



SIGNAGE KEY

- City Entrance
- Vehicular Directional
- District Gateway
- Parking Directional
- Walk/Bike Directional

PROPOSED SIGNAGE PLACEMENT

Parking Directional Sign

EXISTING: 0

PROPOSED: 9

*suggested signs based on 2016 walking map parking locations

- 1. Hobart Arena
- 2. Troy Aquatic Park
- 3. Troy Memorial Stadium
- 4. North Market Athletic Fields
- 5. E. Main & S. Mulberry
- 6. N. Cherry
- 7. S. Cherry
- 8. S. Short
- 9. N. Short



DIMENSIONS

- Approximately 2'-10" wide x 11'-5" high
- Dimensions provided are for conceptual reference only.
- NOT FOR CONSTRUCTION



SIGNAGE KEY

- City Entrance
- Vehicular Directional
- District Gateway
- Parking Directional
- Walk/Bike Directional

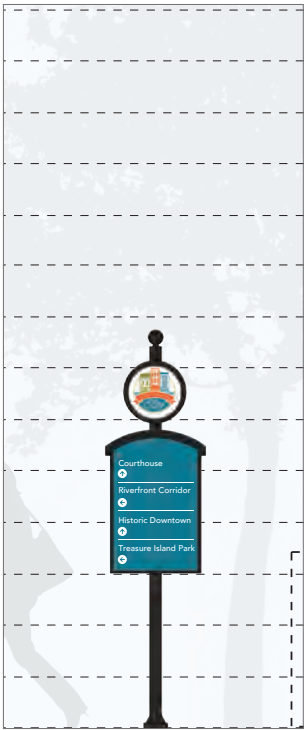
PROPOSED SIGNAGE PLACEMENT

● Walk/Bike Directional Sign

EXISTING: 0

PROPOSED: 12

- 1. Adams & W. Water
- 2. Great Miami River Recreational Trail
- 3. Walking Path
- 4. Walking Path
- 5. Great Miami River Recreational Trail
- 6. N. Market & W. Water
- 7. N. Market: Ruby's Salon corner
- 8. E. Main & S. Walnut
- 9. S. Market & E. Franklin
- 10. S. Market: Insightful Eyewear corner
- 11. W. Main & S. Cherry
- 12. W. Main & N. Short



Double Panel Option



DIMENSIONS

- Approximately 1'-11" wide x 7'-9" high
- Dimensions provided are for conceptual reference only.
- NOT FOR CONSTRUCTION



SIGNAGE KEY	
●	City Entrance
●	Vehicular Directional
●	District Gateway
●	Parking Directional
●	Walk/Bike Directional

OTHER SIGNAGE REPLACEMENT FOR CONSIDERATION

Historic District Signage

EXISTING:

PROPOSED:



Public Square Kiosk Disc Signage

EXISTING:

PROPOSED:



Public Square Alley Discs & “To Parking” Signage

EXISTING:

PROPOSED:





thank
you



APPENDIX G: TRAFFIC COUNT SHEETS

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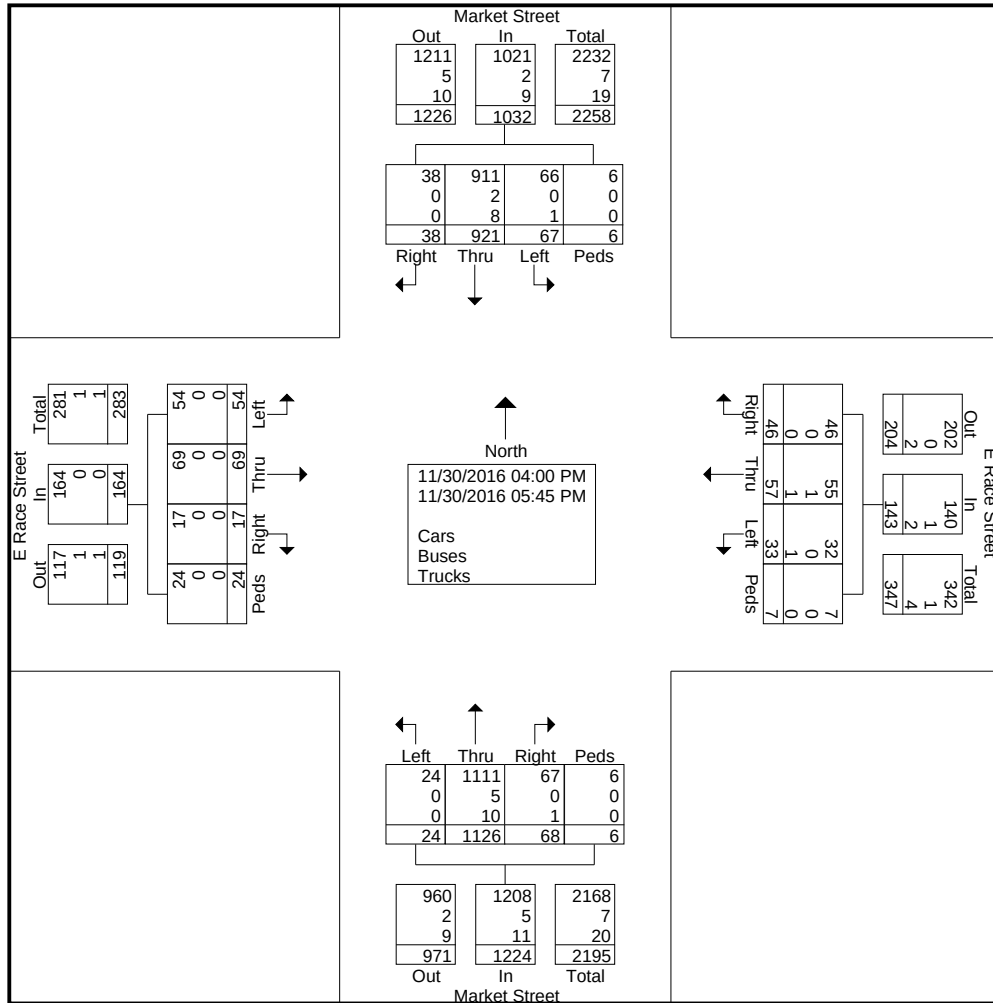
Cloudy and Cold - 30 Degrees
Schools in Session

File Name : Race_at_Market_11-30-2016
Site Code : Site 1
Start Date : 11/30/2016
Page No : 1

Groups Printed- Cars - Buses - Trucks																					
	Market Street From North					E Race Street From East					Market Street From South					E Race Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	16	142	6	2	166	3	4	8	1	16	5	124	9	1	139	7	6	2	7	22	343
04:15 PM	7	105	7	0	119	2	12	5	2	21	2	137	14	2	155	5	12	3	4	24	319
04:30 PM	7	123	6	1	137	4	6	2	1	13	3	157	6	0	166	10	10	3	3	26	342
04:45 PM	10	120	5	0	135	4	4	9	0	17	2	152	7	1	162	2	9	2	3	16	330
Total	40	490	24	3	557	13	26	24	4	67	12	570	36	4	622	24	37	10	17	88	1334
05:00 PM	8	129	4	1	142	5	8	3	1	17	2	122	23	1	148	12	11	2	1	26	333
05:15 PM	11	114	1	0	126	3	6	4	1	14	6	136	3	0	145	4	12	1	0	17	302
05:30 PM	3	114	5	1	123	3	10	9	1	23	1	151	2	0	154	6	7	2	2	17	317
05:45 PM	5	74	4	1	84	9	7	6	0	22	3	147	4	1	155	8	2	2	4	16	277
Total	27	431	14	3	475	20	31	22	3	76	12	556	32	2	602	30	32	7	7	76	1229
Grand Total	67	921	38	6	1032	33	57	46	7	143	24	1126	68	6	1224	54	69	17	24	164	2563
Apprch %	6.5	89.2	3.7	0.6		23.1	39.9	32.2	4.9		2	92	5.6	0.5		32.9	42.1	10.4	14.6		
Total %	2.6	35.9	1.5	0.2	40.3	1.3	2.2	1.8	0.3	5.6	0.9	43.9	2.7	0.2	47.8	2.1	2.7	0.7	0.9	6.4	
Cars	66	911	38	6	1021	32	55	46	7	140	24	1111	67	6	1208	54	69	17	24	164	2533
% Cars	98.5	98.9	100	100	98.9	97	96.5	100	100	97.9	100	98.7	98.5	100	98.7	100	100	100	100	100	98.8
Buses	0	2	0	0	2	0	1	0	0	1	0	5	0	0	5	0	0	0	0	0	8
% Buses	0	0.2	0	0	0.2	0	1.8	0	0	0.7	0	0.4	0	0	0.4	0	0	0	0	0	0.3
Trucks	1	8	0	0	9	1	1	0	0	2	0	10	1	0	11	0	0	0	0	0	22
% Trucks	1.5	0.9	0	0	0.9	3	1.8	0	0	1.4	0	0.9	1.5	0	0.9	0	0	0	0	0	0.9

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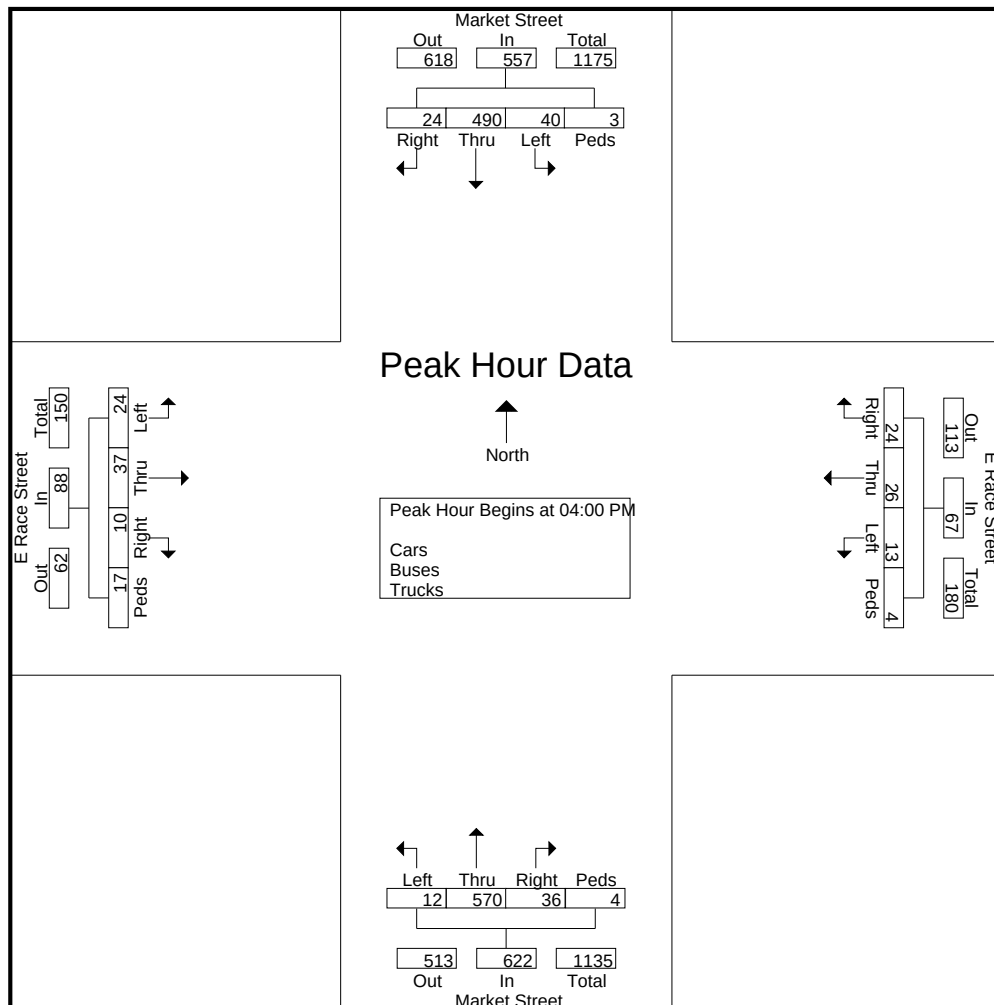
File Name : Race_at_Market_11-30-2016
 Site Code : Site 1
 Start Date : 11/30/2016
 Page No : 2



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File Name : Race_at_Market_11-30-2016
 Site Code : Site 1
 Start Date : 11/30/2016
 Page No : 3

	Market Street From North					E Race Street From East					Market Street From South					E Race Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	16	142	6	2	166	3	4	8	1	16	5	124	9	1	139	7	6	2	7	22	343
04:15 PM	7	105	7	0	119	2	12	5	2	21	2	137	14	2	155	5	12	3	4	24	319
04:30 PM	7	123	6	1	137	4	6	2	1	13	3	157	6	0	166	10	10	3	3	26	342
04:45 PM	10	120	5	0	135	4	4	9	0	17	2	152	7	1	162	2	9	2	3	16	330
Total Volume	40	490	24	3	557	13	26	24	4	67	12	570	36	4	622	24	37	10	17	88	1334
% App. Total	7.2	88	4.3	0.5		19.4	38.8	35.8	6		1.9	91.6	5.8	0.6		27.3	42	11.4	19.3		
PHF	.625	.863	.857	.375	.839	.813	.542	.667	.500	.798	.600	.908	.643	.500	.937	.600	.771	.833	.607	.846	.972



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Cloudy and Cold - 30 Degrees
 Schools in Session

File Name : Canal_at_Market_11-30-2016
 Site Code : Site 2
 Start Date : 11/30/2016
 Page No : 1

Groups Printed- Cars - Buses - Trucks

	Market Street From North					E Canal Street From East					Market Street From South					E Canal Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	4	149	3	0	156	3	11	12	0	26	8	124	11	6	149	1	13	12	2	28	359
04:15 PM	9	106	3	0	118	5	12	17	1	35	6	126	17	0	149	3	8	9	0	20	322
04:30 PM	14	132	3	0	149	3	11	8	2	24	8	167	11	0	186	0	12	11	0	23	382
04:45 PM	11	126	1	1	139	6	7	6	0	19	5	152	5	0	162	1	18	8	1	28	348
Total	38	513	10	1	562	17	41	43	3	104	27	569	44	6	646	5	51	40	3	99	1411
05:00 PM	8	130	1	0	139	0	6	9	0	15	4	154	9	2	169	2	11	10	0	23	346
05:15 PM	5	104	2	0	111	3	13	7	0	23	5	129	4	1	139	3	16	17	0	36	309
05:30 PM	13	109	2	0	124	6	6	12	0	24	7	154	14	0	175	1	14	9	0	24	347
05:45 PM	9	75	2	0	86	3	8	22	1	34	16	142	4	0	162	5	18	8	0	31	313
Total	35	418	7	0	460	12	33	50	1	96	32	579	31	3	645	11	59	44	0	114	1315
Grand Total	73	931	17	1	1022	29	74	93	4	200	59	1148	75	9	1291	16	110	84	3	213	2726
Apprch %	7.1	91.1	1.7	0.1		14.5	37	46.5	2		4.6	88.9	5.8	0.7		7.5	51.6	39.4	1.4		
Total %	2.7	34.2	0.6	0	37.5	1.1	2.7	3.4	0.1	7.3	2.2	42.1	2.8	0.3	47.4	0.6	4	3.1	0.1	7.8	
Cars	73	922	17	1	1013	29	74	93	4	200	59	1135	75	9	1278	16	107	84	3	210	2701
% Cars	100	99	100	100	99.1	100	100	100	100	100	100	98.9	100	100	99	100	97.3	100	100	98.6	99.1
Buses	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	6
% Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0.3	0	0	0.3	0	0	0	0	0	0.2
Trucks	0	7	0	0	7	0	0	0	0	0	0	9	0	0	9	0	3	0	0	3	19
% Trucks	0	0.8	0	0	0.7	0	0	0	0	0	0	0.8	0	0	0.7	0	2.7	0	0	1.4	0.7

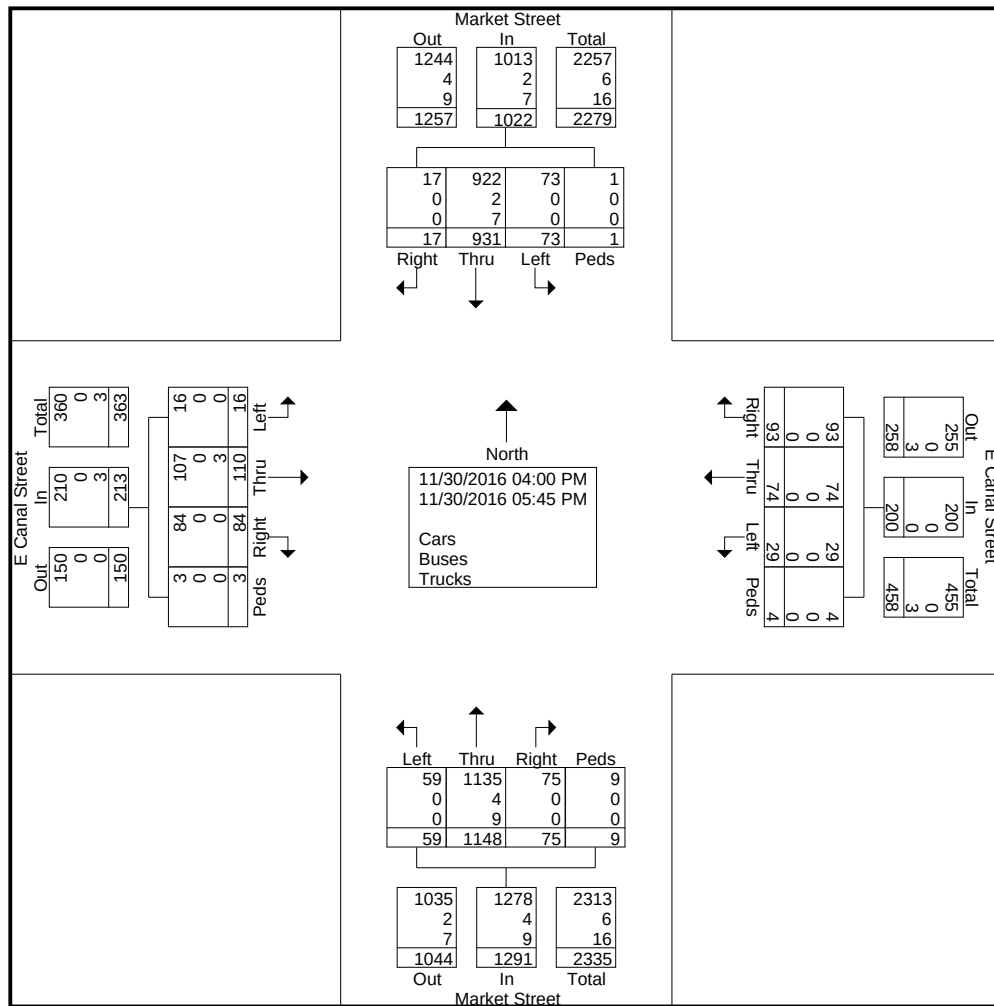
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Site Code : Site 2

Start Date : 11/30/2016

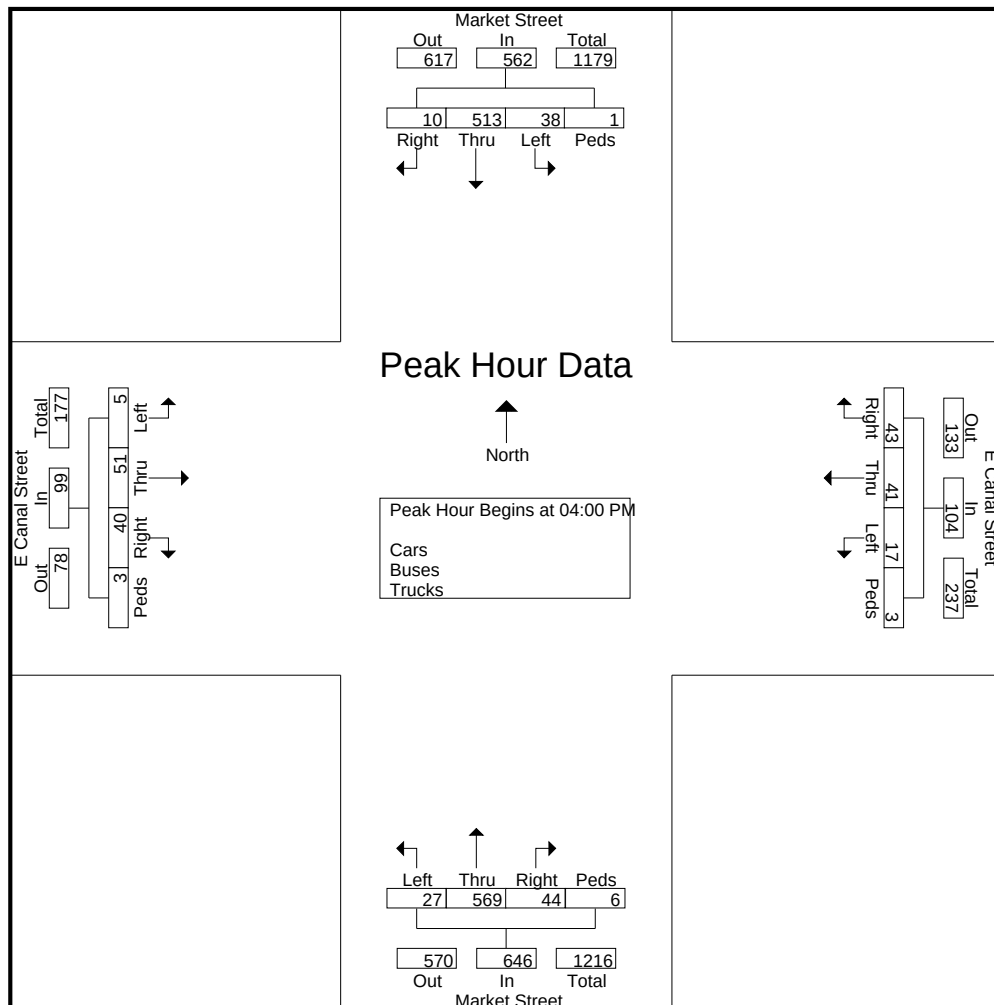
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 Site Code : Site 2
 Start Date : 11/30/2016
 Page No : 3

	Market Street From North					E Canal Street From East					Market Street From South					E Canal Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	4	149	3	0	156	3	11	12	0	26	8	124	11	6	149	1	13	12	2	28	359
04:15 PM	9	106	3	0	118	5	12	17	1	35	6	126	17	0	149	3	8	9	0	20	322
04:30 PM	14	132	3	0	149	3	11	8	2	24	8	167	11	0	186	0	12	11	0	23	382
04:45 PM	11	126	1	1	139	6	7	6	0	19	5	152	5	0	162	1	18	8	1	28	348
Total Volume	38	513	10	1	562	17	41	43	3	104	27	569	44	6	646	5	51	40	3	99	1411
% App. Total	6.8	91.3	1.8	0.2		16.3	39.4	41.3	2.9		4.2	88.1	6.8	0.9		5.1	51.5	40.4	3		
PHF	.679	.861	.833	.250	.901	.708	.854	.632	.375	.743	.844	.852	.647	.250	.868	.417	.708	.833	.375	.884	.923



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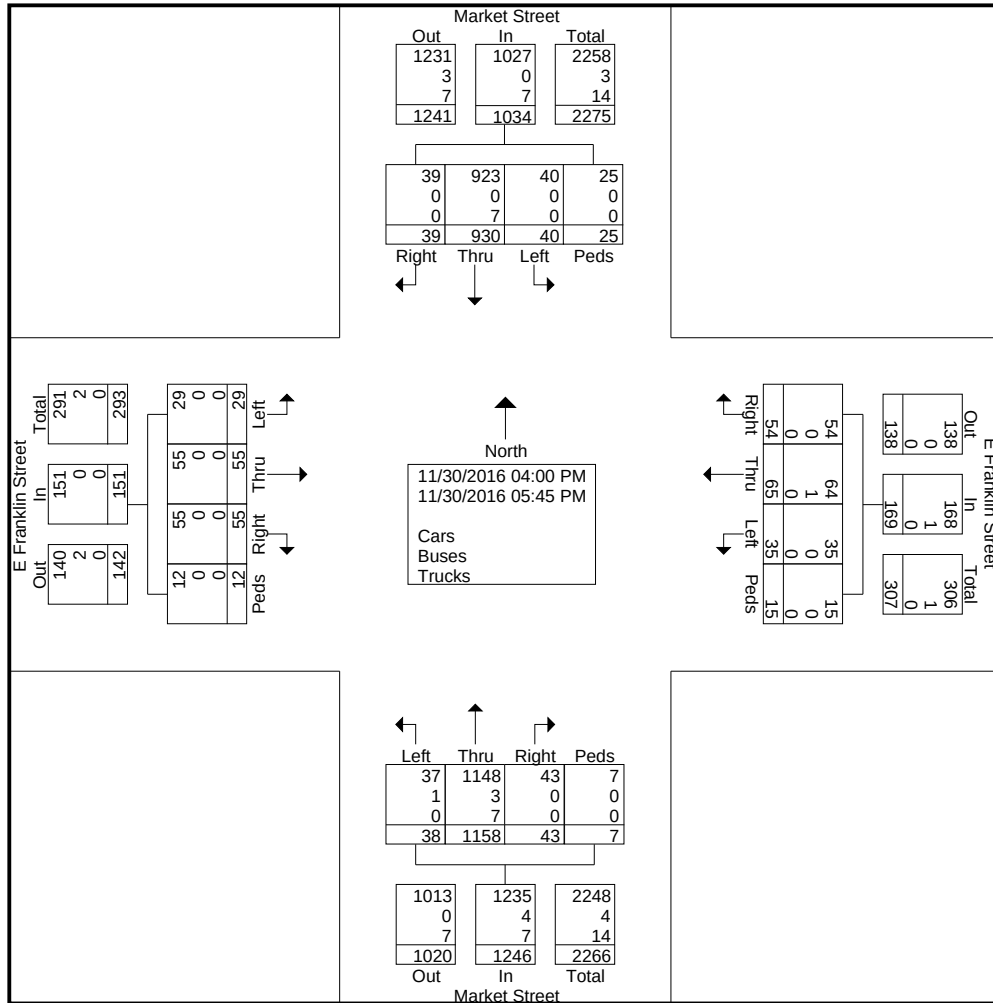
File Name : Frank_at_Market_11-30-2016
Site Code : Site 3
Start Date : 11/30/2016
Page No : 1

Groups Printed- Cars - Buses - Trucks

	Market Street From North					E Franklin Street From East					Market Street From South					E Franklin Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	4	138	7	6	155	4	8	5	1	18	5	133	3	4	145	8	8	11	3	30	348
04:15 PM	4	110	4	2	120	5	9	5	0	19	2	139	7	2	150	0	7	9	2	18	307
04:30 PM	4	130	5	4	143	7	10	7	1	25	6	161	3	0	170	3	11	5	2	21	359
04:45 PM	8	129	4	0	141	2	5	10	2	19	5	155	4	0	164	3	9	8	0	20	344
Total	20	507	20	12	559	18	32	27	4	81	18	588	17	6	629	14	35	33	7	89	1358
05:00 PM	8	125	2	3	138	6	11	4	5	26	5	151	6	0	162	3	8	7	1	19	345
05:15 PM	3	101	5	0	109	1	7	6	2	16	8	127	6	1	142	4	7	9	2	22	289
05:30 PM	3	114	4	0	121	2	5	3	2	12	5	157	6	0	168	3	2	3	0	8	309
05:45 PM	6	83	8	10	107	8	10	14	2	34	2	135	8	0	145	5	3	3	2	13	299
Total	20	423	19	13	475	17	33	27	11	88	20	570	26	1	617	15	20	22	5	62	1242
Grand Total	40	930	39	25	1034	35	65	54	15	169	38	1158	43	7	1246	29	55	55	12	151	2600
Apprch %	3.9	89.9	3.8	2.4		20.7	38.5	32	8.9		3	92.9	3.5	0.6		19.2	36.4	36.4	7.9		
Total %	1.5	35.8	1.5	1	39.8	1.3	2.5	2.1	0.6	6.5	1.5	44.5	1.7	0.3	47.9	1.1	2.1	2.1	0.5	5.8	
Cars	40	923	39	25	1027	35	64	54	15	168	37	1148	43	7	1235	29	55	55	12	151	2581
% Cars	100	99.2	100	100	99.3	100	98.5	100	100	99.4	97.4	99.1	100	100	99.1	100	100	100	100	100	99.3
Buses	0	0	0	0	0	0	1	0	0	1	1	3	0	0	4	0	0	0	0	0	5
% Buses	0	0	0	0	0	0	1.5	0	0	0.6	2.6	0.3	0	0	0.3	0	0	0	0	0	0.2
Trucks	0	7	0	0	7	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	14
% Trucks	0	0.8	0	0	0.7	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0.5

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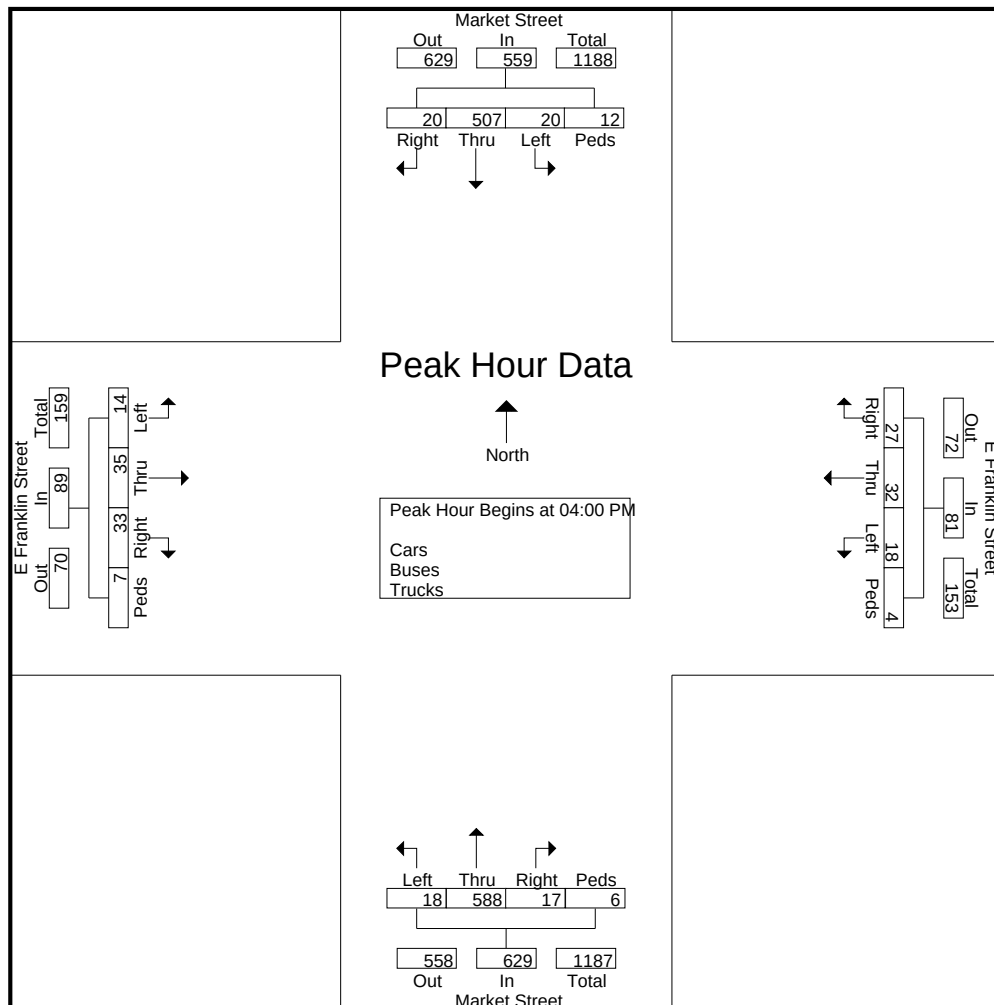
File Name : Frank_at_Market_11-30-2016
 Site Code : Site 3
 Start Date : 11/30/2016
 Page No : 2



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File Name : Frank_at_Market_11-30-2016
 Site Code : Site 3
 Start Date : 11/30/2016
 Page No : 3

	Market Street From North					E Franklin Street From East					Market Street From South					E Franklin Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	4	138	7	6	155	4	8	5	1	18	5	133	3	4	145	8	8	11	3	30	348
04:15 PM	4	110	4	2	120	5	9	5	0	19	2	139	7	2	150	0	7	9	2	18	307
04:30 PM	4	130	5	4	143	7	10	7	1	25	6	161	3	0	170	3	11	5	2	21	359
04:45 PM	8	129	4	0	141	2	5	10	2	19	5	155	4	0	164	3	9	8	0	20	344
Total Volume	20	507	20	12	559	18	32	27	4	81	18	588	17	6	629	14	35	33	7	89	1358
% App. Total	3.6	90.7	3.6	2.1		22.2	39.5	33.3	4.9		2.9	93.5	2.7	1		15.7	39.3	37.1	7.9		
PHF	.625	.918	.714	.500	.902	.643	.800	.675	.500	.810	.750	.913	.607	.375	.925	.438	.795	.750	.583	.742	.946



"simplifying Data Collection since 2004"

Schools in Session

File Name : Market at Main 11-30-2016

Site Code : PM Peak - Roundabout

Start Date : 11/30/2016

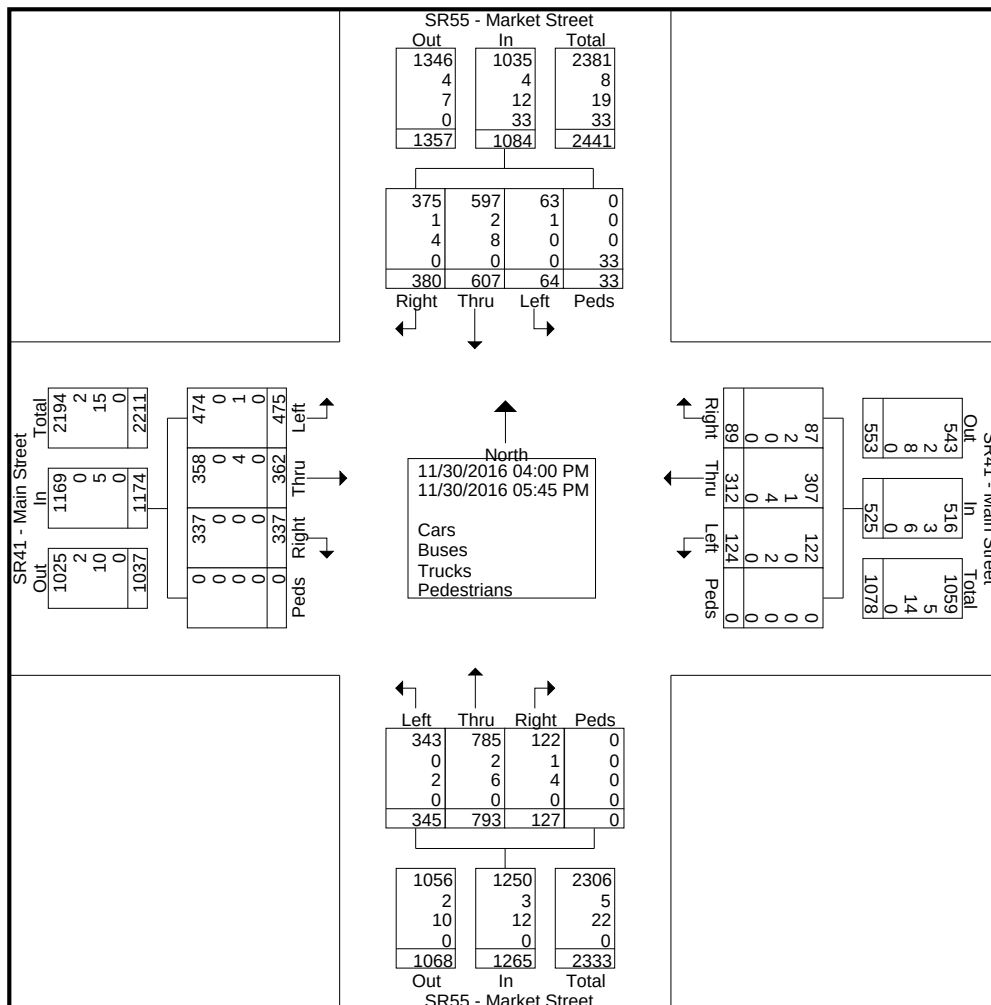
Page No : 1

Groups Printed- Cars - Buses - Trucks - Pedestrians

[illegible]

"simplifying Data Collection since 2004"

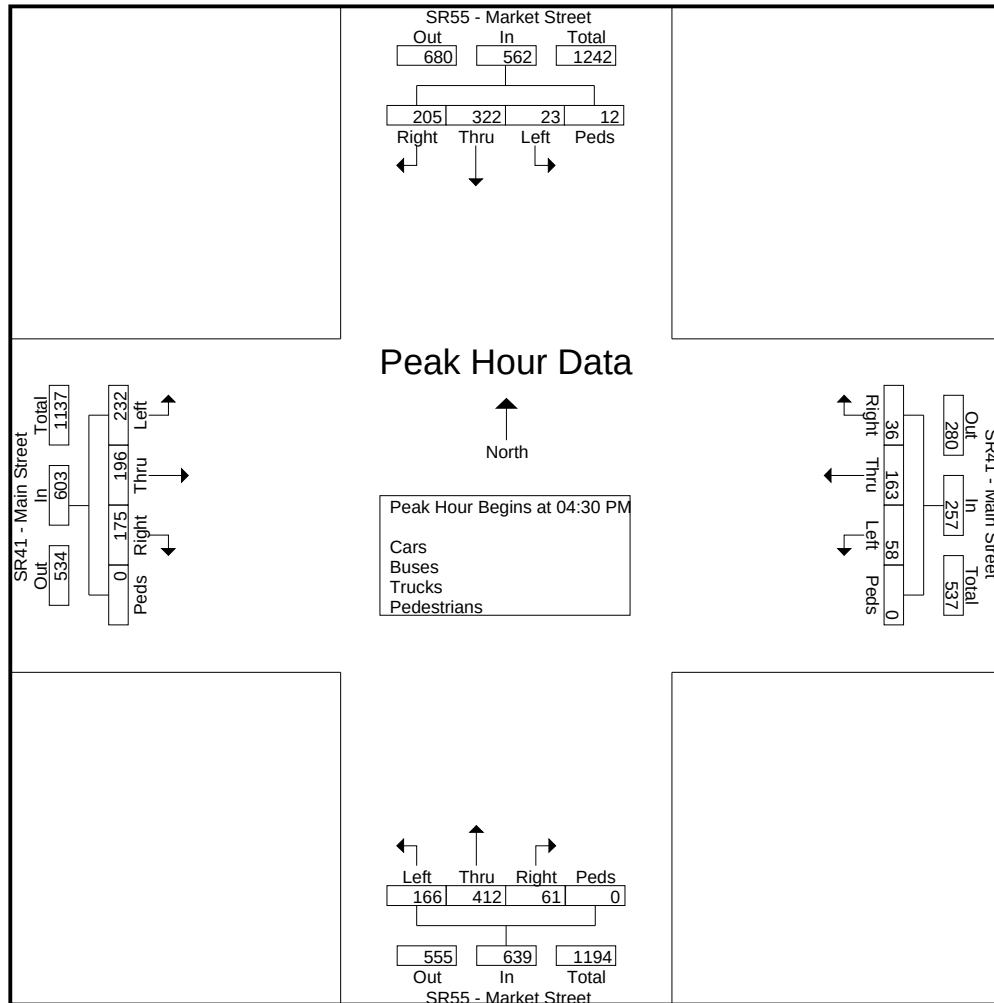
Page No : 2



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File Name : Market_at_Main_11-30-2016
 Site Code : PM Peak - Roundabout
 Start Date : 11/30/2016
 Page No : 3

	SR55 - Market Street From North					SR41 - Main Street From East					SR55 - Market Street From South					SR41 - Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	5	86	55	3	149	12	39	6	0	57	48	117	18	0	183	46	52	50	0	148	537
04:45 PM	9	78	46	6	139	25	39	13	0	77	43	93	17	0	153	59	44	45	0	148	517
05:00 PM	2	88	52	1	143	13	38	13	0	64	39	111	15	0	165	53	47	43	0	143	515
05:15 PM	7	70	52	2	131	8	47	4	0	59	36	91	11	0	138	74	53	37	0	164	492
Total Volume	23	322	205	12	562	58	163	36	0	257	166	412	61	0	639	232	196	175	0	603	2061
% App. Total	4.1	57.3	36.5	2.1		22.6	63.4	14	0		26	64.5	9.5	0		38.5	32.5	29	0		
PHF	.639	.915	.932	.500	.943	.580	.867	.692	.000	.834	.865	.880	.847	.000	.873	.784	.925	.875	.000	.919	.959



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Cloudy and Cold - 30 Degrees
 Schools in Session

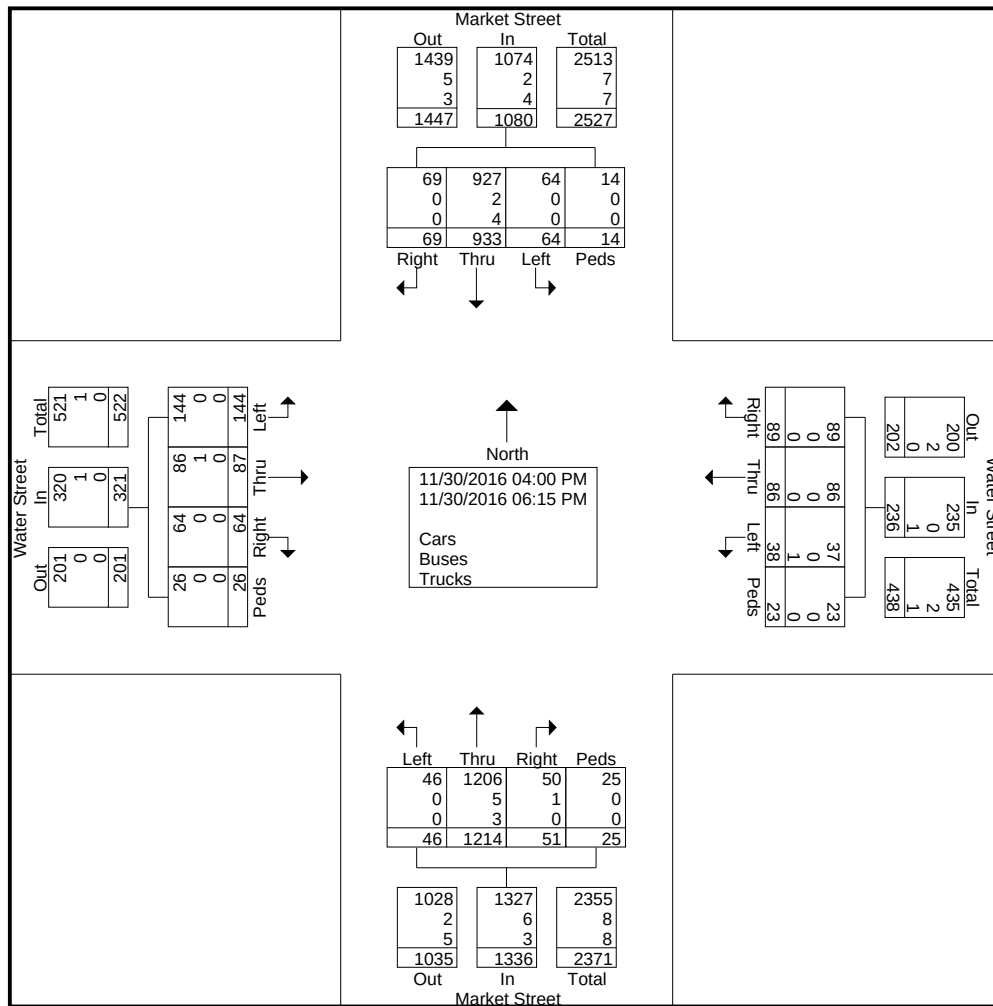
File Name : WaterMarket
 Site Code : Site 5
 Start Date : 11/30/2016
 Page No : 1

Groups Printed- Cars - Buses - Trucks

	Market Street From North					Water Street From East					Market Street From South					Water Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	13	108	17	1	139	5	19	14	2	40	10	158	6	0	174	32	16	18	2	68	421
04:15 PM	6	93	9	1	109	1	9	6	6	22	4	131	2	8	145	18	11	11	3	43	319
04:30 PM	9	126	5	7	147	6	8	12	10	36	5	139	11	8	163	13	10	8	5	36	382
Total	28	327	31	9	395	12	36	32	18	98	19	428	19	16	482	63	37	37	10	147	1122
05:00 PM	10	116	6	1	133	9	7	15	0	31	7	151	6	1	165	12	14	2	8	36	365
05:15 PM	12	136	8	0	156	4	13	16	0	33	5	163	2	4	174	22	15	4	0	41	404
05:30 PM	2	113	10	2	127	6	7	8	0	21	3	153	7	1	164	18	10	5	2	35	347
05:45 PM	6	131	8	0	145	6	11	10	2	29	6	172	9	0	187	16	6	7	4	33	394
Total	30	496	32	3	561	25	38	49	2	114	21	639	24	6	690	68	45	18	14	145	1510
06:15 PM	6	110	6	2	124	1	12	8	3	24	6	147	8	3	164	13	5	9	2	29	341
Grand Total	64	933	69	14	1080	38	86	89	23	236	46	1214	51	25	1336	144	87	64	26	321	2973
Apprch %	5.9	86.4	6.4	1.3		16.1	36.4	37.7	9.7		3.4	90.9	3.8	1.9		44.9	27.1	19.9	8.1		
Total %	2.2	31.4	2.3	0.5	36.3	1.3	2.9	3	0.8	7.9	1.5	40.8	1.7	0.8	44.9	4.8	2.9	2.2	0.9	10.8	
Cars	64	927	69	14	1074	37	86	89	23	235	46	1206	50	25	1327	144	86	64	26	320	2956
% Cars	100	99.4	100	100	99.4	97.4	100	100	100	99.6	100	99.3	98	100	99.3	100	98.9	100	100	99.7	99.4
Buses	0	2	0	0	2	0	0	0	0	0	0	5	1	0	6	0	1	0	0	1	9
% Buses	0	0.2	0	0	0.2	0	0	0	0	0	0	0.4	2	0	0.4	0	1.1	0	0	0.3	0.3
Trucks	0	4	0	0	4	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	8
% Trucks	0	0.4	0	0	0.4	2.6	0	0	0	0.4	0	0.2	0	0	0.2	0	0	0	0	0	0.3

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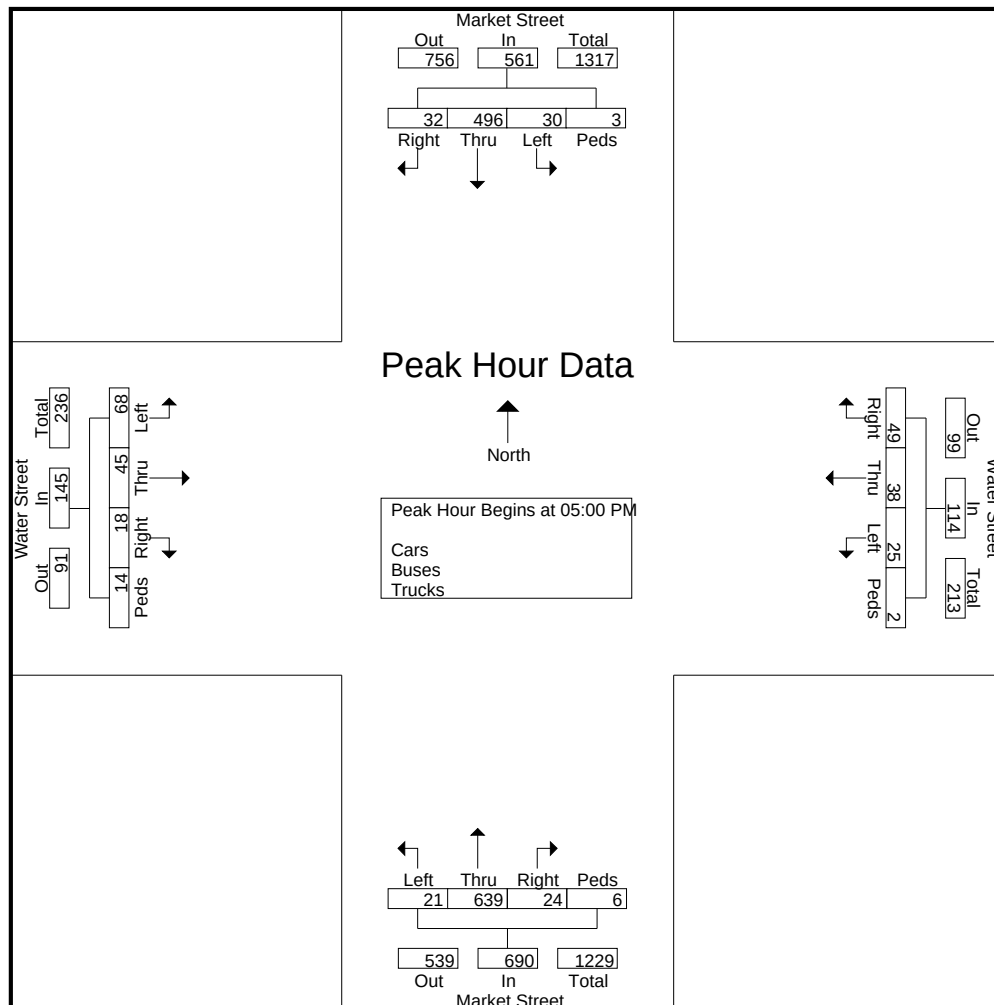
File Name : WaterMarket
 Site Code : Site 5
 Start Date : 11/30/2016
 Page No : 2



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File Name : WaterMarket
 Site Code : Site 5
 Start Date : 11/30/2016
 Page No : 3

	Market Street From North					Water Street From East					Market Street From South					Water Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	10	116	6	1	133	9	7	15	0	31	7	151	6	1	165	12	14	2	8	36	365
05:15 PM	12	136	8	0	156	4	13	16	0	33	5	163	2	4	174	22	15	4	0	41	404
05:30 PM	2	113	10	2	127	6	7	8	0	21	3	153	7	1	164	18	10	5	2	35	347
05:45 PM	6	131	8	0	145	6	11	10	2	29	6	172	9	0	187	16	6	7	4	33	394
Total Volume	30	496	32	3	561	25	38	49	2	114	21	639	24	6	690	68	45	18	14	145	1510
% App. Total	5.3	88.4	5.7	0.5		21.9	33.3	43	1.8		3	92.6	3.5	0.9		46.9	31	12.4	9.7		
PHF	.625	.912	.800	.375	.899	.694	.731	.766	.250	.864	.750	.929	.667	.375	.922	.773	.750	.643	.438	.884	.934



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Cloudy and Cold - 30 Degrees
 Schools in Session

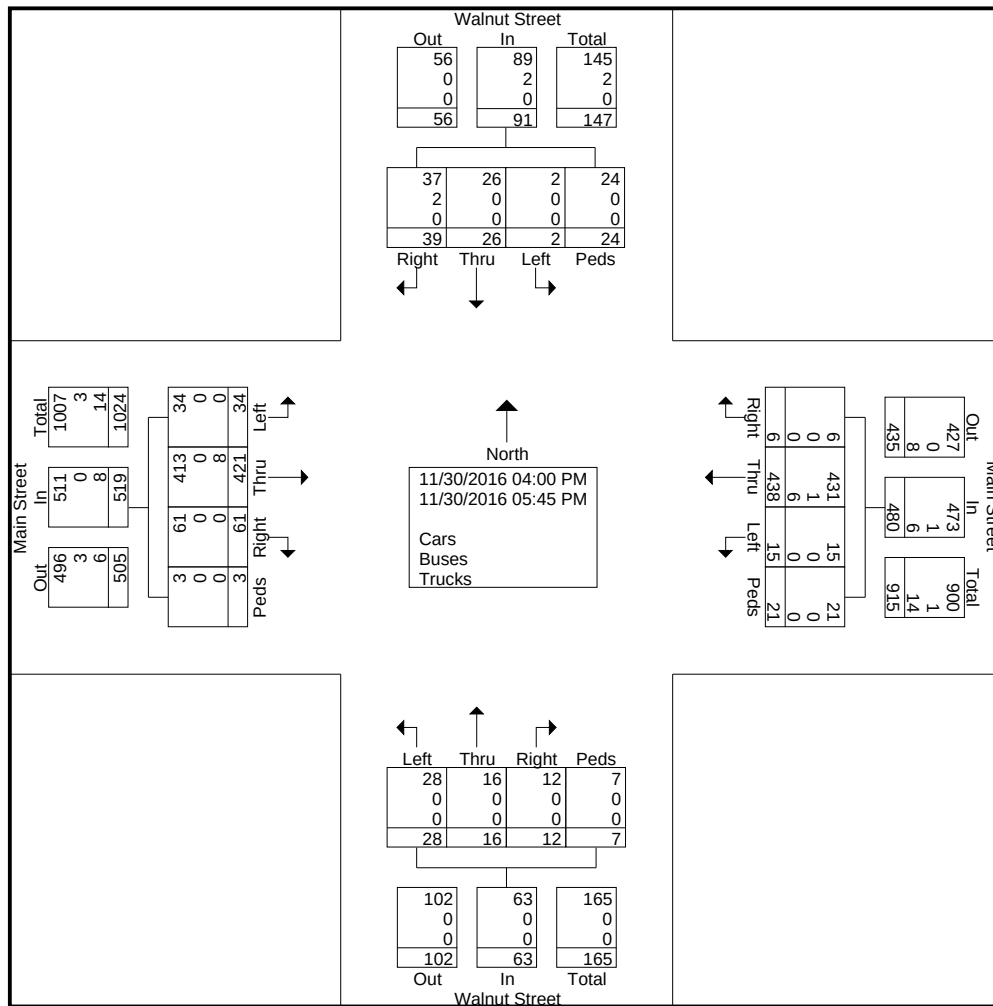
File Name : WalnutMain
 Site Code : Site 6
 Start Date : 11/30/2016
 Page No : 1

Groups Printed- Cars - Buses - Trucks

	Walnut Street From North					Main Street From East					Walnut Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	4	7	8	19	2	71	1	6	80	1	5	3	0	9	3	53	7	0	63	171
04:15 PM	0	1	4	2	7	2	50	0	2	54	8	3	1	1	13	1	56	11	2	70	144
04:30 PM	1	5	4	4	14	3	43	1	0	47	4	2	0	1	7	3	59	6	0	68	136
04:45 PM	0	3	6	4	13	2	58	1	1	62	1	0	3	1	5	6	54	10	0	70	150
Total	1	13	21	18	53	9	222	3	9	243	14	10	7	3	34	13	222	34	2	271	601
05:00 PM	0	5	5	1	11	2	55	0	1	58	4	1	1	1	7	7	48	5	0	60	136
05:15 PM	1	2	4	3	10	0	57	1	8	66	3	2	0	2	7	9	53	6	1	69	152
05:30 PM	0	5	4	0	9	3	63	2	2	70	2	2	1	0	5	3	45	7	0	55	139
05:45 PM	0	1	5	2	8	1	41	0	1	43	5	1	3	1	10	2	53	9	0	64	125
Total	1	13	18	6	38	6	216	3	12	237	14	6	5	4	29	21	199	27	1	248	552
Grand Total	2	26	39	24	91	15	438	6	21	480	28	16	12	7	63	34	421	61	3	519	1153
Apprch %	2.2	28.6	42.9	26.4		3.1	91.2	1.2	4.4		44.4	25.4	19	11.1		6.6	81.1	11.8	0.6		
Total %	0.2	2.3	3.4	2.1	7.9	1.3	38	0.5	1.8	41.6	2.4	1.4	1	0.6	5.5	2.9	36.5	5.3	0.3	45	
Cars	2	26	37	24	89	15	431	6	21	473	28	16	12	7	63	34	413	61	3	511	1136
% Cars	100	100	94.9	100	97.8	100	98.4	100	100	98.5	100	100	100	100	100	100	98.1	100	100	98.5	98.5
Buses	0	0	2	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
% Buses	0	0	5.1	0	2.2	0	0.2	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0.3
Trucks	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	8	0	0	8	14
% Trucks	0	0	0	0	0	0	1.4	0	0	1.2	0	0	0	0	0	0	1.9	0	0	1.5	1.2

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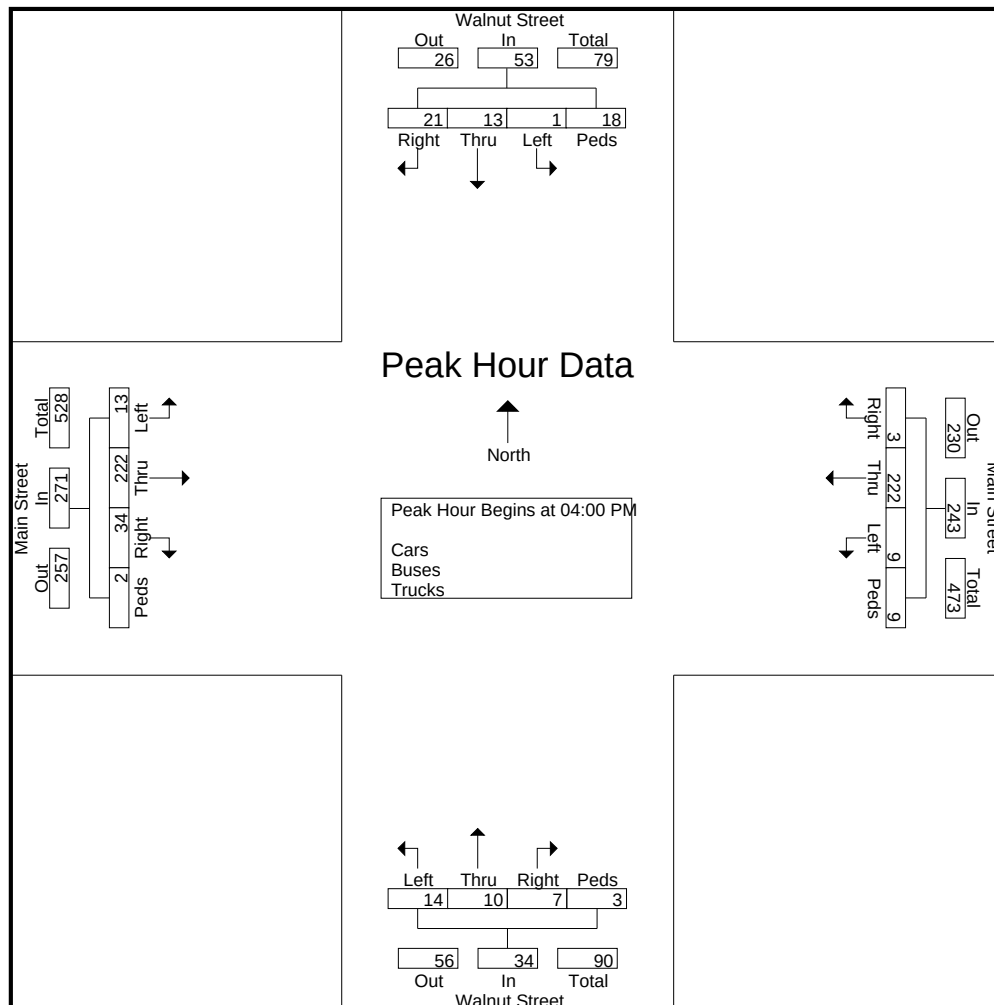
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File Name : WalnutMain
 Site Code : Site 6
 Start Date : 11/30/2016
 Page No : 3

	Walnut Street From North					Main Street From East					Walnut Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	4	7	8	19	2	71	1	6	80	1	5	3	0	9	3	53	7	0	63	171
04:15 PM	0	1	4	2	7	2	50	0	2	54	8	3	1	1	13	1	56	11	2	70	144
04:30 PM	1	5	4	4	14	3	43	1	0	47	4	2	0	1	7	3	59	6	0	68	136
04:45 PM	0	3	6	4	13	2	58	1	1	62	1	0	3	1	5	6	54	10	0	70	150
Total Volume	1	13	21	18	53	9	222	3	9	243	14	10	7	3	34	13	222	34	2	271	601
% App. Total	1.9	24.5	39.6	34		3.7	91.4	1.2	3.7		41.2	29.4	20.6	8.8		4.8	81.9	12.5	0.7		
PHF	.250	.650	.750	.563	.697	.750	.782	.750	.375	.759	.438	.500	.583	.750	.654	.542	.941	.773	.250	.968	.879



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Cloudy and Cold - 30 degrees
 Schools in Session

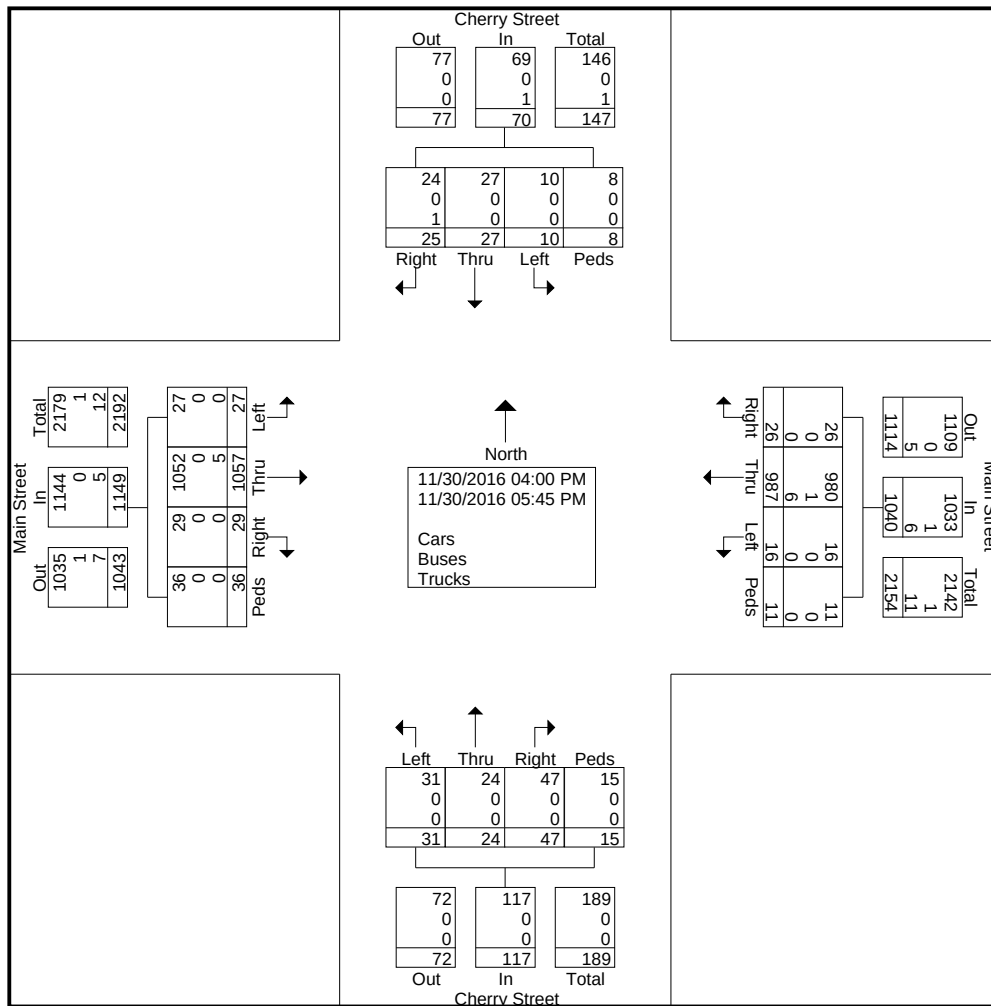
File Name : Cherry_at_Main_11-30-2016
 Site Code : Site 7
 Start Date : 11/30/2016
 Page No : 1

Groups Printed- Cars - Buses - Trucks

	Cherry Street From North					Main Street From East					Cherry Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	5	12	8	3	28	1	131	2	0	134	3	5	5	3	16	4	140	3	11	158	336
04:15 PM	1	3	1	0	5	1	111	1	2	115	8	2	4	5	19	2	129	5	8	144	283
04:30 PM	0	4	6	1	11	5	133	5	2	145	3	2	6	3	14	1	138	4	6	149	319
04:45 PM	2	0	2	0	4	1	117	3	1	122	2	2	8	1	13	7	118	5	1	131	270
Total	8	19	17	4	48	8	492	11	5	516	16	11	23	12	62	14	525	17	26	582	1208
05:00 PM	1	4	2	3	10	1	124	2	2	129	4	5	8	1	18	3	130	4	6	143	300
05:15 PM	1	0	3	0	4	3	125	5	2	135	2	2	9	0	13	2	142	5	1	150	302
05:30 PM	0	1	0	1	2	2	125	4	0	131	2	2	2	2	8	4	119	2	2	127	268
05:45 PM	0	3	3	0	6	2	121	4	2	129	7	4	5	0	16	4	141	1	1	147	298
Total	2	8	8	4	22	8	495	15	6	524	15	13	24	3	55	13	532	12	10	567	1168
Grand Total	10	27	25	8	70	16	987	26	11	1040	31	24	47	15	117	27	1057	29	36	1149	2376
Apprch %	14.3	38.6	35.7	11.4		1.5	94.9	2.5	1.1		26.5	20.5	40.2	12.8		2.3	92	2.5	3.1		
Total %	0.4	1.1	1.1	0.3	2.9	0.7	41.5	1.1	0.5	43.8	1.3	1	2	0.6	4.9	1.1	44.5	1.2	1.5	48.4	
Cars	10	27	24	8	69	16	980	26	11	1033	31	24	47	15	117	27	1052	29	36	1144	2363
% Cars	100	100	96	100	98.6	100	99.3	100	100	99.3	100	100	100	100	100	100	99.5	100	100	99.6	99.5
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Buses	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	12
% Trucks	0	0	4	0	1.4	0	0.6	0	0	0.6	0	0	0	0	0	0	0.5	0	0	0.4	0.5

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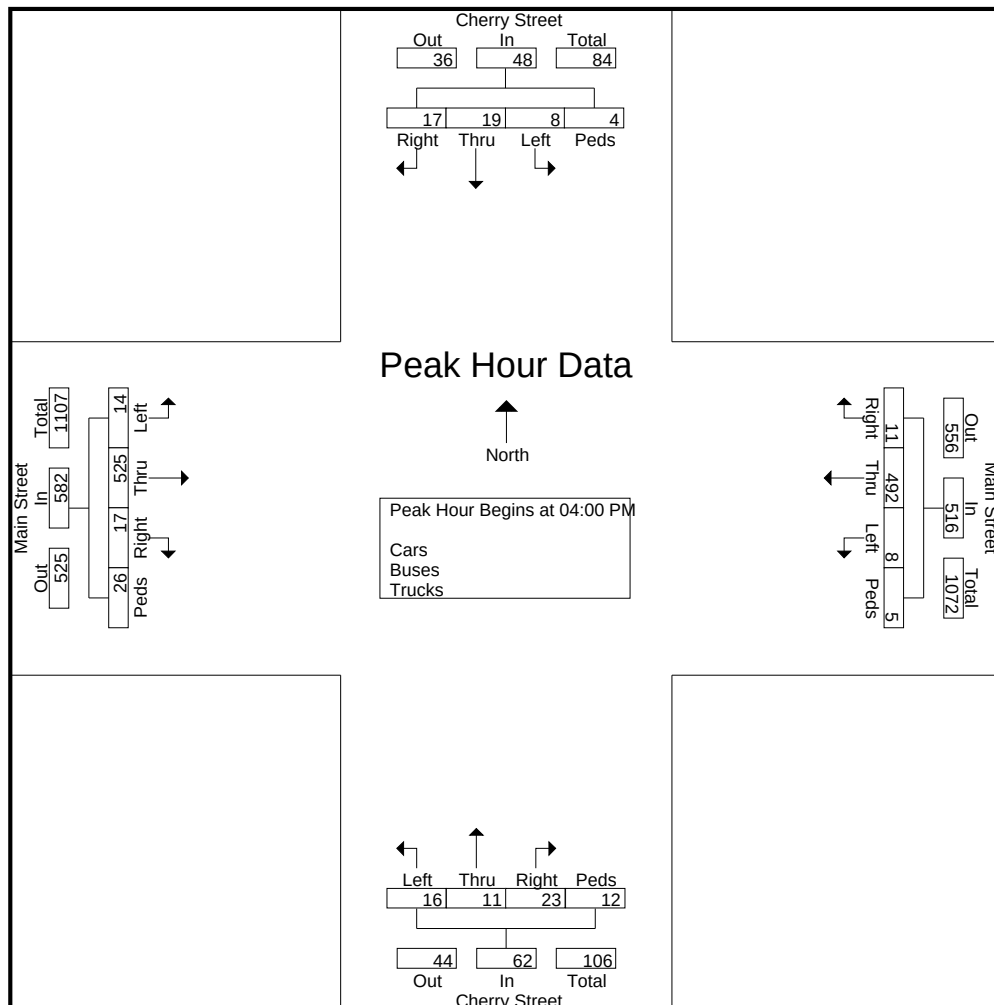
File Name : Cherry_at_Main_11-30-2016
 Site Code : Site 7
 Start Date : 11/30/2016
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File Name : Cherry_at_Main_11-30-2016
 Site Code : Site 7
 Start Date : 11/30/2016
 Page No : 3

	Cherry Street From North					Main Street From East					Cherry Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	5	12	8	3	28	1	131	2	0	134	3	5	5	3	16	4	140	3	11	158	336
04:15 PM	1	3	1	0	5	1	111	1	2	115	8	2	4	5	19	2	129	5	8	144	283
04:30 PM	0	4	6	1	11	5	133	5	2	145	3	2	6	3	14	1	138	4	6	149	319
04:45 PM	2	0	2	0	4	1	117	3	1	122	2	2	8	1	13	7	118	5	1	131	270
Total Volume	8	19	17	4	48	8	492	11	5	516	16	11	23	12	62	14	525	17	26	582	1208
% App. Total	16.7	39.6	35.4	8.3		1.6	95.3	2.1	1		25.8	17.7	37.1	19.4		2.4	90.2	2.9	4.5		
PHF	.400	.396	.531	.333	.429	.400	.925	.550	.625	.890	.500	.550	.719	.600	.816	.500	.938	.850	.591	.921	.899



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Cloudy and Cold - 30 Degrees
Schools in Session

File Name : Plum_at_Main_11-30-2016
Site Code : Site 8
Start Date : 11/30/2016
Page No : 1

Groups Printed- Cars - Buses - Trucks

	Plum Street From North					Main Street From East					Plum Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	3	3	4	133	0	0	137	7	0	7	3	17	0	142	9	2	153	310
04:15 PM	0	0	0	2	2	3	117	0	0	120	9	0	6	4	19	0	125	9	3	137	278
04:30 PM	0	0	0	0	0	5	136	0	0	141	7	0	8	3	18	0	129	5	4	138	297
04:45 PM	0	0	0	0	0	3	125	0	0	128	10	0	7	0	17	0	130	5	2	137	282
Total	0	0	0	5	5	15	511	0	0	526	33	0	28	10	71	0	526	28	11	565	1167
05:00 PM	0	0	0	2	2	4	130	0	0	134	6	0	3	0	9	0	131	3	3	137	282
05:15 PM	0	0	0	0	0	3	128	0	0	131	7	0	6	0	13	0	141	4	1	146	290
05:30 PM	0	0	0	1	1	1	123	0	0	124	1	0	3	0	4	0	129	5	2	136	265
05:45 PM	0	0	0	0	0	1	126	0	0	127	4	0	3	0	7	0	145	6	0	151	285
Total	0	0	0	3	3	9	507	0	0	516	18	0	15	0	33	0	546	18	6	570	1122
Grand Total	0	0	0	8	8	24	1018	0	0	1042	51	0	43	10	104	0	1072	46	17	1135	2289
Apprch %	0	0	0	100		2.3	97.7	0	0		49	0	41.3	9.6		0	94.4	4.1	1.5		
Total %	0	0	0	0.3	0.3	1	44.5	0	0	45.5	2.2	0	1.9	0.4	4.5	0	46.8	2	0.7	49.6	
Cars	0	0	0	8	8	24	1010	0	0	1034	51	0	43	10	104	0	1067	46	17	1130	2276
% Cars	0	0	0	100	100	100	99.2	0	0	99.2	100	0	100	100	100	0	99.5	100	100	99.6	99.4
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Buses	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0
Trucks	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	5	0	0	5	12
% Trucks	0	0	0	0	0	0	0.7	0	0	0.7	0	0	0	0	0	0	0.5	0	0	0.4	0.5

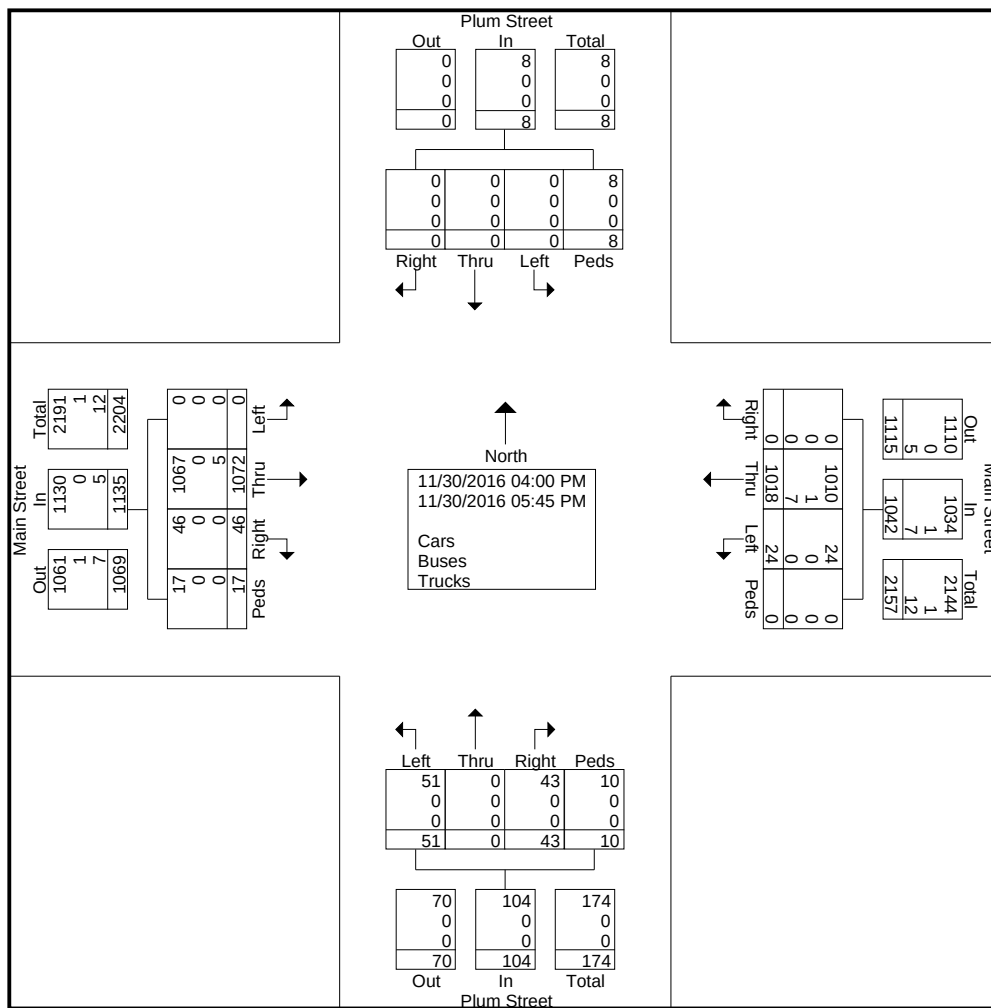
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File Name : Plum_at_Main_11-30-2016

Site Code : Site 8

Start Date : 11/30/2016

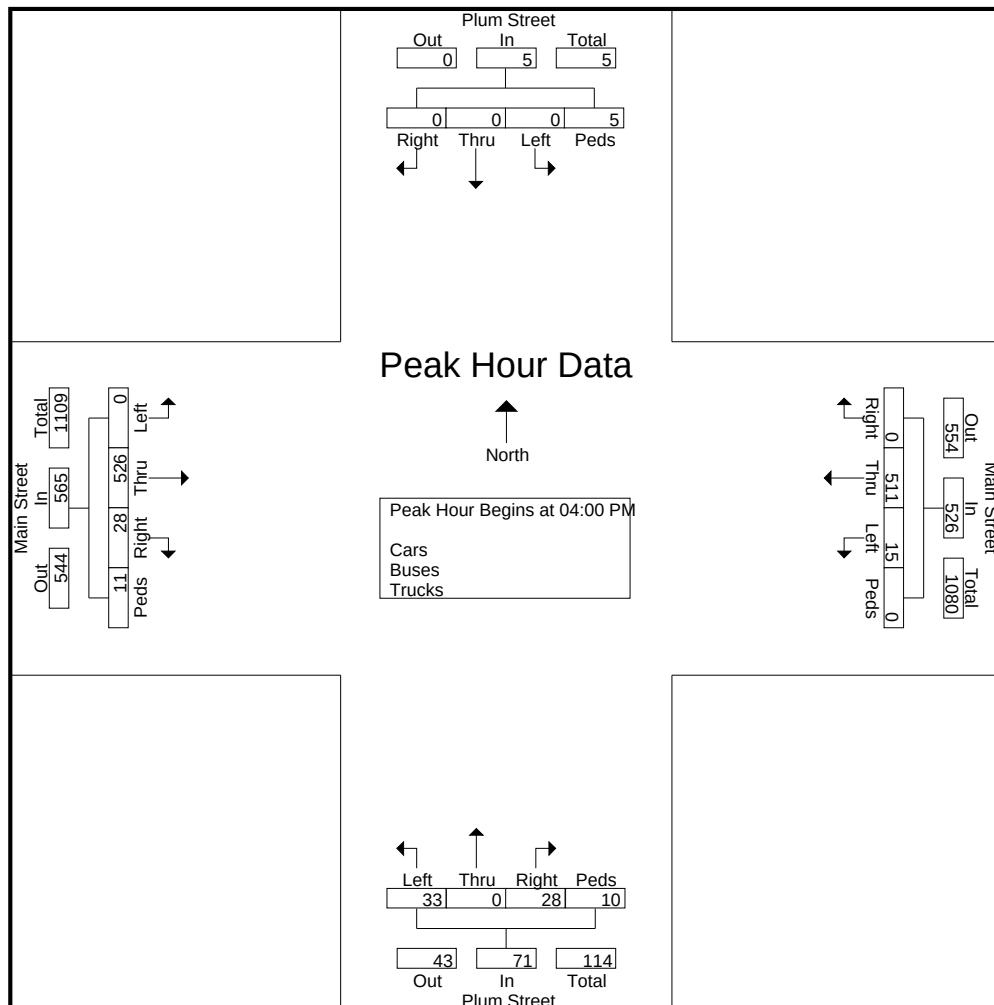
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File Name : Plum_at_Main_11-30-2016
 Site Code : Site 8
 Start Date : 11/30/2016
 Page No : 3

	Plum Street From North					Main Street From East					Plum Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	3	3	4	133	0	0	137	7	0	7	3	17	0	142	9	2	153	310
04:15 PM	0	0	0	2	2	3	117	0	0	120	9	0	6	4	19	0	125	9	3	137	278
04:30 PM	0	0	0	0	0	5	136	0	0	141	7	0	8	3	18	0	129	5	4	138	297
04:45 PM	0	0	0	0	0	3	125	0	0	128	10	0	7	0	17	0	130	5	2	137	282
Total Volume	0	0	0	5	5	15	511	0	0	526	33	0	28	10	71	0	526	28	11	565	1167
% App. Total	0	0	0	100		2.9	97.1	0	0		46.5	0	39.4	14.1		0	93.1	5	1.9		
PHF	.000	.000	.000	.417	.417	.750	.939	.000	.000	.933	.825	.000	.875	.625	.934	.000	.926	.778	.688	.923	.941



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Cloudy and Cold - 30 Degrees
Schools in Session

File Name : Monroe_at_Main_11-30-2016
Site Code : Site 9
Start Date : 11/30/2016
Page No : 1

Groups Printed- Cars - Buses - Trucks																					
	Monroe Street From North					Main Street From East					Monroe Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	3	6	9	0	18	7	141	1	1	150	3	2	10	2	17	8	138	3	3	152	337
04:15 PM	2	3	10	0	15	1	112	3	0	116	2	4	11	1	18	3	134	5	2	144	293
04:30 PM	1	1	4	0	6	7	154	4	0	165	4	6	5	0	15	5	125	3	2	135	321
04:45 PM	0	0	3	0	3	3	127	1	0	131	0	2	5	0	7	1	128	4	1	134	275
Total	6	10	26	0	42	18	534	9	1	562	9	14	31	3	57	17	525	15	8	565	1226
05:00 PM	2	5	6	1	14	3	127	4	1	135	5	5	9	0	19	5	124	1	1	131	299
05:15 PM	2	2	3	0	7	4	132	2	0	138	1	4	10	0	15	2	131	4	0	137	297
05:30 PM	1	2	1	0	4	6	123	2	0	131	1	2	12	0	15	2	106	4	1	113	263
05:45 PM	0	1	0	0	1	6	114	2	0	122	1	5	12	0	18	2	149	5	0	156	297
Total	5	10	10	1	26	19	496	10	1	526	8	16	43	0	67	11	510	14	2	537	1156
Grand Total	11	20	36	1	68	37	1030	19	2	1088	17	30	74	3	124	28	1035	29	10	1102	2382
Apprch %	16.2	29.4	52.9	1.5		3.4	94.7	1.7	0.2		13.7	24.2	59.7	2.4		2.5	93.9	2.6	0.9		
Total %	0.5	0.8	1.5	0	2.9	1.6	43.2	0.8	0.1	45.7	0.7	1.3	3.1	0.1	5.2	1.2	43.5	1.2	0.4	46.3	
Cars	11	20	36	1	68	37	1023	19	2	1081	17	30	74	3	124	27	1031	29	10	1097	2370
% Cars	100	100	100	100	100	100	99.3	100	100	99.4	100	100	100	100	100	96.4	99.6	100	100	99.5	99.5
Buses	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	2
% Buses	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	3.6	0	0	0	0.1	0.1
Trucks	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	4	0	0	4	10
% Trucks	0	0	0	0	0	0	0.6	0	0	0.6	0	0	0	0	0	0	0.4	0	0	0.4	0.4

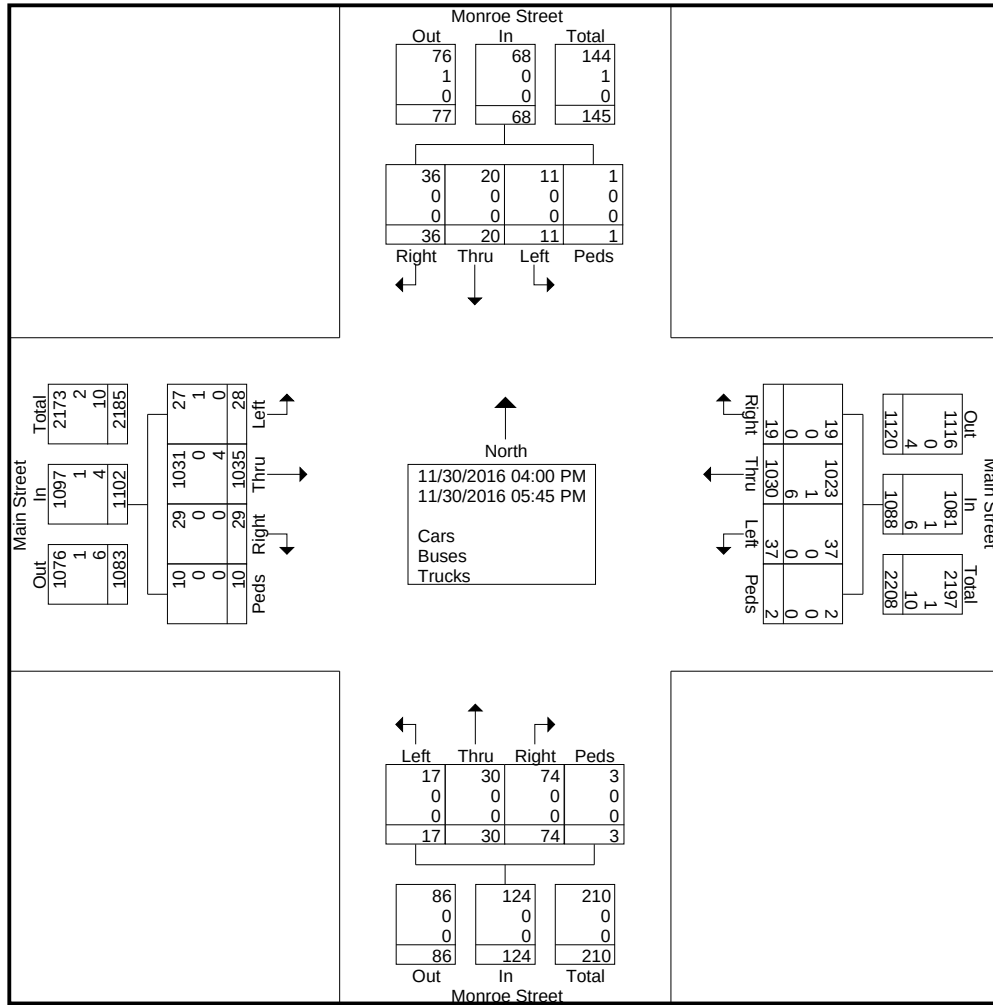
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File Name : Monroe_at_Main_11-30-2016

Site Code : Site 9

Start Date : 11/30/2016

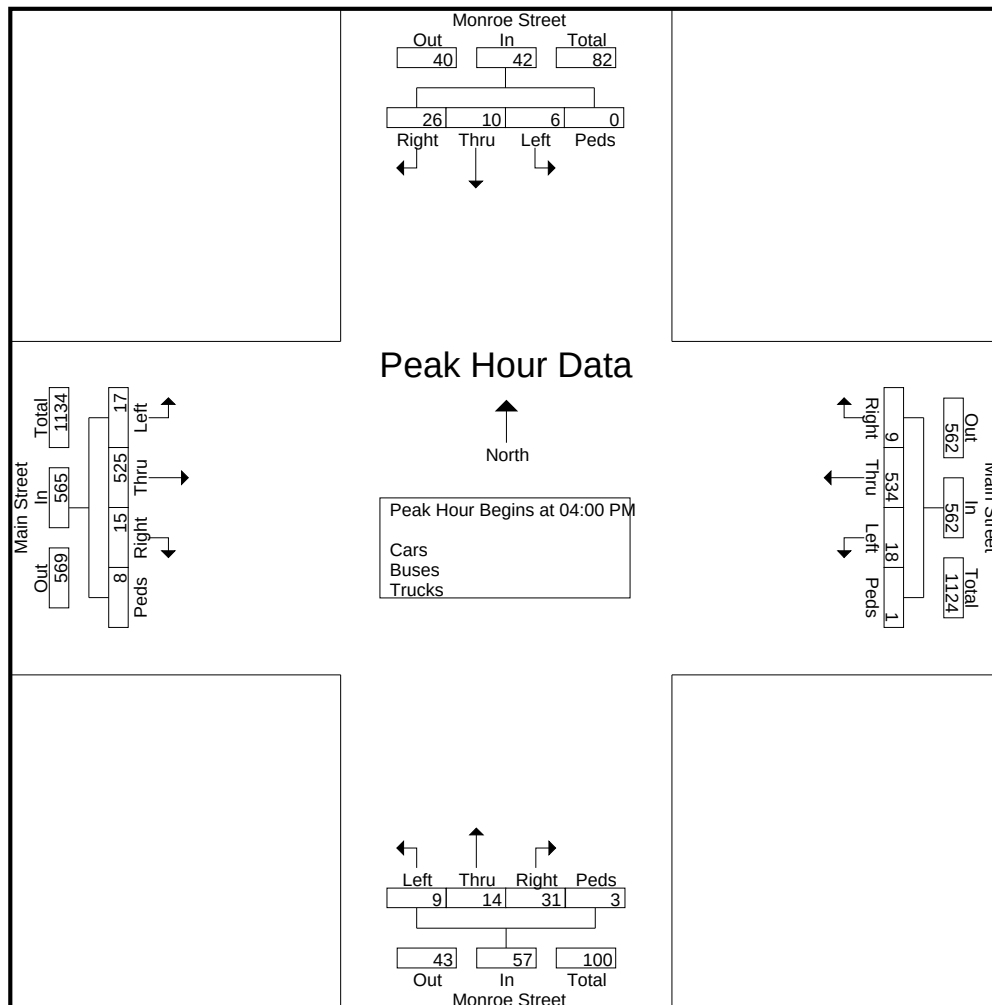
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File Name : Monroe_at_Main_11-30-2016
 Site Code : Site 9
 Start Date : 11/30/2016
 Page No : 3

	Monroe Street From North					Main Street From East					Monroe Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	3	6	9	0	18	7	141	1	1	150	3	2	10	2	17	8	138	3	3	152	337
04:15 PM	2	3	10	0	15	1	112	3	0	116	2	4	11	1	18	3	134	5	2	144	293
04:30 PM	1	1	4	0	6	7	154	4	0	165	4	6	5	0	15	5	125	3	2	135	321
04:45 PM	0	0	3	0	3	3	127	1	0	131	0	2	5	0	7	1	128	4	1	134	275
Total Volume	6	10	26	0	42	18	534	9	1	562	9	14	31	3	57	17	525	15	8	565	1226
% App. Total	14.3	23.8	61.9	0		3.2	95	1.6	0.2		15.8	24.6	54.4	5.3		3	92.9	2.7	1.4		
PHF	.500	.417	.650	.000	.583	.643	.867	.563	.250	.852	.563	.583	.705	.375	.792	.531	.951	.750	.667	.929	.909



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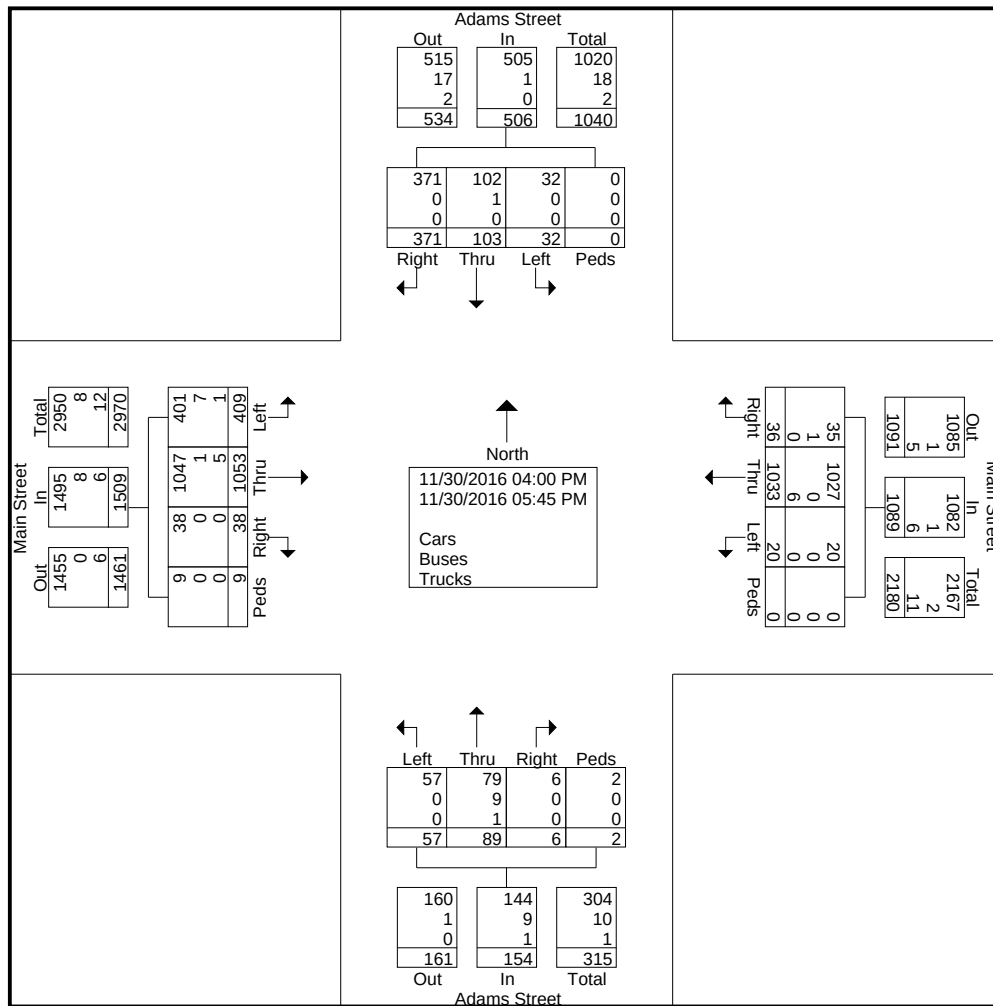
File Name : AdamsMain
 Site Code :
 Start Date : 11/30/2016
 Page No : 1

Groups Printed- Cars - Buses - Trucks

	Adams Street From North					Main Street From East					Adams Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	7	7	52	0	66	5	152	5	0	162	6	16	1	0	23	47	145	1	1	194	445
04:15 PM	6	15	36	0	57	2	121	4	0	127	7	13	0	0	20	45	125	11	2	183	387
04:30 PM	3	21	50	0	74	3	133	19	0	155	8	19	0	0	27	56	128	5	2	191	447
04:45 PM	4	11	48	0	63	2	129	1	0	132	7	5	0	1	13	45	124	3	1	173	381
Total	20	54	186	0	260	12	535	29	0	576	28	53	1	1	83	193	522	20	6	741	1660
05:00 PM	5	19	56	0	80	5	131	2	0	138	12	9	2	1	24	50	125	7	2	184	426
05:15 PM	2	10	33	0	45	2	138	2	0	142	6	10	2	0	18	53	138	8	0	199	404
05:30 PM	0	9	45	0	54	1	121	2	0	124	5	11	0	0	16	55	117	0	1	173	367
05:45 PM	5	11	51	0	67	0	108	1	0	109	6	6	1	0	13	58	151	3	0	212	401
Total	12	49	185	0	246	8	498	7	0	513	29	36	5	1	71	216	531	18	3	768	1598
Grand Total	32	103	371	0	506	20	1033	36	0	1089	57	89	6	2	154	409	1053	38	9	1509	3258
Apprch %	6.3	20.4	73.3	0		1.8	94.9	3.3	0		37	57.8	3.9	1.3		27.1	69.8	2.5	0.6		
Total %	1	3.2	11.4	0	15.5	0.6	31.7	1.1	0	33.4	1.7	2.7	0.2	0.1	4.7	12.6	32.3	1.2	0.3	46.3	
Cars	32	102	371	0	505	20	1027	35	0	1082	57	79	6	2	144	401	1047	38	9	1495	3226
% Cars	100	99	100	0	99.8	100	99.4	97.2	0	99.4	100	88.8	100	100	93.5	98	99.4	100	100	99.1	99
Buses	0	1	0	0	1	0	0	1	0	1	0	9	0	0	9	7	1	0	0	8	19
% Buses	0	1	0	0	0.2	0	0	2.8	0	0.1	0	10.1	0	0	5.8	1.7	0.1	0	0	0.5	0.6
Trucks	0	0	0	0	0	0	6	0	0	6	0	1	0	0	1	1	5	0	0	6	13
% Trucks	0	0	0	0	0	0	0.6	0	0	0.6	0	1.1	0	0	0.6	0.2	0.5	0	0	0.4	0.4

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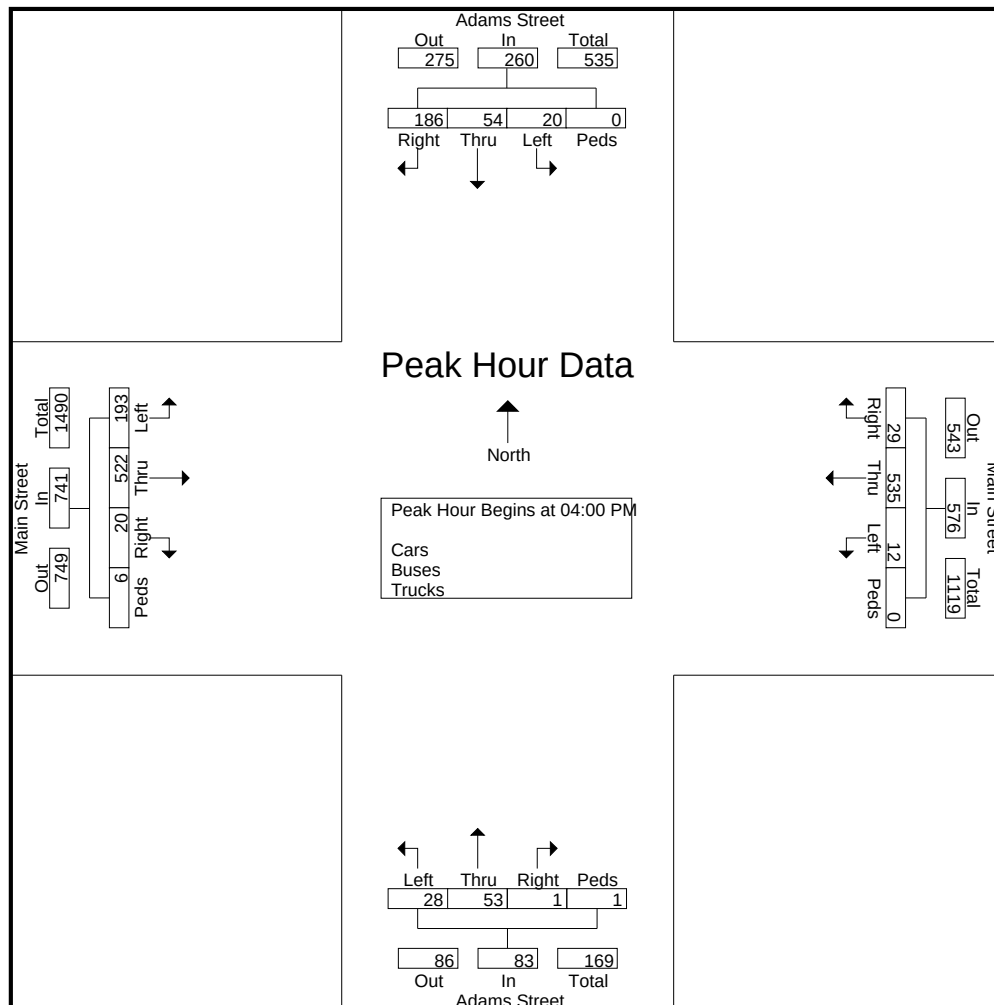
File Name : AdamsMain
 Site Code :
 Start Date : 11/30/2016
 Page No : 2



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"simplifying Data Collection since 2004"

File Name : AdamsMain
 Site Code :
 Start Date : 11/30/2016
 Page No : 3

	Adams Street From North					Main Street From East					Adams Street From South					Main Street From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	7	7	52	0	66	5	152	5	0	162	6	16	1	0	23	47	145	1	1	194	445
04:15 PM	6	15	36	0	57	2	121	4	0	127	7	13	0	0	20	45	125	11	2	183	387
04:30 PM	3	21	50	0	74	3	133	19	0	155	8	19	0	0	27	56	128	5	2	191	447
04:45 PM	4	11	48	0	63	2	129	1	0	132	7	5	0	1	13	45	124	3	1	173	381
Total Volume	20	54	186	0	260	12	535	29	0	576	28	53	1	1	83	193	522	20	6	741	1660
% App. Total	7.7	20.8	71.5	0		2.1	92.9	5	0		33.7	63.9	1.2	1.2		26	70.4	2.7	0.8		
PHF	.714	.643	.894	.000	.878	.600	.880	.382	.000	.889	.875	.697	.250	.250	.769	.862	.900	.455	.750	.955	.928





APPENDIX H: ODOT HOURLY PROFILE

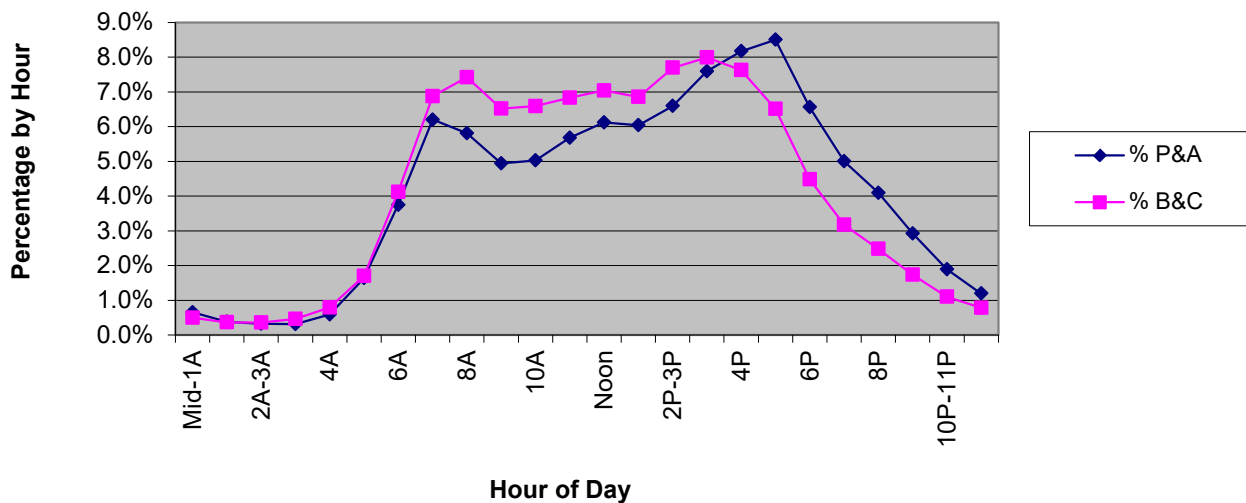
Hourly Percent by Vehicle Type

Urban Minor Arterial

Sample = 409 Counts

Sample of Permanent ATR's and Portable Counts Taken in 2013

Hour	Hour of Day	FC	P & A (Cars)	% P&A (Cars)	B&C (Trucks)	% B&C (Trucks)	Total	% Total
0	Mid-1A	16	34,348	0.7%	1,531	0.5%	35,879	0.6%
1	1A-2A	16	19,929	0.4%	1,119	0.4%	21,048	0.4%
2	2A-3A	16	16,823	0.3%	1,113	0.4%	17,936	0.3%
3	3A	16	16,493	0.3%	1,413	0.5%	17,906	0.3%
4	4A	16	31,175	0.6%	2,445	0.8%	33,620	0.6%
5	5A	16	85,616	1.6%	5,221	1.7%	90,837	1.6%
6	6A	16	195,956	3.7%	12,663	4.1%	208,619	3.8%
7	7A	16	324,065	6.2%	21,115	6.9%	345,180	6.2%
8	8A	16	303,402	5.8%	22,787	7.4%	326,189	5.9%
9	9A	16	258,134	4.9%	20,027	6.5%	278,161	5.0%
10	10A	16	262,681	5.0%	20,247	6.6%	282,928	5.1%
11	11A-Noon	16	296,593	5.7%	20,977	6.8%	317,570	5.7%
12	Noon	16	319,785	6.1%	21,628	7.0%	341,413	6.2%
13	1P-2P	16	315,812	6.0%	21,053	6.9%	336,865	6.1%
14	2P-3P	16	344,607	6.6%	23,627	7.7%	368,234	6.7%
15	3P	16	396,799	7.6%	24,550	8.0%	421,349	7.6%
16	4P	16	426,840	8.2%	23,420	7.6%	450,260	8.1%
17	5P	16	444,353	8.5%	19,996	6.5%	464,349	8.4%
18	6P	16	342,749	6.6%	13,774	4.5%	356,523	6.4%
19	7P	16	261,346	5.0%	9,745	3.2%	271,091	4.9%
20	8P	16	213,914	4.1%	7,610	2.5%	221,524	4.0%
21	9P	16	152,916	2.9%	5,326	1.7%	158,242	2.9%
22	10P-11P	16	98,856	1.9%	3,391	1.1%	102,247	1.8%
23	11P-Mid	16	62,551	1.2%	2,404	0.8%	64,955	1.2%
			5,225,743	100%	307,182	100%	5,532,925	100%



<http://www.dot.state.oh.us/Divisions/Planning/TechServ/traffic/Reports/HrlyPctbyVeh/2013HrlyPctVehType.pdf>



APPENDIX I: LANE UTILIZATION COUNTS

Study Name Market N of Canal**Start Date 11/30/2016****Start Time 4:00 PM****Site Code PM Peak**

Channel Direction	Lane 1	Lane 2	Lane 1	Lane 2
	Southbound	Southbound	Northbound	Northbound
4:00 PM	76	75	10	125
4:15 PM	66	65	31	117
4:30 PM	80	62	20	147
4:45 PM	67	71	24	133
5:00 PM	66	68	20	141
5:15 PM	56	54	14	125
5:30 PM	51	68	28	129
5:45 PM	42	43	29	129

Study Name Market N of Franklin
Start Date 11/30/2016
Start Time 4:00 PM
Site Code PM Peak

Channel Direction	Lane 1	Lane 2	Lane 1	Lane 2
	Southbound	Southbound	Northbound	Northbound
4:00 PM	81	65	10	133
4:15 PM	62	56	23	120
4:30 PM	77	64	16	159
4:45 PM	68	69	18	140
5:00 PM	67	65	11	148
5:15 PM	62	48	8	125
5:30 PM	58	62	17	137
5:45 PM	63	39	16	146

Study Name Market N of Main
Start Date 11/30/2016
Start Time 4:00 PM
Site Code PM Peak

Channel Direction	Lane 1	Lane 2	Lane 1	Lane 2
	Southbound	Southbound	Northbound	Northbound
4:00 PM	36	92	85	72
4:15 PM	27	74	70	60
4:30 PM	61	86	105	58
4:45 PM	39	88	77	79
5:00 PM	53	87	92	82
5:15 PM	52	72	78	80
5:30 PM	48	93	102	79
5:45 PM	51	69	77	85

Study Name Main W of Market
Start Date 11/30/2016
Start Time 4:00 PM
Site Code PM Peak

Channel Direction	Lane 1	Lane 2	Lane 1	Lane 2
	Westbound	Westbound	Eastbound	Eastbound
4:00 PM	76	51	53	101
4:15 PM	78	33	42	89
4:30 PM	79	57	49	92
4:45 PM	75	49	42	95
5:00 PM	73	56	38	98
5:15 PM	72	56	37	118
5:30 PM	79	54	33	94
5:45 PM	80	44	35	108

Study Name Main W of Cherry
Start Date 11/30/2016
Start Time 4:00 PM
Site Code PM Peak

Channel Direction	Lane 1	Lane 2	Lane 1	Lane 2
	Westbound	Westbound	Eastbound	Eastbound
4:00 PM	67	65	52	100
4:15 PM	67	49	44	89
4:30 PM	77	62	51	89
4:45 PM	74	52	37	98
5:00 PM	67	62	38	98
5:15 PM	64	63	35	114
5:30 PM	66	59	38	93
5:45 PM	73	49	32	113

Study Name Main W of Oxford
Start Date 11/30/2016
Start Time 4:00 PM
Site Code PM Peak

Channel Direction	Lane 1	Lane 2	Lane 1	Lane 2
	Westbound	Westbound	Eastbound	Eastbound
4:00 PM	82	69	71	85
4:15 PM	73	48	57	86
4:30 PM	86	74	60	73
4:45 PM	63	69	44	89
5:00 PM	70	59	58	79
5:15 PM	79	68	54	95
5:30 PM	70	61	45	82
5:45 PM	66	56	51	113



APPENDIX J: PEDESTRIAN COUNT SHEETS

NORTH



NORTH LEG (MARKET STREET)

Westbound/Eastbound

Date: 5/19 Weather: Sunny

Time: 11:15 - 12:15 pm

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

51

0:00-0:15

0:15-0:30

0:30-0:45

0:45-1:00

WEST LEG (MAIN STREET)

Southbound/Northbound

15-30
0:00-0:15

|| (2)

30-45
0:15-0:30

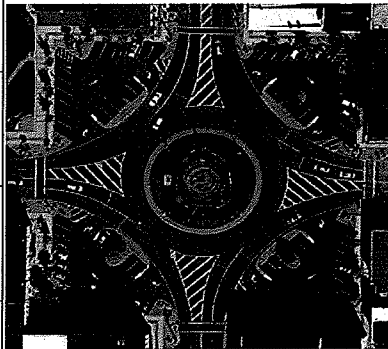
|||| (8)

45-00
0:30-0:45

|||| (8)

00-15
0:45-1:00

||||| (9)



0:00-0:15

0:15-0:30

0:30-0:45

0:45-1:00

Northbound/Southbound

EAST LEG (MAIN STREET)

15-30
0:00-0:15

||| (3)

30-45
0:15-0:30

|||| (7)

45-00
0:30-0:45

|||| (7)

00-15
0:45-1:00

|||| (7)

Westbound/Eastbound

SOUTH LEG (MARKET STREET)

24

27

NORTH



NORTH LEG (MARKET STREET)

Westbound/Eastbound

Date: 5/19 Weather: Sunny

Time: 12:15 - 1:15pm

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

81

0:00-0:15

0:15-0:30

0:30-0:45

0:45-1:00

WEST LEG (MAIN STREET)

Southbound/Northbound

15-30
0:00-0:15

30-45
0:15-0:30

45-00
0:30-0:45

00-15
0:45-1:00

||||| 12

||| 8

|| 6

||||| 14



Northbound/Southbound

EAST LEG (MAIN STREET)

0:00-0:15

0:15-0:30

0:30-0:45

0:45-1:00

15-30
0:00-0:45

30-45
0:15-0:30

45-00
0:30-0:45

00-15
0:45-1:00

||||| 9

||||| 19

||| 3

||||| 10

Westbound/Eastbound

SOUTH LEG (MARKET STREET)

41

40

NORTH



NORTH LEG (MARKET STREET)

Westbound/Eastbound

Date: 5/19 Weather: Sunny
Time: 4:15-5:15pm

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

54

0:00-0:15

0:15-0:30

0:30-0:45

0:45-1:00

WEST LEG (MAIN STREET)						EAST LEG (MAIN STREET)	
Southbound/Northbound						Northbound/Southbound	
15-30 0:00-0:15		13				0:00-0:15	
30-45 0:15-0:30		12				0:15-0:30	
45-00 0:30-0:45		8				0:30-0:45	
00-15 0:45-1:00		4				0:45-1:00	

15-30 0:00-0:15		5
30-45 0:15-0:30		3
45-00 0:30-0:45		5
00-15 0:45-1:00		4

Westbound/Eastbound

SOUTH LEG (MARKET STREET)

17

NORTH



NORTH LEG (MARKET STREET)

Date: 5/19 Weather: Sunny

Westbound/Eastbound

Time: 5:15-6:15pm

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

33

0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

WEST LEG (MAIN STREET)	15-30	III	3		EAST LEG (MAIN STREET)	0:00-0:15
	30-45	II	5			0:15-0:30
	45-00	III	4			0:30-0:45
	00-15	II	5			0:45-1:00

15-30	III	4
30-45	II	5
45-00	II	5
00-15	II	2

Westbound/Eastbound

SOUTH LEG (MARKET STREET)

16

17

22

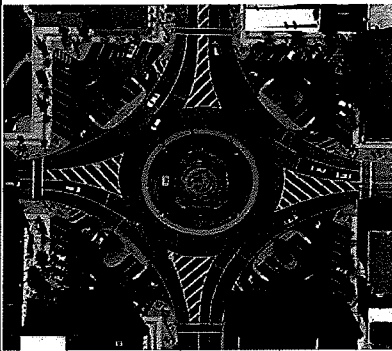


NORTH LEG (MARKET STREET)		
Westbound/Eastbound		
15-30 0:00-0:15		(4)
30-45 0:15-0:30		(10)
45-00 0:30-0:45		(4)
00-15 0:45-1:00		(4)

Date: 19 MAY Weather: Sunny, 64°
Time: 1115 - 1215

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

36

WEST LEG (MAIN STREET)	Southbound/Northbound	0:00-0:15		Northbound/Southbound	EAST LEG (MAIN STREET)
		(3)		0:00-0:15	
		(3)		0:15-0:30	
		(2)		0:30-0:45	
		(6)		0:45-1:00	

14

SOUTH LEG (MARKET STREET)	
Westbound/Eastbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

37



NORTH LEG (MARKET STREET)	
Westbound/Eastbound	
15-30 0:00-0:15	(12)
30-45 0:15-0:30	(11)
45-00 0:30-0:45	(3)
00-15 0:45-1:00	(11)

SOUTH LEG (MARKET STREET)	
Westbound/Eastbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

Date: 19 MAY Weather: sunny, 64°
Time: 1215-1315 (1:15)

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

54

WEST LEG (MAIN STREET)	
Southbound/Northbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

EAST LEG (MAIN STREET)	
Northbound/Southbound	
0:00-0:15	(10)
0:15-0:30	(4)
0:30-0:45	(2)
0:45-1:00	(1)

17

(28)

80 sunny

Nice out



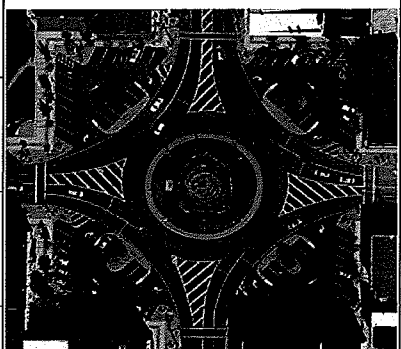
✓ 15-30
✓ 45-30
✓ 45-60
0-15

NORTH LEG (MARKET STREET)	
Westbound/Eastbound	
0:00-0:15	(11)
0:15-0:30	(9)
0:30-0:45	(6)
0:45-1:00	(4)

Date: 5/19 Weather: Nice out
Time: 4:15-5:15 pm
Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

(44)

WEST LEG (MAIN STREET)	
Southbound/Northbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	



(10)	0:00-0:15
(3)	0:15-0:30
(2)	0:30-0:45
(1)	0:45-1:00

EAST LEG (MAIN STREET)	
Northbound/Southbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	
Westbound/Eastbound	
SOUTH LEG (MARKET STREET)	

(16)

68° F Sunshine

23



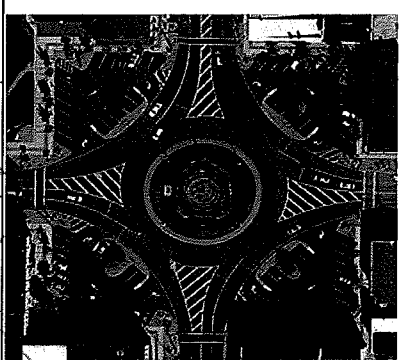
NORTH LEG (MARKET STREET)	
Westbound/Eastbound	
15-30 0:00-0:15	1 (1)
30-45 0:15-0:30	1 (10)
45-00 0:30-0:45	1 (6)
00-15 0:45-1:00	1 (6)

Date: 5/19 Weather: Nice out
Time: 5:15-6:15pm

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

42

WEST LEG (MAIN STREET)	
Southbound/Northbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	



EAST LEG (MAIN STREET)	
Northbound/Southbound	
0:00-0:15	1 (1)
0:15-0:30	1 (8)
0:30-0:45	1 (7)
0:45-1:00	1 (3)

19

SOUTH LEG (MARKET STREET)	
Westbound/Eastbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

NORTH



37

Date: 7/18/16 Weather: Sunny 65°F
Time: 4:15-5:15

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

✓
✓
✓
✓

NORTH LEG (MARKET STREET)	
Westbound/Eastbound	
15-30 0:00-0:15	(10)
30-45 0:15-0:30	(7)
45-00 0:30-0:45	(10)
00-15 0:45-1:00	(10)

58

21

WEST LEG (MAIN STREET)	Southbound/Northbound	0:00-0:15		Northbound/Southbound	EAST LEG (MAIN STREET)
		0:00-0:15			
		0:15-0:30			
		0:30-0:45			
		0:45-1:00			

0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	
Westbound/Eastbound	
SOUTH LEG (MARKET STREET)	

✓
✓
✓
✓

March \$593.00
 USHINE payment

14

NORTH

NORTH LEG (MARKET STREET)	
Westbound/Eastbound	
11:15-11:30 0:00-0:15	1 (1)
11:30-11:45 0:15-0:30	111 (4)
11:45-12 0:30-0:45	111 (3)
12-12:15 0:45-1:00	1111 (6)

Date: 5/18/16 Weather: sunny - 60°F

Time: 11:15-12:15

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

32

18

WEST LEG (MAIN STREET)	
Southbound/Northbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

EAST LEG (MAIN STREET)	
Northbound/Southbound	
11:15 0:00-0:15	111 (4)
11:30 0:15-0:30	11 (2)
11:45 0:30-0:45	1111 (6)
12:15 0:45-1:00	1111 (6)

0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

Westbound/Eastbound

SOUTH LEG (MARKET STREET)

24



NORTH LEG (MARKET STREET)

Westbound/Eastbound

Date: 5/18/16 Weather: 61°F - Sunny
Time: 12:15-1:15

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

47

15-20 0:00-0:15	111	(3)
30-45 0:15-0:30	111	(3)
45-60 0:30-0:45		(10)
00-15 0:45-1:00		(8)

WEST LEG (MAIN STREET) Southbound/Northbound	0:00-0:15		111	(3)	15-30 0:00-0:15	EAST LEG (MAIN STREET) Northbound/Southbound
	0:15-0:30			(6)	30-45 0:15-0:30	
	0:30-0:45		1111	(4)	45-60 0:30-0:45	
	0:45-1:00			(10)	00-15 0:45-1:00	

23

0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	
	Westbound/Eastbound
	SOUTH LEG (MARKET STREET)

NORTH



NORTH LEG (MARKET STREET)

Westbound/Eastbound

Date: 5/18 Weather: Sunny

Time: 5:15-6:15 pm

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

67

5:15-5:30
0:00-0:15

5:30-5:45
0:15-0:30

5:45-6:00
0:30-0:45

6:00-6:15
0:45-1:00

WEST LEG (MAIN STREET)						EAST LEG (MAIN STREET)	
Southbound/Northbound						Northbound/Southbound	
15-30 0:00-0:15		(3)				0:00-0:15	
30-45 0:15-0:30		(7)				0:15-0:30	
45-00 0:30-0:45		(7)				0:30-0:45	
00-15 0:45-1:00		(20)				0:45-1:00	

15-30
0:00-0:15

30-45
0:15-0:30

45-00
0:30-0:45

00-15
0:45-1:00

|||| (7)

|||| (8)

|||| (5)

|||| (10)

Westbound/Eastbound

SOUTH LEG (MARKET STREET)

30

NORTH
↑

(27)

WEST LEG (MAIN STREET)		NORTH LEG (MARKET STREET)		SOUTH LEG (MARKET STREET)		EAST LEG (MAIN STREET)	
Southbound/Northbound		Westbound/Eastbound		Westbound/Eastbound		Northbound/Southbound	
15-30 0:00-0:15	III (3)	12:15-12:30 0:00-0:15		12:15-12:30 0:00-0:15	II I (6)	0:00-0:15	
30-45 0:15-0:30	II I (6)	12:30-12:45 0:15-0:30		12:30-12:45 0:15-0:30	II II (7)	0:15-0:30	
45-00 0:30-0:45	II II III (14)	12:45-1:00 0:30-0:45		12:45-1:00 0:30-0:45	II II (10)	0:30-0:45	
00-15 0:45-1:00	III (4)	1:00-1:15 0:45-1:00		1:00-1:15 0:45-1:00	II II (10)	0:45-1:00	



Date: 5/18 Weather: Sunny
Time: 12:15-1:15pm
Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

(60)

(33)

NORTH
↑

~~*~~ NORTH LEG (MARKET STREET)

Date: 5/18 Weather: Sunny

Westbound/Eastbound

Time: 11:15-12:15pm

Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

48

11:15-11:30
0:00-0:45

11:30-11:45
0:15-0:30

11:45-12:00
0:30-0:45

12:00-12:15
0:45-1:00



WEST LEG (MAIN STREET)	
Southbound/Northbound	
0:00-0:15	11 (2)
0:15-0:30	11 (2)
0:30-0:45	11 (6)
0:45-1:00	1 (1)

EAST LEG (MAIN STREET)	
Northbound/Southbound	
0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	

15-30
0:00-0:15

30-45
0:15-0:30

45-12:00
0:30-0:45

12:00-15
0:45-1:00

	(5)
	(5)
	(16)
	(11)
* ← Westbound/Eastbound →	
SOUTH LEG (MARKET STREET)	

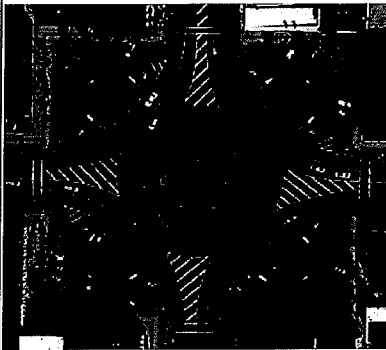
37

NORTH



(18)

WEST LEG (MAIN STREET)		NORTH LEG (MARKET STREET)		EAST LEG (MAIN STREET)		SOUTH LEG (MARKET STREET)	
Southbound/Northbound		Westbound/Eastbound		Northbound/Southbound		Westbound/Eastbound	
15-30 0:00-0:15	(11)	4:15-4:30 0:00-0:15		0:00-0:15		15-30 0:00-0:15	(3)
30-45 0:15-0:30	(3)	4:30-4:45 0:15-0:30		0:15-0:30		30-45 0:15-0:30	(11)
45-00 0:30-0:45	(2)	4:45-5:00 0:30-0:45		0:30-0:45		45-00 0:30-0:45	(4)
00-15 0:45-1:00	(2)	5:00-5:15 0:45-1:00		0:45-1:00		00-15 0:45-1:00	(3)



Date: 5/18 Weather: Sunny
Time: 4:15-5:15 pm
Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

(39)

(21)

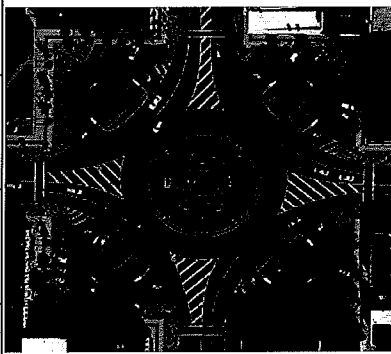
NORTH



✓ 5
✓
✓
6

NORTH LEG (MARKET STREET)	
Westbound/Eastbound	
15-30 0:00-0:15	
30-45 0:15-0:30	
45-60 0:30-0:45	
60-15 0:45-1:00	

Date: 5/18/16 Weather: sunny - 65°F
Time: 5:15-6:15
Notes: Use one sheet per hour recorded. Pedestrian Counts must be completed on a Tuesday, Wednesday or Thursday and can not be during a Holiday week. A minimum of 4 hours of count data is required. The busiest 4 hours for pedestrian traffic is needed. The 4 hours do not need to be consecutive.

WEST LEG (MAIN STREET)	Southbound/Northbound	0:00-0:15		Northbound/Southbound	EAST LEG (MAIN STREET)
	0:00-0:15		 	15-30 0:00-0:15	5 ✓ ✓ ✓ 6
	0:15-0:30		 	30-45 0:15-0:30	
	0:30-0:45		 	45-60 0:30-0:45	
	0:45-1:00		 	60-15 0:45-1:00	

0:00-0:15	
0:15-0:30	
0:30-0:45	
0:45-1:00	
Westbound/Eastbound	
SOUTH LEG (MARKET STREET)	



APPENDIX K: HCS ROUNDABOUT ANALYSIS

HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Sunny Mikkilineni				Intersection	MAIN STREET & MARKET STREET			
Agency or Co.	WOOLPERT				E/W Street Name	MAIN STREET			
Date Performed	1/18/2017				N/S Street Name	MARKET STREET			
Analysis Year	2016				Analysis Time Period (hrs)	0.25			
Time Period	PM PEAK HOUR (EXISTING)				Peak Hour Factor	0.95			
Project Description	PARKING AND TRAFFIC ASSESSMENT				Jurisdiction	CITY OF TROY			

Volume Adjustment and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
Lane Assignment	LT		R		LT		R		LT		R		LT		R	
Volume (V), veh/h	0	232	196	175	0	58	163	36	0	166	412	61	0	23	322	205
Percent Heavy Vehicles, %	0	1	1	1	0	2	2	2	0	1	1	1	0	1	1	1
Flow Rate (vPCE) pc/h	0	247	208	186	0	62	175	39	0	176	438	65	0	24	342	218
Right-Turn Bypass	Yielding				Yielding				Yielding				Yielding			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing	37				37				30				33			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	4.1129	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (Ve), pc/h	455	0	186	237	0	39	614	0	65	366	0	218
Entry Volume veh/h	450	0	184	232	0	38	608	0	64	362	0	216
Circulating Flow (Vc), pc/h	428			861			479			413		
Exiting Flow (Vex), pc/h	232			351			685			404		
Capacity (cPCE), pc/h	737	737	754	478	478	570	700	700	961	748	748	796
Capacity (c), veh/h	710	710	727	466	466	556	679	679	932	722	722	768
v/c Ratio (X)	0.63	0.00	0.25	0.50	0.00	0.07	0.90	0.00	0.07	0.50	0.00	0.28

Delay and Level of Service

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	16.6	5.1	7.9	17.6	7.7	7.3	38.0	5.3	4.5	12.4	5.0	7.9
Lane LOS	C	A	A	C	A	A	E	A	A	B	A	A
95% Queue	4.6	0.0	1.0	2.7	0.0	0.2	11.3	0.0	0.2	2.8	0.0	1.2
Approach Delay, s/veh	14.1			16.2			34.8			10.7		
Approach LOS	B			C			D			B		
Intersection Delay, s/veh / LOS	19.9						C					

HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Sunny Mikkilineni				Intersection	MAIN STREET & MARKET STREET			
Agency or Co.	WOOLPERT				E/W Street Name	MAIN STREET			
Date Performed	1/18/2016				N/S Street Name	MARKET STREET			
Analysis Year	2036				Analysis Time Period (hrs)	0.25			
Time Period	PM PEAK HOUR (EXISTING)				Peak Hour Factor	0.95			
Project Description	PARKING AND TRAFFIC ASSESSMENT				Jurisdiction	CITY OF TROY			

Volume Adjustment and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1
Lane Assignment	LT		R		LT		R		LT		R		LT		R	
Volume (V), veh/h	0	249	210	188	0	62	175	39	0	178	442	65	0	25	346	220
Percent Heavy Vehicles, %	0	1	1	1	0	2	2	2	0	1	1	1	0	1	1	1
Flow Rate (vPCE) pc/h	0	265	223	200	0	67	188	42	0	189	470	69	0	27	368	234
Right-Turn Bypass	Yielding				Yielding				Yielding				Yielding			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing	37				37				30				33			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	4.1129	5.1929	5.1929	5.1929
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (Ve), pc/h	488	0	200	255	0	42	659	0	69	395	0	234
Entry Volume veh/h	483	0	198	250	0	41	652	0	68	391	0	232
Circulating Flow (Vc), pc/h	462			924			515			444		
Exiting Flow (Vex), pc/h	250			377			735			435		
Capacity (cPCE), pc/h	712	712	731	449	449	542	675	675	949	725	725	775
Capacity (c), veh/h	687	687	706	440	440	531	656	656	922	701	701	750
v/c Ratio (X)	0.70	0.00	0.28	0.57	0.00	0.08	0.99	0.00	0.07	0.56	0.00	0.31

Delay and Level of Service

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh	20.2	5.2	8.5	21.3	8.2	7.7	58.8	5.5	4.6	14.2	5.1	8.5
Lane LOS	C	A	A	C	A	A	F	A	A	B	A	A
95% Queue	5.8	0.0	1.1	3.5	0.0	0.3	15.4	0.0	0.2	3.5	0.0	1.3
Approach Delay, s/veh	16.8			19.4			53.7			12.1		
Approach LOS	C			C			F			B		
Intersection Delay, s/veh / LOS	27.3						D					

HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Sunny Mikkilineni				Intersection	MAIN STREET & MARKET STREET			
Agency or Co.	WOOLPERT				E/W Street Name	MAIN STREET			
Date Performed	1/27/2016				N/S Street Name	MARKET STREET			
Analysis Year	2016				Analysis Time Period (hrs)	0.25			
Time Period	PM PEAK HOUR (PROPOSED)				Peak Hour Factor	0.95			
Project Description	PARKING AND TRAFFIC ASSESSMENT				Jurisdiction	CITY OF TROY			

Volume Adjustment and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	1	1	0	0	0	1	0
Lane Assignment				LT				LTR	L			TR				LTR
Volume (V), veh/h	0	232	196	175	0	58	163	36	0	166	412	61	0	23	322	205
Percent Heavy Vehicles, %	0	1	1	1	0	2	2	2	0	1	1	1	0	1	1	1
Flow Rate (vPCE) pc/h	0	247	208	186	0	62	175	39	0	176	438	65	0	24	342	218
Right-Turn Bypass	Yielding				None				None				None			
Conflicting Lanes	1				2				1				1			
Pedestrians Crossing	37				37				30				33			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)		5.1929	5.1929		4.1129		5.1929	5.1929			5.1929	
Follow-Up Headway (sec)		3.1858	3.1858		3.1858		3.1858	3.1858			3.1858	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (Ve), pc/h		455	186		276		176	503			584	
Entry Volume veh/h		450	184		271		174	498			578	
Circulating Flow (Vc), pc/h	428			861			479			413		
Exiting Flow (Vex), pc/h	297			569			724			404		
Capacity (cPCE), pc/h		737	754		618		700	700			748	
Capacity (c), veh/h		726	743		603		679	679			737	
v/c Ratio (X)		0.62	0.25		0.45		0.26	0.73			0.78	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		15.8	7.7		13.0		8.4	22.1			24.2	
Lane LOS		C	A		B		A	C			C	
95% Queue		4.4	1.0		2.3		1.0	6.4			7.8	
Approach Delay, s/veh	13.5			13.0			18.5			24.2		
Approach LOS	B			B			C			C		
Intersection Delay, s/veh / LOS	17.9						C					

HCS 2010 Roundabout Report

General Information					Site Information				
Analyst	Sunny Mikkilineni				Intersection	MAIN STREET & MARKET STREET			
Agency or Co.	WOOLPERT				E/W Street Name	MAIN STREET			
Date Performed	1/27/2017				N/S Street Name	MARKET STREET			
Analysis Year	2036				Analysis Time Period (hrs)	0.25			
Time Period	PM PEAK HOUR (PROPOSED)				Peak Hour Factor	0.95			
Project Description	PARKING AND TRAFFIC ASSESSMENT				Jurisdiction	CITY OF TROY			

Volume Adjustment and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	1	1	0	0	0	1	0
Lane Assignment				LT				LTR	L			TR				LTR
Volume (V), veh/h	0	249	210	188	0	62	175	39	0	178	442	65	0	25	346	220
Percent Heavy Vehicles, %	0	1	1	1	0	2	2	2	0	1	1	1	0	1	1	1
Flow Rate (vPCE) pc/h	0	265	223	200	0	67	188	42	0	189	470	69	0	27	368	234
Right-Turn Bypass	Yielding				None				None				None			
Conflicting Lanes	1				2				1				1			
Pedestrians Crossing	37				37				30				33			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (sec)		5.1929	5.1929		4.1129		5.1929	5.1929			5.1929	
Follow-Up Headway (sec)		3.1858	3.1858		3.1858		3.1858	3.1858			3.1858	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (Ve), pc/h		488	200		297		189	539			629	
Entry Volume veh/h		483	198		291		187	534			623	
Circulating Flow (Vc), pc/h	462			924			515			444		
Exiting Flow (Vex), pc/h	319			611			777			435		
Capacity (cPCE), pc/h		712	731		592		675	675			725	
Capacity (c), veh/h		701	721		580		656	656			714	
v/c Ratio (X)		0.69	0.27		0.50		0.29	0.81			0.87	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Movement	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		19.1	8.3		14.8		9.1	29.0			33.5	
Lane LOS		C	A		B		A	D			D	
95% Queue		5.5	1.1		2.8		1.2	8.4			10.6	
Approach Delay, s/veh	16.0			14.8			23.8			33.5		
Approach LOS	C			B			C			D		
Intersection Delay, s/veh / LOS	23.0						C					

APPENDIX L: SYNCHRO CAPACITY RESULT SUMMARY SHEETS

HCM 2010 Signalized Intersection Summary
1: S. Market Street & Race Street

076233-2016 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	37	10	13	26	24	12	570	36	40	490	24
Future Volume (veh/h)	24	37	10	13	26	24	12	570	36	40	490	24
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	26	40	11	14	28	26	13	620	39	43	533	26
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	79	19	72	64	51	68	2502	156	190	2268	110
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.77	0.77	0.77	1.00	1.00	1.00
Sat Flow, veh/h	443	1026	245	230	825	653	27	3259	203	180	2955	143
Grp Volume(v), veh/h	77	0	0	68	0	0	353	0	319	299	0	303
Grp Sat Flow(s),veh/h/ln	1713	0	0	1708	0	0	1830	0	1659	1608	0	1670
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	2.9	0.0	0.0	4.3	0.0	4.4	0.0	0.0	0.0
Prop In Lane	0.34		0.14	0.21		0.38	0.04		0.12	0.14		0.09
Lane Grp Cap(c), veh/h	193	0	0	186	0	0	1451	0	1274	1286	0	1282
V/C Ratio(X)	0.40	0.00	0.00	0.36	0.00	0.00	0.24	0.00	0.25	0.23	0.00	0.24
Avail Cap(c_a), veh/h	699	0	0	697	0	0	1451	0	1274	1286	0	1282
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.98	0.00	0.98
Uniform Delay (d), s/veh	35.6	0.0	0.0	35.4	0.0	0.0	2.7	0.0	2.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	1.7	0.0	0.0	0.4	0.0	0.5	0.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	0.0	0.0	2.7	0.0	0.0	4.2	0.0	3.8	0.3	0.0	0.3
LnGrp Delay(d),s/veh	37.5	0.0	0.0	37.1	0.0	0.0	3.1	0.0	3.1	0.4	0.0	0.4
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		77			68			672			602	
Approach Delay, s/veh		37.5			37.1			3.1			0.4	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.1		12.9		67.1		12.9				
Change Period (Y+Rc), s		* 5.7		* 6.7		* 5.7		* 6.7				
Max Green Setting (Gmax), s		* 36		* 31		* 36		* 31				
Max Q Clear Time (g_c+I1), s		6.4		5.3		2.0		4.9				
Green Ext Time (p_c), s		14.3		1.2		15.3		1.2				
Intersection Summary												
HCM 2010 Ctrl Delay				5.5								
HCM 2010 LOS				A								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
2: S. Market Street & Canal Street

076233-2016 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	51	40	17	41	43	27	569	44	38	513	10
Future Volume (veh/h)	5	51	40	17	41	43	27	569	44	38	513	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	5	55	43	18	45	47	29	618	48	41	558	11
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	103	76	70	85	77	113	2252	172	172	2252	44
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	35	967	718	170	803	726	88	3084	236	166	3084	60
Grp Volume(v), veh/h	103	0	0	110	0	0	359	0	336	303	0	307
Grp Sat Flow(s),veh/h/ln	1721	0	0	1698	0	0	1755	0	1653	1626	0	1684
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.05		0.42	0.16		0.43	0.08		0.14	0.14		0.04
Lane Grp Cap(c), veh/h	230	0	0	233	0	0	1330	0	1207	1238	0	1230
V/C Ratio(X)	0.45	0.00	0.00	0.47	0.00	0.00	0.27	0.00	0.28	0.24	0.00	0.25
Avail Cap(c_a), veh/h	706	0	0	693	0	0	1330	0	1207	1238	0	1230
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.97	0.00	0.97	0.98	0.00	0.98
Uniform Delay (d), s/veh	34.0	0.0	0.0	34.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	2.1	0.0	0.0	0.5	0.0	0.6	0.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	0.0	4.4	0.0	0.0	0.3	0.0	0.3	0.3	0.0	0.3
LnGrp Delay(d),s/veh	35.9	0.0	0.0	36.2	0.0	0.0	0.5	0.0	0.6	0.5	0.0	0.5
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		103			110			695			610	
Approach Delay, s/veh		35.9			36.2			0.5			0.5	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.4		15.6		64.4		15.6				
Change Period (Y+Rc), s		6.0		7.1		6.0		* 7.1				
Max Green Setting (Gmax), s		36.0		30.9		36.0		* 31				
Max Q Clear Time (g_c+I1), s		2.0		6.5		2.0		6.8				
Green Ext Time (p_c), s		15.8		1.8		15.8		1.8				
Intersection Summary												
HCM 2010 Ctrl Delay			5.5									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
3: S. Market Street & Franklin Street

076233-2016 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	35	33	18	32	27	18	588	17	20	507	20
Future Volume (veh/h)	14	35	33	18	32	27	18	588	17	20	507	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	15	38	36	20	35	29	20	639	18	22	551	22
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	74	61	80	75	52	92	2656	74	110	2574	102
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	0.80	0.80	0.80
Sat Flow, veh/h	179	835	689	275	843	590	56	3325	93	77	3223	127
Grp Volume(v), veh/h	89	0	0	84	0	0	350	0	327	306	0	289
Grp Sat Flow(s),veh/h/ln	1703	0	0	1709	0	0	1794	0	1679	1754	0	1673
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4
Cycle Q Clear(g_c), s	3.9	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	3.2	0.0	3.4
Prop In Lane	0.17		0.40	0.24		0.35	0.06		0.06	0.07		0.08
Lane Grp Cap(c), veh/h	204	0	0	207	0	0	1481	0	1341	1450	0	1336
V/C Ratio(X)	0.44	0.00	0.00	0.41	0.00	0.00	0.24	0.00	0.24	0.21	0.00	0.22
Avail Cap(c_a), veh/h	641	0	0	637	0	0	1481	0	1341	1450	0	1336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.97	0.00	0.97	0.88	0.00	0.88
Uniform Delay (d), s/veh	35.0	0.0	0.0	34.9	0.0	0.0	0.0	0.0	0.0	1.9	0.0	2.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	1.8	0.0	0.0	0.4	0.0	0.4	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.0	0.0	3.4	0.0	0.0	0.3	0.0	0.3	3.1	0.0	3.0
LnGrp Delay(d),s/veh	37.1	0.0	0.0	36.7	0.0	0.0	0.4	0.0	0.4	2.2	0.0	2.3
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h	89			84			677			595		
Approach Delay, s/veh	37.1			36.7			0.4			2.3		
Approach LOS	D			D			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	68.4			11.6			68.4			11.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	42.5			28.5			42.5			28.5		
Max Q Clear Time (g_c+I1), s	2.0			5.9			5.4			5.6		
Green Ext Time (p_c), s	16.2			1.4			15.6			1.4		
Intersection Summary												
HCM 2010 Ctrl Delay				5.5								
HCM 2010 LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection									
Intersection Delay, s/veh	21.3								
Intersection LOS	C								
Approach	EB		WB		NB		SB		
Entry Lanes	1		1		1		1		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	655		279		694		598		
Demand Flow Rate, veh/h	662		285		701		604		
Vehicles Circulating, veh/h	442		889		495		427		
Vehicles Exiting, veh/h	363		240		417		707		
Follow-Up Headway, s	3.186		3.186		3.186		3.186		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	14.3		17.4		38.5		10.8		
Approach LOS	B		C		E		B		
Lane	Left	Bypass	Left	Bypass	Left	Bypass	Left	Bypass	
Designated Moves	LT	R	LT	R	LT	R	LT	R	
Assumed Moves	LT	R	LT	R	LT	R	LT	R	
RT Channelized		Yield		Yield		Yield		Yield	
Lane Util	1.000		1.000		1.000		1.000		
Critical Headway, s	5.193		5.193		5.193		5.193		
Entry Flow, veh/h	470	192	245	40	634	67	379	225	
Cap Entry Lane, veh/h	726	745	464	557	689	889	737	786	
Entry HV Adj Factor	0.989	0.990	0.981	0.980	0.990	0.990	0.991	0.990	
Flow Entry, veh/h	465	190	240	39	628	66	375	223	
Cap Entry, veh/h	718	737	456	546	682	880	730	778	
V/C Ratio	0.647	0.258	0.527	0.071	0.920	0.075	0.514	0.287	
Control Delay, s/veh	17.0	7.9	19.0	7.5	42.1	4.8	12.6	7.9	
LOS	C	A	C	A	E	A	B	A	
95th %tile Queue, veh	5	1	3	0	12	0	3	1	

HCM 2010 Signalized Intersection Summary
5: N. Market Street & Water Street

076233-2016 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	45	18	25	38	49	21	639	24	30	496	32
Future Volume (veh/h)	68	45	18	25	38	49	21	639	24	30	496	32
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	74	49	20	27	41	53	23	695	26	33	539	35
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	232	95	208	66	85	637	2472	92	555	2398	155
Arrive On Green	0.05	0.18	0.18	0.09	0.09	0.09	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	1774	1258	514	1326	739	955	835	3479	130	729	3375	219
Grp Volume(v), veh/h	74	0	69	27	0	94	23	353	368	33	282	292
Grp Sat Flow(s),veh/h/ln	1774	0	1772	1326	0	1694	835	1770	1840	729	1770	1824
Q Serve(g_s), s	2.9	0.0	2.6	1.5	0.0	4.3	0.8	5.8	5.8	1.4	4.4	4.4
Cycle Q Clear(g_c), s	2.9	0.0	2.6	1.5	0.0	4.3	5.2	5.8	5.8	7.2	4.4	4.4
Prop In Lane	1.00		0.29	1.00		0.56	1.00		0.07	1.00		0.12
Lane Grp Cap(c), veh/h	226	0	327	208	0	151	637	1257	1307	555	1257	1296
V/C Ratio(X)	0.33	0.00	0.21	0.13	0.00	0.62	0.04	0.28	0.28	0.06	0.22	0.23
Avail Cap(c_a), veh/h	278	0	793	518	0	546	637	1257	1307	555	1257	1296
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	27.7	33.9	0.0	35.1	4.9	4.2	4.2	5.5	4.0	4.0
Incr Delay (d2), s/veh	0.8	0.0	0.3	0.3	0.0	4.2	0.1	0.5	0.5	0.2	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	0.0	2.4	1.0	0.0	3.9	0.4	5.3	5.5	0.6	4.1	4.2
LnGrp Delay(d),s/veh	30.2	0.0	28.0	34.2	0.0	39.3	5.0	4.7	4.7	5.7	4.4	4.4
LnGrp LOS	C		C	C		D	A	A	A	A	A	A
Approach Vol, veh/h	143			121			744			607		
Approach Delay, s/veh	29.2			38.2			4.7			4.5		
Approach LOS	C			D			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	7.6	11.3	61.0		19.0		61.0					
Change Period (Y+Rc), s	3.6	* 4.2	* 4.2		* 4.2		* 4.2					
Max Green Setting (Gmax), s	6.4	* 26	* 36		* 36		* 36					
Max Q Clear Time (g_c+I1), s	4.9	6.3	9.2		4.6		7.8					
Green Ext Time (p_c), s	0.0	0.9	10.4		1.1		10.6					
Intersection Summary												
HCM 2010 Ctrl Delay				9.3								
HCM 2010 LOS				A								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
6: Walnut Street & E. Main Street

076233-2016 PM Existing.syn
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	222	34	9	222	3	14	10	7	1	13	21
Future Volume (veh/h)	13	222	34	9	222	3	14	10	7	1	13	21
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	14	241	37	10	241	3	15	11	8	1	14	23
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	578	799	123	548	929	12	282	203	129	49	229	356
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1131	1578	242	1097	1836	23	622	580	370	8	656	1017
Grp Volume(v), veh/h	14	0	278	10	0	244	34	0	0	38	0	0
Grp Sat Flow(s),veh/h/ln	1131	0	1820	1097	0	1859	1571	0	0	1681	0	0
Q Serve(g_s), s	0.6	0.0	7.1	0.4	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.5	0.0	7.1	7.6	0.0	6.0	1.0	0.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.01	0.44		0.24	0.03		0.61
Lane Grp Cap(c), veh/h	578	0	921	548	0	941	615	0	0	634	0	0
V/C Ratio(X)	0.02	0.00	0.30	0.02	0.00	0.26	0.06	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	578	0	921	548	0	941	615	0	0	634	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.99	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.1	0.0	11.5	13.7	0.0	11.2	17.2	0.0	0.0	17.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.8	0.1	0.0	0.7	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	6.8	0.3	0.0	5.8	0.9	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	13.2	0.0	12.3	13.8	0.0	11.9	17.4	0.0	0.0	17.5	0.0	0.0
LnGrp LOS	B		B	B		B	B			B		
Approach Vol, veh/h	292		254				34				38	
Approach Delay, s/veh	12.4		12.0				17.4				17.5	
Approach LOS	B		B				B				B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	46.0		34.0		46.0		34.0					
Change Period (Y+Rc), s	5.5		6.0		5.5		6.0					
Max Green Setting (Gmax), s	40.5		28.0		40.5		28.0					
Max Q Clear Time (g_c+I1), s	9.1		3.2		9.6		3.0					
Green Ext Time (p_c), s	5.4		0.5		5.3		0.5					
Intersection Summary												
HCM 2010 Ctrl Delay	12.8											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary
7: Cherry Street & W. Main Street

076233-2016 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	525	17	8	492	11	16	11	23	8	19	17
Future Volume (veh/h)	14	525	17	8	492	11	16	11	23	8	19	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	15	571	18	9	535	12	17	12	25	9	21	18
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	1807	56	55	1845	41	189	141	234	121	267	200
Arrive On Green	1.00	1.00	1.00	0.54	0.54	0.54	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	33	3363	105	16	3432	76	407	444	733	211	836	628
Grp Volume(v), veh/h	315	0	289	291	0	265	54	0	0	48	0	0
Grp Sat Flow(s),veh/h/ln	1824	0	1677	1843	0	1682	1584	0	0	1675	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	6.8	0.0	6.9	1.8	0.0	0.0	1.5	0.0	0.0
Prop In Lane	0.05		0.06	0.03		0.05	0.31		0.46	0.19		0.37
Lane Grp Cap(c), veh/h	1027	0	901	1037	0	904	564	0	0	587	0	0
V/C Ratio(X)	0.31	0.00	0.32	0.28	0.00	0.29	0.10	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	1027	0	901	1037	0	904	564	0	0	587	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.00	0.95	0.89	0.00	0.89	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	10.1	0.0	10.2	19.2	0.0	0.0	19.1	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.9	0.6	0.0	0.7	0.3	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	0.4	6.6	0.0	6.0	1.6	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	0.7	0.0	0.9	10.7	0.0	10.9	19.5	0.0	0.0	19.4	0.0	0.0
LnGrp LOS	A		A	B		B	B			B		
Approach Vol, veh/h		604			556			54			48	
Approach Delay, s/veh		0.8			10.8			19.5			19.4	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		49.0		31.0		49.0				
Change Period (Y+Rc), s		5.5		6.0		5.5		6.0				
Max Green Setting (Gmax), s		25.5		43.0		25.5		43.0				
Max Q Clear Time (g_c+I1), s		3.8		2.0		3.5		8.9				
Green Ext Time (p_c), s		0.7		13.5		0.7		12.7				
Intersection Summary												
HCM 2010 Ctrl Delay				6.7								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary
8: Plum Street & W. Main Street

076233-2016 PM Existing.syn
01/30/2017

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↘			
Traffic Volume (veh/h)	526	28	15	511	33	28		
Future Volume (veh/h)	526	28	15	511	33	28		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1900	1863	1863	1900		
Adj Flow Rate, veh/h	572	30	16	555	36	30		
Adj No. of Lanes	2	0	0	2	0	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	1668	87	65	1652	326	272		
Arrive On Green	0.49	0.49	0.98	0.98	0.36	0.36		
Sat Flow, veh/h	3515	179	37	3474	905	754		
Grp Volume(v), veh/h	295	307	304	267	67	0		
Grp Sat Flow(s),veh/h/ln	1770	1831	1815	1610	1684	0		
Q Serve(g_s), s	8.2	8.2	0.0	0.5	2.1	0.0		
Cycle Q Clear(g_c), s	8.2	8.2	0.5	0.5	2.1	0.0		
Prop In Lane		0.10	0.05		0.54	0.45		
Lane Grp Cap(c), veh/h	863	893	932	785	606	0		
V/C Ratio(X)	0.34	0.34	0.33	0.34	0.11	0.00		
Avail Cap(c_a), veh/h	863	893	932	785	606	0		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.96	0.96	1.00	0.00		
Uniform Delay (d), s/veh	12.6	12.6	0.5	0.5	17.1	0.0		
Incr Delay (d2), s/veh	1.1	1.1	0.9	1.1	0.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	7.7	7.9	0.7	0.7	1.9	0.0		
LnGrp Delay(d),s/veh	13.7	13.7	1.4	1.7	17.4	0.0		
LnGrp LOS	B	B	A	A	B			
Approach Vol, veh/h	602			571	67			
Approach Delay, s/veh	13.7			1.5	17.4			
Approach LOS	B			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		45.0				45.0		35.0
Change Period (Y+Rc), s		6.0				6.0		6.2
Max Green Setting (Gmax), s		39.0				39.0		28.8
Max Q Clear Time (g_c+I1), s		10.2				2.5		4.1
Green Ext Time (p_c), s		12.5				13.8		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			8.3					
HCM 2010 LOS			A					
Notes								
User approved volume balancing among the lanes for turning movement.								

HCM 2010 Signalized Intersection Summary
9: Monroe Street & W. Main Street

076233-2016 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	525	15	18	534	9	9	14	31	6	10	26
Future Volume (veh/h)	17	525	15	18	534	9	9	14	31	6	10	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	18	571	16	20	580	10	10	15	34	7	11	28
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	1635	45	72	1647	28	117	179	331	107	169	349
Arrive On Green	0.98	0.98	0.98	0.49	0.49	0.49	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	42	3354	93	49	3379	57	184	507	939	157	481	991
Grp Volume(v), veh/h	315	0	290	316	0	294	59	0	0	46	0	0
Grp Sat Flow(s),veh/h/ln	1810	0	1679	1801	0	1685	1630	0	0	1628	0	0
Q Serve(g_s), s	0.0	0.0	0.5	0.0	0.0	8.7	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.5	0.0	0.5	8.4	0.0	8.7	1.9	0.0	0.0	1.5	0.0	0.0
Prop In Lane	0.06		0.06	0.06		0.03	0.17		0.58	0.15		0.61
Lane Grp Cap(c), veh/h	930	0	818	926	0	821	627	0	0	626	0	0
V/C Ratio(X)	0.34	0.00	0.35	0.34	0.00	0.36	0.09	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	930	0	818	926	0	821	627	0	0	626	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.5	0.0	0.5	12.7	0.0	12.7	17.4	0.0	0.0	17.2	0.0	0.0
Incr Delay (d2), s/veh	1.0	0.0	1.2	1.0	0.0	1.2	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	0.8	8.1	0.0	7.7	1.7	0.0	0.0	1.3	0.0	0.0
LnGrp Delay(d),s/veh	1.5	0.0	1.7	13.7	0.0	13.9	17.7	0.0	0.0	17.5	0.0	0.0
LnGrp LOS	A		A	B		B	B			B		
Approach Vol, veh/h		605			610			59			46	
Approach Delay, s/veh		1.6			13.8			17.7			17.5	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		35.0		45.0		35.0				
Change Period (Y+Rc), s		6.0		* 6.8		6.0		* 6.8				
Max Green Setting (Gmax), s		39.0		* 28		39.0		* 28				
Max Q Clear Time (g_c+I1), s		2.5		3.5		10.7		3.9				
Green Ext Time (p_c), s		14.6		0.8		13.0		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			8.5									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: Hobart Drive/Adam Street & W. Main Street

076233-2016 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	522	20	12	535	29	28	53	1	20	54	186
Future Volume (veh/h)	193	522	20	12	535	29	28	53	1	20	54	186
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	210	567	22	13	582	32	30	58	1	22	59	202
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	580	2117	82	456	1516	83	178	412	7	358	84	286
Arrive On Green	0.09	0.61	0.61	0.89	0.89	0.89	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1774	3474	135	824	3412	187	1114	1826	31	1338	370	1268
Grp Volume(v), veh/h	210	289	300	13	302	312	30	0	59	22	0	261
Grp Sat Flow(s),veh/h/ln	1774	1770	1839	824	1770	1830	1114	0	1857	1338	0	1639
Q Serve(g_s), s	4.8	6.1	6.1	0.1	2.3	2.3	2.0	0.0	2.0	1.1	0.0	11.7
Cycle Q Clear(g_c), s	4.8	6.1	6.1	0.1	2.3	2.3	13.8	0.0	2.0	3.1	0.0	11.7
Prop In Lane	1.00		0.07	1.00		0.10	1.00		0.02	1.00		0.77
Lane Grp Cap(c), veh/h	580	1078	1121	456	786	813	178	0	419	358	0	370
V/C Ratio(X)	0.36	0.27	0.27	0.03	0.38	0.38	0.17	0.00	0.14	0.06	0.00	0.71
Avail Cap(c_a), veh/h	708	1078	1121	456	786	813	304	0	629	506	0	551
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	7.3	7.3	2.5	2.6	2.6	34.9	0.0	24.8	26.0	0.0	28.5
Incr Delay (d2), s/veh	0.4	0.6	0.6	0.1	1.3	1.3	0.6	0.0	0.2	0.1	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	5.7	5.9	0.1	2.3	2.4	1.2	0.0	1.9	0.7	0.0	9.6
LnGrp Delay(d),s/veh	9.4	7.9	7.9	2.6	3.9	3.9	35.5	0.0	25.0	26.1	0.0	32.0
LnGrp LOS	A	A	A	A	A	A	D		C	C		C
Approach Vol, veh/h	799				627				89			
Approach Delay, s/veh	8.3				3.9				28.5			
Approach LOS	A				A				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		5		6		8		
Phs Duration (G+Y+Rc), s	54.9			25.1		13.2		41.8		25.1		
Change Period (Y+Rc), s	* 6.2			7.0		* 6.2		* 6.2		* 7		
Max Green Setting (Gmax), s	* 40			26.9		* 13		* 21		* 27		
Max Q Clear Time (g_c+I1), s	8.1			13.7		6.8		4.3		15.8		
Green Ext Time (p_c), s	13.6			2.5		0.3		9.4		2.3		

Intersection Summary

HCM 2010 Ctrl Delay 11.4
HCM 2010 LOS B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1: S. Market Street & Race Street

076233-2036 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	40	11	14	28	26	13	612	39	43	526	26
Future Volume (veh/h)	26	40	11	14	28	26	13	612	39	43	526	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	28	43	12	15	30	28	14	665	42	47	572	28
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	84	20	73	68	54	68	2484	155	191	2235	109
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.76	0.76	0.76	1.00	1.00	1.00
Sat Flow, veh/h	441	1025	248	227	826	655	27	3256	203	182	2930	142
Grp Volume(v), veh/h	83	0	0	73	0	0	378	0	343	318	0	329
Grp Sat Flow(s),veh/h/ln	1713	0	0	1708	0	0	1827	0	1659	1585	0	1670
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.9	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	0.0	3.2	0.0	0.0	4.8	0.0	4.9	0.0	0.0	0.0
Prop In Lane	0.34		0.14	0.21		0.38	0.04		0.12	0.15		0.09
Lane Grp Cap(c), veh/h	201	0	0	195	0	0	1441	0	1266	1261	0	1274
V/C Ratio(X)	0.41	0.00	0.00	0.38	0.00	0.00	0.26	0.00	0.27	0.25	0.00	0.26
Avail Cap(c_a), veh/h	678	0	0	676	0	0	1441	0	1266	1261	0	1274
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.97	0.00	0.97
Uniform Delay (d), s/veh	35.3	0.0	0.0	35.2	0.0	0.0	2.8	0.0	2.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	1.7	0.0	0.0	0.4	0.0	0.5	0.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	0.0	0.0	2.9	0.0	0.0	4.7	0.0	4.3	0.3	0.0	0.3
LnGrp Delay(d),s/veh	37.2	0.0	0.0	36.9	0.0	0.0	3.3	0.0	3.4	0.5	0.0	0.5
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h	83				73				721		647	
Approach Delay, s/veh	37.2				36.9				3.3		0.5	
Approach LOS	D				D				A		A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	66.7		13.3		66.7		13.3					
Change Period (Y+Rc), s	* 5.7		* 6.7		* 5.7		* 6.7					
Max Green Setting (Gmax), s	* 37		* 30		* 37		* 30					
Max Q Clear Time (g_c+I1), s	6.9		5.5		2.0		5.2					
Green Ext Time (p_c), s	15.7		1.2		17.0		1.2					
Intersection Summary												
HCM 2010 Ctrl Delay			5.6									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
2: S. Market Street & Canal Street

076233-2036 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	55	43	18	44	46	29	611	47	41	551	11
Future Volume (veh/h)	5	55	43	18	44	46	29	611	47	41	551	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	5	60	47	20	48	50	32	664	51	45	599	12
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	108	81	73	90	81	115	2226	168	173	2214	44
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	32	967	722	178	801	721	91	3074	233	169	3058	61
Grp Volume(v), veh/h	112	0	0	118	0	0	384	0	363	323	0	333
Grp Sat Flow(s),veh/h/ln	1721	0	0	1700	0	0	1744	0	1654	1603	0	1684
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.9	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.04		0.42	0.17		0.42	0.08		0.14	0.14		0.04
Lane Grp Cap(c), veh/h	240	0	0	243	0	0	1312	0	1198	1212	0	1220
V/C Ratio(X)	0.47	0.00	0.00	0.49	0.00	0.00	0.29	0.00	0.30	0.27	0.00	0.27
Avail Cap(c_a), veh/h	686	0	0	673	0	0	1312	0	1198	1212	0	1220
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.97	0.00	0.97	0.98	0.00	0.98
Uniform Delay (d), s/veh	33.7	0.0	0.0	33.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0	2.1	0.0	0.0	0.6	0.0	0.6	0.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.4	0.0	0.0	4.7	0.0	0.0	0.4	0.0	0.4	0.3	0.0	0.3
LnGrp Delay(d),s/veh	35.7	0.0	0.0	35.9	0.0	0.0	0.6	0.0	0.6	0.5	0.0	0.5
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		112			118			747			656	
Approach Delay, s/veh		35.7			35.9			0.6			0.5	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.9		16.1		63.9		16.1				
Change Period (Y+Rc), s		6.0		7.1		6.0		* 7.1				
Max Green Setting (Gmax), s		37.0		29.9		37.0		* 30				
Max Q Clear Time (g_c+I1), s		2.0		6.9		2.0		7.1				
Green Ext Time (p_c), s		17.5		1.9		17.5		1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			5.5									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

3: S. Market Street & Franklin Street

076233-2036 PM Existing.syn

01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	38	35	19	34	29	19	631	18	21	544	21
Future Volume (veh/h)	15	38	35	19	34	29	19	631	18	21	544	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	16	41	38	21	37	32	21	686	20	23	591	23
Adj No. of Lanes	0	1	0	0	1	0	0	2	0	0	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	79	64	81	78	57	90	2637	76	107	2561	99
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	0.79	0.79	0.79
Sat Flow, veh/h	178	844	682	268	833	607	54	3321	96	74	3225	124
Grp Volume(v), veh/h	95	0	0	90	0	0	376	0	351	327	0	310
Grp Sat Flow(s),veh/h/ln	1705	0	0	1708	0	0	1792	0	1678	1750	0	1673
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.7
Cycle Q Clear(g_c), s	4.1	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	3.5	0.0	3.7
Prop In Lane	0.17		0.40	0.23		0.36	0.06		0.06	0.07		0.07
Lane Grp Cap(c), veh/h	212	0	0	215	0	0	1471	0	1332	1438	0	1328
V/C Ratio(X)	0.45	0.00	0.00	0.42	0.00	0.00	0.26	0.00	0.26	0.23	0.00	0.23
Avail Cap(c_a), veh/h	642	0	0	637	0	0	1471	0	1332	1438	0	1328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.96	0.00	0.96	0.86	0.00	0.86
Uniform Delay (d), s/veh	34.8	0.0	0.0	34.6	0.0	0.0	0.0	0.0	0.0	2.1	0.0	2.1
Incr Delay (d2), s/veh	2.1	0.0	0.0	1.8	0.0	0.0	0.4	0.0	0.5	0.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.8	0.0	0.0	3.6	0.0	0.0	0.3	0.0	0.3	3.3	0.0	3.3
LnGrp Delay(d),s/veh	36.9	0.0	0.0	36.5	0.0	0.0	0.4	0.0	0.5	2.4	0.0	2.4
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h	95			90			727			637		
Approach Delay, s/veh	36.9			36.5			0.4			2.4		
Approach LOS	D			D			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	68.0		12.0		68.0		12.0					
Change Period (Y+Rc), s	4.5		4.5		4.5		4.5					
Max Green Setting (Gmax), s	42.5		28.5		42.5		28.5					
Max Q Clear Time (g_c+I1), s	2.0		6.1		5.7		5.8					
Green Ext Time (p_c), s	17.8		1.5		17.1		1.5					
Intersection Summary												
HCM 2010 Ctrl Delay	5.6											
HCM 2010 LOS	A											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection									
Intersection Delay, s/veh	29.8								
Intersection LOS	D								
Approach	EB		WB		NB		SB		
Entry Lanes	1		1		1		1		
Conflicting Circle Lanes	1		1		1		1		
Adj Approach Flow, veh/h	703		299		744		642		
Demand Flow Rate, veh/h	710		305		752		648		
Vehicles Circulating, veh/h	475		954		531		457		
Vehicles Exiting, veh/h	389		257		448		759		
Follow-Up Headway, s	3.186		3.186		3.186		3.186		
Ped Vol Crossing Leg, #/h	0		0		0		0		
Ped Cap Adj	1.000		1.000		1.000		1.000		
Approach Delay, s/veh	17.2		21.2		60.4		12.2		
Approach LOS	C		C		F		B		
Lane	Left	Bypass	Left	Bypass	Left	Bypass	Left	Bypass	
Designated Moves	LT	R	LT	R	LT	R	LT	R	
Assumed Moves	LT	R	LT	R	LT	R	LT	R	
RT Channelized		Yield		Yield		Yield		Yield	
Lane Util	1.000		1.000		1.000		1.000		
Critical Headway, s	5.193		5.193		5.193		5.193		
Entry Flow, veh/h	504	206	262	43	680	72	407	241	
Cap Entry Lane, veh/h	703	722	435	529	664	874	715	766	
Entry HV Adj Factor	0.990	0.990	0.982	0.980	0.990	0.990	0.991	0.990	
Flow Entry, veh/h	499	204	257	42	673	71	403	239	
Cap Entry, veh/h	695	715	427	519	658	865	709	758	
V/C Ratio	0.717	0.285	0.602	0.081	1.023	0.082	0.569	0.315	
Control Delay, s/veh	20.8	8.5	23.4	8.0	66.2	4.9	14.4	8.5	
LOS	C	A	C	A	F	A	B	A	
95th %tile Queue, veh	6	1	4	0	17	0	4	1	

HCM 2010 Signalized Intersection Summary
5: N. Market Street & Water Street

076233-2036 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	48	19	27	41	53	23	686	26	32	532	34
Future Volume (veh/h)	73	48	19	27	41	53	23	686	26	32	532	34
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	79	52	21	29	45	58	25	746	28	35	578	37
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	244	99	216	71	91	605	2442	92	520	2371	152
Arrive On Green	0.05	0.19	0.19	0.10	0.10	0.10	0.70	0.70	0.70	0.70	0.70	0.70
Sat Flow, veh/h	1774	1263	510	1322	740	954	804	3479	131	694	3378	216
Grp Volume(v), veh/h	79	0	73	29	0	103	25	379	395	35	302	313
Grp Sat Flow(s),veh/h/ln	1774	0	1773	1322	0	1694	804	1770	1840	694	1770	1825
Q Serve(g_s), s	3.1	0.0	2.8	1.6	0.0	4.7	0.9	6.5	6.5	1.6	4.9	4.9
Cycle Q Clear(g_c), s	3.1	0.0	2.8	1.6	0.0	4.7	5.9	6.5	6.5	8.1	4.9	4.9
Prop In Lane	1.00		0.29	1.00		0.56	1.00		0.07	1.00		0.12
Lane Grp Cap(c), veh/h	231	0	342	216	0	162	605	1242	1291	520	1242	1281
V/C Ratio(X)	0.34	0.00	0.21	0.13	0.00	0.64	0.04	0.31	0.31	0.07	0.24	0.24
Avail Cap(c_a), veh/h	279	0	793	516	0	546	605	1242	1291	520	1242	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.97	0.97	0.97	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	0.0	27.2	33.5	0.0	34.8	5.3	4.5	4.5	6.1	4.3	4.3
Incr Delay (d2), s/veh	0.9	0.0	0.3	0.3	0.0	4.1	0.1	0.6	0.6	0.2	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	0.0	2.5	1.1	0.0	4.3	0.4	6.1	6.3	0.6	4.5	4.7
LnGrp Delay(d),s/veh	29.8	0.0	27.5	33.7	0.0	39.0	5.5	5.1	5.1	6.3	4.8	4.7
LnGrp LOS	C		C	C		D	A	A	A	A	A	A
Approach Vol, veh/h	152			132			799			650		
Approach Delay, s/veh	28.7			37.8			5.1			4.8		
Approach LOS	C			D			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	7.8	11.8	60.3		19.7		60.3					
Change Period (Y+Rc), s	3.6	* 4.2	* 4.2		* 4.2		* 4.2					
Max Green Setting (Gmax), s	6.4	* 26	* 36		* 36		* 36					
Max Q Clear Time (g_c+I1), s	5.1	6.7	10.1		4.8		8.5					
Green Ext Time (p_c), s	0.0	1.0	11.2		1.2		11.5					
Intersection Summary												
HCM 2010 Ctrl Delay				9.6								
HCM 2010 LOS				A								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
6: Walnut Street & E. Main Street

076233-2036 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	238	36	10	238	3	15	11	8	1	14	23
Future Volume (veh/h)	14	238	36	10	238	3	15	11	8	1	14	23
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	15	259	39	11	259	3	16	12	9	1	15	25
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	579	821	124	547	953	11	269	197	129	48	219	346
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	1113	1582	238	1077	1838	21	605	585	383	7	649	1024
Grp Volume(v), veh/h	15	0	298	11	0	262	37	0	0	41	0	0
Grp Sat Flow(s),veh/h/ln	1113	0	1821	1077	0	1859	1573	0	0	1680	0	0
Q Serve(g_s), s	0.6	0.0	7.5	0.5	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.9	0.0	7.5	8.0	0.0	6.3	1.1	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.01	0.43		0.24	0.02		0.61
Lane Grp Cap(c), veh/h	579	0	944	547	0	964	595	0	0	613	0	0
V/C Ratio(X)	0.03	0.00	0.32	0.02	0.00	0.27	0.06	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	579	0	944	547	0	964	595	0	0	613	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.7	0.0	11.1	13.4	0.0	10.8	17.9	0.0	0.0	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.9	0.1	0.0	0.7	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	7.1	0.3	0.0	6.1	1.1	0.0	0.0	1.2	0.0	0.0
LnGrp Delay(d),s/veh	12.8	0.0	11.9	13.4	0.0	11.5	18.1	0.0	0.0	18.2	0.0	0.0
LnGrp LOS	B		B	B		B	B			B		
Approach Vol, veh/h	313		273			37			41			
Approach Delay, s/veh	12.0		11.6			18.1			18.2			
Approach LOS	B		B			B			B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	47.0		33.0		47.0		33.0					
Change Period (Y+Rc), s	5.5		6.0		5.5		6.0					
Max Green Setting (Gmax), s	41.5		27.0		41.5		27.0					
Max Q Clear Time (g_c+I1), s	9.5		3.3		10.0		3.1					
Green Ext Time (p_c), s	5.9		0.5		5.8		0.5					
Intersection Summary												
HCM 2010 Ctrl Delay			12.5									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
7: Cherry Street & W. Main Street

076233-2036 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	564	18	9	528	12	17	12	25	9	20	18
Future Volume (veh/h)	15	564	18	9	528	12	17	12	25	9	20	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	16	613	20	10	574	13	18	13	27	10	22	20
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	1804	58	56	1842	41	186	143	235	123	258	205
Arrive On Green	1.00	1.00	1.00	0.54	0.54	0.54	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	33	3357	108	17	3426	77	399	447	738	218	809	642
Grp Volume(v), veh/h	339	0	310	312	0	285	58	0	0	52	0	0
Grp Sat Flow(s),veh/h/ln	1822	0	1676	1839	0	1682	1585	0	0	1669	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	7.4	0.0	7.5	1.9	0.0	0.0	1.7	0.0	0.0
Prop In Lane	0.05		0.06	0.03		0.05	0.31		0.47	0.19		0.38
Lane Grp Cap(c), veh/h	1026	0	901	1035	0	904	564	0	0	586	0	0
V/C Ratio(X)	0.33	0.00	0.34	0.30	0.00	0.32	0.10	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	1026	0	901	1035	0	904	564	0	0	586	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.00	0.93	0.87	0.00	0.87	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	10.3	0.0	10.3	19.2	0.0	0.0	19.1	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	1.0	0.7	0.0	0.8	0.4	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	0.4	7.1	0.0	6.6	1.7	0.0	0.0	1.5	0.0	0.0
LnGrp Delay(d),s/veh	0.8	0.0	1.0	10.9	0.0	11.1	19.6	0.0	0.0	19.4	0.0	0.0
LnGrp LOS	A		A	B		B	B			B		
Approach Vol, veh/h		649			597			58			52	
Approach Delay, s/veh		0.9			11.0			19.6			19.4	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		49.0		31.0		49.0				
Change Period (Y+Rc), s		5.5		6.0		5.5		6.0				
Max Green Setting (Gmax), s		25.5		43.0		25.5		43.0				
Max Q Clear Time (g_c+I1), s		3.9		2.0		3.7		9.5				
Green Ext Time (p_c), s		0.7		15.0		0.7		13.9				
Intersection Summary												
HCM 2010 Ctrl Delay			6.9									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
8: Plum Street & W. Main Street

076233-2036 PM Existing.syn
01/30/2017

	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↑↑			↑↑	↘			
Traffic Volume (veh/h)	565	30	16	549	35	30		
Future Volume (veh/h)	565	30	16	549	35	30		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1900	1863	1863	1900		
Adj Flow Rate, veh/h	614	33	17	597	38	33		
Adj No. of Lanes	2	0	0	2	0	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	1623	87	65	1608	331	287		
Arrive On Green	0.47	0.47	0.95	0.95	0.37	0.37		
Sat Flow, veh/h	3510	183	37	3470	888	771		
Grp Volume(v), veh/h	318	329	326	288	72	0		
Grp Sat Flow(s),veh/h/ln	1770	1830	1812	1610	1682	0		
Q Serve(g_s), s	9.2	9.2	0.0	1.1	2.2	0.0		
Cycle Q Clear(g_c), s	9.2	9.2	1.1	1.1	2.2	0.0		
Prop In Lane		0.10	0.05		0.53	0.46		
Lane Grp Cap(c), veh/h	841	869	908	765	627	0		
V/C Ratio(X)	0.38	0.38	0.36	0.38	0.11	0.00		
Avail Cap(c_a), veh/h	841	869	908	765	627	0		
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	0.95	0.95	1.00	0.00		
Uniform Delay (d), s/veh	13.4	13.4	1.1	1.1	16.5	0.0		
Incr Delay (d2), s/veh	1.3	1.3	1.1	1.3	0.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	8.3	8.5	1.1	1.1	2.0	0.0		
LnGrp Delay(d),s/veh	14.7	14.7	2.1	2.4	16.8	0.0		
LnGrp LOS	B	B	A	A	B			
Approach Vol, veh/h	647			614	72			
Approach Delay, s/veh	14.7			2.3	16.8			
Approach LOS	B			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		44.0				44.0		36.0
Change Period (Y+Rc), s		6.0				6.0		6.2
Max Green Setting (Gmax), s		38.0				38.0		29.8
Max Q Clear Time (g_c+I1), s		11.2				3.1		4.2
Green Ext Time (p_c), s		13.1				14.9		0.3
Intersection Summary								
HCM 2010 Ctrl Delay			9.1					
HCM 2010 LOS			A					
Notes								
User approved volume balancing among the lanes for turning movement.								

HCM 2010 Signalized Intersection Summary
9: Monroe Street & W. Main Street

076233-2036 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	564	16	19	573	10	10	15	33	6	11	28
Future Volume (veh/h)	18	564	16	19	573	10	10	15	33	6	11	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	20	613	17	21	623	11	11	16	36	7	12	30
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	70	1630	45	71	1646	29	120	178	328	102	173	352
Arrive On Green	0.98	0.98	0.98	0.49	0.49	0.49	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	45	3344	91	48	3376	59	192	506	930	143	490	999
Grp Volume(v), veh/h	337	0	313	339	0	316	63	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	1802	0	1679	1798	0	1685	1628	0	0	1632	0	0
Q Serve(g_s), s	0.0	0.0	0.6	0.0	0.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	0.0	0.6	9.1	0.0	9.5	2.0	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.06		0.05	0.06		0.03	0.17		0.57	0.14		0.61
Lane Grp Cap(c), veh/h	926	0	819	924	0	821	627	0	0	627	0	0
V/C Ratio(X)	0.36	0.00	0.38	0.37	0.00	0.38	0.10	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	926	0	819	924	0	821	627	0	0	627	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.00	0.98	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.5	0.0	0.5	12.8	0.0	12.9	17.4	0.0	0.0	17.3	0.0	0.0
Incr Delay (d2), s/veh	1.1	0.0	1.3	1.1	0.0	1.4	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.8	0.0	0.9	8.5	0.0	8.3	1.8	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	1.6	0.0	1.8	14.0	0.0	14.3	17.7	0.0	0.0	17.5	0.0	0.0
LnGrp LOS	A		A	B		B	B			B		
Approach Vol, veh/h		650			655			63			49	
Approach Delay, s/veh		1.7			14.1			17.7			17.5	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		35.0		45.0		35.0				
Change Period (Y+Rc), s		6.0		* 6.8		6.0		* 6.8				
Max Green Setting (Gmax), s		39.0		* 28		39.0		* 28				
Max Q Clear Time (g_c+I1), s		2.6		3.6		11.5		4.0				
Green Ext Time (p_c), s		16.0		0.8		14.0		0.8				
Intersection Summary												
HCM 2010 Ctrl Delay			8.7									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: Adams Street/Adam Street & W. Main Street

076233-2036 PM Existing.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	560	21	13	574	31	30	57	1	21	58	200
Future Volume (veh/h)	207	560	21	13	574	31	30	57	1	21	58	200
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	225	609	23	14	624	34	33	62	1	23	63	217
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	551	2071	78	426	1448	79	180	438	7	374	88	304
Arrive On Green	0.09	0.60	0.60	0.85	0.85	0.85	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1774	3478	131	792	3414	186	1095	1828	29	1334	369	1270
Grp Volume(v), veh/h	225	310	322	14	323	335	33	0	63	23	0	280
Grp Sat Flow(s),veh/h/ln	1774	1770	1840	792	1770	1830	1095	0	1858	1334	0	1639
Q Serve(g_s), s	5.3	6.9	6.9	0.2	3.5	3.5	2.3	0.0	2.1	1.1	0.0	12.5
Cycle Q Clear(g_c), s	5.3	6.9	6.9	0.2	3.5	3.5	14.8	0.0	2.1	3.2	0.0	12.5
Prop In Lane	1.00		0.07	1.00		0.10	1.00		0.02	1.00		0.77
Lane Grp Cap(c), veh/h	551	1054	1096	426	750	776	180	0	445	374	0	392
V/C Ratio(X)	0.41	0.29	0.29	0.03	0.43	0.43	0.18	0.00	0.14	0.06	0.00	0.71
Avail Cap(c_a), veh/h	645	1054	1096	426	750	776	289	0	629	503	0	551
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.8	7.9	7.9	3.5	3.8	3.8	34.7	0.0	24.0	25.2	0.0	27.9
Incr Delay (d2), s/veh	0.5	0.7	0.7	0.1	1.6	1.6	0.7	0.0	0.2	0.1	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.6	6.4	6.7	0.1	3.5	3.6	1.3	0.0	2.0	0.8	0.0	10.1
LnGrp Delay(d),s/veh	10.3	8.6	8.6	3.6	5.4	5.3	35.4	0.0	24.2	25.3	0.0	31.5
LnGrp LOS	B	A	A	A	A	A	D		C	C		C
Approach Vol, veh/h	857				672				96			
Approach Delay, s/veh	9.1				5.3				28.0			
Approach LOS	A				A				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		5		6		8		
Phs Duration (G+Y+Rc), s	53.8			26.2		13.7		40.1		26.2		
Change Period (Y+Rc), s	* 6.2			7.0		* 6.2		* 6.2		* 7		
Max Green Setting (Gmax), s	* 40			26.9		* 12		* 22		* 27		
Max Q Clear Time (g_c+I1), s	8.9			14.5		7.3		5.5		16.8		
Green Ext Time (p_c), s	14.6			2.6		0.3		10.0		2.3		

Intersection Summary

HCM 2010 Ctrl Delay 12.2
HCM 2010 LOS B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
1: S. Market Street & Race Street

076233-2016 PM Build.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	37	10	13	26	24	12	570	36	40	490	24
Future Volume (veh/h)	24	37	10	13	26	24	12	570	36	40	490	24
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	26	40	11	14	28	26	13	620	39	43	533	26
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	94	79	19	72	63	50	741	1333	84	584	1353	66
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.77	0.77	0.77	1.00	1.00	1.00
Sat Flow, veh/h	445	1024	245	231	825	654	847	1734	109	772	1762	86
Grp Volume(v), veh/h	77	0	0	68	0	0	13	0	659	43	0	559
Grp Sat Flow(s),veh/h/ln	1714	0	0	1709	0	0	847	0	1843	772	0	1848
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.0	10.3	0.8	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	2.9	0.0	0.0	0.3	0.0	10.3	11.1	0.0	0.0
Prop In Lane	0.34		0.14	0.21		0.38	1.00		0.06	1.00		0.05
Lane Grp Cap(c), veh/h	192	0	0	185	0	0	741	0	1416	584	0	1419
V/C Ratio(X)	0.40	0.00	0.00	0.37	0.00	0.00	0.02	0.00	0.47	0.07	0.00	0.39
Avail Cap(c_a), veh/h	638	0	0	636	0	0	741	0	1416	584	0	1419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.92	0.00	0.92
Uniform Delay (d), s/veh	35.6	0.0	0.0	35.5	0.0	0.0	2.2	0.0	3.3	0.9	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	1.7	0.0	0.0	0.0	0.0	1.1	0.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.1	0.0	0.0	2.7	0.0	0.0	0.1	0.0	9.4	0.4	0.0	0.5
LnGrp Delay(d),s/veh	37.5	0.0	0.0	37.2	0.0	0.0	2.2	0.0	4.4	1.2	0.0	0.8
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h	77			68			672			602		
Approach Delay, s/veh	37.5			37.2			4.4			0.8		
Approach LOS	D			D			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	67.2			12.8			67.2			12.8		
Change Period (Y+Rc), s	* 5.7			* 6.7			* 5.7			* 6.7		
Max Green Setting (Gmax), s	* 39			* 28			* 39			* 28		
Max Q Clear Time (g_c+I1), s	12.3			5.3			13.1			4.9		
Green Ext Time (p_c), s	14.6			1.1			14.4			1.1		
Intersection Summary												
HCM 2010 Ctrl Delay				6.2								
HCM 2010 LOS				A								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

2: S. Market Street & Canal Street

076233-2016 PM Build.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	51	40	17	41	43	27	569	44	38	513	10
Future Volume (veh/h)	5	51	40	17	41	43	27	569	44	38	513	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	5	55	43	18	45	47	29	618	48	41	558	11
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	102	76	70	85	77	703	1247	97	651	1331	26
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	36	967	718	171	803	726	839	1707	133	767	1821	36
Grp Volume(v), veh/h	103	0	0	110	0	0	29	0	666	41	0	569
Grp Sat Flow(s),veh/h/ln	1721	0	0	1700	0	0	839	0	1839	767	0	1856
Q Serve(g_s), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.05		0.42	0.16		0.43	1.00		0.07	1.00		0.02
Lane Grp Cap(c), veh/h	228	0	0	231	0	0	703	0	1344	651	0	1357
V/C Ratio(X)	0.45	0.00	0.00	0.48	0.00	0.00	0.04	0.00	0.50	0.06	0.00	0.42
Avail Cap(c_a), veh/h	655	0	0	645	0	0	703	0	1344	651	0	1357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.89	0.00	0.89	0.93	0.00	0.93
Uniform Delay (d), s/veh	34.0	0.0	0.0	34.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0	2.1	0.0	0.0	0.1	0.0	1.2	0.2	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.1	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.8	0.1	0.0	0.6
LnGrp Delay(d),s/veh	36.0	0.0	0.0	36.3	0.0	0.0	0.1	0.0	1.2	0.2	0.0	0.9
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		103			110			695			610	
Approach Delay, s/veh		36.0			36.3			1.1			0.8	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.5		15.5		64.5		15.5				
Change Period (Y+Rc), s		6.0		7.1		6.0		* 7.1				
Max Green Setting (Gmax), s		38.4		28.5		38.4		* 29				
Max Q Clear Time (g_c+I1), s		2.0		6.5		2.0		6.8				
Green Ext Time (p_c), s		17.6		1.7		17.6		1.7				
Intersection Summary												
HCM 2010 Ctrl Delay			5.9									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
3: S. Market Street & Franklin Street

076233-2016 PM Build.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	35	33	18	32	27	18	588	17	20	507	20
Future Volume (veh/h)	14	35	33	18	32	27	18	588	17	20	507	20
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	15	38	36	20	35	29	20	639	18	22	551	22
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	74	61	80	75	52	682	1440	41	708	1421	57
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	0.80	0.80	0.80
Sat Flow, veh/h	179	835	689	275	843	590	836	1803	51	773	1779	71
Grp Volume(v), veh/h	89	0	0	84	0	0	20	0	657	22	0	573
Grp Sat Flow(s),veh/h/ln	1703	0	0	1709	0	0	836	0	1854	773	0	1850
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.5	0.0	7.2
Cycle Q Clear(g_c), s	3.9	0.0	0.0	3.6	0.0	0.0	7.4	0.0	0.0	0.5	0.0	7.2
Prop In Lane	0.17		0.40	0.24		0.35	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	204	0	0	207	0	0	682	0	1481	708	0	1478
V/C Ratio(X)	0.44	0.00	0.00	0.41	0.00	0.00	0.03	0.00	0.44	0.03	0.00	0.39
Avail Cap(c_a), veh/h	641	0	0	637	0	0	682	0	1481	708	0	1478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.88	0.00	0.88	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.0	0.0	0.0	34.9	0.0	0.0	0.4	0.0	0.0	1.7	0.0	2.3
Incr Delay (d2), s/veh	2.1	0.0	0.0	1.8	0.0	0.0	0.1	0.0	0.8	0.1	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	0.0	0.0	3.4	0.0	0.0	0.1	0.0	0.6	0.2	0.0	6.9
LnGrp Delay(d),s/veh	37.1	0.0	0.0	36.7	0.0	0.0	0.5	0.0	0.8	1.7	0.0	3.1
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h	89			84			677			595		
Approach Delay, s/veh	37.1			36.7			0.8			3.1		
Approach LOS	D			D			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	68.4			11.6			68.4			11.6		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	42.5			28.5			42.5			28.5		
Max Q Clear Time (g_c+I1), s	9.4			5.9			9.2			5.6		
Green Ext Time (p_c), s	16.3			1.4			16.4			1.4		
Intersection Summary												
HCM 2010 Ctrl Delay				6.1								
HCM 2010 LOS				A								
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Intersection Delay, s/veh	18.9						
Intersection LOS	C						
Approach	EB	WB	NB	SB			
Entry Lanes	1	1	2	1			
Conflicting Circle Lanes	1	1	1	1			
Adj Approach Flow, veh/h	655	279	694	598			
Demand Flow Rate, veh/h	662	285	701	604			
Vehicles Circulating, veh/h	442	889	495	427			
Vehicles Exiting, veh/h	588	240	417	747			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	14.3	22.7	14.3	27.3			
Approach LOS	B	C	B	D			
Lane	Left	Bypass	Left	Left	Right	Bypass	Left
Designated Moves	LT	R	LTR	L	TR	R	LTR
Assumed Moves	LT	R	LTR	L	TR	R	LTR
RT Channelized	Yield			Yield			
Lane Util	1.000		1.000	0.287	0.713		1.000
Critical Headway, s	5.193		5.193	5.193	5.193		5.193
Entry Flow, veh/h	470	192	285	182	452	67	604
Cap Entry Lane, veh/h	726	745	464	689	689	889	737
Entry HV Adj Factor	0.989	0.990	0.981	0.989	0.990	0.990	0.991
Flow Entry, veh/h	465	190	279	180	448	66	598
Cap Entry, veh/h	718	737	455	681	682	880	731
V/C Ratio	0.647	0.258	0.614	0.264	0.656	0.075	0.819
Control Delay, s/veh	17.0	7.9	22.7	8.5	18.1	4.8	27.3
LOS	C	A	C	A	C	A	D
95th %tile Queue, veh	5	1	4	1	5	0	9

HCM 2010 Signalized Intersection Summary
5: N. Market Street & Water Street

076233-2016 PM Build.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	68	45	18	25	38	49	21	639	24	30	496	32
Future Volume (veh/h)	68	45	18	25	38	49	21	639	24	30	496	32
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	74	49	20	27	41	53	23	695	26	33	539	35
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	232	95	208	66	85	585	1268	47	473	1324	1125
Arrive On Green	0.05	0.18	0.18	0.09	0.09	0.09	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	1774	1258	514	1326	739	955	835	1784	67	729	1863	1583
Grp Volume(v), veh/h	74	0	69	27	0	94	23	0	721	33	539	35
Grp Sat Flow(s),veh/h/ln	1774	0	1772	1326	0	1694	835	0	1851	729	1863	1583
Q Serve(g_s), s	2.9	0.0	2.6	1.5	0.0	4.3	0.9	0.0	14.8	1.8	9.4	0.5
Cycle Q Clear(g_c), s	2.9	0.0	2.6	1.5	0.0	4.3	10.4	0.0	14.8	16.6	9.4	0.5
Prop In Lane	1.00		0.29	1.00		0.56	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	226	0	327	208	0	151	585	0	1315	473	1324	1125
V/C Ratio(X)	0.33	0.00	0.21	0.13	0.00	0.62	0.04	0.00	0.55	0.07	0.41	0.03
Avail Cap(c_a), veh/h	278	0	793	518	0	546	585	0	1315	473	1324	1125
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	0.0	27.7	33.9	0.0	35.1	6.8	0.0	5.5	9.4	4.7	3.4
Incr Delay (d2), s/veh	0.8	0.0	0.3	0.3	0.0	4.2	0.1	0.0	1.6	0.3	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.6	0.0	2.4	1.0	0.0	3.9	0.4	0.0	12.7	0.7	8.8	0.4
LnGrp Delay(d),s/veh	30.2	0.0	28.0	34.2	0.0	39.3	7.0	0.0	7.1	9.7	5.6	3.5
LnGrp LOS	C		C	C		D	A		A	A	A	A
Approach Vol, veh/h	143				121		744				607	
Approach Delay, s/veh	29.2				38.2		7.1				5.7	
Approach LOS	C				D		A				A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	4		6		8					
Phs Duration (G+Y+Rc), s	7.6	11.3	61.0		19.0		61.0					
Change Period (Y+Rc), s	3.6	* 4.2	* 4.2		* 4.2		* 4.2					
Max Green Setting (Gmax), s	6.4	* 26	* 36		* 36		* 36					
Max Q Clear Time (g_c+I1), s	4.9	6.3	18.6		4.6		16.8					
Green Ext Time (p_c), s	0.0	0.9	9.1		1.1		9.6					
Intersection Summary												
HCM 2010 Ctrl Delay			10.9									
HCM 2010 LOS			B									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
6: Walnut Street & E. Main Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	222	34	9	222	3	14	10	7	1	13	21
Future Volume (veh/h)	13	222	34	9	222	3	14	10	7	1	13	21
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	14	241	37	10	241	3	15	11	8	1	14	23
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	578	799	123	548	929	12	282	203	129	49	229	356
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1131	1578	242	1097	1836	23	622	580	370	8	656	1017
Grp Volume(v), veh/h	14	0	278	10	0	244	34	0	0	38	0	0
Grp Sat Flow(s),veh/h/ln	1131	0	1820	1097	0	1859	1571	0	0	1681	0	0
Q Serve(g_s), s	0.6	0.0	7.1	0.4	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.5	0.0	7.1	7.6	0.0	6.0	1.0	0.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.01	0.44		0.24	0.03		0.61
Lane Grp Cap(c), veh/h	578	0	921	548	0	941	615	0	0	634	0	0
V/C Ratio(X)	0.02	0.00	0.30	0.02	0.00	0.26	0.06	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	578	0	921	548	0	941	615	0	0	634	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.1	0.0	11.5	13.7	0.0	11.2	17.2	0.0	0.0	17.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.8	0.1	0.0	0.7	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	6.8	0.3	0.0	5.8	0.9	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	13.2	0.0	12.4	13.8	0.0	11.9	17.4	0.0	0.0	17.5	0.0	0.0
LnGrp LOS	B		B	B		B	B			B		
Approach Vol, veh/h	292				254				34			
Approach Delay, s/veh	12.4				12.0				17.4			
Approach LOS	B				B				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	46.0			34.0		46.0		34.0				
Change Period (Y+Rc), s	5.5			6.0		5.5		6.0				
Max Green Setting (Gmax), s	40.5			28.0		40.5		28.0				
Max Q Clear Time (g_c+I1), s	9.1			3.2		9.6		3.0				
Green Ext Time (p_c), s	5.4			0.5		5.3		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay	12.8											
HCM 2010 LOS	B											

HCM 2010 Signalized Intersection Summary
7: Cherry Street & W. Main Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	525	17	8	492	11	16	11	23	8	19	17
Future Volume (veh/h)	14	525	17	8	492	11	16	11	23	8	19	17
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	15	571	18	9	535	12	17	12	25	9	21	18
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	965	30	533	975	22	189	141	234	121	267	200
Arrive On Green	1.00	1.00	1.00	0.54	0.54	0.54	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	856	1796	57	824	1815	41	407	444	733	211	836	628
Grp Volume(v), veh/h	15	0	589	9	0	547	54	0	0	48	0	0
Grp Sat Flow(s),veh/h/ln	856	0	1853	824	0	1856	1584	0	0	1675	0	0
Q Serve(g_s), s	0.5	0.0	0.0	0.4	0.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	16.0	0.0	0.0	0.4	0.0	15.5	1.8	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	0.31		0.46	0.19		0.37
Lane Grp Cap(c), veh/h	385	0	996	533	0	997	564	0	0	587	0	0
V/C Ratio(X)	0.04	0.00	0.59	0.02	0.00	0.55	0.10	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	385	0	996	533	0	997	564	0	0	587	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.71	0.00	0.71	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	2.9	0.0	0.0	8.7	0.0	12.1	19.2	0.0	0.0	19.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	1.8	0.1	0.0	2.2	0.3	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.2	0.0	0.9	0.2	0.0	13.3	1.6	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	3.0	0.0	1.8	8.7	0.0	14.3	19.5	0.0	0.0	19.4	0.0	0.0
LnGrp LOS	A		A	A		B	B			B		
Approach Vol, veh/h	604			556				54		48		
Approach Delay, s/veh	1.9			14.2				19.5		19.4		
Approach LOS	A			B				B		B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	31.0			49.0		31.0		49.0				
Change Period (Y+Rc), s	5.5			6.0		5.5		6.0				
Max Green Setting (Gmax), s	25.5			43.0		25.5		43.0				
Max Q Clear Time (g_c+I1), s	3.8			18.0		3.5		17.5				
Green Ext Time (p_c), s	0.7			12.1		0.7		12.2				
Intersection Summary												
HCM 2010 Ctrl Delay	8.7											
HCM 2010 LOS	A											

HCM 2010 Signalized Intersection Summary
8: Plum Street & W. Main Street

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	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↰		↰	↰	↰			
Traffic Volume (veh/h)	526	28	15	511	33	28		
Future Volume (veh/h)	526	28	15	511	33	28		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900		
Adj Flow Rate, veh/h	572	30	16	555	36	30		
Adj No. of Lanes	1	0	1	1	0	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	873	46	491	927	317	264		
Arrive On Green	1.00	1.00	1.00	1.00	0.35	0.35		
Sat Flow, veh/h	1754	92	814	1863	905	754		
Grp Volume(v), veh/h	0	602	16	555	67	0		
Grp Sat Flow(s),veh/h/ln	0	1847	814	1863	1684	0		
Q Serve(g_s), s	0.0	0.4	0.0	0.3	2.2	0.0		
Cycle Q Clear(g_c), s	0.0	0.4	0.4	0.3	2.2	0.0		
Prop In Lane		0.05	1.00		0.54	0.45		
Lane Grp Cap(c), veh/h	0	919	491	927	590	0		
V/C Ratio(X)	0.00	0.66	0.03	0.60	0.11	0.00		
Avail Cap(c_a), veh/h	0	919	491	927	590	0		
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.00	0.68	0.82	0.82	1.00	0.00		
Uniform Delay (d), s/veh	0.0	0.1	0.1	0.1	17.6	0.0		
Incr Delay (d2), s/veh	0.0	2.5	0.1	2.3	0.4	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	0.0	1.3	0.0	1.2	1.9	0.0		
LnGrp Delay(d),s/veh	0.0	2.6	0.2	2.4	18.0	0.0		
LnGrp LOS		A	A	A	B			
Approach Vol, veh/h	602			571	67			
Approach Delay, s/veh	2.6			2.4	18.0			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		45.8				45.8		34.2
Change Period (Y+Rc), s		6.0				6.0		6.2
Max Green Setting (Gmax), s		39.8				39.8		28.0
Max Q Clear Time (g_c+I1), s		2.4				2.4		4.2
Green Ext Time (p_c), s		15.5				15.5		0.2
Intersection Summary								
HCM 2010 Ctrl Delay			3.3					
HCM 2010 LOS			A					
Notes								
User approved volume balancing among the lanes for turning movement.								

HCM 2010 Signalized Intersection Summary
9: Monroe Street & W. Main Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	525	15	18	534	9	9	14	31	6	10	26
Future Volume (veh/h)	17	525	15	18	534	9	9	14	31	6	10	26
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	18	571	16	20	580	10	10	15	34	7	11	28
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	504	906	25	505	917	16	114	172	317	104	163	335
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	823	1803	51	825	1826	31	181	510	940	154	484	992
Grp Volume(v), veh/h	18	0	587	20	0	590	59	0	0	46	0	0
Grp Sat Flow(s),veh/h/ln	823	0	1854	825	0	1857	1631	0	0	1629	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	0.17		0.58	0.15		0.61
Lane Grp Cap(c), veh/h	504	0	932	505	0	933	603	0	0	602	0	0
V/C Ratio(X)	0.04	0.00	0.63	0.04	0.00	0.63	0.10	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	504	0	932	505	0	933	603	0	0	602	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.00	0.91	0.82	0.00	0.82	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	0.0	18.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	2.9	0.1	0.0	2.7	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	1.4	0.0	0.0	1.2	1.7	0.0	0.0	1.3	0.0	0.0
LnGrp Delay(d),s/veh	0.1	0.0	2.9	0.1	0.0	2.7	18.5	0.0	0.0	18.3	0.0	0.0
LnGrp LOS	A		A	A		A	B			B		
Approach Vol, veh/h	605			610			59			46		
Approach Delay, s/veh	2.9			2.6			18.5			18.3		
Approach LOS	A			A			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	46.2			33.8			46.2			33.8		
Change Period (Y+Rc), s	6.0			* 6.8			6.0			* 6.8		
Max Green Setting (Gmax), s	40.2			* 27			40.2			* 27		
Max Q Clear Time (g_c+I1), s	2.0			3.5			2.0			3.9		
Green Ext Time (p_c), s	16.3			0.8			16.3			0.8		
Intersection Summary												
HCM 2010 Ctrl Delay				4.0								
HCM 2010 LOS				A								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: Adams Street/Adam Street & W. Main Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	522	20	12	535	29	28	53	1	20	54	186
Future Volume (veh/h)	193	522	20	12	535	29	28	53	1	20	54	186
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	210	567	22	13	582	32	30	58	1	22	59	202
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	580	1135	965	451	1517	83	178	412	7	358	84	286
Arrive On Green	0.09	0.61	0.61	0.89	0.89	0.89	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1774	1863	1583	824	3412	187	1114	1826	31	1338	370	1268
Grp Volume(v), veh/h	210	567	22	13	302	312	30	0	59	22	0	261
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	824	1770	1830	1114	0	1857	1338	0	1639
Q Serve(g_s), s	4.8	13.7	0.4	0.2	2.3	2.3	2.0	0.0	2.0	1.1	0.0	11.7
Cycle Q Clear(g_c), s	4.8	13.7	0.4	0.7	2.3	2.3	13.8	0.0	2.0	3.1	0.0	11.7
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.02	1.00		0.77
Lane Grp Cap(c), veh/h	580	1135	965	451	787	814	178	0	419	358	0	370
V/C Ratio(X)	0.36	0.50	0.02	0.03	0.38	0.38	0.17	0.00	0.14	0.06	0.00	0.71
Avail Cap(c_a), veh/h	702	1135	965	451	787	814	303	0	627	504	0	549
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.68	0.68	0.68	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.1	8.8	6.2	2.5	2.6	2.6	34.9	0.0	24.8	26.0	0.0	28.5
Incr Delay (d2), s/veh	0.4	1.6	0.0	0.1	1.0	0.9	0.6	0.0	0.2	0.1	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.2	11.9	0.4	0.1	2.2	2.2	1.2	0.0	1.9	0.7	0.0	9.6
LnGrp Delay(d),s/veh	9.4	10.3	6.2	2.6	3.5	3.5	35.5	0.0	25.0	26.1	0.0	32.0
LnGrp LOS	A	B	A	A	A	A	D		C	C		C
Approach Vol, veh/h	799				627				89			
Approach Delay, s/veh	10.0				3.5				28.5			
Approach LOS	A				A				C			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		5		6		8		
Phs Duration (G+Y+Rc), s	55.0			25.0		13.2		41.8		25.0		
Change Period (Y+Rc), s	* 6.2			7.0		* 6.2		* 6.2		* 7		
Max Green Setting (Gmax), s	* 40			26.8		* 13		* 21		* 27		
Max Q Clear Time (g_c+I1), s	15.7			13.7		6.8		4.3		15.8		
Green Ext Time (p_c), s	12.3			2.5		0.3		9.9		2.3		
Intersection Summary												
HCM 2010 Ctrl Delay	12.0											
HCM 2010 LOS	B											
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

1: S. Market Street & Race Street

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01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	40	11	14	28	26	13	612	39	43	526	26
Future Volume (veh/h)	26	40	11	14	28	26	13	612	39	43	526	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	28	43	12	15	30	28	14	665	42	47	572	28
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	84	20	73	67	54	712	1324	84	545	1345	66
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.76	0.76	0.76	1.00	1.00	1.00
Sat Flow, veh/h	442	1024	248	228	826	656	815	1734	110	738	1761	86
Grp Volume(v), veh/h	83	0	0	73	0	0	14	0	707	47	0	600
Grp Sat Flow(s),veh/h/ln	1714	0	0	1709	0	0	815	0	1843	738	0	1848
Q Serve(g_s), s	0.4	0.0	0.0	0.0	0.0	0.0	0.3	0.0	11.8	1.1	0.0	0.0
Cycle Q Clear(g_c), s	3.5	0.0	0.0	3.2	0.0	0.0	0.3	0.0	11.8	12.8	0.0	0.0
Prop In Lane	0.34		0.14	0.21		0.38	1.00		0.06	1.00		0.05
Lane Grp Cap(c), veh/h	200	0	0	194	0	0	712	0	1407	545	0	1410
V/C Ratio(X)	0.41	0.00	0.00	0.38	0.00	0.00	0.02	0.00	0.50	0.09	0.00	0.43
Avail Cap(c_a), veh/h	638	0	0	636	0	0	712	0	1407	545	0	1410
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	0.90	0.00	0.90
Uniform Delay (d), s/veh	35.3	0.0	0.0	35.2	0.0	0.0	2.3	0.0	3.6	1.2	0.0	0.0
Incr Delay (d2), s/veh	1.9	0.0	0.0	1.7	0.0	0.0	0.1	0.0	1.3	0.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.3	0.0	0.0	2.9	0.0	0.0	0.2	0.0	10.5	0.4	0.0	0.6
LnGrp Delay(d),s/veh	37.3	0.0	0.0	36.9	0.0	0.0	2.3	0.0	4.9	1.5	0.0	0.9
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h	83				73				721		647	
Approach Delay, s/veh	37.3				36.9				4.9		0.9	
Approach LOS	D				D				A		A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	66.8		13.2		66.8		13.2					
Change Period (Y+Rc), s	* 5.7		* 6.7		* 5.7		* 6.7					
Max Green Setting (Gmax), s	* 39		* 28		* 39		* 28					
Max Q Clear Time (g_c+I1), s	13.8		5.5		14.8		5.2					
Green Ext Time (p_c), s	15.4		1.2		14.9		1.2					
Intersection Summary												
HCM 2010 Ctrl Delay			6.5									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
2: S. Market Street & Canal Street

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01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	55	43	18	44	46	29	611	47	41	551	11
Future Volume (veh/h)	5	55	43	18	44	46	29	611	47	41	551	11
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	5	60	47	20	48	50	32	664	51	45	599	12
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	51	108	81	73	89	80	675	1238	95	621	1319	26
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	1.00	1.00	1.00	1.00	1.00	1.00
Sat Flow, veh/h	32	967	722	179	801	721	807	1708	131	733	1820	36
Grp Volume(v), veh/h	112	0	0	118	0	0	32	0	715	45	0	611
Grp Sat Flow(s),veh/h/ln	1721	0	0	1701	0	0	807	0	1840	733	0	1856
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.9	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop In Lane	0.04		0.42	0.17		0.42	1.00		0.07	1.00		0.02
Lane Grp Cap(c), veh/h	239	0	0	242	0	0	675	0	1333	621	0	1345
V/C Ratio(X)	0.47	0.00	0.00	0.49	0.00	0.00	0.05	0.00	0.54	0.07	0.00	0.45
Avail Cap(c_a), veh/h	656	0	0	644	0	0	675	0	1333	621	0	1345
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.86	0.00	0.86	0.92	0.00	0.92
Uniform Delay (d), s/veh	33.8	0.0	0.0	33.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	2.0	0.0	0.0	2.2	0.0	0.0	0.1	0.0	1.3	0.2	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.4	0.0	0.0	4.7	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.7
LnGrp Delay(d),s/veh	35.8	0.0	0.0	36.0	0.0	0.0	0.1	0.0	1.3	0.2	0.0	1.0
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h		112			118			747			656	
Approach Delay, s/veh		35.8			36.0			1.3			1.0	
Approach LOS		D			D			A			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		16.0		64.0		16.0				
Change Period (Y+Rc), s		6.0		7.1		6.0		* 7.1				
Max Green Setting (Gmax), s		38.4		28.5		38.4		* 29				
Max Q Clear Time (g_c+I1), s		2.0		6.9		2.0		7.1				
Green Ext Time (p_c), s		19.5		1.9		19.5		1.9				
Intersection Summary												
HCM 2010 Ctrl Delay			6.0									
HCM 2010 LOS			A									
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary

3: S. Market Street & Franklin Street

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01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	38	35	19	34	29	19	631	18	21	544	21
Future Volume (veh/h)	15	38	35	19	34	29	19	631	18	21	544	21
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	16	41	38	21	37	32	21	686	20	23	591	23
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	79	64	81	78	57	647	1430	42	677	1414	55
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	1.00	1.00	1.00	0.79	0.79	0.79
Sat Flow, veh/h	178	844	682	268	833	607	805	1801	53	739	1781	69
Grp Volume(v), veh/h	95	0	0	90	0	0	21	0	706	23	0	614
Grp Sat Flow(s),veh/h/ln	1705	0	0	1708	0	0	805	0	1853	739	0	1851
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.5	0.0	8.2
Cycle Q Clear(g_c), s	4.1	0.0	0.0	3.8	0.0	0.0	8.5	0.0	0.0	0.5	0.0	8.2
Prop In Lane	0.17		0.40	0.23		0.36	1.00		0.03	1.00		0.04
Lane Grp Cap(c), veh/h	212	0	0	215	0	0	647	0	1472	677	0	1469
V/C Ratio(X)	0.45	0.00	0.00	0.42	0.00	0.00	0.03	0.00	0.48	0.03	0.00	0.42
Avail Cap(c_a), veh/h	642	0	0	637	0	0	647	0	1472	677	0	1469
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	0.85	0.00	0.85	1.00	0.00	1.00
Uniform Delay (d), s/veh	34.8	0.0	0.0	34.6	0.0	0.0	0.5	0.0	0.0	1.8	0.0	2.5
Incr Delay (d2), s/veh	2.1	0.0	0.0	1.8	0.0	0.0	0.1	0.0	1.0	0.1	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.8	0.0	0.0	3.6	0.0	0.0	0.1	0.0	0.7	0.2	0.0	7.9
LnGrp Delay(d),s/veh	36.9	0.0	0.0	36.5	0.0	0.0	0.6	0.0	1.0	1.8	0.0	3.4
LnGrp LOS	D			D			A		A	A		A
Approach Vol, veh/h	95			90			727			637		
Approach Delay, s/veh	36.9			36.5			0.9			3.4		
Approach LOS	D			D			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	68.0			12.0			68.0			12.0		
Change Period (Y+Rc), s	4.5			4.5			4.5			4.5		
Max Green Setting (Gmax), s	42.5			28.5			42.5			28.5		
Max Q Clear Time (g_c+I1), s	10.5			6.1			10.2			5.8		
Green Ext Time (p_c), s	17.6			1.5			17.7			1.5		
Intersection Summary												
HCM 2010 Ctrl Delay	6.2											
HCM 2010 LOS	A											
Notes												
User approved pedestrian interval to be less than phase max green.												

Intersection							
Intersection Delay, s/veh	24.5						
Intersection LOS	C						
Approach	EB	WB	NB	SB			
Entry Lanes	1	1	2	1			
Conflicting Circle Lanes	1	1	1	1			
Adj Approach Flow, veh/h	703	299	744	642			
Demand Flow Rate, veh/h	710	305	752	648			
Vehicles Circulating, veh/h	475	954	531	457			
Vehicles Exiting, veh/h	630	257	448	802			
Follow-Up Headway, s	3.186	3.186	3.186	3.186			
Ped Vol Crossing Leg, #/h	0	0	0	0			
Ped Cap Adj	1.000	1.000	1.000	1.000			
Approach Delay, s/veh	17.2	29.4	17.3	38.6			
Approach LOS	C	D	C	E			
Lane	Left	Bypass	Left	Left	Right	Bypass	Left
Designated Moves	LT	R	LTR	L	TR	R	LTR
Assumed Moves	LT	R	LTR	L	TR	R	LTR
RT Channelized	Yield			Yield			
Lane Util	1.000		1.000	0.287	0.713		1.000
Critical Headway, s	5.193		5.193	5.193	5.193		5.193
Entry Flow, veh/h	504	206	305	195	485	72	648
Cap Entry Lane, veh/h	703	722	435	664	664	874	715
Entry HV Adj Factor	0.990	0.990	0.981	0.990	0.990	0.990	0.991
Flow Entry, veh/h	499	204	299	193	480	71	642
Cap Entry, veh/h	695	715	427	658	658	865	709
V/C Ratio	0.717	0.285	0.701	0.293	0.730	0.082	0.906
Control Delay, s/veh	20.8	8.5	29.4	9.2	22.5	4.9	38.6
LOS	C	A	D	A	C	A	E
95th %tile Queue, veh	6	1	5	1	6	0	12

HCM 2010 Signalized Intersection Summary
5: N. Market Street & Water Street

076233-2036 PM Build.syn
01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	73	48	19	27	41	53	23	686	26	32	532	34
Future Volume (veh/h)	73	48	19	27	41	53	23	686	26	32	532	34
Number	1	6	16	5	2	12	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	79	52	21	29	45	58	25	746	28	35	578	37
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	244	99	216	71	91	547	1252	47	428	1307	1111
Arrive On Green	0.05	0.19	0.19	0.10	0.10	0.10	0.70	0.70	0.70	0.70	0.70	0.70
Sat Flow, veh/h	1774	1263	510	1322	740	954	804	1784	67	694	1863	1583
Grp Volume(v), veh/h	79	0	73	29	0	103	25	0	774	35	578	37
Grp Sat Flow(s),veh/h/ln	1774	0	1773	1322	0	1694	804	0	1851	694	1863	1583
Q Serve(g_s), s	3.1	0.0	2.8	1.6	0.0	4.7	1.1	0.0	17.1	2.2	10.7	0.6
Cycle Q Clear(g_c), s	3.1	0.0	2.8	1.6	0.0	4.7	11.8	0.0	17.1	19.3	10.7	0.6
Prop In Lane	1.00		0.29	1.00		0.56	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	231	0	342	216	0	162	547	0	1299	428	1307	1111
V/C Ratio(X)	0.34	0.00	0.21	0.13	0.00	0.64	0.05	0.00	0.60	0.08	0.44	0.03
Avail Cap(c_a), veh/h	279	0	793	516	0	546	547	0	1299	428	1307	1111
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	0.0	27.2	33.5	0.0	34.8	7.7	0.0	6.1	11.1	5.2	3.6
Incr Delay (d2), s/veh	0.9	0.0	0.3	0.3	0.0	4.1	0.2	0.0	2.0	0.4	1.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	0.0	2.5	1.1	0.0	4.3	0.5	0.0	14.3	0.8	9.8	0.5
LnGrp Delay(d),s/veh	29.8	0.0	27.5	33.7	0.0	39.0	7.9	0.0	8.1	11.4	6.2	3.7
LnGrp LOS	C		C	C		D	A		A	B	A	A
Approach Vol, veh/h	152			132			799			650		
Approach Delay, s/veh	28.7			37.8			8.1			6.4		
Approach LOS	C			D			A			A		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	7.8	11.8		60.3		19.7		60.3				
Change Period (Y+Rc), s	3.6	* 4.2		* 4.2		* 4.2		* 4.2				
Max Green Setting (Gmax), s	6.4	* 26		* 36		* 36		* 36				
Max Q Clear Time (g_c+I1), s	5.1	6.7		21.3		4.8		19.1				
Green Ext Time (p_c), s	0.0	1.0		8.8		1.2		9.6				

Intersection Summary

HCM 2010 Ctrl Delay	11.5
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM 2010 Signalized Intersection Summary
6: Walnut Street & E. Main Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	14	238	36	10	238	3	15	11	8	1	14	23
Future Volume (veh/h)	14	238	36	10	238	3	15	11	8	1	14	23
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	15	259	39	11	259	3	16	12	9	1	15	25
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	563	801	121	531	930	11	277	204	134	48	227	358
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	1113	1582	238	1077	1838	21	607	582	382	7	649	1024
Grp Volume(v), veh/h	15	0	298	11	0	262	37	0	0	41	0	0
Grp Sat Flow(s),veh/h/ln	1113	0	1821	1077	0	1859	1572	0	0	1680	0	0
Q Serve(g_s), s	0.6	0.0	7.7	0.5	0.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.1	0.0	7.7	8.2	0.0	6.5	1.1	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.01	0.43		0.24	0.02		0.61
Lane Grp Cap(c), veh/h	563	0	922	531	0	941	615	0	0	634	0	0
V/C Ratio(X)	0.03	0.00	0.32	0.02	0.00	0.28	0.06	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	563	0	922	531	0	941	615	0	0	634	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.4	0.0	11.7	14.1	0.0	11.4	17.3	0.0	0.0	17.3	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.9	0.1	0.0	0.7	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	0.0	7.4	0.3	0.0	6.2	1.0	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	13.5	0.0	12.6	14.2	0.0	12.1	17.4	0.0	0.0	17.5	0.0	0.0
LnGrp LOS	B		B	B		B	B			B		
Approach Vol, veh/h	313				273				37		41	
Approach Delay, s/veh	12.6				12.2				17.4		17.5	
Approach LOS	B				B				B		B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	46.0		34.0		46.0		34.0					
Change Period (Y+Rc), s	5.5		6.0		5.5		6.0					
Max Green Setting (Gmax), s	40.5		28.0		40.5		28.0					
Max Q Clear Time (g_c+I1), s	9.7		3.3		10.2		3.1					
Green Ext Time (p_c), s	5.8		0.5		5.8		0.5					
Intersection Summary												
HCM 2010 Ctrl Delay			13.0									
HCM 2010 LOS			B									

HCM 2010 Signalized Intersection Summary
7: Cherry Street & W. Main Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	564	18	9	528	12	17	12	25	9	20	18
Future Volume (veh/h)	15	564	18	9	528	12	17	12	25	9	20	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	16	613	20	10	574	13	18	13	27	10	22	20
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	357	964	31	515	975	22	186	143	235	123	258	205
Arrive On Green	1.00	1.00	1.00	0.54	0.54	0.54	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	825	1794	59	791	1814	41	399	447	738	218	809	642
Grp Volume(v), veh/h	16	0	633	10	0	587	58	0	0	52	0	0
Grp Sat Flow(s),veh/h/ln	825	0	1852	791	0	1855	1585	0	0	1669	0	0
Q Serve(g_s), s	0.6	0.0	0.0	0.5	0.0	17.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	17.8	0.0	0.0	0.5	0.0	17.1	1.9	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	0.31		0.47	0.19		0.38
Lane Grp Cap(c), veh/h	357	0	996	515	0	997	564	0	0	586	0	0
V/C Ratio(X)	0.04	0.00	0.64	0.02	0.00	0.59	0.10	0.00	0.00	0.09	0.00	0.00
Avail Cap(c_a), veh/h	357	0	996	515	0	997	564	0	0	586	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.00	0.67	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.5	0.0	0.0	8.7	0.0	12.5	19.2	0.0	0.0	19.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.1	0.1	0.0	2.5	0.4	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	0.0	1.0	0.2	0.0	14.4	1.7	0.0	0.0	1.5	0.0	0.0
LnGrp Delay(d),s/veh	3.7	0.0	2.1	8.7	0.0	15.1	19.6	0.0	0.0	19.4	0.0	0.0
LnGrp LOS	A		A	A		B	B			B		
Approach Vol, veh/h	649				597				58			
Approach Delay, s/veh	2.1				15.0				19.6			
Approach LOS	A				B				B			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6		8				
Phs Duration (G+Y+Rc), s	31.0			49.0		31.0		49.0				
Change Period (Y+Rc), s	5.5			6.0		5.5		6.0				
Max Green Setting (Gmax), s	25.5			43.0		25.5		43.0				
Max Q Clear Time (g_c+I1), s	3.9			19.8		3.7		19.1				
Green Ext Time (p_c), s	0.7			12.6		0.7		12.8				
Intersection Summary												
HCM 2010 Ctrl Delay				9.2								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary
8: Plum Street & W. Main Street

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	→	↘	↙	←	↖	↗		
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations	↰		↰	↰	↰			
Traffic Volume (veh/h)	565	30	16	549	35	30		
Future Volume (veh/h)	565	30	16	549	35	30		
Number	2	12	1	6	3	18		
Initial Q (Qb), veh	0	0	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		
Adj Sat Flow, veh/h/ln	1863	1900	1863	1863	1863	1900		
Adj Flow Rate, veh/h	614	33	17	597	38	33		
Adj No. of Lanes	1	0	1	1	0	0		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2	0	0		
Cap, veh/h	894	48	488	950	300	260		
Arrive On Green	1.00	1.00	1.00	1.00	0.34	0.34		
Sat Flow, veh/h	1752	94	781	1863	888	771		
Grp Volume(v), veh/h	0	647	17	597	72	0		
Grp Sat Flow(s),veh/h/ln	0	1846	781	1863	1682	0		
Q Serve(g_s), s	0.0	0.0	0.0	0.0	2.4	0.0		
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	2.4	0.0		
Prop In Lane		0.05	1.00		0.53	0.46		
Lane Grp Cap(c), veh/h	0	942	488	950	568	0		
V/C Ratio(X)	0.00	0.69	0.03	0.63	0.13	0.00		
Avail Cap(c_a), veh/h	0	942	488	950	568	0		
HCM Platoon Ratio	2.00	2.00	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.00	0.62	0.78	0.78	1.00	0.00		
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	18.3	0.0		
Incr Delay (d2), s/veh	0.0	2.5	0.1	2.5	0.5	0.0		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(95%),veh/ln	0.0	1.2	0.0	1.2	2.1	0.0		
LnGrp Delay(d),s/veh	0.0	2.5	0.1	2.5	18.8	0.0		
LnGrp LOS		A	A	A	B			
Approach Vol, veh/h	647			614	72			
Approach Delay, s/veh	2.5			2.4	18.8			
Approach LOS	A			A	B			
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		46.8				46.8		33.2
Change Period (Y+Rc), s		6.0				6.0		6.2
Max Green Setting (Gmax), s		40.8				40.8		27.0
Max Q Clear Time (g_c+I1), s		2.0				2.0		4.4
Green Ext Time (p_c), s		17.5				17.5		0.3
Intersection Summary								
HCM 2010 Ctrl Delay			3.4					
HCM 2010 LOS			A					
Notes								
User approved volume balancing among the lanes for turning movement.								

HCM 2010 Signalized Intersection Summary
9: Monroe Street & W. Main Street

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01/30/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	18	564	16	19	573	10	10	15	33	6	11	28
Future Volume (veh/h)	18	564	16	19	573	10	10	15	33	6	11	28
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	20	613	17	21	623	11	11	16	36	7	12	30
Adj No. of Lanes	1	1	0	1	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	487	906	25	489	917	16	117	172	314	99	166	337
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.34	0.34	0.34	0.34	0.34	0.34
Sat Flow, veh/h	790	1804	50	793	1825	32	189	509	931	140	493	1000
Grp Volume(v), veh/h	20	0	630	21	0	634	63	0	0	49	0	0
Grp Sat Flow(s),veh/h/ln	790	0	1854	793	0	1857	1629	0	0	1633	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	1.6	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.02	0.17		0.57	0.14		0.61
Lane Grp Cap(c), veh/h	487	0	932	489	0	933	603	0	0	602	0	0
V/C Ratio(X)	0.04	0.00	0.68	0.04	0.00	0.68	0.10	0.00	0.00	0.08	0.00	0.00
Avail Cap(c_a), veh/h	487	0	932	489	0	933	603	0	0	602	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.00	0.89	0.79	0.00	0.79	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	0.0	18.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	3.5	0.1	0.0	3.2	0.3	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.0	0.0	1.6	0.0	0.0	1.5	1.8	0.0	0.0	1.4	0.0	0.0
LnGrp Delay(d),s/veh	0.1	0.0	3.5	0.1	0.0	3.2	18.6	0.0	0.0	18.3	0.0	0.0
LnGrp LOS	A		A	A		A	B			B		
Approach Vol, veh/h	650			655			63			49		
Approach Delay, s/veh	3.4			3.1			18.6			18.3		
Approach LOS	A			A			B			B		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4			6			8		
Phs Duration (G+Y+Rc), s	46.2			33.8			46.2			33.8		
Change Period (Y+Rc), s	6.0			* 6.8			6.0			* 6.8		
Max Green Setting (Gmax), s	40.2			* 27			40.2			* 27		
Max Q Clear Time (g_c+I1), s	2.0			3.6			2.0			4.0		
Green Ext Time (p_c), s	18.1			0.8			18.1			0.8		
Intersection Summary												
HCM 2010 Ctrl Delay	4.4											
HCM 2010 LOS	A											
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 Signalized Intersection Summary
10: Adams Street/Adam Street & W. Main Street

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	207	560	21	13	574	31	30	57	1	21	58	200
Future Volume (veh/h)	207	560	21	13	574	31	30	57	1	21	58	200
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	225	609	23	14	624	34	33	62	1	23	63	217
Adj No. of Lanes	1	1	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	551	1110	943	406	1447	79	180	437	7	373	88	304
Arrive On Green	0.09	0.60	0.60	0.85	0.85	0.85	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1774	1863	1583	792	3414	186	1095	1828	29	1334	369	1270
Grp Volume(v), veh/h	225	609	23	14	323	335	33	0	63	23	0	280
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	792	1770	1830	1095	0	1858	1334	0	1639
Q Serve(g_s), s	5.3	15.7	0.5	0.3	3.5	3.5	2.3	0.0	2.1	1.1	0.0	12.5
Cycle Q Clear(g_c), s	5.3	15.7	0.5	2.3	3.5	3.5	14.8	0.0	2.1	3.2	0.0	12.5
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.02	1.00		0.77
Lane Grp Cap(c), veh/h	551	1110	943	406	750	776	180	0	444	373	0	392
V/C Ratio(X)	0.41	0.55	0.02	0.03	0.43	0.43	0.18	0.00	0.14	0.06	0.00	0.71
Avail Cap(c_a), veh/h	661	1110	943	406	750	776	288	0	627	501	0	549
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.61	0.61	0.61	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.8	9.7	6.6	3.9	3.8	3.8	34.7	0.0	24.0	25.2	0.0	27.9
Incr Delay (d2), s/veh	0.5	2.0	0.0	0.1	1.1	1.1	0.7	0.0	0.2	0.1	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.6	13.3	0.4	0.1	3.3	3.4	1.3	0.0	2.0	0.8	0.0	10.1
LnGrp Delay(d),s/veh	10.3	11.7	6.7	4.0	4.9	4.9	35.4	0.0	24.2	25.3	0.0	31.5
LnGrp LOS	B	B	A	A	A	A	D		C	C		C
Approach Vol, veh/h	857				672				96		303	
Approach Delay, s/veh	11.2				4.8				28.0		31.0	
Approach LOS	B				A				C		C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2			4		6	8					
Phs Duration (G+Y+Rc), s	53.9			26.1		13.8	26.1					
Change Period (Y+Rc), s	* 6.2			7.0		* 6.2	* 7					
Max Green Setting (Gmax), s	* 40			26.8		* 13	* 27					
Max Q Clear Time (g_c+I1), s	17.7			14.5		7.3	16.8					
Green Ext Time (p_c), s	12.6			2.6		0.3	2.3					
Intersection Summary												
HCM 2010 Ctrl Delay	12.9											
HCM 2010 LOS	B											
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

APPENDIX M: CRASH ANALYSIS

-- (-) From // to //
Study Area

	Number
Total	150

CRASH_SEVERITY	Number	%
Injury Crash	13	8.7%
Property Damage Crash	137	91.3%
Grand Total	150	100.0%

TRAFFIC_CRASH_YEAR	Number	%
2013	43	28.7%
2014	53	35.3%
2015	54	36.0%
Grand Total	150	100.0%

DAY_OF_WEEK	Number	%
Wednesday	33	22.0%
Monday	28	18.7%
Tuesday	25	16.7%
Friday	24	16.0%
Thursday	20	13.3%
Saturday	12	8.0%
Sunday	8	5.3%
Grand Total	150	100.0%

HOUR_OF_DAY	Number	%
1	2	1.3%
3	1	0.7%
5	1	0.7%
6	2	1.3%
7	5	3.3%
8	4	2.7%
9	12	8.0%
10	8	5.3%
11	10	6.7%
12	9	6.0%
13	11	7.3%
14	18	12.0%
15	12	8.0%
16	16	10.7%
17	12	8.0%
18	6	4.0%
19	5	3.3%
20	2	1.3%
21	6	4.0%
22	2	1.3%
23	6	4.0%
Grand Total	150	100.0%

TYPE_OF_CRASH	Number	%
Rear End	37	24.7%
Parked Vehicle	31	20.7%
Angle	27	18.0%
Backing	25	16.7%
Sideswipe - Passing	18	12.0%
Fixed Object	8	5.3%
Left Turn	3	2.0%
Sideswipe - Meeting	1	0.7%
Grand Total	150	100.0%

- - (-) From // to //

Study area

WEATHER_CONDITION	Number	%
Clear	77	51.3%
Cloudy	47	31.3%
Rain	22	14.7%
Snow	4	2.7%
Grand Total	150	100.0%

ROAD_CONDITION	Number	%
Road - Dry	106	70.7%
Road - Wet	36	24.0%
Road - Ice	4	2.7%
Road - Snow	4	2.7%
Grand Total	150	100.0%

LIGHT_CONDITION	Number	%
Daylight	114	76.0%
Dark - Lighted	23	15.3%
Light Not Stated	7	4.7%
Dusk	3	2.0%
Dawn	2	1.3%
Dark - No Lights	1	0.7%
Grand Total	150	100.0%

NUMBER_OF_VEHICLES	Number	%
(blank)	150	100.0%
Grand Total	150	100.0%

LOCATION	Number	%
Not An Intersection	80	53.3%
Traffic Circle/Roundabout	32	21.3%
Four-Way Intersection	27	18.0%
T-Intersection	7	4.7%
Driveway/Alley Access	4	2.7%
Grand Total	150	100.0%

CRASH_MONTH_NBR	Number	%
1	15	10.0%
2	11	7.3%
3	6	4.0%
4	15	10.0%
5	12	8.0%
6	14	9.3%
7	17	11.3%
8	16	10.7%
9	8	5.3%
10	18	12.0%
11	8	5.3%
12	10	6.7%
Grand Total	150	100.0%

ROAD_CONTOUR	Number	%
Straight - Level	129	86.0%
Curve - Level	13	8.7%
Straight - Grade	6	4.0%
Curve - Grade	2	1.3%
Grand Total	150	100.0%

SPECIAL_AREA	Number	%
Unknown or Not in Work Zone	150	100.0%
Grand Total	150	100.0%

ANIMAL_TYPE	Number	%
Animal Not Stated	150	100.0%
Grand Total	150	100.0%

--(-) From // to //

Study Area

ACTION1	Number	%
Straight Ahead	78	52.0%
Backing	25	16.7%
Changing Lanes	13	8.7%
Entering Traffic Lane	7	4.7%
Making Left Turn	6	4.0%
Unknown	5	3.3%
Parked	4	2.7%
Negotiating A Curve	4	2.7%
Making Right Turn	3	2.0%
Overtaking/Passing	2	1.3%
Leaving Traffic Lane	1	0.7%
Driverless	1	0.7%
Making U-Turn	1	0.7%
Grand Total	150	100.0%

CONTRIBUTING_FACTOR1	Number	%
Followed Too Closely/ACDA	42	28.0%
Failure To Control	25	16.7%
Improper Backing	24	16.0%
Failure To Yield	15	10.0%
Improper Lane Change/Passing/Offroad	15	10.0%
Ran Red Light	11	7.3%
Other Improper Action	4	2.7%
Unknown	4	2.7%
Improper Turn	3	2.0%
Improper Start From Parked Position	2	1.3%
None	2	1.3%
None Non-Motorist	1	0.7%
Stopped Or Parked Illegally	1	0.7%
Swerving To Avoid	1	0.7%
Grand Total	150	100.0%

	Number	%
Total	150	100.0%

TRAFFIC_CONTROL1	Number	%
Pavement Markings	44	29.3%
No Controls	43	28.7%
Traffic Signal	36	24.0%
Yield Sign	24	16.0%
Traffic Flashers	1	0.7%
Not Reported	1	0.7%
Stop Sign	1	0.7%
Grand Total	150	100.0%

DRIVER_ALCOHOL1	Number	%
None	129	86.0%
0	18	12.0%
Yes - Alcohol Suspected	3	2.0%
Grand Total	150	100.0%

DRIVER_DRUGS1	Number	%
(blank)	150	100.0%
Grand Total	150	100.0%

-- (-) From // to //

Study Area

DIRECTION_FROM1	Number	%
West	45	30.0%
South	40	26.7%
North	37	24.7%
East	23	15.3%
Northeast	2	1.3%
Unknown	1	0.7%
Southwest	1	0.7%
Northwest	1	0.7%
Grand Total	150	100.0%

DIRECTION_TO1	Number	%
North	41	27.3%
East	40	26.7%
South	34	22.7%
West	24	16.0%
Unknown	8	5.3%
Southwest	2	1.3%
Southeast	1	0.7%
Grand Total	150	100.0%

POSTED_SPEED1	Number	%
Posted Speed 21-25	140	93.3%
Posted Speed 31-35	9	6.0%
Posted Speed Not Stated	1	0.7%
Grand Total	150	100.0%

ESTIMATED_SPEED1	Number	%
Unit Speed 20 and Under	104	69.3%
Unit Speed 21-25	22	14.7%
Unit Speed Not Stated	15	10.0%
Unit Speed 26-30	6	4.0%
Unit Speed 56-60	1	0.7%
Unit Speed 31-35	1	0.7%
Unit Speed 36-40	1	0.7%
Grand Total	150	100.0%

VEHICLE_TYPE1	Number	%
Mid Size	30	20.0%
Sport Utility Vehicle	29	19.3%
Pickup	21	14.0%
Compact	16	10.7%
Full Size	15	10.0%
Minivan	11	7.3%
Unknown Or Hit/Skip	9	6.0%
Sub-Compact	7	4.7%
Tractor/Semi-Trailer	5	3.3%
Van	2	1.3%
Single Unit Truck/Trailer	1	0.7%
Other Med/Heavy Vehicle	1	0.7%
Single Unit Truck Or Van 2 Axle, 6 Tires	1	0.7%
Bus (16+ Seats, Inc Driver)	1	0.7%
Other Passenger Vehicle	1	0.7%
Grand Total	150	100.0%

VEHICLE_TYPE2	Number	%
Mid Size	33	22.0%
Pickup	33	22.0%
Sport Utility Vehicle	24	16.0%
Full Size	21	14.0%
Compact	17	11.3%
Minivan	8	5.3%
Van	7	4.7%
Sub-Compact	3	2.0%
Other Passenger Vehicle	1	0.7%
Bus (16+ Seats, Inc Driver)	1	0.7%
Motorcycle	1	0.7%
Grand Total	150	100.0%

-- (-) From // to //

Study Area

ACTION2	Number	%
Straight Ahead	53	35.3%
Parked	43	28.7%
Slowing Or Stopped In Traffic	38	25.3%
	8	5.3%
Making Left Turn	2	1.3%
Negotiating A Curve	2	1.3%
Making Right Turn	1	0.7%
Entering Traffic Lane	1	0.7%
Changing Lanes	1	0.7%
Other Motorist Action	1	0.7%
Grand Total	150	100.0%

CONTRIBUTING_FACTOR2	Number	%
None	127	84.7%
	8	5.3%
Stopped Or Parked Illegally	7	4.7%
Unknown	2	1.3%
Failure To Control	2	1.3%
Failure To Yield	1	0.7%
Followed To Closely/ACDA	1	0.7%
None Non-Motorist	1	0.7%
Other Improper Action	1	0.7%
Grand Total	150	100.0%

DIRECTION_FROM2	Number	%
South	37	24.7%
North	36	24.0%
West	28	18.7%
East	25	16.7%
	8	5.3%
Southwest	4	2.7%
Northeast	4	2.7%
Northwest	3	2.0%
Southeast	3	2.0%
Unknown	2	1.3%
Grand Total	150	100.0%

DIRECTION_TO2	Number	%
North	36	24.0%
South	35	23.3%
West	27	18.0%
East	26	17.3%
	8	5.3%
Northeast	4	2.7%
Southwest	4	2.7%
Unknown	4	2.7%
Southeast	3	2.0%
Northwest	3	2.0%
Grand Total	150	100.0%

DRIVER_ALCOHOL2	Number	%
None	99	66.0%
	43	28.7%
	8	5.3%
Grand Total	150	100.0%

DRIVER_DRUGS2	Number	%
(blank)	150	100.0%
Grand Total	150	100.0%

-- (-) From // to //

Study Area

SEVERITY	CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR	Property Damage Crash	Injury Crash
2013	38	5
2014	49	4
2015	50	4
Grand Total	137	13

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2013	0	0
2014	0	0
2015	0	0
Grand Total	0	0

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2013	0	2	4
2014	0	1	3
2015	0	2	3
Grand Total	0	5	10

-- (-) From // to //

East Main Street

	Number
Total	12

CRASH_SEVERITY	Number	%
Injury Crash	1	8.3%
Property Damage Crash	11	91.7%
Grand Total	12	100.0%

TRAFFIC_CRASH_YEAR	Number	%
2013	5	41.7%
2014	1	8.3%
2015	6	50.0%
Grand Total	12	100.0%

DAY_OF_WEEK	Number	%
Tuesday	4	33.3%
Friday	3	25.0%
Monday	2	16.7%
Wednesday	2	16.7%
Saturday	1	8.3%
Grand Total	12	100.0%

HOUR_OF_DAY	Number	%
9	2	16.7%
12	1	8.3%
13	1	8.3%
14	3	25.0%
15	1	8.3%
16	1	8.3%
18	1	8.3%
20	1	8.3%
21	1	8.3%
Grand Total	12	100.0%

TYPE_OF_CRASH	Number	%
Backing	4	33.3%
Rear End	3	25.0%
Angle	2	16.7%
Sideswipe - Passing	2	16.7%
Parked Vehicle	1	8.3%
Grand Total	12	100.0%

-- (-) From // to //

East Main Street

WEATHER_CONDITION	Number	%
Clear	6	50.0%
Cloudy	4	33.3%
Rain	2	16.7%
Grand Total	12	100.0%

ROAD_CONDITION	Number	%
Road - Dry	8	66.7%
Road - Wet	4	33.3%
Grand Total	12	100.0%

LIGHT_CONDITION	Number	%
Daylight	9	75.0%
Dark - Lighted	3	25.0%
Grand Total	12	100.0%

NUMBER_OF_VEHICLES	Number	%
(blank)	12	100.0%
Grand Total	12	100.0%

LOCATION	Number	%
Not An Intersection	9	75.0%
Four-Way Intersection	3	25.0%
Grand Total	12	100.0%

CRASH_MONTH_NBR	Number	%
2	1	8.3%
4	1	8.3%
6	2	16.7%
7	1	8.3%
8	1	8.3%
9	1	8.3%
10	2	16.7%
11	2	16.7%
12	1	8.3%
Grand Total	12	100.0%

ROAD_CONTOUR	Number	%
Straight - Level	12	100.0%
Grand Total	12	100.0%

SPECIAL_AREA	Number	%
Unknown or Not in Work Zone	12	100.0%
Grand Total	12	100.0%

ANIMAL_TYPE	Number	%
Animal Not Stated	12	100.0%
Grand Total	12	100.0%

East Main Street

ACTION1	Number	%
Straight Ahead	6	50.0%
Backing	4	33.3%
Changing Lanes	2	16.7%
Grand Total	12	100.0%

CONTRIBUTING_FACTOR1	Number	%
Improper Backing	4	33.3%
Followed Too Closely/ACDA	3	25.0%
Ran Red Light	2	16.7%
Improper Lane Change/Passing/Offroad	2	16.7%
Failure To Control	1	8.3%
Grand Total	12	100.0%

	Number	%
Total	12	100.0%

TRAFFIC_CONTROL1	Number	%
No Controls	6	50.0%
Traffic Signal	4	33.3%
Pavement Markings	2	16.7%
Grand Total	12	100.0%

DRIVER_ALCOHOL1	Number	%
None	11	91.7%
0	1	8.3%
Grand Total	12	100.0%

DRIVER_DRUGS1	Number	%
(blank)	12	100.0%
Grand Total	12	100.0%

-- (-) From // to //

East Main Street

DIRECTION_FROM1	Number	%
West	6	50.0%
North	3	25.0%
East	2	16.7%
South	1	8.3%
Grand Total	12	100.0%

DIRECTION_TO1	Number	%
East	8	66.7%
West	2	16.7%
North	1	8.3%
South	1	8.3%
Grand Total	12	100.0%

POSTED_SPEED1	Number	%
Posted Speed 21-25	10	83.3%
Posted Speed 31-35	2	16.7%
Grand Total	12	100.0%

ESTIMATED_SPEED1	Number	%
Unit Speed 20 and Under	9	75.0%
Unit Speed 21-25	2	16.7%
Unit Speed Not Stated	1	8.3%
Grand Total	12	100.0%

VEHICLE_TYPE1	Number	%
Sport Utility Vehicle	5	41.7%
Minivan	2	16.7%
Full Size	2	16.7%
Pickup	1	8.3%
Mid Size	1	8.3%
Unknown Or Hit/Skip	1	8.3%
Grand Total	12	100.0%

VEHICLE_TYPE2	Number	%
Mid Size	3	25.0%
Full Size	3	25.0%
Compact	2	16.7%
Pickup	2	16.7%
Bus (16+ Seats, Inc Driver)	1	8.3%
Minivan	1	8.3%
Grand Total	12	100.0%

-- (-) From // to //

East Main Street

ACTION2	Number	%
Straight Ahead	5	41.7%
Parked	4	33.3%
Slowing Or Stopped In Traffic	3	25.0%
Grand Total	12	100.0%

CONTRIBUTING_FACTOR2	Number	%
None	11	91.7%
Stopped Or Parked Illegally	1	8.3%
Grand Total	12	100.0%

DIRECTION_FROM2	Number	%
East	5	41.7%
West	3	25.0%
South	2	16.7%
Southeast	1	8.3%
North	1	8.3%
Grand Total	12	100.0%

DIRECTION_TO2	Number	%
West	5	41.7%
East	3	25.0%
North	2	16.7%
Northwest	1	8.3%
South	1	8.3%
Grand Total	12	100.0%

DRIVER_ALCOHOL2	Number	%
None	8	66.7%
0	4	33.3%
Grand Total	12	100.0%

DRIVER_DRUGS2	Number	%
(blank)	12	100.0%
Grand Total	12	100.0%

-- (-) From // to //

East Main Street

SEVERITY		CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR		Property Damage Crash	Injury Crash
2013		4	1
2014		1	0
2015		6	0
Grand Total		11	1

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2013	0	0
2014	0	0
2015	0	0
Grand Total		0

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2013	0	0	2
2014	0	0	0
2015	0	0	0
Grand Total		0	2

-- (-) From // to //

West Main Street

	Number
Total	41

CRASH_SEVERITY	Number	%
Injury Crash	2	4.9%
Property Damage Crash	39	95.1%
Grand Total	41	100.0%

TRAFFIC_CRASH_YEAR	Number	%
2013	12	29.3%
2014	14	34.1%
2015	15	36.6%
Grand Total	41	100.0%

DAY_OF_WEEK	Number	%
Monday	9	22.0%
Wednesday	9	22.0%
Tuesday	6	14.6%
Friday	6	14.6%
Thursday	6	14.6%
Saturday	3	7.3%
Sunday	2	4.9%
Grand Total	41	100.0%

HOUR_OF_DAY	Number	%
3	1	2.4%
7	2	4.9%
8	3	7.3%
9	4	9.8%
10	4	9.8%
11	1	2.4%
12	4	9.8%
13	2	4.9%
14	2	4.9%
15	3	7.3%
16	5	12.2%
17	2	4.9%
18	2	4.9%
19	3	7.3%
21	2	4.9%
23	1	2.4%
Grand Total	41	100.0%

TYPE_OF_CRASH	Number	%
Parked Vehicle	14	34.1%
Rear End	9	22.0%
Backing	6	14.6%
Angle	6	14.6%
Sideswipe - Passing	4	9.8%
Fixed Object	1	2.4%
Left Turn	1	2.4%
Grand Total	41	100.0%

-- (-) From // to //

West Main Street

WEATHER_CONDITION	Number	%
Clear	23	56.1%
Cloudy	15	36.6%
Rain	3	7.3%
Grand Total	41	100.0%

ROAD_CONDITION	Number	%
Road - Dry	31	75.6%
Road - Wet	8	19.5%
Road - Ice	2	4.9%
Grand Total	41	100.0%

LIGHT_CONDITION	Number	%
Daylight	34	82.9%
Dark - Lighted	5	12.2%
Light Not Stated	1	2.4%
Dark - No Lights	1	2.4%
Grand Total	41	100.0%

NUMBER_OF_VEHICLES	Number	%
(blank)	41	100.0%
Grand Total	41	100.0%

LOCATION	Number	%
Not An Intersection	26	63.4%
T-Intersection	7	17.1%
Four-Way Intersection	6	14.6%
Driveway/Alley Access	2	4.9%
Grand Total	41	100.0%

CRASH_MONTH_NBR	Number	%
1	6	14.6%
2	4	9.8%
3	2	4.9%
4	5	12.2%
5	3	7.3%
6	1	2.4%
7	5	12.2%
8	2	4.9%
9	3	7.3%
10	5	12.2%
11	2	4.9%
12	3	7.3%
Grand Total	41	100.0%

ROAD_CONTOUR	Number	%
Straight - Level	41	100.0%
Grand Total	41	100.0%

SPECIAL_AREA	Number	%
Unknown or Not in Work Zone	41	100.0%
Grand Total	41	100.0%

ANIMAL_TYPE	Number	%
Animal Not Stated	41	100.0%
Grand Total	41	100.0%

-- (-) From // to //

West Main Street

ACTION1	Number	%
Straight Ahead	26	63.4%
Backing	6	14.6%
Entering Traffic Lane	2	4.9%
Changing Lanes	2	4.9%
Unknown	1	2.4%
Making Right Turn	1	2.4%
Parked	1	2.4%
Making Left Turn	1	2.4%
Making U-Turn	1	2.4%
Grand Total	41	100.0%

CONTRIBUTING_FACTOR1	Number	%
Followed Too Closely/ACDA	11	26.8%
Failure To Control	9	22.0%
Improper Backing	6	14.6%
Ran Red Light	3	7.3%
Improper Lane Change/Passing/Offroad	3	7.3%
Improper Turn	2	4.9%
Failure To Yield	2	4.9%
Unknown	2	4.9%
Swerving To Avoid	1	2.4%
Improper Start From Parked Position	1	2.4%
Stopped Or Parked Illegally	1	2.4%
Grand Total	41	100.0%

	Number	%
Total	41	100.0%

TRAFFIC_CONTROL1	Number	%
Pavement Markings	15	36.6%
No Controls	13	31.7%
Traffic Signal	12	29.3%
Stop Sign	1	2.4%
Grand Total	41	100.0%

DRIVER_ALCOHOL1	Number	%
None	37	90.2%
0	4	9.8%
Grand Total	41	100.0%

DRIVER_DRUGS1	Number	%
(blank)	41	100.0%
Grand Total	41	100.0%

-- (-) From // to //

West Main Street

DIRECTION_FROM1	Number	%
West	22	53.7%
East	13	31.7%
North	4	9.8%
South	1	2.4%
Northwest	1	2.4%
Grand Total	41	100.0%

DIRECTION_TO1	Number	%
East	19	46.3%
West	12	29.3%
South	5	12.2%
North	2	4.9%
Unknown	2	4.9%
Southeast	1	2.4%
Grand Total	41	100.0%

POSTED_SPEED1	Number	%
Posted Speed 21-25	41	100.0%
Grand Total	41	100.0%

ESTIMATED_SPEED1	Number	%
Unit Speed 20 and Under	28	68.3%
Unit Speed 21-25	7	17.1%
Unit Speed 26-30	3	7.3%
Unit Speed Not Stated	3	7.3%
Grand Total	41	100.0%

VEHICLE_TYPE1	Number	%
Mid Size	11	26.8%
Pickup	9	22.0%
Sport Utility Vehicle	6	14.6%
Compact	5	12.2%
Minivan	4	9.8%
Full Size	2	4.9%
Unknown Or Hit/Skip	2	4.9%
Sub-Compact	1	2.4%
Van	1	2.4%
Grand Total	41	100.0%

VEHICLE_TYPE2	Number	%
Pickup	16	39.0%
Mid Size	6	14.6%
Compact	6	14.6%
Sport Utility Vehicle	6	14.6%
Full Size	3	7.3%
Van	2	4.9%
Minivan	1	2.4%
Grand Total	41	100.0%

-- (-) From // to //

West Main Street

ACTION2	Number	%
Parked	16	39.0%
Straight Ahead	13	31.7%
Slowing Or Stopped In Traffic	9	22.0%
Making Left Turn	2	4.9%
	1	2.4%
Grand Total	41	100.0%

CONTRIBUTING_FACTOR2	Number	%
None	32	78.0%
Stopped Or Parked Illegally	5	12.2%
Followed To Closely/ACDA	1	2.4%
	1	2.4%
Failure To Control	1	2.4%
Unknown	1	2.4%
Grand Total	41	100.0%

DIRECTION_FROM2	Number	%
West	10	24.4%
North	10	24.4%
East	9	22.0%
South	4	9.8%
Northwest	3	7.3%
Unknown	2	4.9%
Southeast	2	4.9%
	1	2.4%
Grand Total	41	100.0%

DIRECTION_TO2	Number	%
East	10	24.4%
West	10	24.4%
South	9	22.0%
North	3	7.3%
Unknown	3	7.3%
Southeast	3	7.3%
Northwest	2	4.9%
	1	2.4%
Grand Total	41	100.0%

DRIVER_ALCOHOL2	Number	%
None	24	58.5%
	16	39.0%
	1	2.4%
Grand Total	41	100.0%

DRIVER_DRUGS2	Number	%
(blank)	41	100.0%
Grand Total	41	100.0%

-- (-) From // to //

West Main Street

SEVERITY		CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR		Property Damage Crash	Injury Crash
2013		12	0
2014		14	0
2015		13	2
Grand Total		39	2

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2013	0	0
2014	0	0
2015	0	0
Grand Total		0

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2013	0	0	0
2014	0	0	0
2015	0	2	1
Grand Total		2	1

-- (-) From // to //

North Market Street

	Number
Total	7

CRASH_SEVERITY	Number	%
Injury Crash	1	14.3%
Property Damage Crash	6	85.7%
Grand Total	7	100.0%

TRAFFIC_CRASH_YEAR	Number	%
2013	3	42.9%
2014	2	28.6%
2015	2	28.6%
Grand Total	7	100.0%

DAY_OF_WEEK	Number	%
Wednesday	3	42.9%
Sunday	2	28.6%
Friday	1	14.3%
Saturday	1	14.3%
Grand Total	7	100.0%

HOUR_OF_DAY	Number	%
9	1	14.3%
11	2	28.6%
12	1	14.3%
17	1	14.3%
18	1	14.3%
21	1	14.3%
Grand Total	7	100.0%

TYPE_OF_CRASH	Number	%
Backing	3	42.9%
Sideswipe - Passing	2	28.6%
Parked Vehicle	1	14.3%
Angle	1	14.3%
Grand Total	7	100.0%

-- (-) From // to //

North Market Street

WEATHER_CONDITION	Number	%
Clear	4	57.1%
Cloudy	2	28.6%
Rain	1	14.3%
Grand Total	7	100.0%

ROAD_CONDITION	Number	%
Road - Dry	4	57.1%
Road - Wet	2	28.6%
Road - Snow	1	14.3%
Grand Total	7	100.0%

LIGHT_CONDITION	Number	%
Daylight	5	71.4%
Dark - Lighted	2	28.6%
Grand Total	7	100.0%

NUMBER_OF_VEHICLES	Number	%
(blank)	7	100.0%
Grand Total	7	100.0%

LOCATION	Number	%
Not An Intersection	7	100.0%
Grand Total	7	100.0%

CRASH_MONTH_NBR	Number	%
1	1	14.3%
2	1	14.3%
5	1	14.3%
6	3	42.9%
7	1	14.3%
Grand Total	7	100.0%

ROAD_CONTOUR	Number	%
Straight - Level	7	100.0%
Grand Total	7	100.0%

SPECIAL_AREA	Number	%
Unknown or Not in Work Zone	7	100.0%
Grand Total	7	100.0%

ANIMAL_TYPE	Number	%
Animal Not Stated	7	100.0%
Grand Total	7	100.0%

-- (-) From // to //

North Market Street

ACTION1	Number	%
Backing	3	42.9%
Changing Lanes	3	42.9%
Entering Traffic Lane	1	14.3%
Grand Total	7	100.0%

CONTRIBUTING_FACTOR1	Number	%
Improper Backing	3	42.9%
Improper Lane Change/Passing/Offroad	3	42.9%
Improper Start From Parked Position	1	14.3%
Grand Total	7	100.0%

	Number	%
Total	7	100.0%

TRAFFIC_CONTROL1	Number	%
No Controls	4	57.1%
Pavement Markings	3	42.9%
Grand Total	7	100.0%

DRIVER_ALCOHOL1	Number	%
None	7	100.0%
Grand Total	7	100.0%

DRIVER_DRUGS1	Number	%
(blank)	7	100.0%
Grand Total	7	100.0%

-- (-) From // to //

North Market Street

DIRECTION_FROM1	Number	%
South	4	57.1%
North	2	28.6%
West	1	14.3%
Grand Total	7	100.0%

DIRECTION_TO1	Number	%
North	4	57.1%
South	3	42.9%
Grand Total	7	100.0%

POSTED_SPEED1	Number	%
Posted Speed 21-25	7	100.0%
Grand Total	7	100.0%

ESTIMATED_SPEED1	Number	%
Unit Speed 20 and Under	6	85.7%
Unit Speed 21-25	1	14.3%
Grand Total	7	100.0%

VEHICLE_TYPE1	Number	%
Mid Size	2	28.6%
Sport Utility Vehicle	2	28.6%
Full Size	1	14.3%
Other Med/Heavy Vehicle	1	14.3%
Compact	1	14.3%
Grand Total	7	100.0%

VEHICLE_TYPE2	Number	%
Pickup	2	28.6%
Full Size	2	28.6%
Minivan	1	14.3%
Mid Size	1	14.3%
Sport Utility Vehicle	1	14.3%
Grand Total	7	100.0%

-- (-) From // to //

North Market Street

ACTION2	Number	%
Straight Ahead	4	57.1%
Parked	3	42.9%
Grand Total	7	100.0%

CONTRIBUTING_FACTOR2	Number	%
None	7	100.0%
Grand Total	7	100.0%

DIRECTION_FROM2	Number	%
South	4	57.1%
North	3	42.9%
Grand Total	7	100.0%

DIRECTION_TO2	Number	%
North	4	57.1%
South	3	42.9%
Grand Total	7	100.0%

DRIVER_ALCOHOL2	Number	%
None	4	57.1%
0	3	42.9%
Grand Total	7	100.0%

DRIVER_DRUGS2	Number	%
(blank)	7	100.0%
Grand Total	7	100.0%

-- (-) From // to //

North Market Street

SEVERITY		CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR		Property Damage Crash	Injury Crash
2013		2	1
2014		2	0
2015		2	0
Grand Total		6	1

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2013	0	0
2014	0	0
2015	0	0
Grand Total		0

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2013	0	0	1
2014	0	0	0
2015	0	0	0
Grand Total		0	1

-- (-) From // to //

South Market Street

	Number
Total	55

CRASH_SEVERITY	Number	%
Injury Crash	6	10.9%
Property Damage Crash	49	89.1%
Grand Total	55	100.0%

TRAFFIC_CRASH_YEAR	Number	%
2013	13	23.6%
2014	19	34.5%
2015	23	41.8%
Grand Total	55	100.0%

DAY_OF_WEEK	Number	%
Friday	12	21.8%
Tuesday	11	20.0%
Wednesday	10	18.2%
Thursday	8	14.5%
Saturday	6	10.9%
Monday	5	9.1%
Sunday	3	5.5%
Grand Total	55	100.0%

HOUR_OF_DAY	Number	%
1	1	1.8%
7	2	3.6%
8	1	1.8%
9	3	5.5%
10	4	7.3%
11	5	9.1%
12	1	1.8%
13	4	7.3%
14	11	20.0%
15	4	7.3%
16	9	16.4%
17	4	7.3%
18	2	3.6%
19	1	1.8%
21	1	1.8%
23	2	3.6%
Grand Total	55	100.0%

TYPE_OF_CRASH	Number	%
Parked Vehicle	13	23.6%
Rear End	12	21.8%
Backing	10	18.2%
Angle	10	18.2%
Sideswipe - Passing	7	12.7%
Left Turn	2	3.6%
Fixed Object	1	1.8%
Grand Total	55	100.0%

-- (-) From // to //

South Market Street

WEATHER_CONDITION	Number	%
Clear	30	54.5%
Cloudy	15	27.3%
Rain	9	16.4%
Snow	1	1.8%
Grand Total	55	100.0%

ROAD_CONDITION	Number	%
Road - Dry	45	81.8%
Road - Wet	9	16.4%
Road - Snow	1	1.8%
Grand Total	55	100.0%

LIGHT_CONDITION	Number	%
Daylight	48	87.3%
Dark - Lighted	4	7.3%
Light Not Stated	2	3.6%
Dusk	1	1.8%
Grand Total	55	100.0%

NUMBER_OF_VEHICLES	Number	%
(blank)	55	100.0%
Grand Total	55	100.0%

LOCATION	Number	%
Not An Intersection	35	63.6%
Four-Way Intersection	18	32.7%
Driveway/Alley Access	2	3.6%
Grand Total	55	100.0%

CRASH_MONTH_NBR	Number	%
1	4	7.3%
2	4	7.3%
3	3	5.5%
4	6	10.9%
5	6	10.9%
6	3	5.5%
7	6	10.9%
8	6	10.9%
9	3	5.5%
10	7	12.7%
11	2	3.6%
12	5	9.1%
Grand Total	55	100.0%

ROAD_CONTOUR	Number	%
Straight - Level	49	89.1%
Straight - Grade	6	10.9%
Grand Total	55	100.0%

SPECIAL_AREA	Number	%
Unknown or Not in Work Zone	55	100.0%
Grand Total	55	100.0%

ANIMAL_TYPE	Number	%
Animal Not Stated	55	100.0%
Grand Total	55	100.0%

South Market Street

ACTION1	Number	%
Straight Ahead	25	45.5%
Backing	10	18.2%
Changing Lanes	5	9.1%
Making Left Turn	5	9.1%
Parked	3	5.5%
Overtaking/Passing	2	3.6%
Leaving Traffic Lane	1	1.8%
Unknown	1	1.8%
Making Right Turn	1	1.8%
Entering Traffic Lane	1	1.8%
Driverless	1	1.8%
Grand Total	55	100.0%

CONTRIBUTING_FACTOR1	Number	%
Followed Too Closely/ACDA	15	27.3%
Improper Backing	10	18.2%
Failure To Control	8	14.5%
Improper Lane Change/Passing/Offroad	6	10.9%
Ran Red Light	6	10.9%
Other Improper Action	4	7.3%
Failure To Yield	3	5.5%
Unknown	1	1.8%
Improper Turn	1	1.8%
None	1	1.8%
Grand Total	55	100.0%

	Number	%
Total	55	100.0%

TRAFFIC_CONTROL1	Number	%
No Controls	19	34.5%
Pavement Markings	17	30.9%
Traffic Signal	17	30.9%
Not Reported	1	1.8%
Traffic Flashers	1	1.8%
Grand Total	55	100.0%

DRIVER_ALCOHOL1	Number	%
None	46	83.6%
	8	14.5%
Yes - Alcohol Suspected	1	1.8%
Grand Total	55	100.0%

DRIVER_DRUGS1	Number	%
(blank)	55	100.0%
Grand Total	55	100.0%

-- (-) From // to //

South Market Street

DIRECTION_FROM1	Number	%
South	20	36.4%
North	19	34.5%
West	8	14.5%
East	5	9.1%
Northeast	2	3.6%
Southwest	1	1.8%
Grand Total	55	100.0%

DIRECTION_TO1	Number	%
North	21	38.2%
South	16	29.1%
East	7	12.7%
West	6	10.9%
Unknown	3	5.5%
Southwest	2	3.6%
Grand Total	55	100.0%

POSTED_SPEED1	Number	%
Posted Speed 21-25	48	87.3%
Posted Speed 31-35	7	12.7%
Grand Total	55	100.0%

ESTIMATED_SPEED1	Number	%
Unit Speed 20 and Under	35	63.6%
Unit Speed 21-25	9	16.4%
Unit Speed Not Stated	7	12.7%
Unit Speed 26-30	2	3.6%
Unit Speed 31-35	1	1.8%
Unit Speed 56-60	1	1.8%
Grand Total	55	100.0%

VEHICLE_TYPE1	Number	%
Sport Utility Vehicle	10	18.2%
Pickup	9	16.4%
Mid Size	9	16.4%
Compact	8	14.5%
Sub-Compact	5	9.1%
Full Size	5	9.1%
Minivan	3	5.5%
Unknown Or Hit/Skip	2	3.6%
Single Unit Truck Or Van 2 Axle, 6 Tires	1	1.8%
Other Passenger Vehicle	1	1.8%
Van	1	1.8%
Single Unit Truck/Trailer	1	1.8%
Grand Total	55	100.0%

VEHICLE_TYPE2	Number	%
Mid Size	15	27.3%
Pickup	11	20.0%
Sport Utility Vehicle	10	18.2%
Full Size	10	18.2%
Compact	5	9.1%
Minivan	1	1.8%
	1	1.8%
Motorcycle	1	1.8%
Other Passenger Vehicle	1	1.8%
Grand Total	55	100.0%

-- (-) From // to //

South Market Street

ACTION2	Number	%
Straight Ahead	20	36.4%
Parked	18	32.7%
Slowing Or Stopped In Traffic	13	23.6%
Making Right Turn	1	1.8%
	1	1.8%
Other Motorist Action	1	1.8%
Changing Lanes	1	1.8%
Grand Total	55	100.0%

CONTRIBUTING_FACTOR2	Number	%
None	50	90.9%
	1	1.8%
None Non-Motorist	1	1.8%
Stopped Or Parked Illegally	1	1.8%
Failure To Control	1	1.8%
Other Improper Action	1	1.8%
Grand Total	55	100.0%

DIRECTION_FROM2	Number	%
North	17	30.9%
South	16	29.1%
East	8	14.5%
West	5	9.1%
Southwest	4	7.3%
Northeast	4	7.3%
	1	1.8%
Grand Total	55	100.0%

DIRECTION_TO2	Number	%
South	17	30.9%
North	16	29.1%
West	8	14.5%
Southwest	4	7.3%
East	4	7.3%
Northeast	4	7.3%
Unknown	1	1.8%
	1	1.8%
Grand Total	55	100.0%

DRIVER_ALCOHOL2	Number	%
None	36	65.5%
	18	32.7%
	1	1.8%
Grand Total	55	100.0%

DRIVER_DRUGS2	Number	%
(blank)	55	100.0%
Grand Total	55	100.0%

-- (-) From // to //

South Market Street

SEVERITY		CRASH_SEVERITY	
TRAFFIC_CRASH_YEAR		Property Damage Crash	Injury Crash
2013		11	2
2014		16	3
2015		22	1
Grand Total		49	6

TRAFFIC_CRASH_YEAR	Fatalities	Incapacitating Injuries
2013	0	0
2014	0	0
2015	0	0
Grand Total		0

TRAFFIC_CRASH_YEAR	INJ_TYPE2_SERIOUS_VISIBLE	INJ_TYPE3_MINOR_VISIBLE	INJ_TYPE4_NO_VISIBLE
2013	0	2	0
2014	0	1	2
2015	0	0	1
Grand Total		3	3

An aerial photograph of the Sherwood Shopping Centre in Troy, Ohio, overlaid with a semi-transparent blue filter. The image shows a large, single-story commercial building with a flat roof and multiple entrances. A large parking lot is situated in front of the building, with several cars parked. To the right of the main building is a smaller, two-story structure. The surrounding area includes residential houses, trees, and a road with a traffic light. The text "SHERWOOD SHOPPING CENTRE" is prominently displayed in white, bold, uppercase letters at the top, with "TROY, OHIO" below it in a similar but slightly smaller font.

SHERWOOD SHOPPING CENTRE

TROY, OHIO

MKSK | 04.26.18

Appendix N

AGENDA

WHAT WE HEARD DEVELOPMENT SCENARIOS

WHAT WE HEARD

OUR PROCESS

4



STEP 1: UNDERSTANDING



STEP 2: TESTING IDEAS



STEP 3: DECIDING



WE ARE HERE

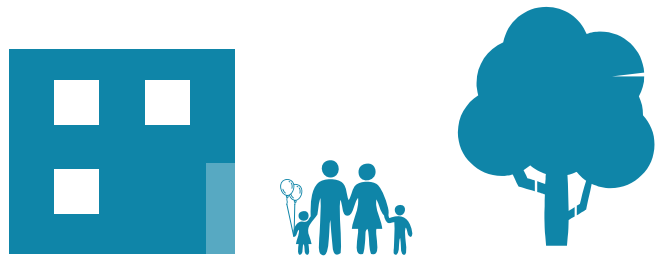
OUR PROCESS

5



SURVEY TAKEAWAYS

AN ONLINE SURVEY WAS CREATED AND REACHED **400 STAKEHOLDERS**.
BELOW ARE THE PRIMARY THEMES FROM THE SURVEY.



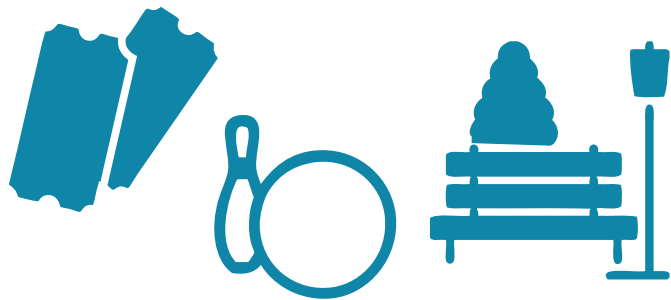
SHERWOOD HAS A STRONG DAYTIME POPULATION

Nearly 50% of respondents have children under their care every day



LACK OF STREETSIDE ACTIVITY MAKES THE COMMERCIAL BLOCK ALONG MARKET FEEL MORE EMPTY THAN IT IS

97% of respondents said they avoid the Sherwood area because of the “sense of emptiness.”



WHERE DID ALL THE HANGOUTS GO?

Most respondents said their favorite memories of the area involved entertainment and neighborhood amenities

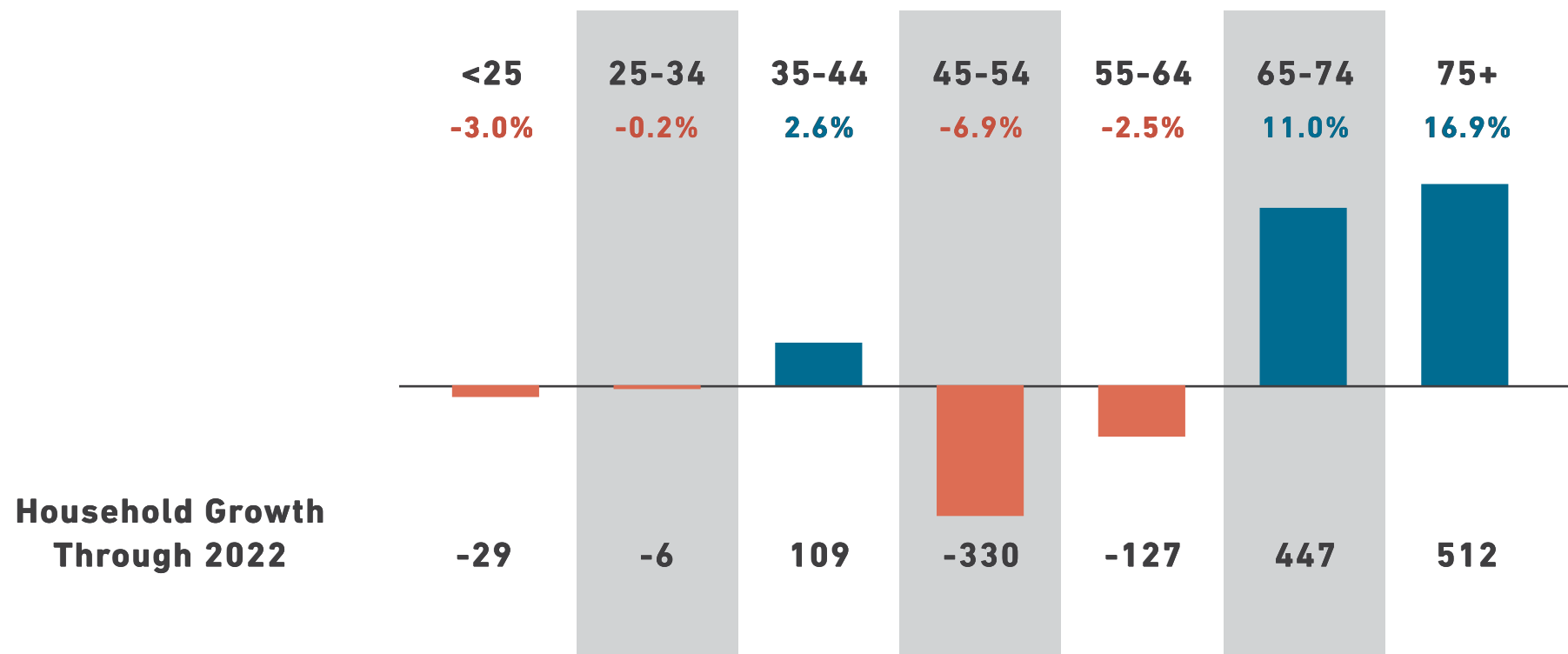


CLOSE BUT STILL NEED THE CAR

Many respondents enjoy their proximity to the schools but most use cars/busses to get there.

TROY AND ITS SURROUNDINGS ARE QUICKLY AGING. OVER THE NEXT FIVE YEARS, THERE WILL BE 960 MORE HOUSEHOLDERS OVER 65.

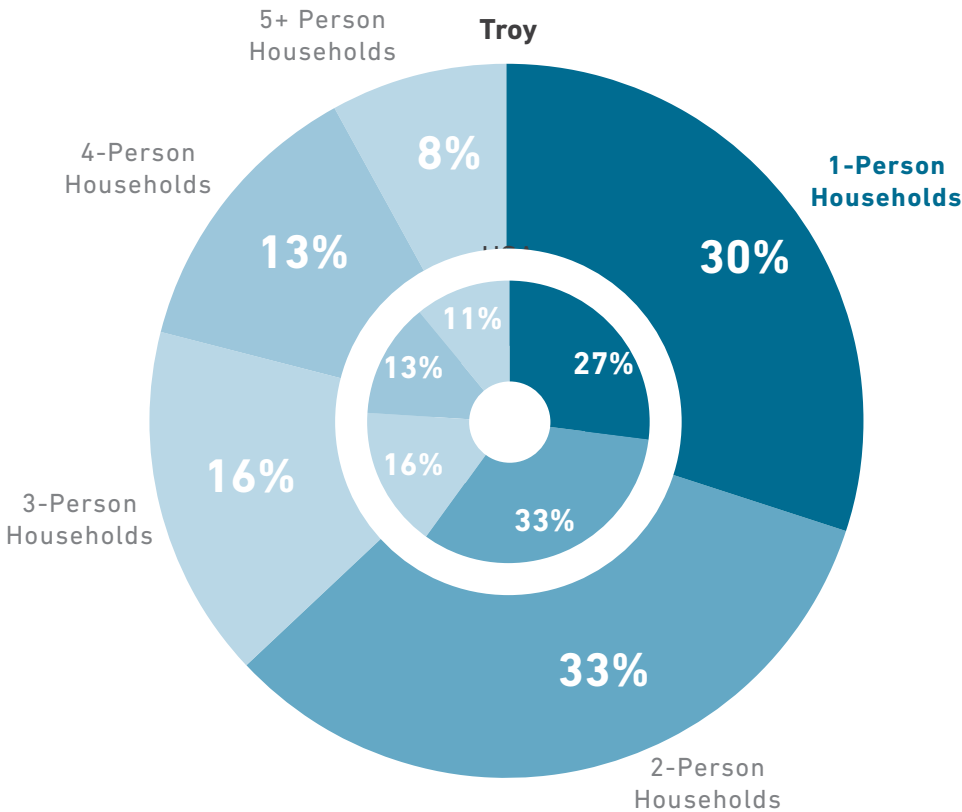
CHANGE BY AGE OF HOUSEHOLDER, 15 MIN DRIVE,
2017 - 2022



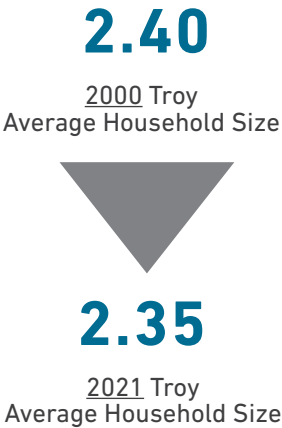
Source: Esri, Greenstreet Ltd. analysis

HOUSEHOLD SIZES ARE ALSO CHANGING IN TROY. SINGLE FAMILY HOUSEHOLDS MADE UP 30 PERCENT OF ALL HOUSEHOLDS IN 2010, AND THIS GROUP WILL CONTINUE TO GROW AS TROY'S AVERAGE HOUSEHOLD SIZE SHRINKS.

HOUSEHOLD SIZE 2010



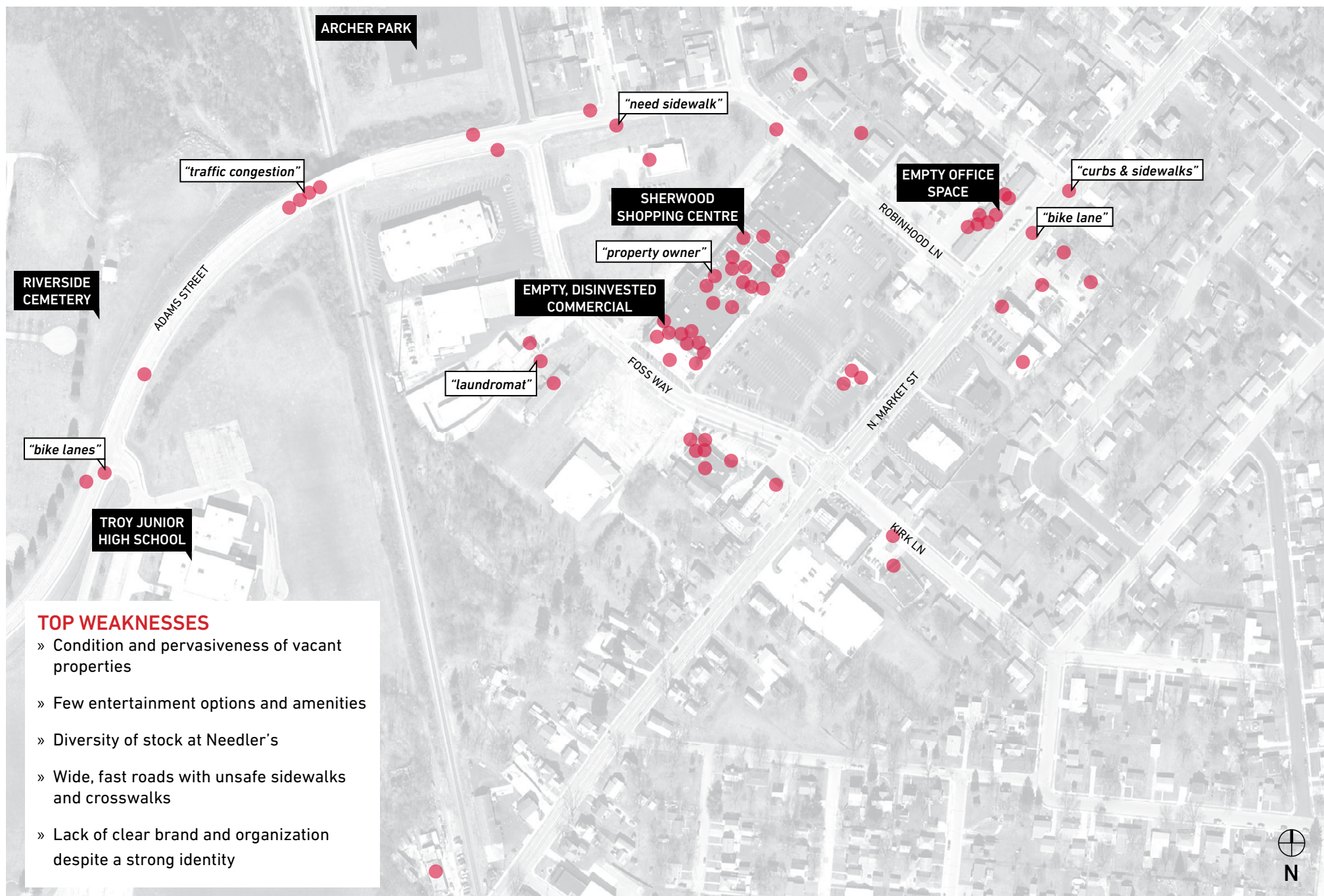
CHANGE IN HOUSEHOLD SIZE





DOT-MOCRACY WEAKNESSES

10





DEVELOPMENT PRINCIPLES

12



1 NEIGHBORHOOD-SCALED “MIDTOWN”



2 TAP INTO DAYTIME DEMAND WHILE RESTORING THE NIGHT AND WEEKEND SCENE



3 CREATE SAFER STREETS THAT PRIORITIZE PEOPLE



4 UNLOCK ADDITIONAL RESIDENTIAL POTENTIAL



5 BUILD ORGANIZATIONAL INFRASTRUCTURE

DEVELOPMENT SCENARIOS

1. RETAIN/REPURPOSE THE SHOPPING CENTER

- » New entry drive off of Market Street
- » New outparcel and Market Street frontage development
- » Shopping center retenanting concepts

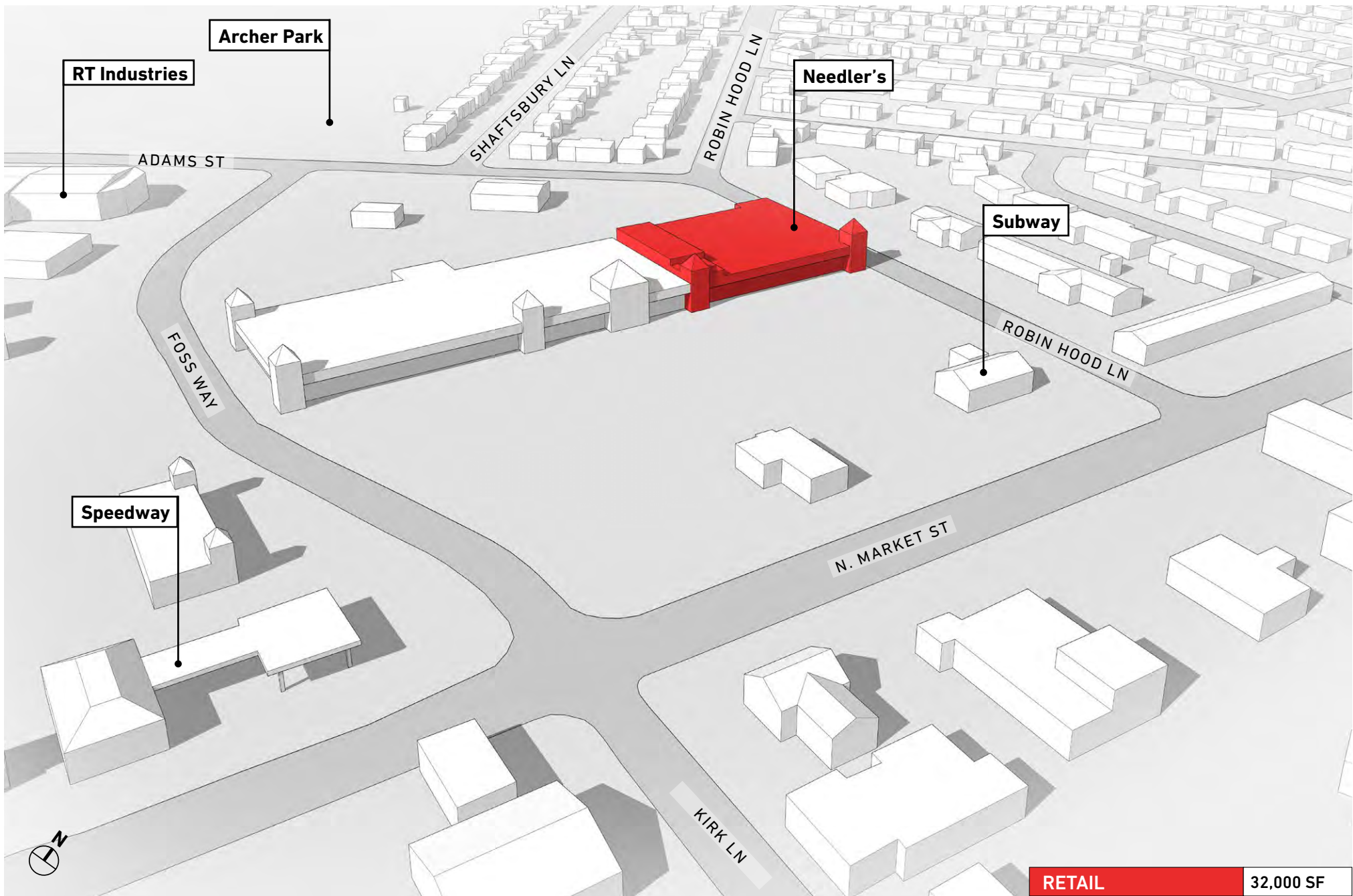
2. PARTIAL REDEVELOPMENT OF THE CENTER

- » Retain and reinvest in Needler's
- » Replace and redevelop balance of shopping center
- » New commercial frontage along Market Street

EXISTING CONDITIONS



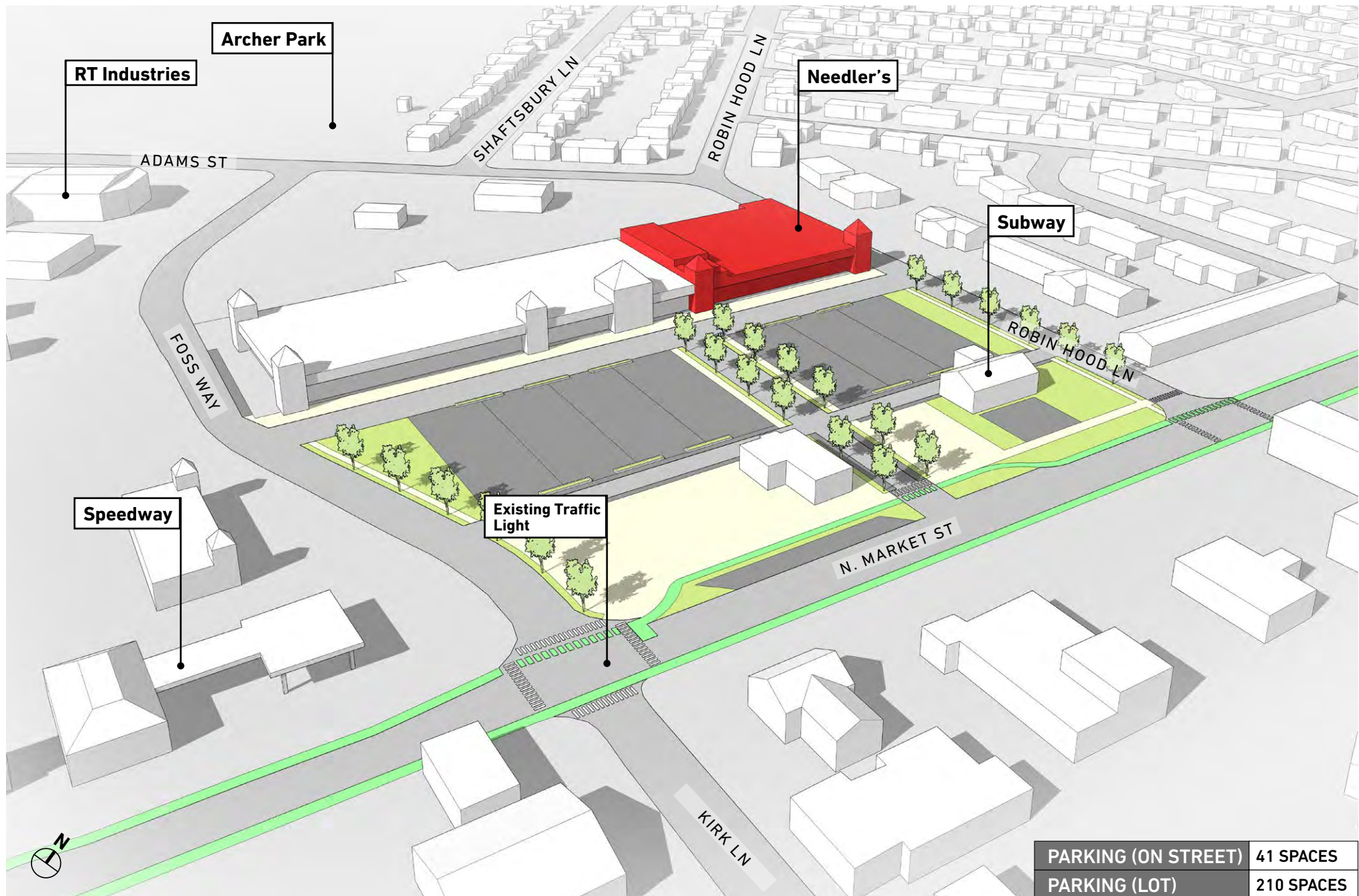
EXISTING CONDITIONS

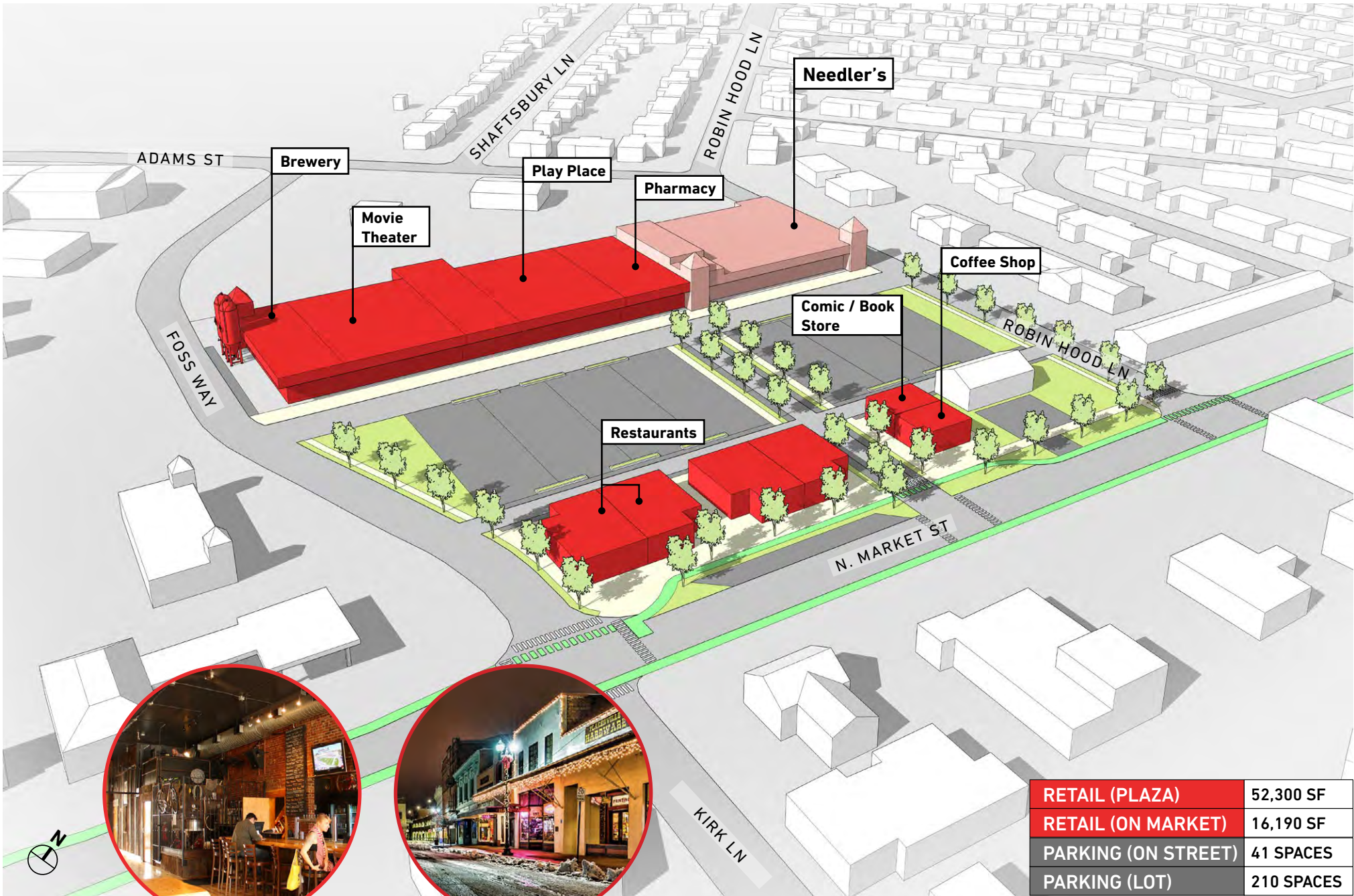


DEVELOPMENT CONCEPT

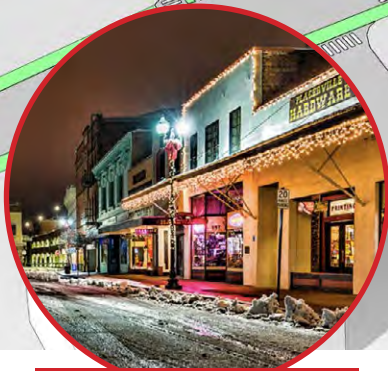
PHASE 1 - STREETS

17





Brewery



Market Street Example

RETAIL (PLAZA)	52,300 SF
RETAIL (ON MARKET)	16,190 SF
PARKING (ON STREET)	41 SPACES
PARKING (LOT)	210 SPACES

DEVELOPMENT CONCEPT

PHASE 2 - STREETS

19



PARKING LOT (NEW)	84 SPACES
PARKING (ON STREET)	36 SPACES



Townhomes



Office Building

TOWNHOMES	29 UNITS
OFFICE	35,400 SF
PARKING LOT (NEW)	84 SPACES
PARKING (ON STREET)	36 SPACES

DEVELOPMENT CONCEPT PHASE 2B



Multi-Family

ADAMS ST

SHAFTSBURY LN

ROBIN HOOD LN

FOSS WAY

ROBIN HOOD LN

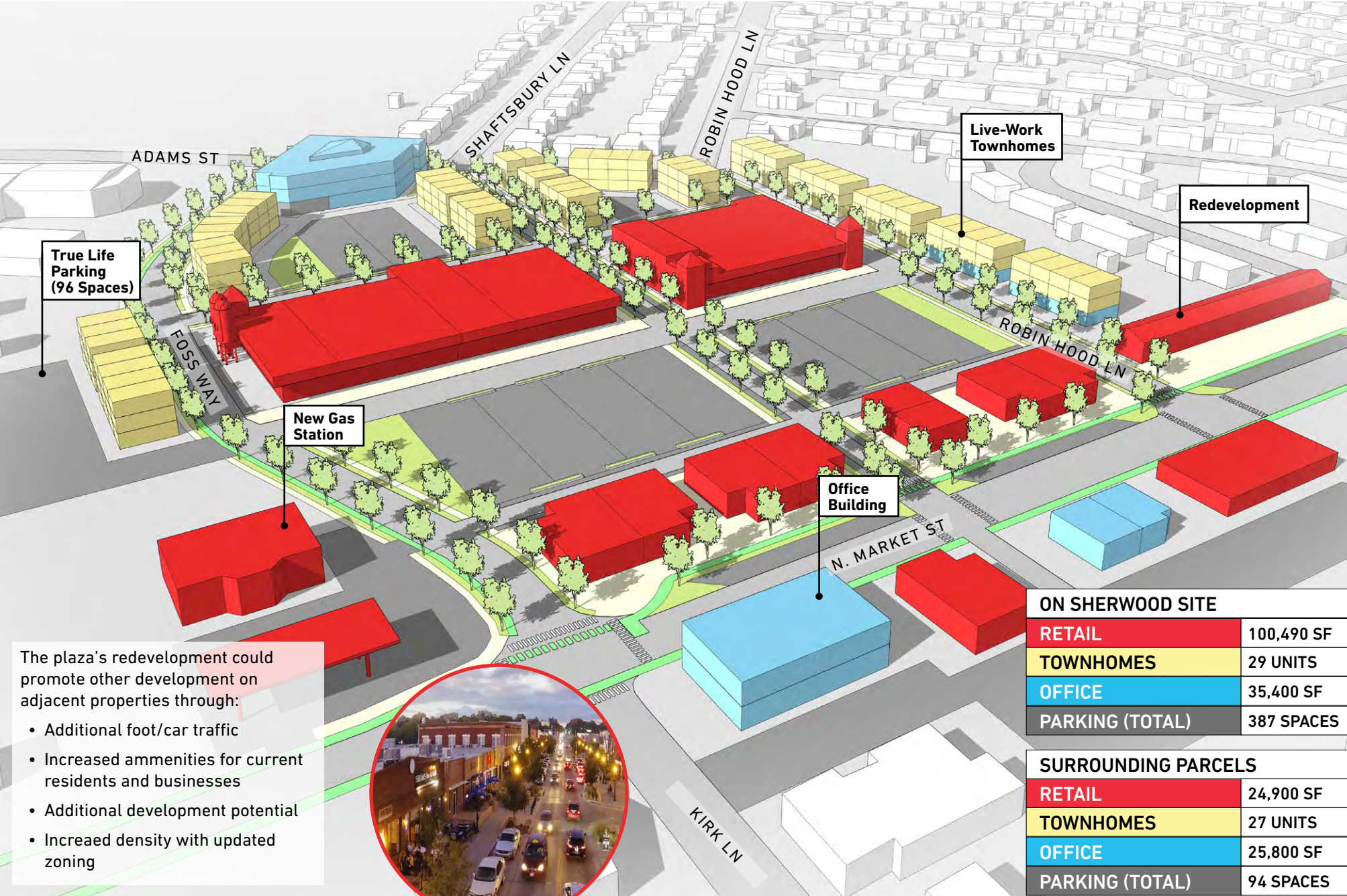
N. MARKET ST

KIRK LN



Multi-Family

TOWNHOMES	29 UNITS
MULTI-FAMILY	60 UNITS
PARKING LOT (NEW)	84 SPACES
PARKING (ON STREET)	36 SPACES



The plaza's redevelopment could promote other development on adjacent properties through:

- Additional foot/car traffic
- Increased amenities for current residents and businesses
- Additional development potential
- Increased density with updated zoning

ON SHERWOOD SITE	
RETAIL	100,490 SF
TOWNHOMES	29 UNITS
OFFICE	35,400 SF
PARKING (TOTAL)	387 SPACES

SURROUNDING PARCELS	
RETAIL	24,900 SF
TOWNHOMES	27 UNITS
OFFICE	25,800 SF
PARKING (TOTAL)	94 SPACES

Market St. Frontage



SHERWOOD SHOPPING CENTRE
TROY, OHIO

SCENARIO 1



SHERWOOD SHOPPING CENTRE
TROY, OHIO

SCENARIO 2



SHERWOOD SHOPPING CENTRE
TROY, OHIO

NEXT STEPS

- **Extend the moratorium on the issuance of zoning permits related to certain permitted uses for six months**
- **Examine zoning for study area to ensure compliance with the vision**
- **Work with the owner to recruit desirable business/attractions**



APPENDIX O

AMENDMENTS TO THE PLAN

Although the Plan is to be reviewed and updated every five years, there will be amendments to the Plan from time to time. Appendix K is intended to catalogue those official amendments. Upon the five year update, those listed amendments will be incorporated with the next publication. An official copy of the amendments will be held at the Troy Planning Department.

AMENDMENTS

Amendment	Date of Planning Commission
1. _____	
2. _____	
3. _____	
4. _____	
5. _____	
6. _____	
7. _____	
8. _____	
9. _____	
10. _____	

GLOSSARY OF TERMS

APA

American Planning Association is an international planning organization founded in the United States for planners from all backgrounds.

Benchmarking

A process to regularly collect, monitor, and analyze data on the achievement of the goals and policies of a local comprehensive plan.

CAC

Community Action Council. In this case a Miami county agency that provided transportation assistance.

Charrette

A public design workshop in which designers, property owners, developers, public officials, environmentalist, citizens and other persons or group of people work in harmony to achieve an agreeable project.

CHIP

Community Housing Improvement Program is a local administered housing assistance program that is part of a larger federal Community Development Block Grant program.

Comprehensive Plan

The adopted official statement of a legislative body of a local government that sets forth goals, policies, and guidelines intended to direct the present and future physical, social, and economic development that occurs within its planning jurisdiction and that includes a unified physical design for the public and private development of land and water.

Conservation Design

Conservation design is not a new concept but rather a historic approach to subdividing land and building homes. As opposed to conventional subdivisions which use rigid post-war uniform standards, conservation design resorts to dividing the land based upon preserving natural and cultural resources. Density levels are the same, but the layout of the homes are determined by where it makes the most sense from the land perspective and not by uniform sized lots or the view of a stream or valley. Conservation design is flexible in site design and lot size, provides protection to environmental sensitive areas, reduces impervious areas, and manages storm water effectively. Conservation design is beneficial to the community, homeowner and the developer by providing economic benefits, diversity of housing, and environmental benefits.

CRA

Community Reinvestment Area is a tax abatement district for real property investments. The Downtown Historic District is the only remaining active CRA in Troy.

DP&L

Dayton Power and Light is the local power utility company in the City of Troy and Troy area.

EMS

Emergency Medical Service

FAR

Floor Area Ratio is the numerical value obtained by dividing the gross floor area of building or buildings by the total area of the lot or tract, less any public street right-of-way. FAR is a mathematical relation between volume of building and unit of land.

FEMA

In general, the Federal Emergency Management Agency guides the effort to prepare the nation for all hazards and effectively manage federal response and efforts following any national incident. FEMA also determines locations of the 100 and 500 year flood plain elevations in local communities.

GATE

Gifted and Talented Education

GMR

Great Miami River

GPM

Gallons per Minute

IT

Information Technology

LESA

Land Elevation Site Assessment is used to measure and evaluate land based upon productivity, land uses, proximity, economic and transportation factors and a rated point system. Most commonly used for agriculture land preservation areas.

LMI

Low to moderate income refers to low to moderate income households or families. This is the federal Housing of Urban Development definition for statistical purposes. Low to moderate income households are further defined by the number of people living in a household and their combined gross income. Dollar thresholds for low to moderate income households are determined at a county level.

MCD

Miami Conservancy District is an agency set up after the 1913 Flood, to establish and maintain protection systems in the Miami Valley and other tributaries.

Miami Valley Region

Generally referred to as the Dayton and surrounding communities, including the City of Troy.

Mixed Use

A tract of land or building that includes primary non-residential and primary residential uses on the same development site. Examples of uses include residential, office, retail, public, recreation and open spaces.

MPO

Metropolitan Planning Office is the leading local transportation planning agency for federal and state funds. See MVRPC below.

MSA

Metropolitan Statistical Areas are geographic locations that the federal and state governments use to quantify statistics such as demographics, housing, economics, etc.

MTPD

Mashuhita-Toshiba Picture Display is the company name of merged companies formally known as Panasonic and Toshiba.

MVRPC

Miami Valley Regional Planning Commission is the MPO for the Dayton MSA. MVRPC provides a forum and resource where regional partners identify priorities, develop public policy and implement collaborative strategies to improve the quality of life and economic vitality throughout the Miami Valley.

National Register of Historic Places

The official list of properties recognized by the federal government as worthy or preservation for their local, state, or national significance in American history, architecture, archaeology, engineering, or culture.

New Urbanism

The process of reintegrating the components of modern life – housing, workplace, shopping, and recreation – into compact, pedestrian- friendly, mixed- use neighborhoods linked by transit and set in a larger regional open space framework. New Urbanism is also considered a design approach that borrows from traditional city planning concepts (1920's) and applies them to modern times. Other New Urbanism characteristics include a grid street pattern and alleys, buildings oriented towards the streets, front porches on houses with higher densities, nearby parks, civic and institutional buildings. New Urbanism is also commonly referred to as Traditional Neighborhood Development and Neo-Traditionalism.

NFIP

National Flood Insurance Program, see FEMA

ODOD

Ohio Department of Development

ODOT

Ohio Department of Transportation

OPWC

Ohio Public Works Commission

OPF

Official Plan Flood

Port Authority

A Port Authority is a special government agency of the locality, county, or state which is authorized or established by state law to tightly control development of a port. Port Authorities have the ability to finance projects within its jurisdiction, including but not limited to bonding, loans, and taxing. "Port Authority" means a body corporate and politic created pursuant to the authority of Section 4582.02 of the Ohio Revised Code.

SID

Typically, a majority of the property owners in a specific area vote to assess a fee that is paid by an additional voluntary tax on real estate. The city collects the fees and disburses the revenues to the board of directors, which runs the management corporation for the special improvement district. Also known as business improvement districts (BIDs), downtown improvement districts (DIDs), special taxing districts (STDs), or assessment districts, which creates an independent, nonprofit organization that raises funds from a single source.

Storm Water Utility/Management

Any storm water management technique, apparatus, or facility that controls or manages the path, storage, or rate of release of storm water runoff. Such facilities may include storm sewers, retention or detention basins, drainage channels, drainage swales, inlet or outlet structures, or similar facilities.

TDC

Troy Development Council is a private and public partnership dedicated to the retention and expansion of existing businesses and the attraction of new business and industry.

TEP

Transportation Enhancement Program provides for the implementation of a variety of nontraditional projects, with examples ranging from the restoration of historic transportation facilities, to bike and pedestrian facilities, to landscaping and scenic beautification, and to the mitigation of water pollution from highway runoff. This program administered by MVOPC, uses federal Department of Transportation dollars.

TID

A corporate and political body which exercises powers of the state in terms of financing, construction, maintenance, repair and operation of a project. A TID is created by a board of county commissioners which determines by resolution the structure of the Board of Trustees. A TID has the authority (under Chapter 5540 of the Ohio Revised Code) to adopt an official seal, sue and be sued in its own name, purchase, construct, maintain, repair, sell, exchange, police, operate, or lease projects. The TID has the authority as a public entity to issue bonds, maintain funds as it considers necessary, and direct its own agents and employees. The first TID in Ohio was created under House Bill 154 of the 120 the General Assembly in Butler County on December 7, 1993. No more than five (5) TID's can be funded by appropriations to the Ohio Department of Transportation, although authority to create TID's exists for all counties.

TFD

Troy Fire Department

TPD

Troy Police Department

Town Center

Buildings containing storefronts that have at least 35 percent of its perimeter surrounding a plaza containing an orderly mix of land uses that meet the daily needs of area residents which may include convenience retail, food services, personnel, business service uses; community facilities including parks, schools, libraries, churches; high density residential with direct pedestrian linkage to nonresidential facilities; all of which are arranged in a manner that is focused around a central open space.

UVMC

Upper Valley Medical Center is the main local hospital located just north of the City limits.

WACO

Weaver Aircraft Company was founded officially in 1920 and built their first plane called the WACO 1. In 1926 they folded, but the presence has been in Troy ever since.

WTP

Water Treatment Plant

WWTP

Waste Water Treatment Plant