Final Draft | March 2018

COUNTY ROAD 25-A SPECIAL PLANNING AREA MASTER PLAN

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FINAL DRAFT
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MIAMI COUNTY, OH | MARCH 2018

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TWENTY-FIVE
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Gateway

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CHAPTER 1 | INTRODUCTION

Chapter 1 provides an overview of the County Road 25-A Special Planning Area Master Plan. It explains the need for the Plan and summarizes each chapter.

Introduction

Located approximately halfway between the cities of Troy and Piqua, Ohio is the intersection of Interstate 75 and Miami County Road 25-A. This general area contains perhaps the most desirable remaining tracts of land for development within Miami County. The Miami County Commissioners and the Miami County Department of Development anticipate development in the area to commence in the near future. As such, the County recognized the need to focus strategically on this area and sought a plan that would guide future growth while preserving the area's rural character and heritage. The County Road 25-A Special Planning Area Master Plan was developed to meet this need.

Background

In 2006, the Miami Valley Regional Planning Commission (MVRPC) assisted Miami County in completing an update to the 1998 Miami County Comprehensive Plan, a document that was prepared by the Miami County Planning and Zoning Department "with assistance and input from a multitude of agencies and political subdivisions." The Miami County Comprehensive Plan 2006 Update noted that the County has been, and will continue to be, shaped by a "variety of influences" and that the planning process will encourage the following:

- Preservation of farmland
- Efficient use of public infrastructure investment
- Knowledgeable application of zoning, including the continuation of agriculturally-supportive zoning
- Managed expansion of urban areas with identifiable urban service boundaries to discourage unnecessary duplication of services

The construction of the I-75 corridor was the most recent major impact on the County's physical landscape (previous significant influences identified in the 2006 Comprehensive Plan include the north-south recession of prehistoric glaciers and the 1913 flood). According to the Plan, "since the early 1960's, the I-75 corridor has been driving residential, commercial, and industrial development along the County's central axis." The Plan, in fact, designates the corridor as "The I-75/Great Miami River Corridor."

Because of unique conditions affecting both the type and timing of development, the County was divided into Planning Areas including several "Special Planning Areas." One of these areas is part of the CR 25-A Special Planning Area and is also within I-75/Great Miami River Corridor. According to the Plan, "the County should give careful consideration as to how these areas may develop and consider a variety of criteria in the land use decision process including the compatibility of surrounding land use patterns, the availability of utilities, exposure, and access to transportation facilities, especially I-75."

Located between the City of Piqua and the City of Troy, Ohio, the 3,300-acre CR 25-A Special Planning Area is somewhat larger geographically than the Special Planning Area discussed in the 2006 Plan. The boundary was expanded for this study to include the Great Miami River and the area west of Experiment Farm Road. As a result, the Study Area is bounded by the City of Piqua to the north, the Great Miami River to the east, the City of Troy to the south, and Washington Road to the west. County Road 25-A not only traverses the eastern edge of the Study Area, it also intersects with I-75, one of seven roadways intersecting I-75 in Miami County.

Overview

Chapter 2 documents the robust public involvement efforts used during the planning process. A variety of strategies were used to ensure that the public was engaged during every step of the Plan's development. From individual stakeholder interviews with property owners to an online survey and social media campaign, PlanCR25A used innovative and accessible platforms to involve the public. The project team convened a special Visioning Group to guide the Plan's overall progress, and invited the general public to participate through a series of community meetings. Chapter 2 documents the robust public involvement efforts used during the planning process. A variety of strategies were used to ensure that the public was engaged during every step of the Plan's development. From individual stakeholder interviews with property owners to an online survey and social media campaign, PlanCR25A used innovative and accessible platforms to involve the public. The project team convened a special Visioning Group to guide the Plan's overall progress, and invited the general public to participate through a series of community meetings.

The information collected during public involvement efforts supplemented the data gathered in the existing conditions and information analysis phases. It also shaped the Plan's final recommendations, imparting local expertise and legitimacy to the County Road 25-A Special Planning Area Master Plan.

The purpose of **Chapter 3**, Existing Conditions, is to assess the market for future growth within the Study Area and to document the area's natural (floodplain, wetlands, soils, etc.) and built environments (e.g. sewer and water utilities, stormwater facilities, transportation network, etc.). It sets the stage for Chapter 3, Information Analysis and Evaluation, which identifies ways to accommodate that growth and estimates its potential timing and location.

Chapter 4 provides an analysis of the information contained in the previous Existing Conditions chapter. This analysis, along with the more intuitive perspective gained from the public meeting and online survey, helped inform the creation of several alternative land use and circulation concepts for the Study Area. These concepts will be publicly evaluated and refined to generate one illustrative plan or vision for how the area could develop in the future. From that plan, a more detailed set of recommendations will be developed that provide a road map for implementation.

Chapter 5 begins by outlining the ways in which development within the area could be marketed and financed and then evaluates each of three alternative development scenarios, arrives at one preferred concept, and identifies the infrastructure required to support that concept. It also refines the concept into an illustrative plan with supporting graphics and provides a breakdown of goals, objectives, and strategies - sequenced over time - that can be used to track plan implementation.

Development of Plan Goals

The following goals were reviewed by the Visioning Group on September 1, 2017. Each participant was given a set of differently colored dots – three green dots, two blue dots, and one red dot. Green dots had the highest priority with a value of three followed, by blue dots with a value of two, and red dotes with a value of one. The Group was then asked to prioritize each Goal, assigning the highest priority to green, followed by blue and then by red. Each goal was then scored and given a ranking based on the Visioning Group's feedback:

GOAL 1 | ECONOMY
Create a center for employment with a diverse economic base, and build on the access and visibility afforded by the I-75/CR-25A Interchange.

GOAL 2 | INFRASTRUCTURE
Coordinate the extension of, or increase the capacity of, infrastructure facilities to meet future needs of existing and planned development.

GOAL 3 | ZONING
Create easy-to-understand, consistent, and flexible regulations to encourage and enable high-quality development.

GOAL 4 | RESILIENCY
Encourage resilient development practices that can adapt to changes over time and remain viable and an asset for the community.

GOAL 5 | ENVIRONMENT
Connect and integrate the areas' natural features to future development.

GOAL 6 | HEALTH
Promote an active and healthy lifestyle for residents, workers, and visitors.

GOAL 7 | MOBILITY
Develop a multi-modal and inter-connected transportation network that safely and conveniently transports people and freight.

GOAL 8 | HOUSING
Provide a range of housing choices with convenient access to daily services.

Each goal was defined by at least one objective and each objective was associated with one or more strategies. **Chapter 5** describes this process in more detail.

CHAPTER 2 | PUBLIC INVOLVEMENT

Chapter 2 documents the robust public involvement efforts used during the planning process. A variety of strategies were used to ensure that the public was engaged during every step of the Plan's development. From individual stakeholder interviews with property owners to an online survey and social media campaign, PlanCR25A used innovative and accessible platforms to involve the public. The project team convened a special Visioning Group to guide the Plan's overall progress and invited the general public to participate through a series of community meetings.

The information collected during public involvement efforts supplemented the data gathered in the existing conditions and information analysis phases. It also shaped the Plan's final recommendations, imparting local expertise and legitimacy to the County Road 25-A Special Planning Area Master Plan.

Public Involvement Summary

Public involvement and education were an essential component of the County Road 25-A Special Planning Area Master Plan. The planning process involved innovative public outreach processes and tools, which were necessary to ensure maximum input from the public. The consultant team and County staff utilized outreach efforts that ranged from traditional procedures, such as holding community meetings to discuss alternatives under consideration to the use of social media. All stakeholder and public input informed key decision-making discussions.

Meetings

Meetings were held at key points during the planning process to gather information and update the project's Visioning Group, which consisted of stakeholders and property owners in the Study Area, on the project's status. Summaries of the meetings follow.

Visioning Group Kick-off Meeting| September 1, 2017
A project kick-off meeting was held to introduce the Visioning Group to the consultant team, discuss and finalize the project scope, project management and public participation plans; as well as to review and prioritize the project's draft goals.

Visioning Group Meeting #2 | October 23, 2017
During this meeting, the Project Team presented preliminary findings on County Road 25-A's existing conditions as well as how the plan's draft goals were prioritized in the preceding Visioning Group meeting.

Community Meeting #1 | October 23, 2017
The first community meeting (**Figure 2.1**) followed Visioning Group Meeting #2. The Project Team presented preliminary findings and prioritized project goals then asked participants to take part in a mapping and group sharing exercise. During this exercise, the public identified what they thought were the "best" and "worst" features in the project's Study Area. This helped identify what in the area needed work and what should be preserved.

Visioning Group Meeting #3 | December 12, 2017
At the third Visioning Group meeting, the Project Team presented on the Information and Analysis Chapter of the plan, reviewed the results of Community Meeting #1, and presented data collected from the project's website. The Project Team also shared the initial alternative development scenarios for the Study Area.

Community Meeting #2 | December 12, 2017
The Project Team presented on the Information and Analysis Chapter, the initial alternative development scenarios, and explained the proposed recommendations for the Study Area. The Project Team solicited input on the presented material. The meeting format was open house to encourage participant interaction.

Visioning Group Meeting #4 | TBA
The fourth Visioning Group meeting will be held so the Project Team can present the Draft County Road 25-A Special Planning Area Master Plan to allow the Visioning Group the opportunity to review and provide comments before finalizing the document.

County Planning Commission Meeting | TBA
The same meeting as above will be held with the County's Planning Commission.

County Commissioners' Meeting | TBA
The same meeting will also be held with Miami County Commissioners.

Community Meeting #3 | TBA
Following the completion of the planning document, the Project Team will hold a final Community Meeting. In this meeting, the Project Team will present the final document, and, again, solicit public feedback. After final edits are made, the plan will be made available to all impacted community members and online, on the project website.

Figure 2.1: Community Meeting #1

“Public involvement and education were an essential component of the County Road 25-A Special Planning Area Master Plan.”

Exhibit 2.1:

Mapping Exercise

As part of Community Meeting #1, meeting attendees were asked to identify, on a map, what they believed were the “best” and “worst” features in the project’s Study Area. The best places were identified with a green dot, and the worst places were identified with a red dot (**map to the right**). Over 50 community members participated in this exercise.

Some of the places that were chosen to be the best features included: prime Farmland west of I-75 Eldean Covered Bridge, the bike path, and the area just south of the hospital where participants said they enjoyed fishing, camping, and other forms of recreation and relaxation. Some of the worst features identified by participants included the ball fields in the south-east corner of the Study Area because of flooding, a junkyard, as well as intersections and areas with higher traffic volumes.

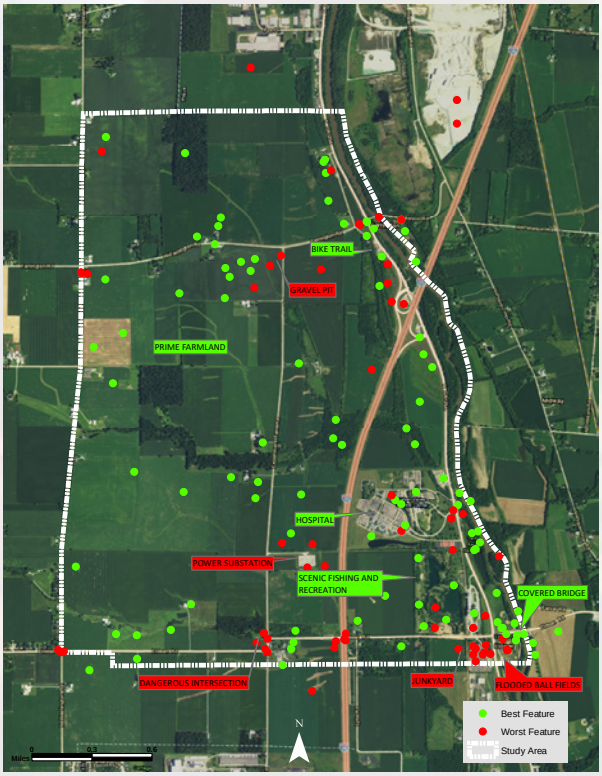

Figure 2.2:

Outreach & Publicity

To advertise community meetings, the Project Team created invitations and fliers that were distributed throughout the community. An example community meeting flyer can be found to the right. Outreach was critical in ensuring the public had the opportunity to participate, regardless of their level of interest in the study.

In addition to distributing flyers, the Project Team emailed reminders to specific residents and those that participated in the previous Community Meetings.

Development of Plan Goals

The following goals were reviewed by the Visioning Group on September 1, 2017. Each participant was given a set of differently colored dots – three green dots, two blue dots, and one red dot. Green dots had the highest priority with a value of three followed, by blue dots with a value of two, and red dots with a value of one. The Group was then asked to prioritize each Goal, assigning the highest priority to green, followed by blue and then by red. Each goal was then scored and given a ranking. **Exhibit 2.1** depicts voting results. Goals were ranked and reorganized based on the Visioning Group's feedback, resulting in the list below.

GOAL 1 | ECONOMY
Create a center for employment with a diverse economic base, and build on the access and visibility afforded by the I-75/CR-25A Interchange.

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Promote an active and healthy lifestyle for residents, workers, and visitors.

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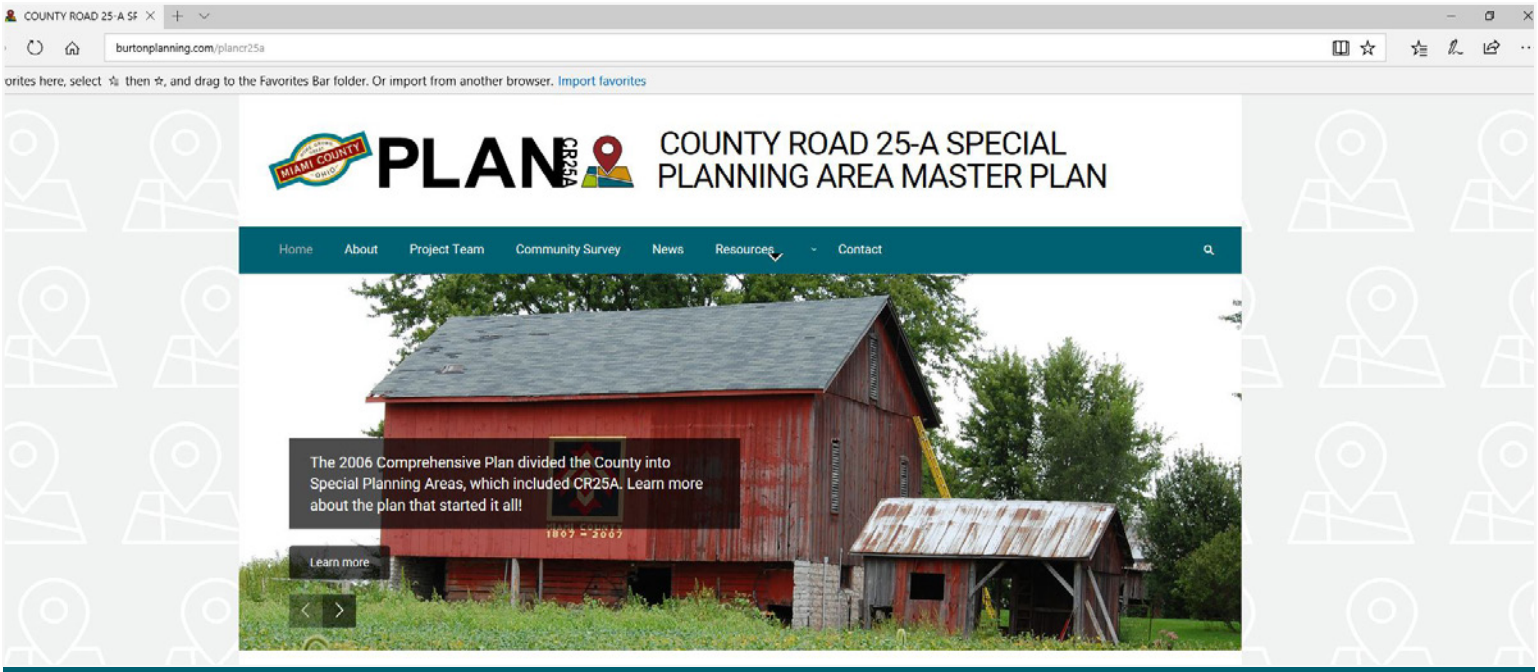
Each goal was defined by at least one objective and each objective was associated with one or more strategies. **Chapter 5** describes this process in more detail.

Website

In addition to meetings, a project-specific website was launched in September 2017 (**Figure 2.3**). The project website gave an overview of the project's background, goals, and timeline; and the page was regularly updated with the project's progress. More importantly, the website served as an opportunity for people to participate in the planning process and stay informed. The website listed contact information for County staff, posted about upcoming meetings, and provided presentations from past events. The website also included a link and promoted the project's online community survey.

Figure 2.3: Project Website



Website Statistics

To be completed after public comment on the final draft—Views on LinkedIn that can be collected, Shares on LinkedIn that can be collected, Facebook data that can be collected, Number of comments.

Online Community Survey

During Fall 2017, information from residents, business owners, and other stakeholders were collected through an online survey. The survey asked a number of questions about demographics and preferred development types and forms for the Study Area. The main instrument used to collect respondent preferences for future development was a Visual Preference Survey (VPS).

173
survey responses received

75%
survey completion rate

122
questions included in the survey

9 minutes
average time taken to complete the survey

The VPS obtained public input on the physical design of built environments. Participants were shown a series of images including a variety of building and street types, as well as parks and recreational areas. They rated their preference for each image using a likert scale, with answer choices ranging from "not at all appealing" to "extremely appealing." Descriptive statistics of the sample are presented in this section, followed by an analysis of VPS results and preferences for future development.

Descriptive Statistics

The survey received 173 responses; however, respondents were not required to answer every question, so each question has a different sample size. 122 questions were included in the survey, with an average time of nine minutes to complete and a 75 percent completion rate.

At the time of the survey, the majority of respondents—92 percent—lived outside of the Study Area. Two thirds of respondents lived in Troy and 17 percent lived in Piqua. The remaining 17 percent of respondents resided in other parts of the Miami Valley (**Figure 2.4**). At 55 percent, most respondents were between 25 and 44 years of age. This age group makes up 21 percent of the County's population (**Figure 2.5**).

Sixty-one percent of respondents obtained a bachelor's degree or higher (**Figure 2.6**), compared to only seven percent for the County as a whole, five percent for Piqua, and six percent for Troy. Two thirds of respondents were employed full-time; eight percent were employed part-time, and none were unemployed (**Figure 2.7**). Miami County has a 64.5 percent employment rate and 4.5 percent unemployment rate. Troy has rates similar to the County, and Piqua has an employment rate of 55 percent and an unemployment rate of eight percent.

Over three quarters of respondents had a median household income of $50,000 or greater and 41 percent had a median household income over $100,000 (**Figure 2.8**). These rates are significantly higher than the County median income, as well as those of Piqua and Troy. Half of Miami County households earn a median income over $50,000 and only 17 percent have an income over $100,000. Fifty-three percent of respondents were female and 47 percent were male, similar to Miami County, Piqua, and Troy. Almost all respondents—98 percent—were white. This ratio is slightly higher than Miami County's and Piqua's white population, which is 96 and 97 percent, respectively. Troy's white population is 92 percent.

Figure 2.4: Where Survey Respondents Live

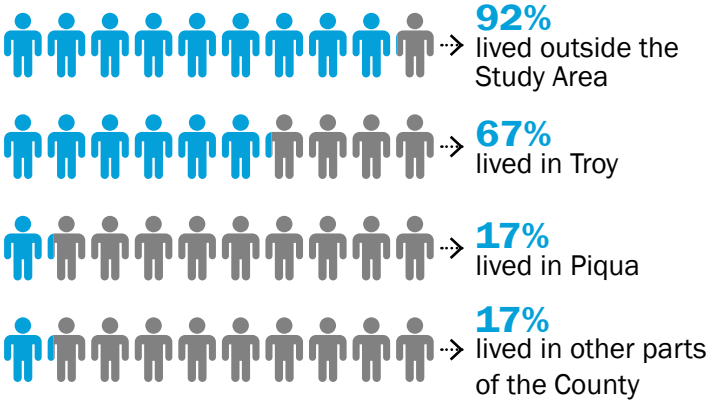


Figure 2.5: Survey Respondents Age

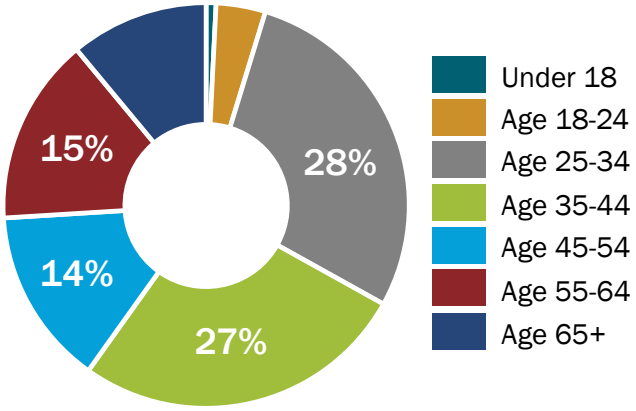


Figure 2.6: Survey Respondents Education

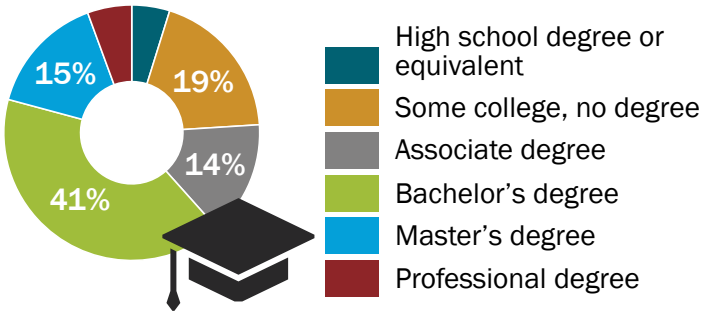


Figure 2.7: Survey Respondents Employment Status

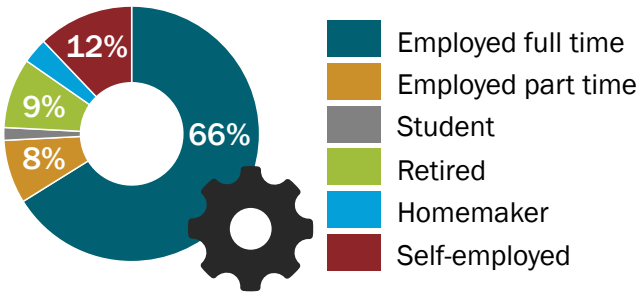
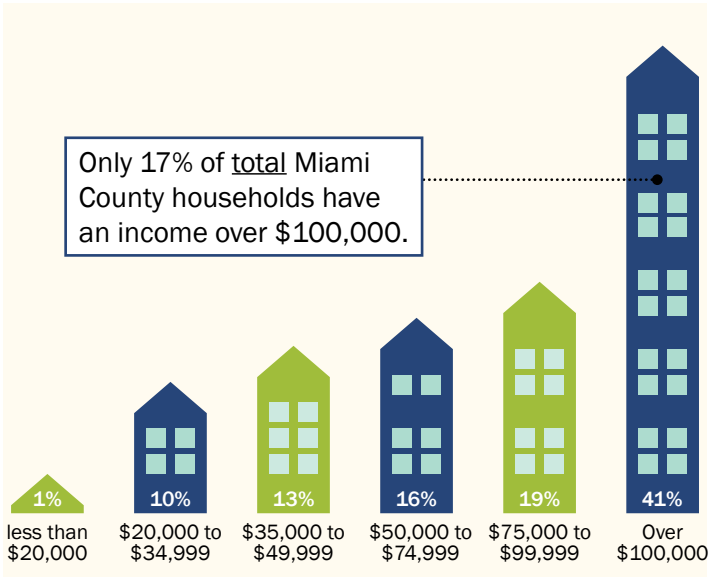


Figure 2.8: Survey Respondents Household Incomes



Visual Preference Survey Analysis

A VPS allows citizens and decision-makers to articulate their preferences for various types of community design, architectural styles, land and streetscaping, and other built environment features. VPS can build consensus among stakeholders and identify common visions for a particular development.

The VPS used almost 100 images of generic and Study Area examples of buildings, roads, parks, and landscapes. Images were collected from communities throughout Ohio, many of which included suburban and rural interchange developments similar to the proposed development at CR 25-A and I-75.

To reduce sequence bias, the order of images was randomized within each section of the survey. An A/B image test tool assigned two photos to each question, only one of which was shown to a given respondent. Each photo pair was similar but had a slight variation; for example, two photos of office buildings, one glass and one brick, or two roads with bike lanes, one with parking and one without. This method decreases the impact of respondent bias to secondary image features and further reduces sequence bias. To analyze the results, answer choices were assigned a numerical value (**Table 2.1**). Weighted averages were calculated for each image. This information was then used to determine respondent preferences for several categories, described in the following text.

Table 2.1: VPS Numerical Value Explanation

To analyze the results, answer choices were assigned a numerical value:
1 = Not at all appealing
2 = Slightly appealing
3 = Somewhat appealing
4 = Very appealing
5 = Extremely appealing

Transect (Table 2.2)

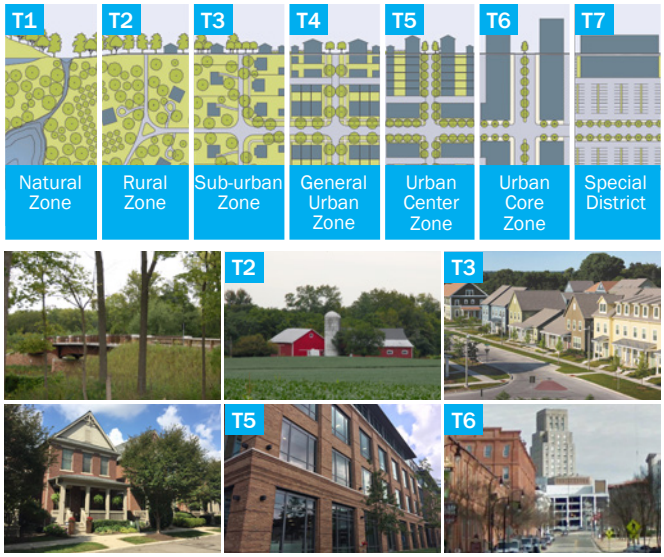
The Transect is a continuum that divides the built and natural environment into a series of zones, from natural to urban core. Each zone has appropriate building and street types, development densities, and other features that form preferred built environments. For example, a rural zone might have wide roads with deep setbacks and single-family homes, whereas an urban core zone would have multistory mixed-use buildings lining streets with sidewalks, bicycle facilities, and street trees.

Respondents preferred Natural and Rural images the most, with average scores of 4.25 and 2.64, followed by Suburban (2.23), General Urban (1.89), and Urban Center (1.84). The survey did not include images of Urban Core settings. This order mirrors that of the Transect itself, with high-scoring rural images at one end of the continuum and low-scoring urban images at the other end. These results suggest that respondents prefer to maintain low-density, rural environment features in any new development.

Table 2.2: Transect Zone Scores

Each land use image in the survey was assigned a Transect zone. The scores for each zone are shown below:	
1.	Natural (4.25)
2.	Rural (2.64)
3.	Suburban (2.23)
4.	General Urban (1.89)
5.	Urban Center (1.84)
6.	Urban Core (N/A)

Figure 2.9: Transect Zone Explanation



Land Use (Table 2.3)

Five land uses were included in the survey: Industrial, Retail/Mixed Use, Residential, Civic, and Office. Each land use showed a variety of building types.

Respondents preferred retail/mixed use buildings more than other land uses by a small margin, with an average score of 1.92. Preference for Retail/Mixed Use was followed closely by Civic (1.90), Residential (1.88), Industrial

(1.87), and Office (1.84). A sixth land use, Parks/Open Space, was included in the survey in a separate section, because it is distinct from other built environment land uses. Parks/Open Space images received an average score of 3.05, significantly higher than other land uses. This finding is in keeping with the Rural Transect being the most preferred zone. Parks and open spaces pictured in the survey were located in rural or suburban settings.

Table 2.3: Land Use Scores

Preferred land uses are ranked below, with average scores in parentheses:	
1.	Retail/Mixed Use (1.92)
2.	Civic (1.90)
3.	Residential (1.88)
4.	Industrial (1.87)
5.	Office (1.84)

Building Material (Table 2.4)
Images showed a range of materials to respondents, typically as part of building facades. Each image was classified based on the primary building material depicted. For example, a brick building with glass windows would be classified as brick. Buildings without a primary material or with a mix of materials were classified as mixed.

Wood was the most preferred material, with a score of 1.98, followed by brick (1.89), concrete (1.89), mixed (1.87), and glass (1.85). This finding may also support the Transect and land use preferences, if respondents considered wood to be a more common or appropriate building material in rural settings.

Table 2.4: Building Material Scores

The scores for each building material are shown below:	
1.	Wood (1.98)
2.	Brick (1.89)
3.	Concrete (1.89)
4.	Mixed (1.87)
5.	Glass (1.85)

Building Height (Table 2.5)
Images were also categorized by building height, defined by the number of stories per building.

One-story buildings were preferred more than taller buildings, with a score of 1.92, followed by two stories (1.90), four stories (1.89), five stories (1.89), greater than five stories (1.87), and three stories (1.82). There appears to be a correlation between these results and the findings described in previous sections. One-story buildings are more commonly found in low-density development, which is typically associated with rural areas.

Table 2.5: Building Height Scores

Preferred building heights are ranked below, with average scores in parentheses:	
1.	1 story (1.92)
2.	2 stories (1.90)
3.	4 stories (1.89)
4.	5 stories (1.89)
5.	> 5 stories (1.87)
6.	3 stories (1.82)

Survey Analysis Summary
All four features used to categorize images—transect zone, land use, building material, and building height—indicate that respondents prefer rural, low-density development over more suburban or urban settings. Survey results suggest that, as an aggregate, wooden, one-story buildings in rural settings would score more highly than any other building type.

Road Width (Table 2.6)
Respondents were shown 30 images of roads in addition to buildings and other built and natural environment images. Road images were categorized primarily by road width, defined by the number of travel lanes per road (excluding parking lane and turn lanes).

Respondents preferred four-lane roads the most, with an average score of 2.06, followed closely by two lanes (2.05) and one lane (1.97).

Table 2.6: Road Width Scores

Preferred road width rankings are shown below, with average scores in parentheses:	
1.	4 lanes (2.06)
2.	2 lanes (2.05)
3.	1 lane (1.97)

Road Amenities (Table 2.7)

Each road image was also categorized based on amenities shown. Amenities include the presence of on-street parking, street trees, medians, pedestrian facilities (sidewalks) and bicycle facilities (bike lanes or shared lane markings).

On-street parking was the most preferred amenity, with an average score of 2.09, followed by street trees (2.07), medians (2.07), pedestrian facilities (2.06), and bicycle facilities (2.04). With the exception of medians, these features are typically more common in urban areas. It is unclear whether respondents accounted for the presence of these amenities as they rated each image; this departure from the overall preference for images of rural settings may or may not be significant.

Table 2.7: Road Amenity Scores

The scores for each amenity are shown below:	
1.	On-Street Parking (2.09)
2.	Street Trees (2.07)
3.	Medians (2.07)
4.	Pedestrian Facilities (2.06)
5.	Bicycle Facilities (2.04)

High-Scoring Images (Figures 2.10-19)

All of the top ten most preferred images featured rural, natural, or open space settings. The top six images showed sites within the Study Area, such as barns, cultivated fields, historic sites, and trails. The remaining top ten images pictured generic recreational and natural areas, such as playgrounds, trails, and wetlands. Because the only built environment elements in these images were agricultural or recreational uses, these findings suggest that respondents strongly prefer preserved natural spaces accessible by recreational facilities. Expanding the analysis to include the top 20 images—all of which show parks, playgrounds, and other recreational uses—further validates this conclusion.

Low-Scoring Images (Figures 2.20-29)

The bottom ten images showed built environment settings ranging from rural to urban and including a variety of uses: three office buildings, three multi-family buildings, two retail/mixed-use buildings, one industrial building, and one civic building. Building heights ranged between two and five stories and building materials were primarily brick, although most building facades included other materials as well. Unlike the top ten preferred images, the least popular images do not share a common theme, other than the presence of buildings.

Figure 2.10-19: High-Scoring Images' Scores

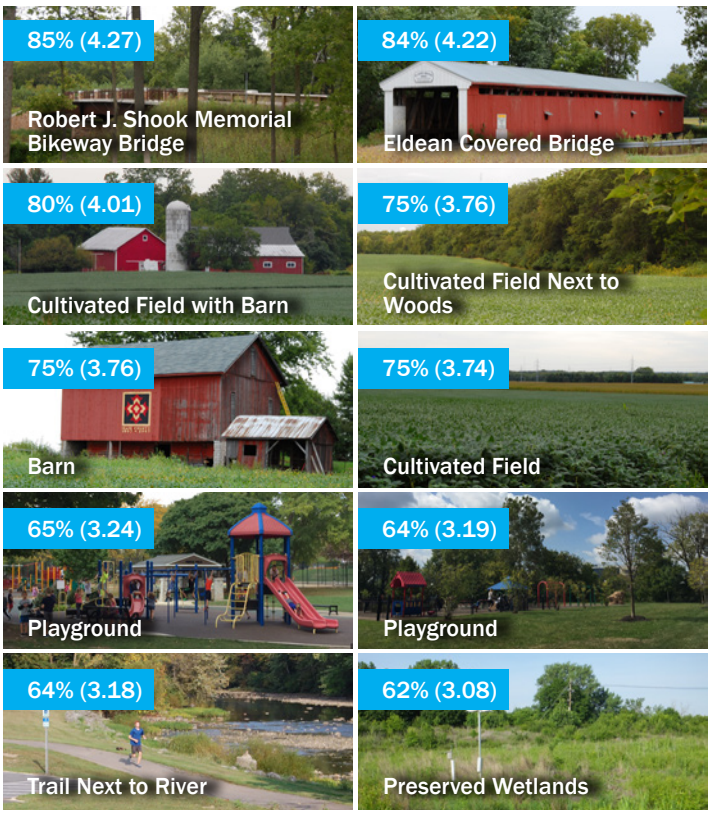
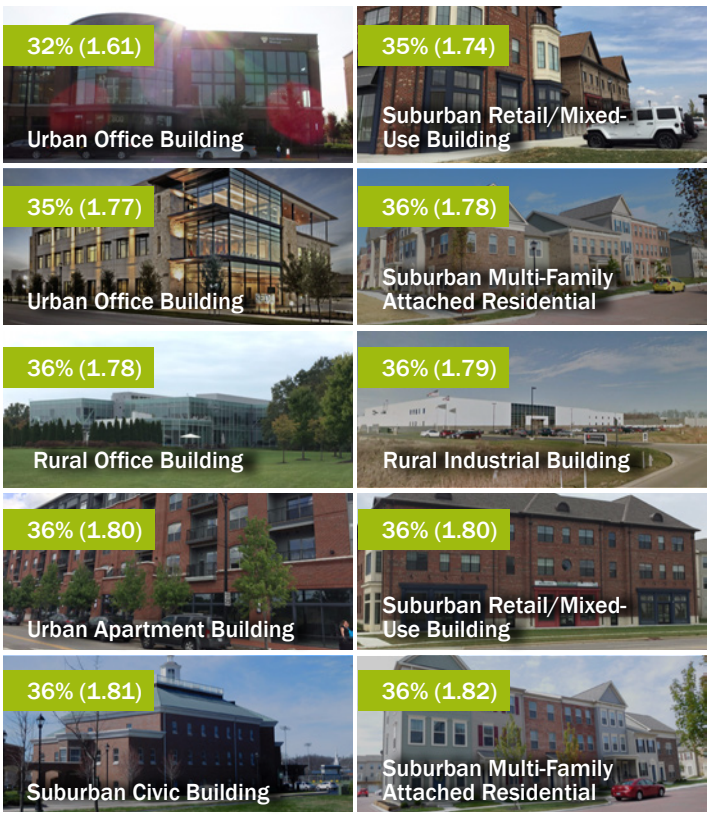


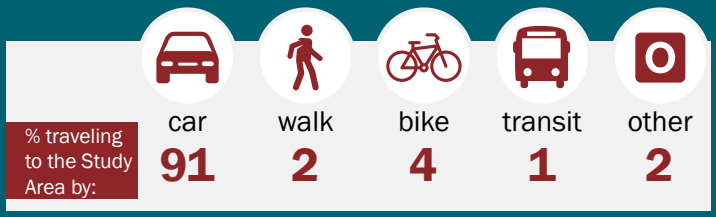
Figure 2.20-29: Low-Scoring Images' Scores



Future Development Preferences

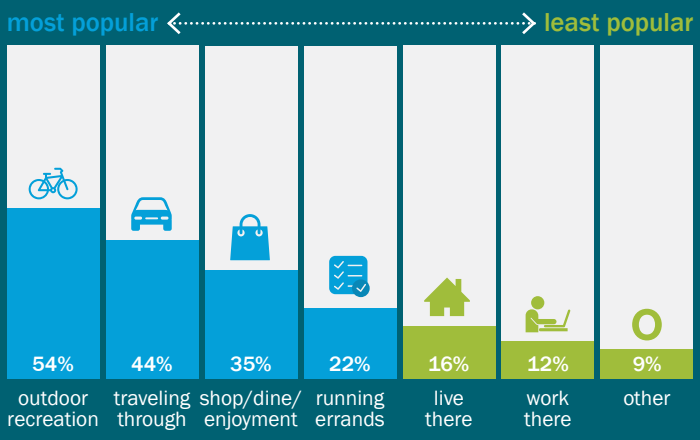
The VPS component of the survey was followed by several questions about future development along CR 25-A. Respondents were asked to imagine traveling along CR 25-A ten years in the future. When asked how they would get there most of the time, the majority (91 percent) said they would travel by car, followed by bicycle (four percent), walk (two percent) and transit (one percent). Over half the respondents—54 percent—selected outdoor recreation as their reason for visiting the area around CR 25-A in the future. This preference was followed by "I will just be traveling through there" (44 percent), shop/dine/entertainment (35 percent), errands (22 percent), "I will live there" (16 percent), "I will work there" (12 percent), and other (ten percent).

Figure 2.30: How Will Survey Respondents Travel to the Study Area



Most of survey respondents will travel to the Study Area by car in the future, and over half of the respondents will be traveling there for the outdoor recreation. Many others plan to just be passing through in the future.

Figure 2.31: Why Will Survey Respondents Travel to the Study Area



The survey also asked respondents what they would see as they travel down the corridor. Through open-ended responses, participants revealed that they prefer open space: 66 percent of responses included nature preserves, natural habitats and landscapes, and farmland. Fourteen percent of responses included recreational areas, such as trails, parks, river access, picnic areas, and a nature center. Only six percent of responses included some sort of development, such as restaurants, gas stations, and convenience stores. The following sample of open-ended responses represents the majority of the survey sample's opinions:

- I enjoy the existing agriculture and do not believe every acre must be developed.
- Leave it as farmland. Let landowners decide what to do with their property.
- There is already great wildlife in the area with the proximity to the bike path.
- Leaving it farm land would be the best improvement.
- Keeping most of its natural habitat.
- Responsibly-planned development is a must to retain natural beauty of river and farmland with new structures and infrastructure.
- I like seeing the farmland and the bike path.
- Leave it as it is.
- Recreation, tourism, health, scenery, sports, family-oriented activity.
- Green space natural space recreational opportunities.

In keeping with VPS results, future development preferences and open-ended responses further verify that participants strongly prefer to maintain the Study Area's current rural and agricultural character (**Figures 2.32**). While this preference was not unanimous, it constitutes the overarching sentiment across all survey results.

Limitations

It is difficult to control for extraneous features in images that are not standardized. For example, negative features such as litter, dilapidated buildings, or unattractive vehicles may influence respondents' choices, even if they are supposed to judge an image based on street type. Image quality, such as lighting, may also affect responses. Renderings or staged images present more standardized and controlled environments for respondents to judge, reducing the possible influence of peripheral image features on responses. However, using real-world images allows respondents to better understand the portrayed environment, as they may relate it to their own experiences. For example, respondents may be able to inherently understand an image of a Walgreens pharmacy in a suburban commercial center more easily than a rendering of a generic small-scale retail building.

Figure 2.32: Types of Businesses Survey Respondents Want to See in the Study Area

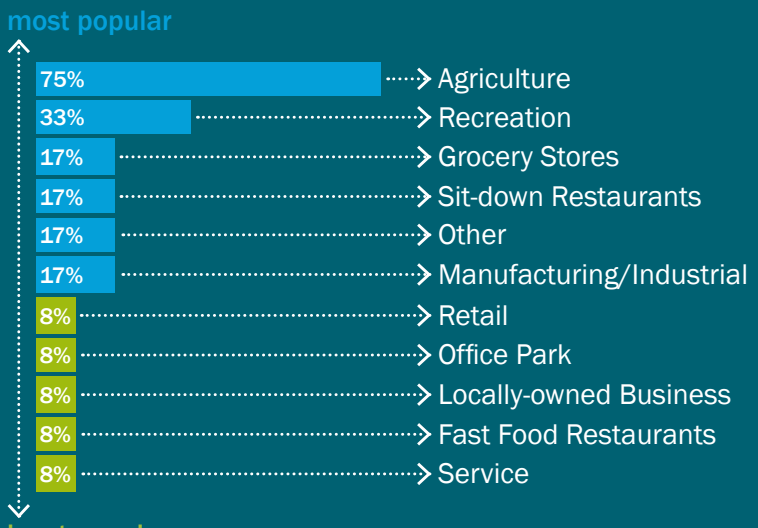


Figure 2.33: Online Community Survey

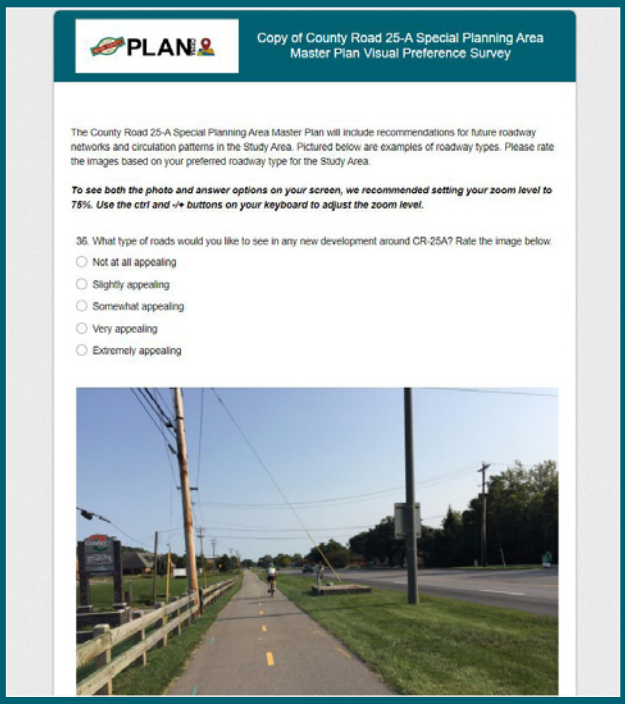


Figure 2.34: Survey Advertisement

CHAPTER 3 | EXISTING CONDITIONS

The purpose of Chapter 3, Existing Conditions, is to assess the market for future growth within the Study Area and to document the area's natural (floodplain, wetlands, soils, etc.) and built environments (e.g. sewer and water utilities, stormwater facilities, transportation network, etc.). It sets the stage for Chapter 4, Information Analysis and Evaluation, which identifies ways to accommodate that growth and estimates its potential timing and location.

The chapter is divided into four sections: Natural Environment, Built Environment, Regulatory Environment, and Market and Economy.

Background

In 2006, the Miami Valley Regional Planning Commission (MVRPC) assisted Miami County in completing an update to the 1998 Miami County Comprehensive Plan, a document that was prepared by the Miami County Planning and Zoning Department "with assistance and input from a multitude of agencies and political subdivisions." The Miami County Comprehensive Plan 2006 Update noted that the County has been, and will continue to be, shaped by a "variety of influences" and that the planning process will encourage the following:

- Preservation of farmland
- Efficient use of public infrastructure investment
- Knowledgeable application of zoning, including the continuation of agriculturally-supportive zoning
- Managed expansion of urban areas with identifiable urban service boundaries to discourage unnecessary duplication of services

The construction of the I-75 corridor was the most recent major impact on the County's physical landscape (previous significant influences identified in the 2006 Comprehensive Plan include the north-south recession of prehistoric glaciers and the 1913 flood). According to the Plan, "since the early 1960's, the I-75 corridor has been driving residential, commercial, and industrial development along the County's central axis." The Plan, in fact, designates the corridor as "The I-75/Great Miami River Corridor."

Because of unique conditions affecting both the type and timing of development, the County was divided into Planning Areas including several "Special Planning Areas." One of these areas is part of the CR 25-A Special Planning Area and is also within I-75/Great Miami River Corridor. According to the Plan, "the County should give careful consideration as to how these areas may develop and consider a variety of criteria in the land use decision process including the compatibility of surrounding land use patterns, the availability of utilities, exposure, and access to transportation facilities, especially I-75."

Located between the City of Piqua and the City of Troy, Ohio, (**Exhibit 3.1**) the 3,300-acre CR 25-A Special Planning Area is somewhat larger geographically than the Special Planning Area discussed in the 2006 Plan. The boundary was expanded for this study to include the Great Miami River and the area west of Experiment Farm Road. As a result, the Study Area is bounded by the City of Piqua to the north, the Great Miami River to the east, the City of Troy to the south, and Washington Road to the west (**Exhibit 3.2**). County Road 25-A not only traverses the eastern edge of the Study Area, it also intersects with I-75, one of seven roadways intersecting I-75 in Miami County.

Exhibit 3.1: Location Map

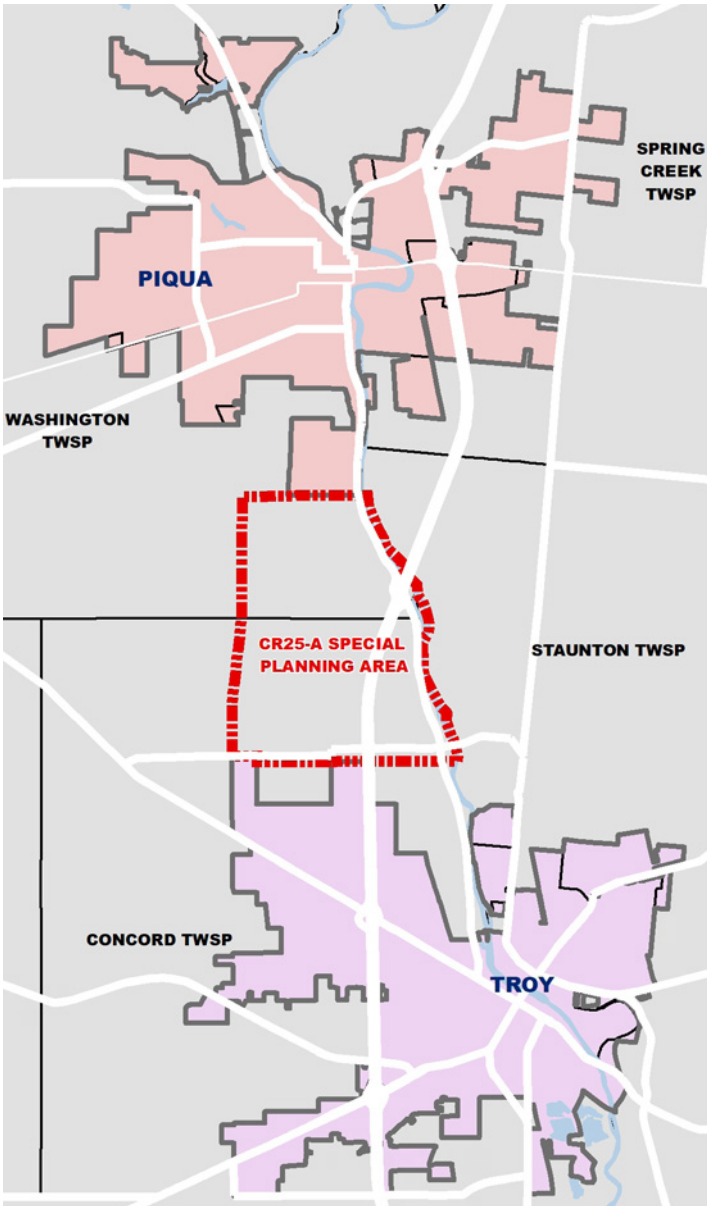
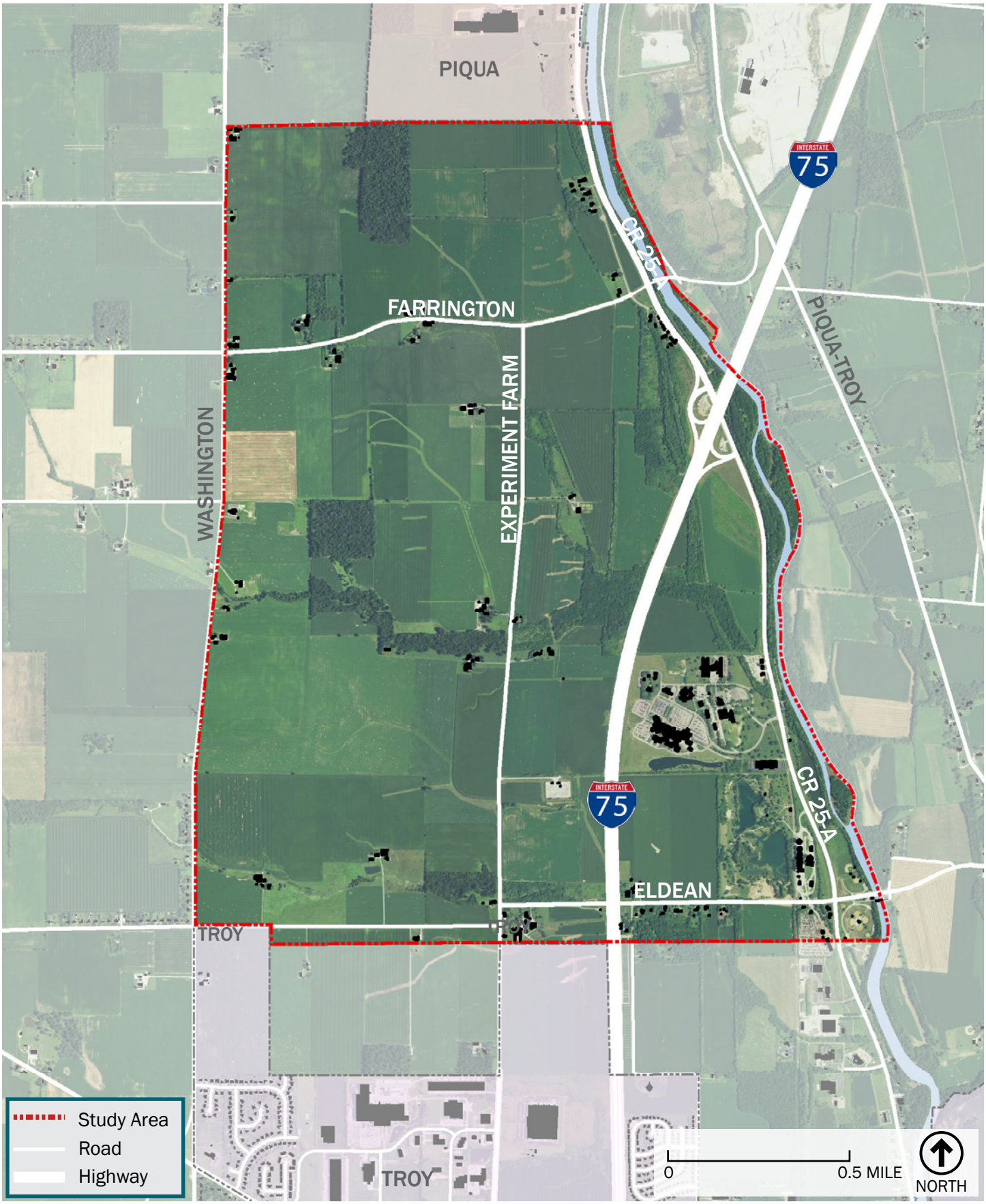


Exhibit 3.2: Study Area



Natural Environment

Natural environmental features are both the living and non-living ecological characteristics of a site. When assessing site suitability, it is important to examine the natural environment because certain features can create constraints on development or opportunities for environmental, economic, or equity-related interests. Although there are many environmental factors to consider, the MVRPC has identified several key components that could constrain future development of the CR 25-A planning area.

The MVRPC report, titled the Miami Valley Land Suitability Assessment — Natural Environment Factors Study, explains that "the natural environment factors analyzed in this assessment, such as soil, topography/ slope, wooded areas, water courses, and prime farmland, were included because of their significance in the context of land use planning." This section looks at each of these factors within the assessment in more detail as they relate to the planning area.

Surface Water Resources

Miami County is within the Upper Great Miami watershed, one of three watersheds that drain to the Great Miami River. With the Study Area directly adjacent to the Great Miami River in the east, water resources pose important considerations for any future development. Development can be constrained by water resources and development can, in turn, impact water quality, biological habitat, and aesthetic and recreational resources.

Surface water

Surface water is water found on the land's surface and includes streams, rivers, lakes, and reservoirs. These areas are less suited or not suited for development because the presence of water can make development too costly or infeasible. In the Study Area, surface water is present along the eastern border of the Study Area in the form of the Great Miami River. Ponding is present in the south-east portion of the Study Area for stormwater retention for the Premier Health Upper Valley Medical Center campus and to the west of the Troy Elevator Company.

Floodplain

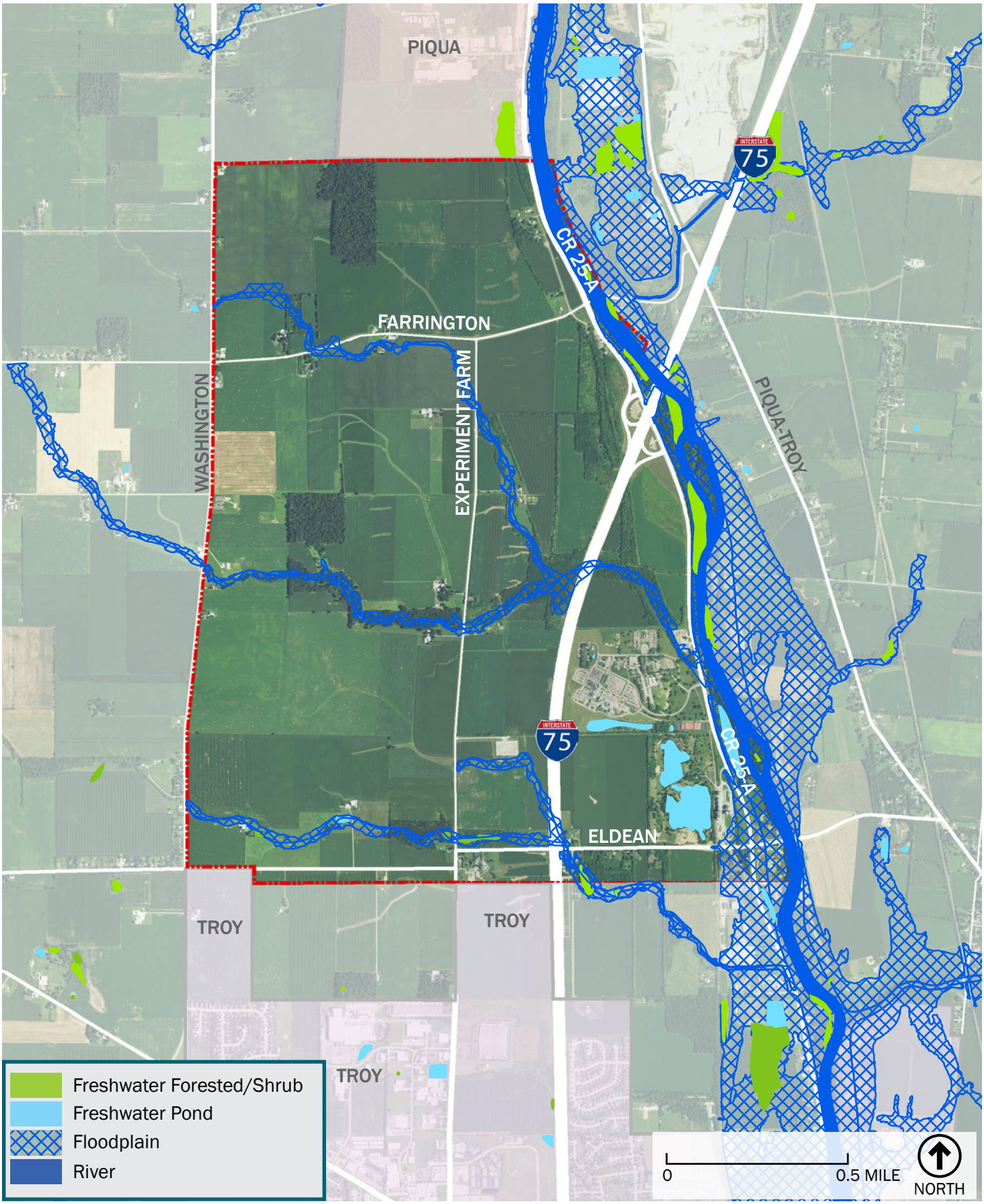
Floodplains area defined by the Federal Emergency Management Agency (FEMA) as lands that are susceptible to inundation by flood waters from any source. Floodplains can be defined as 100-year, meaning on average there is a 1.0 percent chance each year that the area will be inundated, or 500-year, with a 0.2 percent chance of inundation each year. Development within floodplains can be extremely limited due to high costs associated with building and landscape protections and the cost of flood insurance. In the Study Area, the 100-year flood plain is present along the river corridor and horizontally bisects the site in three locations: the south along Eldean Road, just south of the middle portion of the Study Area, and branching from the middle portion of the Study Area north and then roughly along Farrington Road (**Exhibit 3.3**).

Wetlands

Wetlands act as a link between land and water. They are areas where water covers the soil or is present near the soil surface year-round or seasonally. Wetlands can also be identified by the presence of hydric soils and plant communities that are well-adapted for wet conditions, according to the United States Environmental Protection Agency (EPA). Aside from providing unique habitat, wetlands can also reduce flooding and erosion and improve water quality. The Ohio EPA estimates that 90 percent of the State's wetland resources have been destroyed or degraded since the late 18th Century. Therefore, it is important to avoid or mitigate impacts to wetlands. There are wetlands along the river and stream corridors within the Study Area and there is a wetland directly north of the site along County Road 25-A (**Exhibit 3.3**). Future development should consider potential impacts to this wetland.

Figure 3.1: The Great Miami River flowing under the Eldean Covered Bridge

Exhibit 3.3: Water Features



Ground Water Resources

Ground water is the water that exists below the land surface in soil spaces or in cracks and crevices in rock. Ground water is abundant in Ohio and many communities depend on it for fresh water supply. However, ground water is susceptible to contamination from point source and non-point source pollution on the land's surface including industrial, urban, and agricultural runoff. Protecting ground water resources is important for both current and future development because it can be costly to mitigate contamination, which may cause serious health issues if not properly managed.

Ground Water Yield

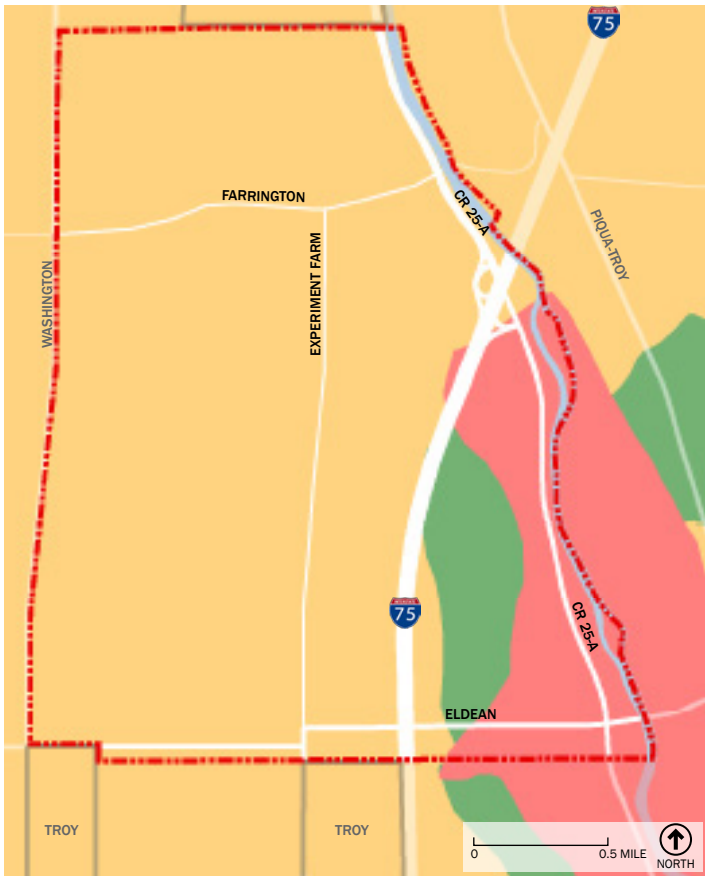
According to the MVRPC, ground water yield is the quantity of water expressed as a rate of flow or total quantity per length of time that can be collected from a given water resource. The MVRPC study categorized ground water yield as "high," "medium," or "low" depending on the gallons per minute produced. According to the Miami Valley Land Suitability Assessment, the majority of Miami County has a medium yield of ground water. This is also the case for the Study Area (**Exhibit 3.4**), where the vast majority of the site (west of I-75) has a medium yield of ground water or between 25 and 100 gallons per minute (gpm). Directly to the east of I-75 within the site, there is an area of low ground water yield (0-25 gpm) and along the river corridor there is a high ground water yield (greater than 100 gpm).

Ground Water Pollution Potential

The Ohio Department of Natural Resources (ODNR) defines ground water pollution potential as the relative measure, based on the soil's physical and chemical factors, that rates the land's susceptibility to pollution and the possibility of groundwater contamination. In measuring the vulnerability of ground water, seven factors are considered: depth to water, net recharge, aquifer media, soil media, topography, impact of the vadose zone media, and hydraulic conductivity of the aquifer (ODNR). The Miami Valley Land Suitability Assessment categorized the pollution potential as "high," "medium," and "low" pollution potential.

According to assessment, the vast majority of Miami County has a medium ground water pollution potential and the Study Area follows this pattern (**Exhibit 3.5**). However, the areas along the river corridor including the I-75/CR 25-A interchange have high pollution potential. This leaves the area vulnerable to contamination from development, transportation, and non-point source pollutants like agricultural runoff.

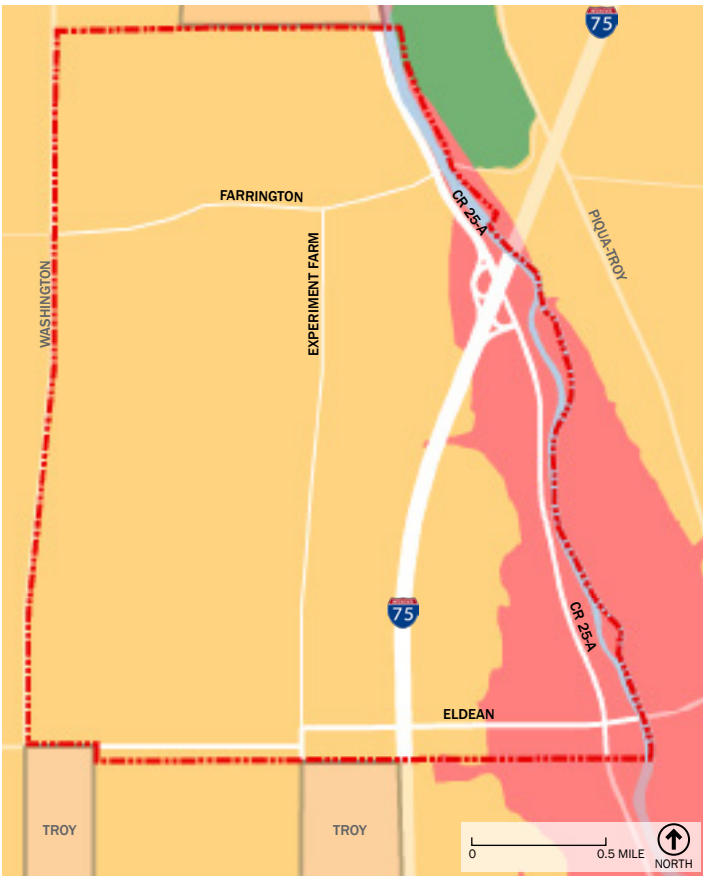
Exhibit 3.4: Ground Water Yield



High > 100 gallons per minute
Medium 25-100 gpm
Low 0-25 gpm

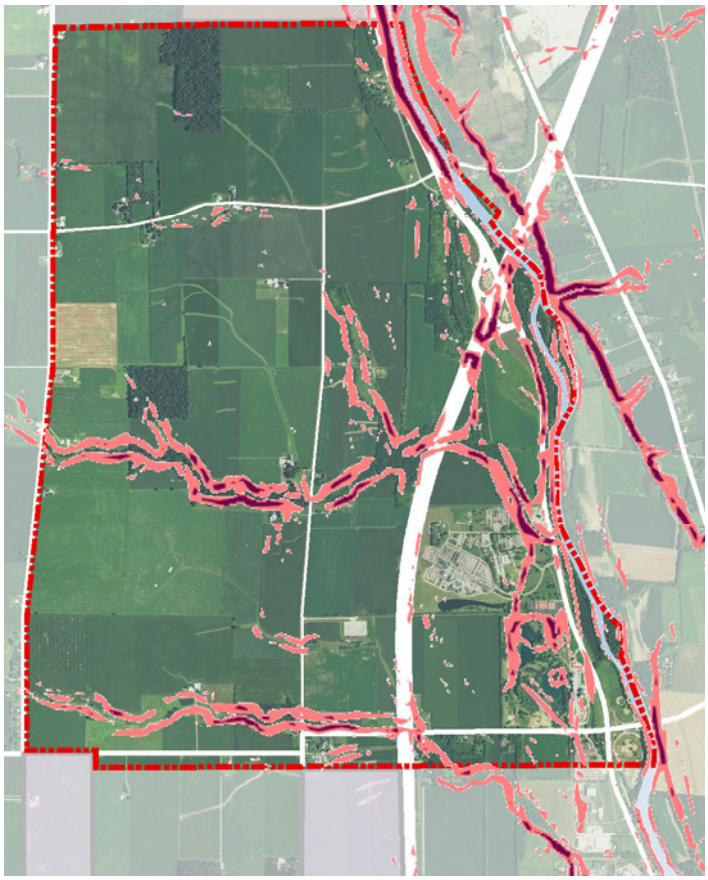
Figure 3.2: Land around the I-75/CR 25-A interchange is vulnerable to ground water pollution

Exhibit 3.5: Ground Water Pollution Potential



High
Medium
Low

Exhibit 3.6: Slope



Steep
Rolling

Physical Features

Miami County's physical features have been greatly shaped by the glacial periods that impacted parts of Ohio; this natural history is reflected in the topographic features of the County. The ODNR describes Miami County's topography as level to gently rolling terrain and the "surficial features of the county being predominantly glacial in origin with the exception of bedrock outcrops throughout the county" (ODNR). Physical features such as slope, bedrock, and soil drainage directly impact the type and ease of development on the land.

Slope

Slope is the change in elevation across an area. Slope can impact the type of development that is feasible, with higher percentage of slope resulting in costly construction methods. Additionally, if sloping areas are developed improperly, they can result in significant environmental issues from erosion and loss of habitat. The vast majority of Miami County is flat (slope less than 6 percent), while very few portions of the County are considered rolling (slope between 6 percent to 12 percent) and steep (slope greater than 12 percent).

The Study Area is mostly flat with portions located along the water resources and floodplains characterized as steep and rolling (**Exhibit 3.6**). In considering development, these areas will be important to avoid due to the combined effects of water resources and high degrees of slope. Developing in these areas could have negative impacts on flooding, erosion, and water quality, as well as being costly.

Depth to Bedrock

Depth to bedrock is the distance from the surface of the soil to the rock layer. The Miami Valley Land Suitability Assessment categorized depth to bedrock as "adequate," "shallow," or "not rated" in relation to development potential. The bedrock present in Miami County is composed of sedimentary rock with bedrock units

consisting of limestone, shales, and dolomites (ODNR). Exposed bedrock outcrops can be seen along the Great Miami River floodplain near Piqua, Troy, and Tipp City. The majority of Miami County and the Study Area have adequate depth to bedrock with north east portions of the site considered shallow depth (**Exhibit 3.7**). Small areas along the I-75/CR 25-A interchange and in the south east portion of the Study Area (where development has already occurred) are not rated. Shallow depth to bedrock can increase costs of development by complicating construction, maintenance, and utility service to a site or requiring blasting or excavation techniques.

Soil Drainage

Soil drainage is the removal of excess water from the soil. The Miami Valley Land Suitability Assessment categorized soils as "well drained," "somewhat poorly drained," "poorly drained," and "not rated." Miami County consists of approximately 57 percent somewhat poorly drained soils and poorly/very poorly drained soils with approximately 40 percent well drained soils. The western portion of the Study Area consists of somewhat poorly drained and poorly/very poorly drained soils (**Exhibit 3.8**). Soils that lack drainage properties can create issues with development, causing high water tables that result in hazards and damage to structures and characteristics like ponding, which inhibits growth of landscaping plants, and may flood basements.

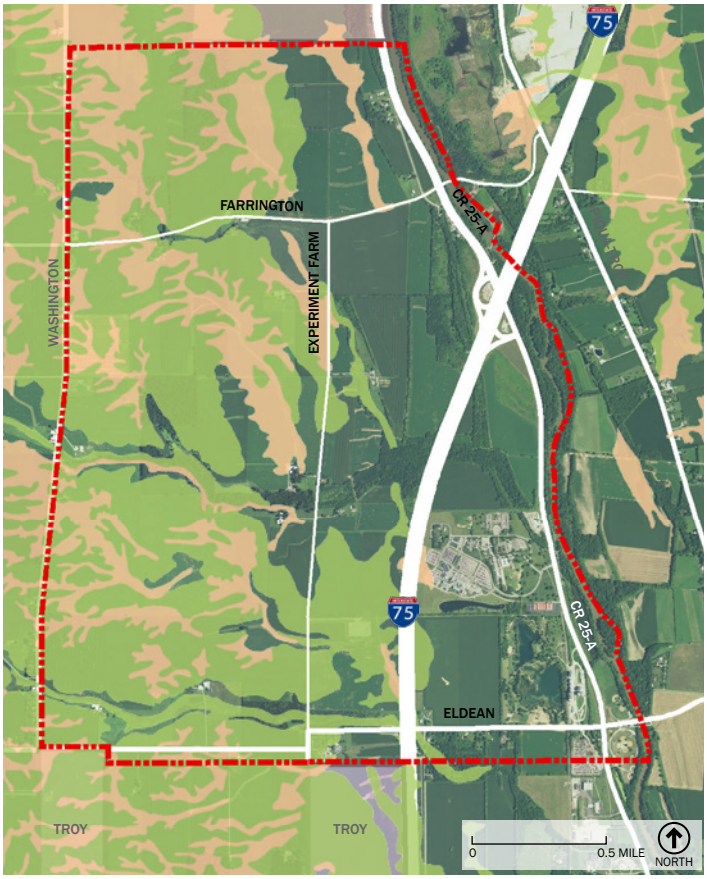
Land Use Resources

Land use related resources such as tree cover, farmland, and minerals, can be important economic drivers of local and state economies and influence community aesthetics and quality of life. It is important to plan long-term for these resources because once they have been depleted it can be difficult or impossible to reestablish.

Exhibit 3.7: Depth to Bedrock

Adequate Depth
Shallow Depth
Not rated

Exhibit 3.8: Soil Drainage



Somewhat Poorly Drained
Poorly/Very Poorly Drained

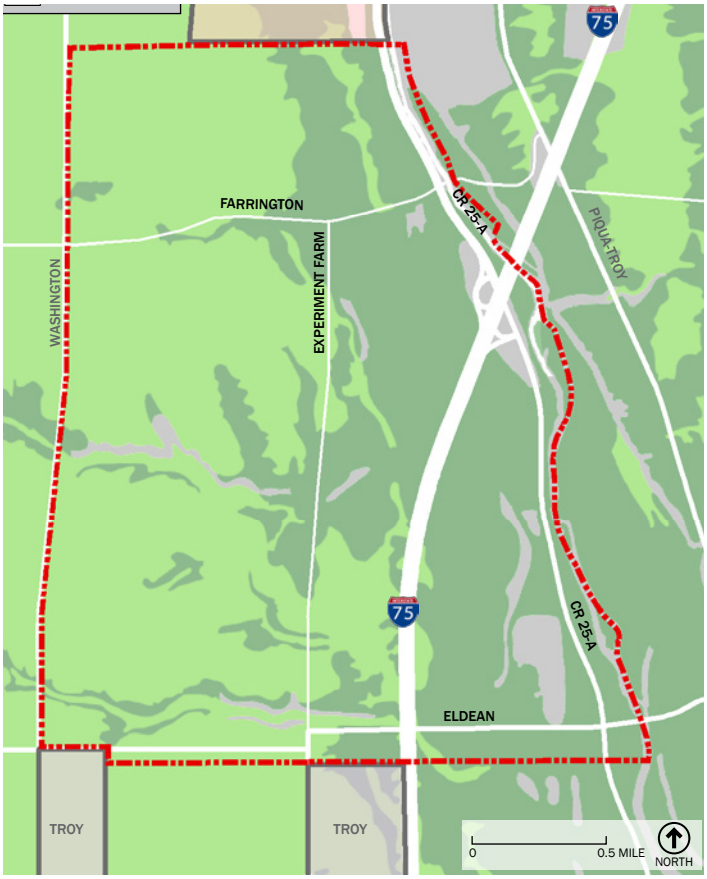
Prime Farmland

Prime farmland is “land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops” (United States Department of Agriculture). This includes not only the soil quality but adequate temperature and precipitation/ water supply, and land that has not experienced excessive erosion or flooding.

The Miami Valley Land Suitability Assessment categorized farmland as “prime farmland” and as “not prime farmland”. With its location in the Miami Valley Region, Miami County contains some of the richest and most productive cropland in Ohio. Almost half of the county land categorized is naturally prime or prime with conditions (meaning it requires draining, protection from flooding, or is not frequently flooded).

The majority of the western portion of the Study Area is considered prime farmland with conditions while the eastern portion along the river and areas along the 100-year floodplain are considered prime farmland (**Exhibit 3.9**). It is important to protect an adequate amount of prime farmland from development because it is an economic driver and source of food supply for the region and beyond. Development of farmland can degrade the farmland potential and place stress on remaining farmland. Cultivation of marginal lands results in higher costs to the farming community and society as a whole in order to maintain the productivity levels formerly obtained on prime farmlands. At the same time, as in the case with the Study Area, prime farmland can be located along water resources. Using this land for farmland can pose serious risks to non-point source pollution from agricultural inputs.

Exhibit 3.9: Prime Farmland



Prime Farmland

Prime Farmland with Conditions

Figure 3.3: Prime farmland in the Study Area

Mineral Resources

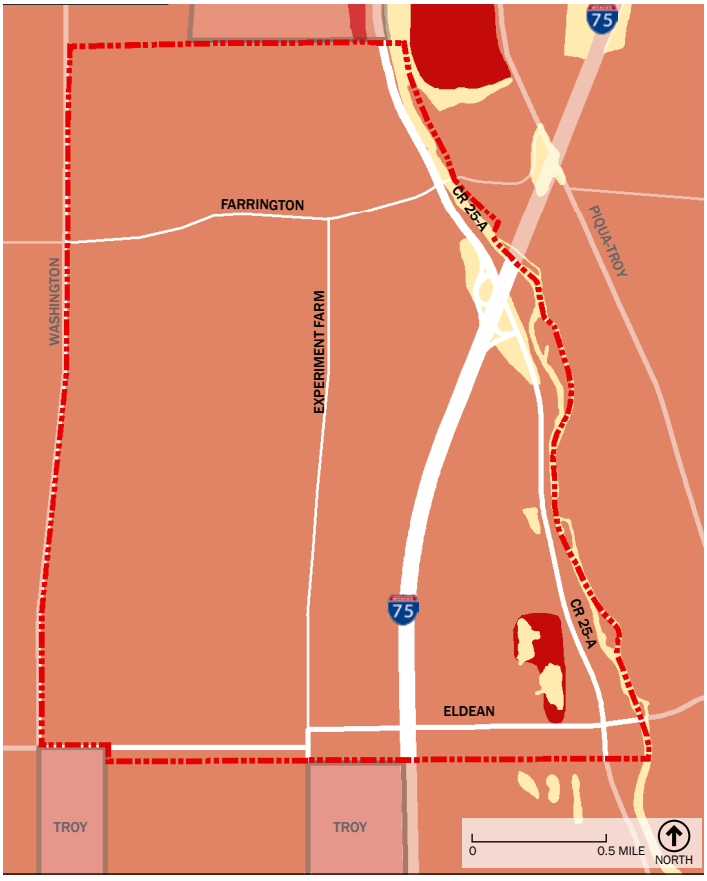
Minerals are "naturally occurring inorganic elements or compounds having an orderly internal structure and characteristic chemical composition, crystal form, and physical properties" (United States Geological Survey). The Miami Valley Land Suitability Assessment categorized mineral resources as minerals "likely present," "not likely present," and "not rated." Overall, 6 percent of the region's land has been categorized as minerals likely present. Compared to the region, Miami County is less likely to contain mineral resources, with only 0.8 percent of the county designated as minerals likely present. The most common minerals in the county are limestone, sand, and gravel.

Although the Study Area has been designated as minerals likely not present with small portions as not rated (**Exhibit 3.10**), there has been recent interest in surface mining at a facility on Farrington Road. Minerals are important natural resources that are an asset to the economy but occur in finite amounts and cannot be relocated. It is important to identify where these resources exist because once development occurs it can complicate the excavation process and increase the cost of removing and transporting the resource. Resource excavation can also conflict with other land uses, so identification and long-term planning of mineral resources is important.

Land Cover

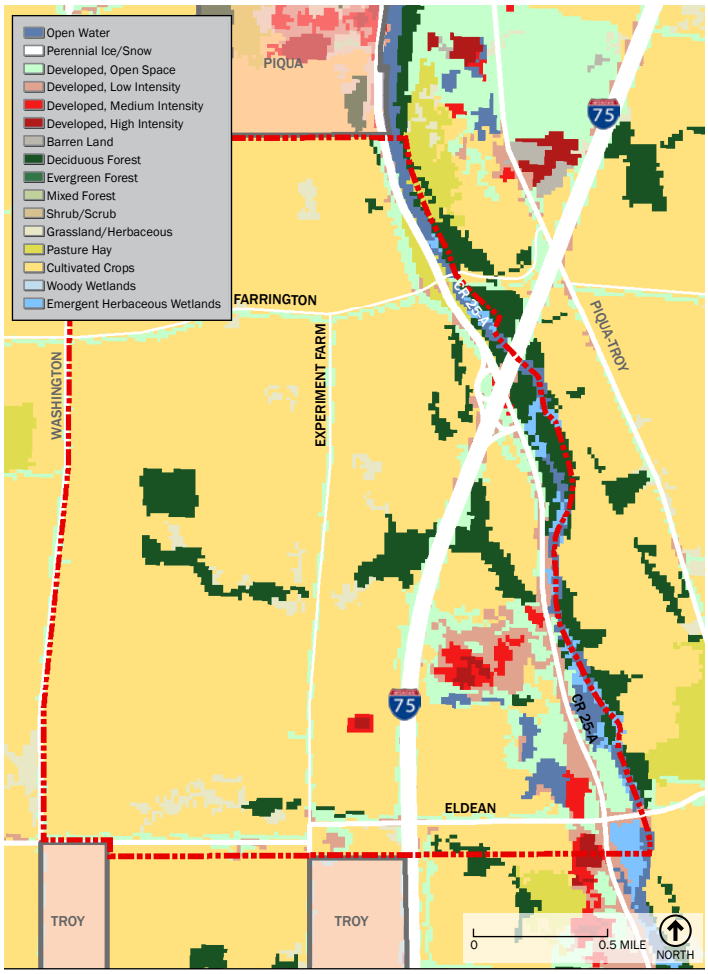
Assessing current land cover is important because there may be certain land uses or resources that should be considered before development. This includes some land uses already described as well as forest cover. Miami County has approximately 25,000 acres of forested area. On the site, there is a wooded area (**Exhibit 3.11**) of 40 acres in the northwest portion and significant growth along the stream corridor in the midsection of the site. Small patches of tree cover are interspersed along the east and south. Future development should be respectful of these tree stands, especially near water resources.

Exhibit 3.10: Mineral Resources



Likely Present
Likely Not Present
Not Rated

Exhibit 3.11: Land Cover

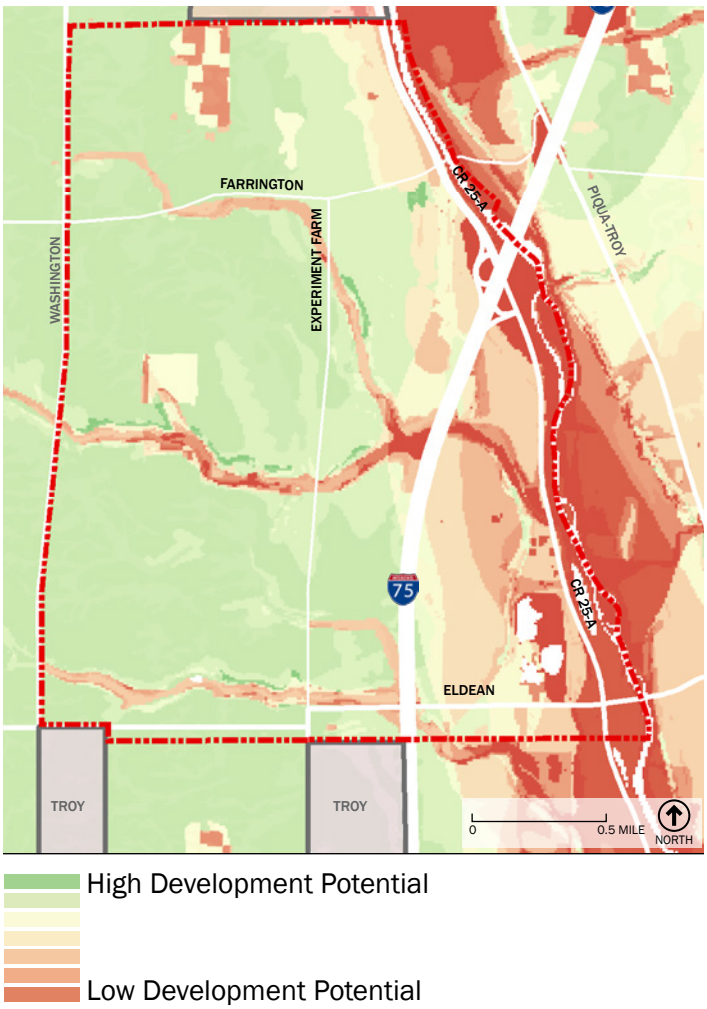


Environmental Suitability

The natural environment suitability map is a composite of the previously described environmental factors and can be used to identify areas better suited for development. Currently, the Study Area is mostly undeveloped. Aside from areas near water resources, it has great potential for a range of development opportunities (**Exhibit 3.12**). Future development should be respectful of vulnerable areas, including areas along water resources or with significant slopes, and cognizant of long-term environmental sustainability in the Study Area.

Figure 3.4: Agricultural land in the Study Area

Exhibit 3.12: Environmental Suitability



Built Environment

In the previous section, the Natural Environment was mapped to determine those areas that are truly protected from development (floodplain, wetlands, etc.) and those areas that should be protected (aquifer recharge areas, riparian corridors and drainage swales, prime agricultural land, etc.). The remaining area, or the Built Environment - as defined by this study - includes areas that are already built upon and is made up of both the Private and Public Realms. The Private Realm includes the physical characteristics of the built environment situated on private property - namely, existing use of land and buildings. The Public Realm includes those areas that are under public ownership, such as wastewater and water facilities and roads.

Private Realm

Existing Land Use and Development Pattern

Unlike the area surrounding the other six interchanges along I-75 in Miami County, over 80 percent of the land around the CR 25-A interchange is in agricultural use. This is followed by right-of-way (3.9 percent), the Upper Valley Medical Center (3.8 percent), commercial (3.6 percent, single-family residential (3.5 percent) and parks and open space (2.0 percent).

To allow comparison, the Study Area was divided into three subareas (**Exhibit 3.13**). Subareas A, B and more than half of Subarea C are predominantly agricultural. As shown in **Table 3.1**, nearly 95 percent of Subarea A is agriculture, followed by Subarea B (94.2 percent) and Subarea C (65.1 percent). A portion of Subarea C bounded by I-75 to the west, the Miami River to the east, and the City of Troy corporate limits to the south has the most diverse use of land, and includes commercial, industrial, residential, and parks and open space uses. It is the most developed of the subareas, due in large part to the availability of sewer and water provided by Miami County.

Also within Subarea C is the Upper Valley Medical Center which serves the health care needs of Miami County and the surrounding area. Operated by Premier Health, the Center is a full-service acute care, 195 bed facility with 238 physicians covering 23 specialties and a total of 1,600 employees.

Across CR 25-A from the Medical Center is the Twin Arch Reserve park. The 35-acre site lies mostly within the Great Miami River flood plain. It includes the remnants of the Twin Arch, a stone culvert built in the 1830's, a fishing pond, natural play area, canoe launch, rain garden, and parking for boating trailers. The Great Miami River Trail traverses the park for 0.7 miles.

Figure 3.5: Existing Land Use

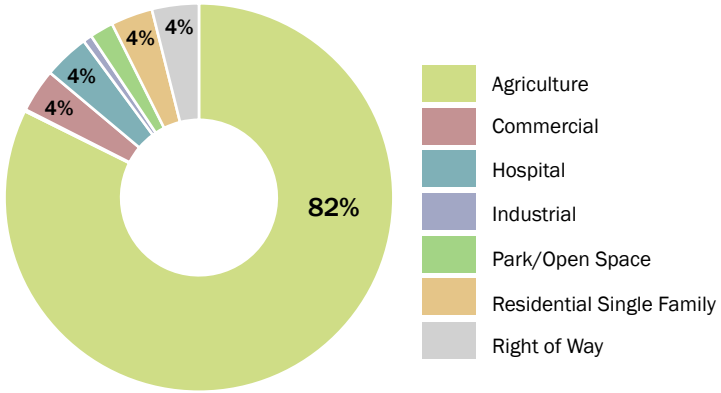
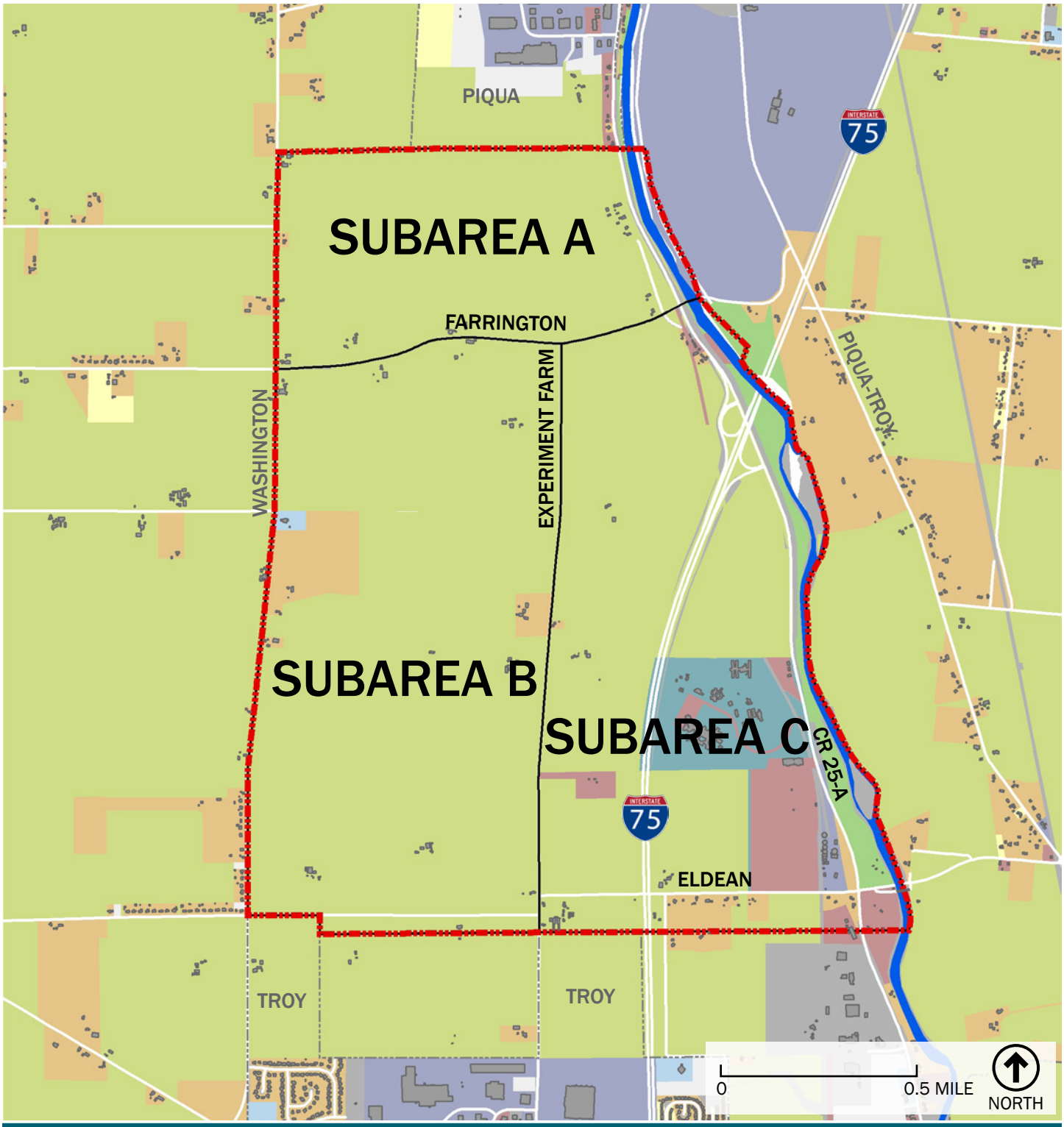


Table 3.1: Existing Land Use

Land Use	Total		Subarea A		Subarea B		Subarea C	
	Acreage	% of Total Land Use	Acreage	% of Total Land Use	Acreage	% of Total Land Use	Acreage	% of Total Land Use
Agricultural	2718	82	583	94	1,254	94	879	65
Church	5	0	0	0	5	0	0	0
Commercial	119	4	0	0	0	0	120	9
Hospital	125	4	0	0	0	0	125	9
Industrial	25	1	10	2	0	0	14	1
Park/Open Space	65	2	1	0	0	0	65	5
Residential Single-Family	115	4	2	0	72	5	41	3
Right of Way	129	4	21	3	1	0	107	8
Total	**3301**	**100**	**618**	**100**	**1,333**	**100**	**1351**	**100**

Exhibit 3.13: Existing Land Use

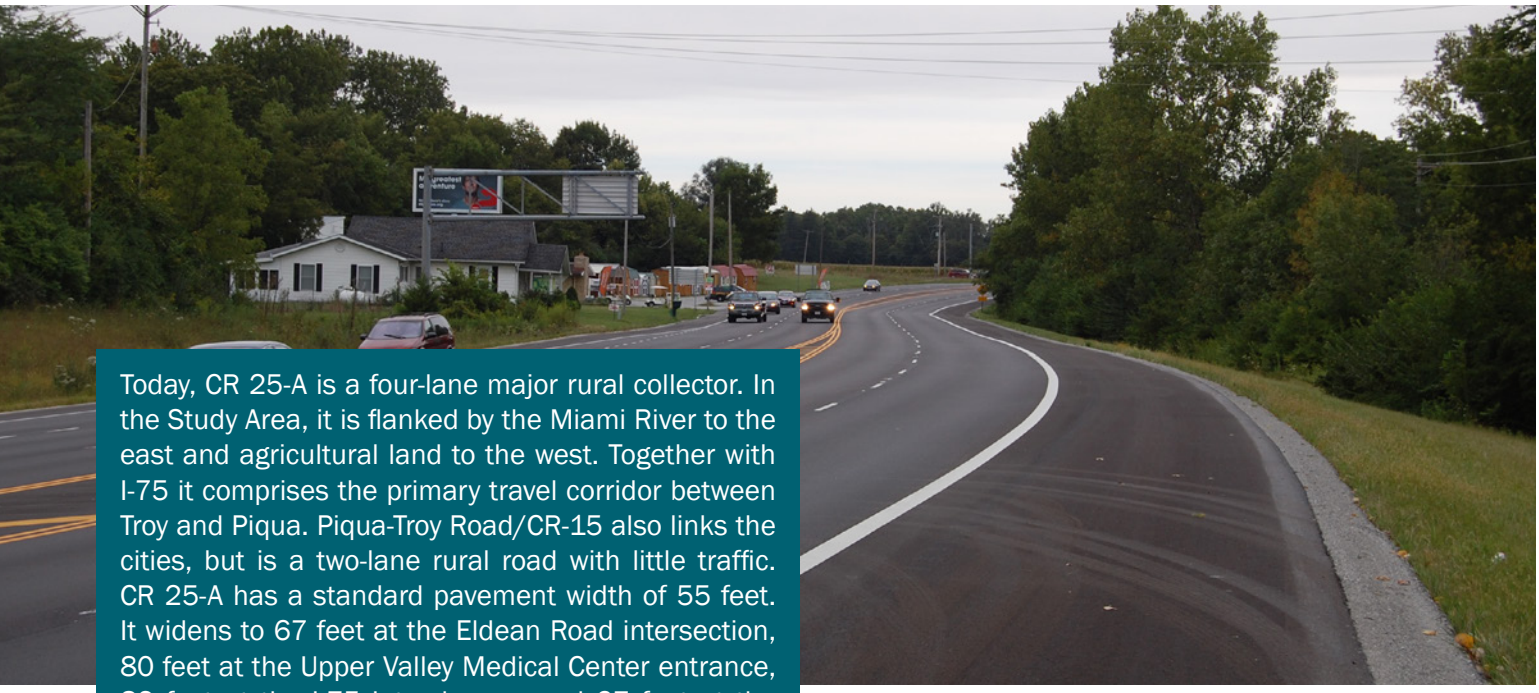


Public Realm

Transportation

Constructed in the early 20th Century, CR 25-A (**Figure 3.6**) was originally known as the Dixie Highway, part of a network of roads that connected the growing Midwestern Cities of Detroit, Chicago, Indianapolis, and Cincinnati to southern cities, including Chattanooga and Miami. In Ohio, I-75 parallels the original Dixie Highway route, and many segments of CR 25-A still bear that name. The route passes through major and minor urban areas, including Toledo, Lima, Sidney, Piqua, Troy, Dayton, and Cincinnati. Originally known as State Route 6 in the early 1920's, it was changed to US Route 25 in 1926. This moniker was retired upon completion of I-75 in the 1950's.

Figure 3.6: Looking North on CR 25-A at existing lane configuration



Today, CR 25-A is a four-lane major rural collector. In the Study Area, it is flanked by the Miami River to the east and agricultural land to the west. Together with I-75 it comprises the primary travel corridor between Troy and Piqua. Piqua-Troy Road/CR-15 also links the cities, but is a two-lane rural road with little traffic. CR 25-A has a standard pavement width of 55 feet. It widens to 67 feet at the Eldean Road intersection, 80 feet at the Upper Valley Medical Center entrance, 82 feet at the I-75 interchange, and 67 feet at the Peterson Road intersection.

Ohio Department of Transportation Assets

Miami County is part of ODOT's District 7, which includes seven other surrounding counties. ODOT is responsible for maintenance, construction, and other activities on all interstates, US, and state routes. I-75 is the only ODOT-owned route within the Study Area. It spans 1.5 miles from the southern Study Area boundary, curving slightly eastward and exiting at the Study Area's eastern boundary. This segment of I-75 is a four lane divided highway and includes four bridges (two over CR 25-A and two over the Great Miami River) and one partial cloverleaf interchange with CR 25-A. ODOT replaced all four bridges in 2017 and conducts ongoing maintenance activities, such as mowing, as needed.

Traffic Volumes

Level of service (LOS) is the designation typically used to describe how well a roadway operates. LOS ranges from "A" or perfect operation with little or no congestion to "F'" which is failing with high congestion. The ideal LOS is typically C/D or better in the peak hour of the day. Vehicle travel time and delay increase as LOS decreases. **Table 3.2** shows how the number of roadway travel lanes and traffic volumes are typically linked to level of service. The traffic volumes are given in annual average daily traffic (AADT) format. (For planning purposes, using these ranges is acceptable, but detailed traffic engineering studies should be performed for specific roadway projects to determine levels of service on the roadway segments.)

Table 3.2: Level of Service (LOS)

Type of Facility	Max LOS C AADT	Max LOS D AADT	Max LOS E AADT
2-Lane Road	10,000	10,000 – 15,000	15,000
4/5-Lane Facility	20,000	25,000 – 35,000	33,000 – 41,000
6/7-Lane Facility	30,000	35,000 – 45,000	50,000+

Table 3.3 lists characteristics of roads in the Study Area, including functional class, traffic volumes, and levels of congestion. I-75 carries 2.5 times more daily traffic than all other roads in the Study Area combined. Traffic is heavier south of the interchange with CR 25-A, with a total of 54,252 AADT in both directions. North of the interchange traffic volumes drop to 45,387. The next interchange traveling northbound is three miles away, at US-36 east of Piqua. The closest southbound interchange is also three miles away, at Main Street/SR-41 in Northwest Troy.

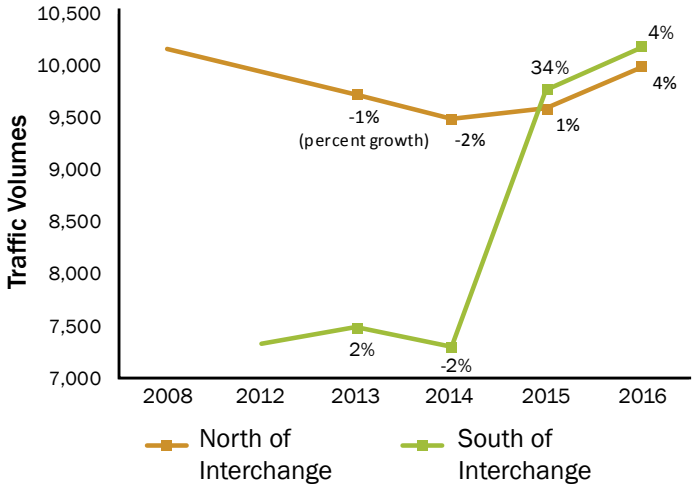
Table 3.3: Existing Roadway Inventory

Roadway	Functional Class (County)	Segments	Lanes	Shoulders	Speed Limit (mph)	AADT (2016)	Level of Congestion
CR 25-A	Major Rural Collector	Eldean Rd to I-75 Interchange	4	3-8 ft	45	10,182	Low
		I-75 Interchange to Farrington Rd	4	3-9 ft	45	N/A	
		Farrington Rd to Fox Dr	4	3 ft	45	9,993	Low
I-75	Interstate	Main St/SR-41 to CR 25-A Interchange (both directions)	4	12 ft	70	54,252	High
		CR 25-A Interchange to Piqua Rest Area (both directions)	4		70	45,387	High
I-75 Ramps	Interstate	I-75 N to CR 25-A	1	8 ft	N/A	3,543	Low
		I-75 S to CR 25-A	1	7 ft	N/A	1,380	Low
		CR 25-A to I-75 N	1	8 ft	N/A	824	Low
		CR 25-A to I-75 S	1	10 ft	N/A	3,802	Low
Farrington Rd (CR 31)	County-Designated Collector	Washington Rd to Experiment Farm Rd	2	3 ft	45	4,109	Low
		Experiment Farm Rd to CR 25-A	3		45	5,188	Low
Eldean Rd (CR 33)	Major Rural Collector	Experiment Farm Rd to Lytle Rd	2	None	45	4,319	Low
		Lytle Rd to CR 25-A	2		45	2,500	Low
		CR 25-A to Study Area boundary	2		45	4,604	Low
Experiment Farm Rd (CR 36)	County-Designated Collector	Eldean Rd to Farrington Rd	2	Gravel	45	3,024	Low

Traffic volumes vary widely on the entrance and exit ramps at the I-75/CR 25-A interchange. The busiest ramp is the entrance ramp from CR 25-A to I-75 S, which carries 3,802 AADT; followed by the exit ramp from I-75 N to CR 25-A (3,543 AADT); the exit ramp from I-75 S to CR 25-A is the third busiest (1,380 AADT); and the entrance ramp from CR 25-A to I-75 N carries the least amount of traffic (824 AADT). These numbers correspond to the mainline traffic volumes described above, contributing to heavier traffic on I-75 south of the interchange, in both directions. CR 25-A has the second highest volumes in the Study Area. It carries roughly the same amount of traffic both north (10,182 AADT) and south (9,993 AADT) of the interchange.

Figure 3.7 shows that traffic volumes on CR 25-A have shifted within the past decade. In 2012, CR 25-A north of the I-75 interchange carried 2,613 more vehicles daily than the segment south of the interchange to Eldean Road. In 2015, traffic south on this segment surpassed volumes north of the interchange and has continued to increase.

Figure 3.7: Historic Traffic Volumes



Farrington Road between Experiment Farm Road and CR 25-A has the next highest volumes, at 5,188 AADT, dropping to 4,109 east of Experiment Farm Road. Traffic volumes on Eldean Road are similar, with 4,319 AADT between Experiment Farm Road and Lytle Road, dropping to 2,500 AADT between Lytle Road and CR 25-A, and 4,604 AADT between CR 25-A and Piqua-Troy Road. Experiment Farm Road has the lowest overall volumes in the Study Area, at 3,024 AADT, from Eldean Road to Farrington Road. None of the surface streets in the Study Area experience significant congestion.

Figure 3.8: CR 25-A at the I-75 interchange

Crashes

Crash data was obtained from the MVRPC and analyzed for trends in the Study Area. From 2011 to 2013 there were 192 crashes in the Study Area. Fifty percent of these crashes occurred on I-75 and 21 percent occurred on CR 25-A. The remainder occurred on other roads in the Study Area. This analysis focuses on the crashes that occurred on CR 25-A and at intersections with CR 25-A.

CR 31 Intersection

The CR 31/CR 25-A intersection is a signal-controlled four-way intersection approximately 1,300 feet north of the I-75 interchange. To the west of CR 25-A, CR 31 is named Farrington Road; east of intersection it is named West Peterson Road. Dedicated left turn lanes serve both directions on CR 25-A and a dedicated right turn lane is located on the Farrington Road leg of the intersection. The intersection is 120 feet west of the Great Miami River and there is a bridge shortly before the intersection on the approach from W Peterson Road. On CR 25-A there were 11 crashes at or on the approach to (within 300 feet) this intersection from 2011 to 2013. Seven crashes (63 percent) were animal collisions. The remaining crashes were a result of failure to yield during left turn movements through the intersection, which caused one injury. Six crashes (54 percent) occurred in the dark and two crashes (18 percent) occurred during wet conditions.

There were two crashes on W Peterson Road approaching the intersection. Both crashes occurred in daylight hours during dry conditions. One crash was a rear end collision and one was an animal collision. Neither resulted in injury.

I-75 Interchange

The I-75/CR 25-A interchange is a partial cloverleaf with four ramp entrances and exits on the west side of CR 25-A. Nine crashes occurred at or near the interchange from 2011 to 2013. Three crashes (33 percent) occurred during dark or dusk hours. Only one crash occurred under wet conditions. Five (55 percent) of the crashes were angled, where a car making a turn crashes into the side of a car that is going straight, and two (22 percent) were animal collisions. One was a rear end collision and one was a sideswipe, both of which resulted in injuries. Contributing factors include failure to yield (two crashes), following too close (two crashes), red light running (two crashes), and no driver or other driver error (three crashes), meaning there was no error by the driver to be found or the crash type is not classified within ODOT's list of contributing factors for the driver(s).

CR 33/Eldean Road Intersection

The CR 33/CR 25-A intersection is a signal-controlled four-way intersection. Dedicated left turn lanes serve both directions on CR 25-A. Three crashes occurred at or on the approach to the intersection on CR 25-A from 2011 to 2013, all northbound. Two crashes occurred at dark and one during the day. One nighttime crash occurred in snowy weather with a fixed object and resulted in an injury. The other nighttime crash was an animal collision. The daytime crash was due to failure to yield during a left turn.

On Eldean Road two crashes occurred on the eastbound approach to the intersection, one during the day and one at night. Both crashes occurred under dry conditions. The daytime crash was with a fixed object and the nighttime crash was an animal collision. Neither crash resulted in an injury.

Non-Intersection Crashes

The 17 remaining crashes on CR 25-A did not occur at or on the approach to an intersection. Six crashes (35 percent) occurred during daylight. The other 11 crashes (65 percent) occurred during dark, dusk, or dawn hours. Two crashes (12 percent) occurred during wet conditions and one crash occurred during snowy conditions. Ten crashes (59 percent) were animal collisions, all but one were at night. Five of these crashes (50 percent) involved vehicles with no lights on. The remaining crashes were due to rear end collisions (three crashes), failure to yield during left turns (two crashes), one fixed object, and one sideswipe.

Freight

There are no freight facilities in the Study Area, although one truck terminal is located just south of the boundary on CR 25-A. The road also receives freight traffic from I-75 (**Figure 3.9**). One inactive rail line owned by CSX travels through the Study Area. Entering from the southeast corner west of the CR 25-A/Eldean Road intersection, it travels north across the Upper Valley Medical Center and through an agricultural lot before terminating south of the I-75/CR 25-A interchange. This line used to serve the grain elevator at Eldean Road. It is a spur off of the Class A mainline that runs north-south along the I-75 corridor.

Transit Network

Miami County offers door-to-door, on-demand transit service throughout the county to all residents. For an additional fee, trips are also offered across the county line to special destinations (Cities of Vandalia, Huber Heights, and two Greater Dayton Regional Transit Authority bus stops). The service operates six days a week and charges a flat rate of four dollars for a one-way trip. Twenty-four hour advance reservations are required for any service. There is no fixed-route transit service in Miami County.

Ride Hailing

All of Miami County is within both Uber's and Lyft's Dayton coverage area. A basic fare between Troy and Piqua is $12-16 for Uber and $17 for Lyft. Both ride hailing services are available 24 hours a day, seven days a week.

Figure 3.9: Freight traffic exiting I-75 onto CR 25-A

Active Transportation Network

There are no on-street bicycle facilities in the Study Area. There are bike lanes in either direction on CR 25-A in Piqua city limits, but they terminate inside the southern corporation limit and do not extend into the Study Area. CR 25-A does feature wide shoulders that could accommodate bicyclists in the Study Area, but they are not marked or designated for such use. Traffic speeds on the road may cause discomfort and safety concerns for bicyclists using the shoulder. The remaining roads in the Study Area have narrow shoulders that could not accommodate bicyclists. There are no sidewalks in the Study Area. No pedestrians were observed on any roads during field observations.

The Study Area has a strong asset for attracting bicycle and pedestrian traffic in the form of the Great Miami River Trail. The trail also functions as Ohio Bicycle Route 25. It is 11 to 13 feet wide with an asphalt surface and travels 82 miles from its northern terminus in Piqua to its endpoint in Fairfield, a suburb of Cincinnati. It spans three miles along the Study Area's eastern boundary. The trail crosses from the east to the west bank of the Great Miami River via the Robert J. Shook Memorial Bikeway Bridge just north of the I-75/CR 25-A interchange. At Eldean Road, a newly installed crosswalk with accessible pedestrian signals carries the trail across CR 25-A. Continuing south, a recently completed section of the trail fills in a gap between the Eldean Road/CR 25-A intersection and Lytle Road north of Troy, allowing for continuous off-road bicycle and pedestrian travel between Troy and Piqua.

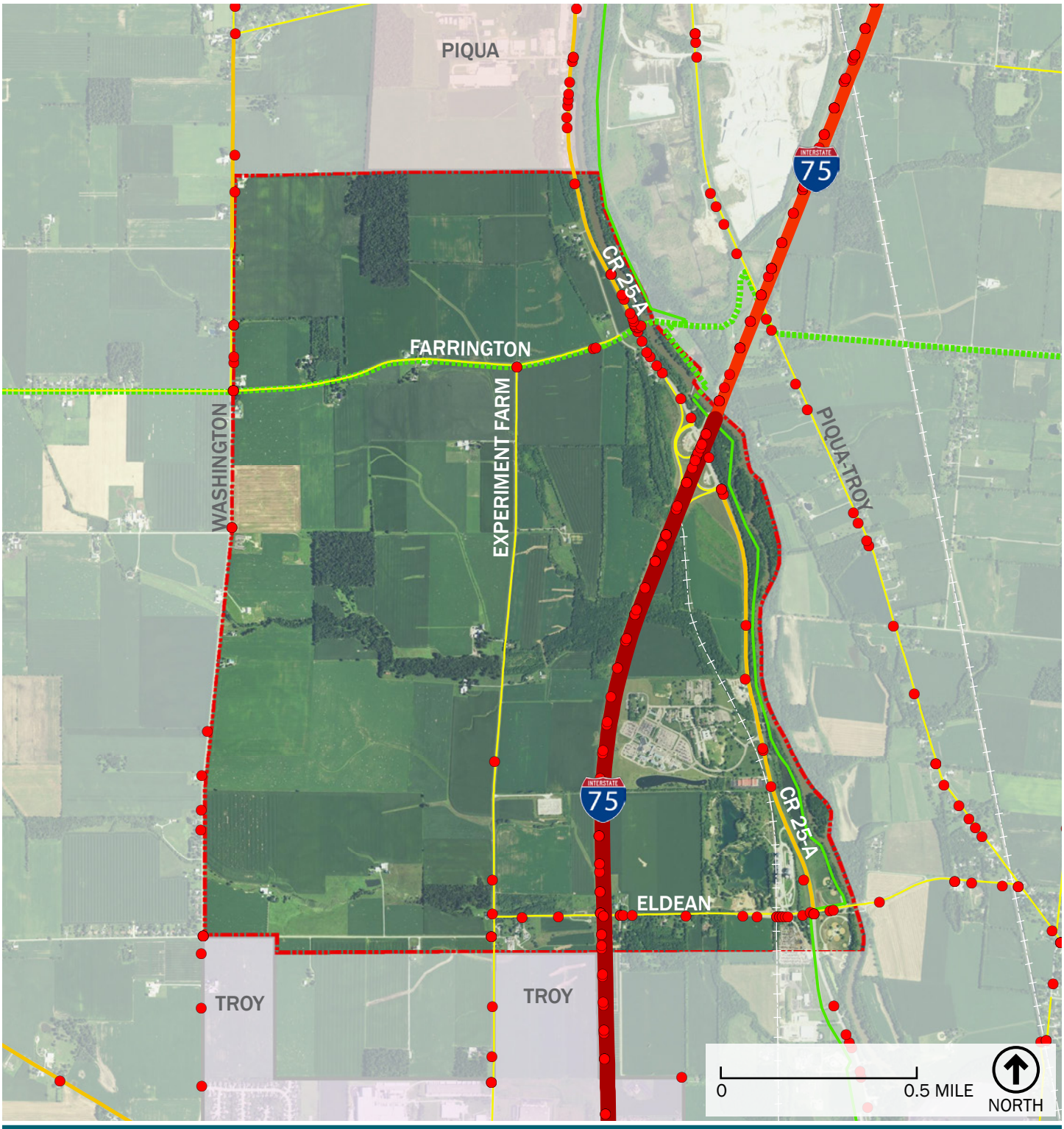
There are three trailheads in the Study Area (**Figures 9-12**): Farrington Reserve, accessible from W Peterson Road; Twin Arch Reserve on CR 25-A, across from the Upper Valley Medical Center; and Concord Township Covered Bridge Park, accessible from Eldean Road and CR 25-A. In 2016 an average of 126 daily trail users passed through the Twin Arch trailhead, with an estimated annual total of 46,289 users (MVRPC). It had the ninth highest volume of trail users out of 29 count locations throughout the region. **Exhibit 3.14** shows additional information about the Study Area's transportation network.

Trail Network

The Great Miami River Trail is wheelchair accessible and complies with Americans with Disabilities Act standards. During winter months, it serves cross country skiing. One MVRPC-proposed trail would cross through the Study Area, if built. The Cardinal Trail would run east-west along Farrington/Peterson Roads, connecting with the Great Miami River Trail. The 20 mile trail would connect the Village of Covington, west of Piqua, and the community of Lena, on the eastern edge of the County.

Figures 10-13: Great Miami River Trail access

Exhibit 3.14: Traffic Volumes

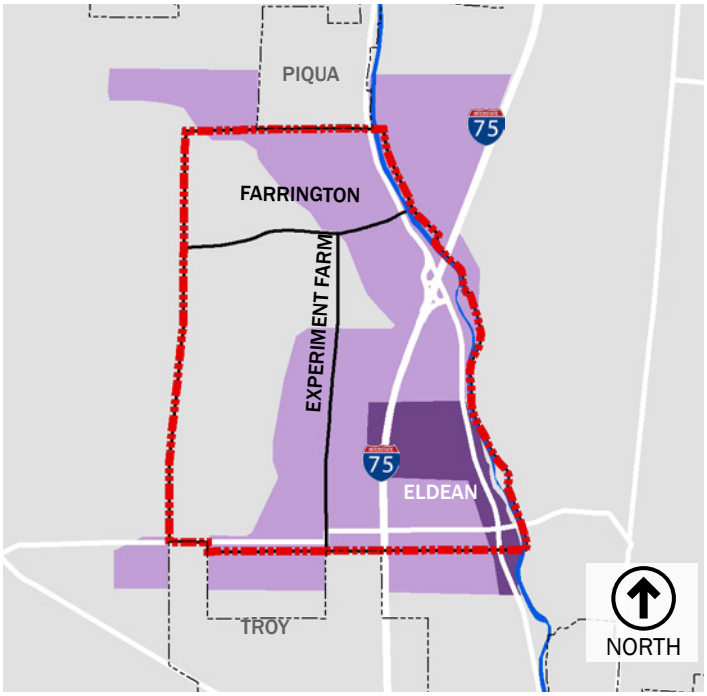


Sanitary Sewer and Water

The availability of water, sanitary sewer, and drainage facilities has a direct influence on the location and timing of development. As noted in the Natural Environment section (and because of the area's proximity to the Great Miami River), the entire Study Area is within the Great Miami River drainage basin. This makes the extension of sanitary sewer services possible without the need for installing pump or lift stations due to changes in topography.

There are three jurisdictions – Miami County, City of Troy, and City of Piqua – that provide sewer and water service either within or near the Study Area. Established in the early 1970's, the County operates and maintains the water and wastewater systems and serves 2,430 customers in Bethel, Concord, Monroe and Springcreek Townships along with the Upper Valley Medical Center. The County controls the water supply and wastewater treatment plant that is located on the Upper Valley Medical Center site. The water supply is distributed through an eight-inch water line and the treatment plant is served by an eight-inch sewer line. The nearest sanitary sewer line and water line originating from the City of Troy extend along Experiment Farm Road and terminate at the City of Troy corporate limits.

Exhibit 3.15: Water & Sewer Service



Water & Sewer Available with Extension
Water & Sewer Available
Water & Sewer Not Likely in the Near Future

Exhibit 3.15 identifies the availability of water service and sewer service within and adjacent to the Planning area as identified in the 2006 Comprehensive Plan. To have access to water and/or sewer service, "available" means that the service must extend into the planning area itself or along streets bordering the planning area. For the purposes of the 2006 Plan, an area is said to have utilities "available with extension" if water or sewer lines are no further than 1,000 feet away from existing utilities and there are no significant barriers to such extensions.

Most of the area bounded by I-75, the Great Miami River, and the City of Troy corporate limits is served by Miami County sewer and water (**Exhibit 3.15**). Sanitary sewer serving this area ties into City of Troy's system like the other areas served by the County.

The closest access to water is a 12-inch line at the southeast corner of the Medical Center but can be extended at least 2,000 feet northward to serve the Brun property. Another 12-inch line can also be extended 7,000 feet west from the southern edge of the hospital site to loop and connect with an existing City of Troy flush valve west of I-75. Limited water and sewer service extensions are possible from the City of Piqua and could be extended southward along CR 25-A or Washington Road to serve the remaining portion of the Study Area.

The entire Study Area also lies within the Urban Service Boundary as defined by the Miami County Comprehensive Plan 2006 Update. The Urban Service Boundary "is drawn around those areas or locations that presently offer or are expected to have water and sewer services within this study's (2006 Comprehensive Plan) time frame."

Utilities are discouraged from being extended outside the Urban Service Boundary with the only exceptions being those necessary to protect public health in existing developments. The boundary is also meant to minimize the expansion of urban development into an area with prime agricultural land.

Electricity, Gas, Telephone, and Solid Waste Services

Private utility companies operate most of the public utilities other than the county and 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 towers. The principal providers of traditional public utilities include:

- **Dayton Power and Light Company:** Dayton Power & Light Company (DP&L) is a subsidiary of DPL Inc. DP&L delivers electricity to 500,000 customers in 24 counties in West Central Ohio. A 10.6-acre substation is located on the east side of Experiment Farm Road and approximately 0.5 miles north of Eldean Road. A major transmission line runs eastward from the substation and northward along the west side of I-75. It then crosses I-75 and extends eastward 0.5 miles at the northern edge of the Upper Valley Medical Center where it turns northward again for over a half mile until it crosses east over 25-A and the Great Miami River.
- **Vectren Corporation:** Vectren Corporation supplies natural gas service in the area as well as the rest of Miami County. This diversified energy and applied technology company serving 953,000 customers in Ohio and Indiana. Vectren offers energy conservation and planning services to customers at its Troy office on Experiment Farm Road.
- **Verizon:** Verizon provides telephone service in the greater Miami Valley area. Verizon offers high-speed data transmission over fiber optic telephone lines. Also provided are network consulting services, data consulting services, architects and builder's service/building wiring, and sales and service on both leased and direct sales telephone systems.
- **Time-Warner:** Time-Warner provides cable TV and broadband telecommunications service in Troy and surrounding counties. Service is generally available in most residential areas. Rural areas and industrial parks with few potential customers often do not have a nearby cable line available.
- **Solid Waste/Miami County:** The Miami County Sanitary Engineering Department takes care of solid waste and recycling with the County's solid waste facility located directly south of the planning area on the west side of 25-A.

Exhibit 3.16: Proposed Upper Valley Medical Center 12" Waterline Loop Extension

Regulatory Environment

Zoning

Miami County administers zoning in eight of its twelve County townships which include both Washington and Concord Townships, the only townships in the Study Area. **Exhibit 3.17** shows the existing zoning districts within the Study Area. General Agriculture, the A-2 zoning district, is the most prevalent category and covers over 83 percent of the Study Area. The A-2 zone permits agriculture, one-family dwellings, parks and recreation, and agriculturally related uses. This district is followed in land area by the F-1 Floodplain District making up nearly nine percent of the Study Area. Agriculture, parking lots, recreational facilities and temporary uses are the primary uses permitted in this district.

The only industrial district (I-1 Light Industrial) in the Study Area is a 110-acre site found directly north of the Upper Valley Medical Center. The intent of the I-1 District is to "provide for industrial uses with limited objectionable external effects in areas that are suitable for industrial development by reason of location, topography, soil conditions, and the availability of adequate utilities and transportation systems" (Miami County Zoning Resolution). As one of the least restrictive zoning categories, the I-1 District allows a broad range of non-residential uses, from research and development to fabrication and processing.

The entire 3.1 percent of the Study Area zoned as multi-family is found at the Upper Valley Medical Center. Even though there is a Long-Term Care (residential) Center on the site, many of the medical uses on the site are non-residential. These uses have been permitted as conditional uses which requires approval from the Board of Zoning Appeals. There are no specific conditional use standards that apply specifically to medical facilities like the Upper Valley Medical Center. The County currently does not have an institutional zoning district which would be the typical zoning category for a medical facility.

The most prominent residential district in the Study Area (0.7 percent of the total area) is the R-1AAA District, which allows single-family residences, churches, and incidental agriculture. This zoning category is found mostly along the frontage of existing county and township roads. A single, isolated 0.9-acre parcel is located on the northeast corner of the Farrington and Washington Road intersection and includes a single-family residence on the site.

Figure 3.14: Existing Zoning

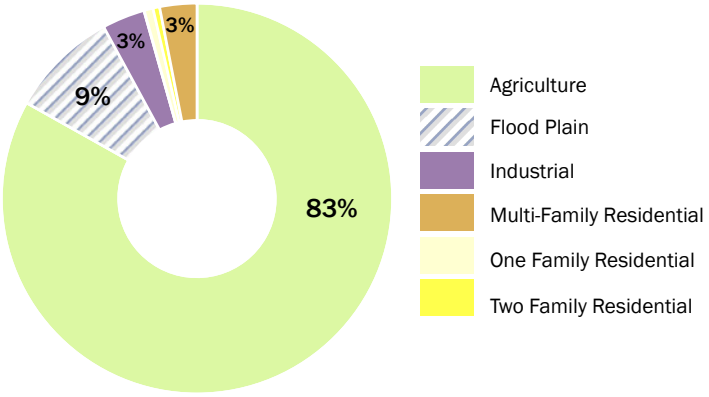
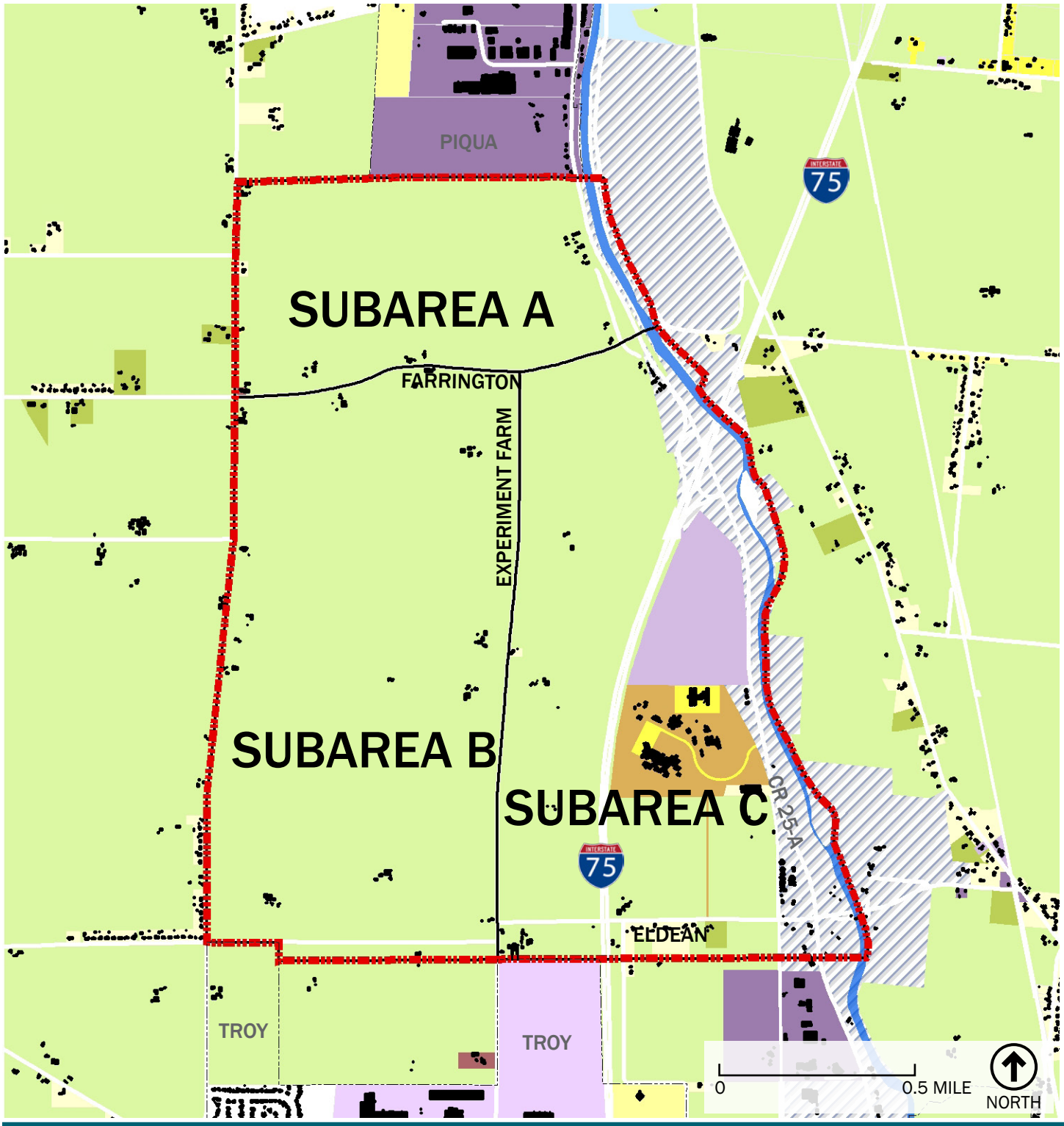


Table 3.4: Existing Zoning

Zoning within Study Area	Total		Subarea A		Subarea B		Subarea C	
	Acreage	% of Total Land Use	Acreage	% of Total Land Use	Acreage	% of Total Land Use	Acreage	% of Total Land Use
Agriculture (A-1/A-2)	2745.2	83.2%	586.2	94.9%	1,332.5	100.0%	826.5	61.2%
Flood Plain (F-1)	294.9	8.9%	28.7	4.6%	0.0	0.0%	266.2	19.7%
Industrial (I-1)	116.8	3.5%	0.0	0.0%	0.0	0.0%	116.8	8.6%
Neighborhood Business (B-3)	0.9	0.0%	0.9	0.1%	0.0	0.0%	0.0	0.0%
One Family Residential (R-1AAA)	24.3	0.7%	2.0	0.3%	0.0	0.0%	22.3	1.6%
Two Family Residential (R-2)	18.1	0.5%	0.0	0.0%	0.0	0.0%	18.1	1.3%
Multi-Family Residential (R-3)	101.2	3.1%	0.0	0.0%	0.0	0.0%	101.2	7.5%
Total	3301.4	100.0%	617.8	100.0%	1332.5	100.0%	1351.1	100.0%

Exhibit 3.17: Existing Zoning



Historic Resources

The CR 25-A Study Area is rich in historic resources. The county road is part of the historical Dixie Highway, and the Study Area is home to two projects on the National Register of Historic Places, the Miami and Erie Canal, as well as an important agricultural heritage.

Miami and Erie Canal

CR 25-A passes through both Troy and Piqua, Ohio. In the past, Piqua was previously near a Miami Indian village named Pickawillany and boasts significant history from Ohio's canal era. The Miami and Erie Canal, which partially still exists and runs parallel to the Study Area along the east side of CR 25-A, was once one of Ohio's most important canals. The Miami and Erie Canal cost roughly twelve thousand dollars per mile to finish, and nearly bankrupted the state government, but they allowed Ohioans to prosper in the 1830s all the way to the Civil War. By the 1850s, however, canals were losing business to the railroads, and the Miami and Erie Canal is no longer in operation (Ohio History Connection).

Eldean Covered Bridge and Twin Arch Stone Culvert

Both the Eldean Covered Bridge and Twin Arch Stone Culvert are recognized by the federal government as worthy of preservation for their significance in American architecture and engineering. Eldean Covered Bridge, one of only two covered bridges remaining in the county, is located North of Troy across the Miami River on Eldean Road (**Figure 3.15**). The covered bridge was once the second longest of its kind in Ohio, and is still the longest "Long Truss" covered bridge in the nation. Twin Arch Stone Culvert is also located North of Troy within the Study Area at CR 25-A. The culvert was historically used for both transportation and water-related functions, but is no longer in use. The Twin Arch Stone Culvert was a unique segment of the Ohio canal system.

Agricultural Heritage

In additional to its historic canal and bridges, the Study Area is rich in agricultural heritage. The CR 25-A Study Area consists of acres of prime farmland and historical barns. South of Piqua, on Farrington Road, there is a noteworthy octagon barn with white vertical siding, green metal roof, and small louvered cupola. Octagon barns were built in numbers in the 1880s because the circular interior layout was believed to be more efficient. These claims of efficiency were later found to be exaggerated, and it never became the standard barn.

Exhibit 3.18: Historic Bridge Locations

“The CR 25-A Study Area is rich in historic resources.”

Figure 3.15:

Eldean Covered Bridge

This bridge was given National Historic Landmark designation by the U.S. Department of Interior in 2016, which means it is a nationally significant historic place because it possesses exceptional value and quality in illustrating the heritage of the United States (Miami County). Historically, this bridge was used for transportation purposes, but now contributes to the Miami County landscape. Visitors of the bridge can still travel through the historic landmark by both foot and car.

Figure 3.16:

Twin Arch Stone Culvert

In 1837, Twin Arch Stone Culvert was built as an extension of the original Miami Canal. It was designed to allow a small ditch to flow underneath the canal and empty into the Great Miami River (State History Publications). The culvert is one of two twin arches remaining on the Miami and Erie canal. The second arch is located near the small town of Texas in Henry County, Ohio. Today, the culvert is a highlight of the Twin Arch Reserve (right), which is a Miami County Park District facility that sits along the Great Miami River (Miami County Park District).

Figure 3.17:

Agricultural Heritage

Octagon barns, like the one found on Farrington Road, were built in numbers in the 1880s because the circular interior layout was believed to be more efficient. These claims of efficiency were later found to be exaggerated, and it never became the standard barn (Auer).

Population & Households

Population is the simplest measure we have for evaluating past and future growth of an area. While it does not tell the entire story of a city or county, it is a good starting point for assessing where we have been and where we are headed. To gain a better understanding of population and household trends, we utilized year 2017 estimates and year 2022 projections from Esri, an accredited third-party provider of detailed demographic data for all geographies. To project data beyond the year 2022, we also utilized the Miami Valley Regional Planning Commission's (MVRPC) Traffic Analysis Zone (TAZ) data in conjunction with the Esri data to establish long-range population projections out to the year 2040. Traffic Analysis Zones are established by the Ohio Department of Transportation for the purposes of organizing data for transportation studies. The TAZ data is first tabulated using 2010 Census Block Group data and then long-range population, household and employment forecasts are established at the county level for the entire planning area (Greene, Miami and Montgomery Counties as well as northern Warren County) based on input from their member agencies regarding the anticipated changes in land use. After the 2040 projections are established for each county, the data is disaggregated to the TAZ level and adjustments are made based on a variety of factors including historic population trends, planned developments and local land use plans.

The population within the Study Area (**Table 3.5**) is currently just under 230 people who live in single-family homes, farm homesteads, or reside at the Koester Pavilion nursing care facility on the Upper Valley Medical Center campus. Given the rural nature of the Study Area and the emphasis on agriculture, it is not surprising that the Study Area has only seen an increase of 12 people and 8 households since the 2000 Census (**Table 3.6**). Bordering the Study Area directly to the north and south are the cities of Piqua and Troy. Although Troy saw almost 1.5 percent annual population and household growth between the 2000 and 2010 Censuses, that rate has slowed to about 0.5 percent between 2010 and 2017. Piqua's annual rate of growth has been slower at 0.4 percent annually. Both cities are expected to experience very modest growth over the next 23 years, which is consistent with growth rates within rural areas throughout Ohio and the Midwest.

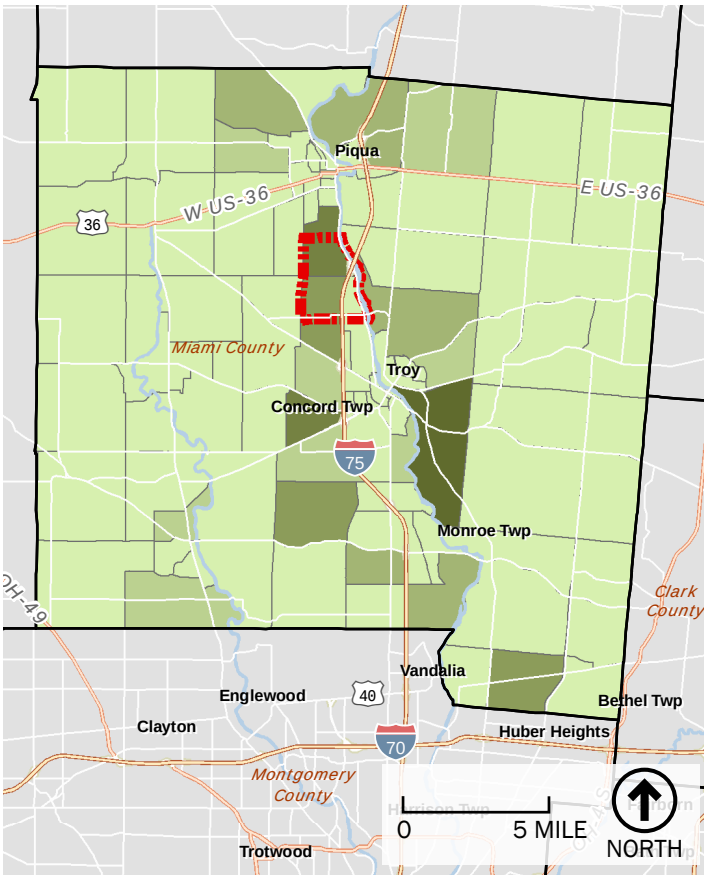
Table 3.5: Total Population 2000-2040

	Study Area		Troy		Piqua		Miami County	
	Population	Annual % Change	Population	Annual % Change	Population	Annual % Change	Population	Annual % Change
2000 (Census)	216	-	21,999	-	20,738	-	98,868	-
2010 (Census)	222	0.28%	25,058	1.39%	22,522	0.86%	102,506	0.37%
2017 (Estimated)	228	0.39%	25,868	0.46%	21,063	-0.93%	106,439	0.55%
2022 (Projected)	230	0.18%	26,511	0.50%	21,449	0.37%	109,026	0.49%
2040 (MVRPC Adjusted)	246	0.39%	27,755	0.26%	22,205	0.20%	115,579	0.33%

Table 3.6: Total Households 2000-2040

	Study Area		Troy		Piqua		Miami County	
	Households	Annual % Change	Households	Annual % Change	Households	Annual % Change	Households	Annual % Change
2000 (Census)	30	-	8,920	-	8,263	-	38,437	-
2010 (Census)	36	2.00%	10,353	1.61%	8,318	0.07%	40,917	0.65%
2017 (Estimated)	38	0.79%	10,694	0.47%	8,528	0.36%	42,484	0.55%
2022 (Projected)	40	1.05%	10,963	0.50%	8,685	0.37%	43,519	0.49%
2040 (MVRPC Adjusted)	46	0.83%	11,482	0.26%	8,985	0.19%	46,132	0.33%

Exhibit 3.19: Population Growth 2010-2014



Within Miami County the population is expected to grow by around 0.4 percent annually between now and 2040 according to projections derived from Esri and estimates from the Miami Valley Regional Planning Commission's Long-Range Transportation Plan (LRTP). This growth rate is slightly lower than Greene County's projected 0.6 percent annual growth rate and higher than Montgomery County, which is projected to lose population. The area that is expected to grow the fastest in the county is along the State Route 202 corridor east of Troy. Another area of the county where MVRPC expects to see growth is west of I-75 between the southern end of Troy and the northern end of Piqua, which encompasses most of the County Route 25-A Study Area. The two Traffic Analysis Zones that comprise this area are projected to increase in population by around 73 people combined. Based on past and current land development patterns in this area, we believe that this very modest population growth will most likely occur because of infill development within the two cities rather than as the result of new residential development within the unincorporated area.

Exhibit 3.19 illustrates the population growth projected from 2010 to 2040 at the Traffic Analysis Zone level.

Population By Age

In terms of population distributed by age, the Study Area, the two cities and the county all have a fairly even distribution, although the Study Area has a much higher percentage of the population that is age 70 or older at 20.6 percent, nearly double that of the county or the two cities (**Table 3.7**). This is not surprising given that the Koester Pavilion Nursing Care Facility is located within the Study Area. The median age has gone up between 2010 and 2017 across all geographies, with Troy's median age increasing by the largest margin at 2.3 years. The median age within the Study Area is over two years higher than the county as a whole.

Figure 3.18: Population Distribution by Age 2010-2017

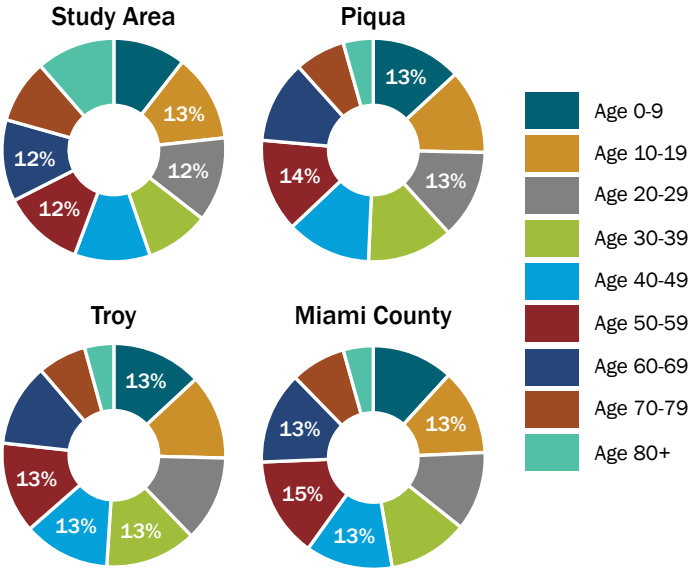
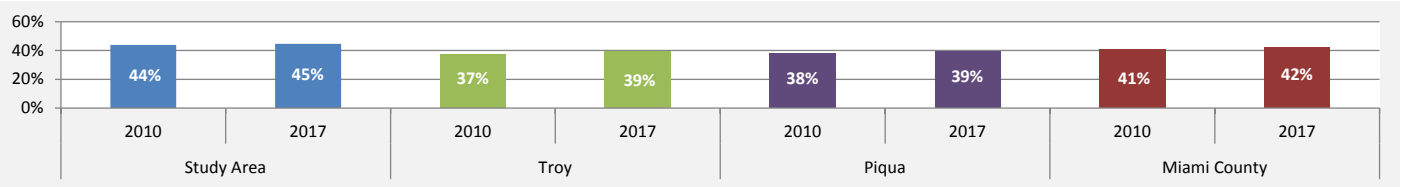


Table 3.7: Median Age



Labor Force & Unemployment

The Bureau of Labor Statistics provides monthly employment figures for every county in the Unites States as well as cities with population over 25,000 people. **Tables 3.8-9** illustrate these figures for the City of Troy, City of Piqua, Miami County, and Shelby County. Although Shelby County has roughly half the population of Miami, we chose to include it because the I-75 corridor runs through it. We have also included the Montgomery County and national unemployment rates for comparative purposes.

In terms of the labor force, the Cities of Troy and Piqua, as well as the two counties have experienced annual fluctuations since 2010. Although all four geographies have seen an overall decrease in their labor forces since 2010, all but the City of Piqua have experienced a slight increase since 2012. This pattern follows along with population trends in the area – little population growth coupled with an aging population means that more workers are retiring at a faster rate than the population can replace them.

Unemployment within the City of Troy is currently below the county and national average at 4.2 percent and has remained steady over the past three years. This can be primarily attributed to a number of large, steady employers in Troy and nearby Tipp City. Both Miami and Shelby counties experienced a drop in the unemployment rate every year from 2010 to 2016, but saw a slight uptick in 2017. The similarities between Miami and Shelby counties in terms of unemployment over the years are not surprising given their heavy reliance on the Manufacturing and Logistics industries and their strategic position along the I-75 corridor.

Figure 3.19: Miami County Agricultural

Table 3.8: City of Troy, City of Piqua, Miami County & Shelby County Number of People in the Labor Force 2010-2017

	2010	2011	2012	2013	2014	2015	2016	2017*	Growth Rate % 2010-2017
City of Troy	13,889	13,654	13,391	13,287	13,333	13,450	13,514	13,636	-2%
City of Piqua	10,418	10,194	9,916	9,446	8,976	9,235	9,163	9,226	-11.4%
Miami County	54,400	53,466	52,314	51,920	52,016	52,371	52,576	53,130	-2%
Shelby County	24,971	24,239	23,834	23,788	23,628	24,067	23,987	24,177	-3%

Table 3.9: City of Troy, Miami County, Shelby County & Montgomery County Unemployment Rate 2010-2017

	2010	2011	2012	2013	2014	2015	2016	2017*
City of Troy	10.4%	8.4%	6.8%	6.8%	5.1%	4.2%	4.2%	4.2%
Miami County	11.1%	9.1%	7.3%	7.2%	5.4%	4.4%	4.3%	4.5%
Shelby County	12.4%	9.7%	7.3%	6.7%	5.1%	4.3%	4.1%	4.3%
Montgomery County	11.4%	9.7%	8.2%	8.3%	6.1%	5.0%	4.8%	5.2%
United States	9.6%	8.9%	8.1%	7.4%	6.2%	5.3%	4.9%	4.4%

*Data Through August

**Unemployment rates for the City of Piqua are not available

County Employment By Industry

According to the Bureau of Labor Statistics' employment estimates for the first quarter of 2017, the industry in Miami County with the highest employment is Manufacturing with 10,508 employees. This is more than double the employment in the second highest sector – Retail Trade. Manufacturing is also the second fastest growing industry in the county since 2013 only behind the Transportation and Warehousing sector. Manufacturing jobs in Miami County pay the third highest on average at $53,456 annually, only trailing behind Public Administration and Finance and Insurance jobs, but Manufacturing jobs also have the third lowest wage growth in the county since 2013 out of the top ten sectors. **Tables 3.10-11** illustrate the overall employment growth and wage growth for the top ten employment sectors in Miami County.

Table 3.10: Miami County Employment by Industry 2013-2017

Industry	2013	2014	2015	2016	2017 (Quarter 1)	Total Growth 2013-2017	Growth Rate 2013-2017
Manufacturing	9,928	9,952	10,417	10,553	10,508	580	5.8%
Retail trade	4,734	4,850	4,849	4,890	4,797	63	1.3%
Health care & social assistance	4,076	3,944	4,100	4,128	4,177	101	2.5%
Accommodation & food services	3,758	3,885	3,919	3,814	3,824	66	1.7%
Transportation & warehousing	2,117	2,205	2,153	2,225	2,307	190	9.0%
Administrative & waste services	2,429	2,520	2,474	2,335	2,154	-275	-11.3%
Construction	1,473	1,626	1,521	1,621	1,505	32	2.2%
Other services, except public administration	1,271	1,296	1,296	1,260	1,273	2	0.1%
Public Administration	1,087	1,117	1,136	1,137	1,140	53	4.8%
Finance & insurance	720	733	695	703	692	-28	-3.9%

Table 3.11: Miami County Average Annual Wages by Industry 2013-2017

Industry	2013	2014	2015	2016	2017 Q1	Total Growth 2013-2017	Growth Rate 2013-2017
Manufacturing	$49,536	$50,379	$51,006	$51,731	$53,456	$3,920	7.9%
Retail trade	$24,998	$25,391	$26,932	$27,136	$27,456	$2,458	9.8%
Health care and social assistance	$36,434	$37,365	$37,646	$40,087	$38,532	$2,098	5.8%
Accommodation and food services	$13,213	$13,424	$14,101	$14,916	$15,028	$1,815	13.7%
Transportation and warehousing	$43,999	$45,205	$47,795	$47,418	$44,044	$46	0.1%
Administrative and waste services	$30,774	$30,325	$32,498	$33,666	$36,530	$5,756	18.7%
Construction	$44,850	$47,715	$49,100	$49,685	$52,442	$7,592	16.9%
Other services, except public administration	$22,312	$22,907	$29,028	$26,573	$32,968	$10,656	47.8%
Public Administration	$49,753	$52,943	$54,372	$56,519	$59,037	$9,284	18.7%
Finance and insurance	$45,634	$47,261	$51,360	$52,073	$55,432	$9,798	21.5%

Major Employers

The top ten major employers in Miami County are comprised of seven manufacturing firms, two logistics firms and one healthcare company – the Upper Valley Medical Center. All of the major employers, except for ConAgra Foods in Troy, are located within less than one mile of I-75. Outside of Miami County, there are several other large employment centers clustered around the I-75 corridor in northern Montgomery County and Shelby County. The largest employer along the corridor is the American Honda Motor Company, which employs over 3,400 people between its engine plant in Anna (Shelby County) and its Midwestern Consolidation Center in Troy. **Table 3.12** summarizes the top ten employers in Miami County followed by a map of the top employers along the corridor between I-70 and northern Shelby County.

Exhibit 3.20: Major Employer Map

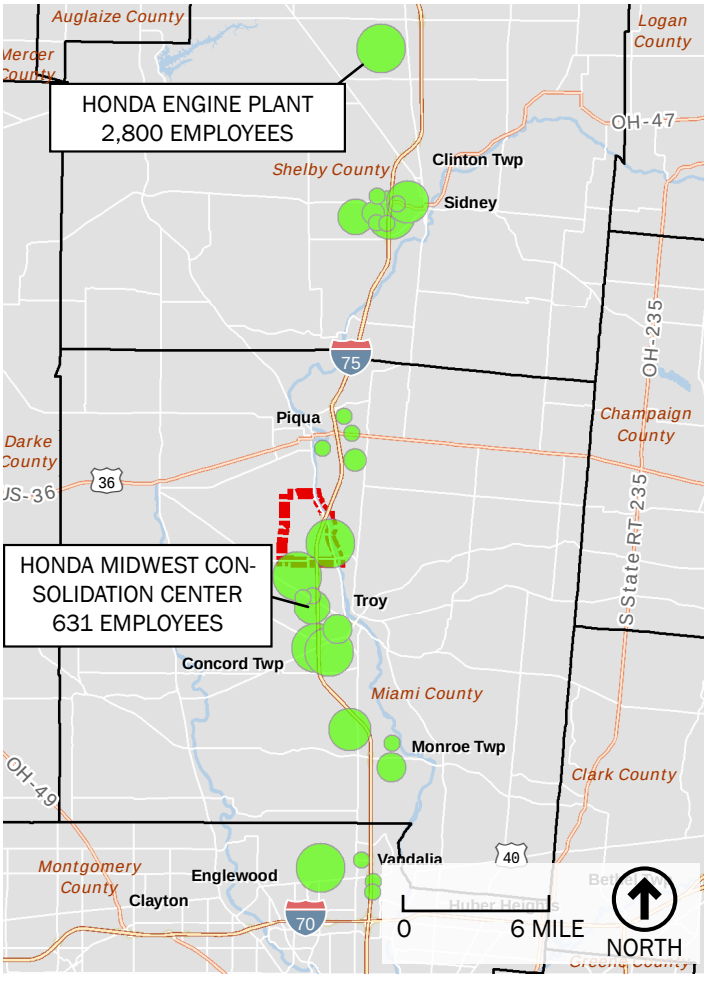


Table 3.12: Miami County Major Employers

Employer	Employees	City	Industry	Radial Distance from I-75
Upper Valley Medical Center	1,600	Troy	Healthcare	0.5
Clopay Building Products	950	Troy	Manufacturing	0.1
F&P America	920	Troy	Manufacturing	0.7
UTC Aerospace Systems	814	Troy	Manufacturing	0.4
Meijer Distribution Center	800	Tipp City	Logistics	0.5
ConAgra Foods	734	Troy	Manufacturing	2.2
Honda Midwest Consolidation Center	631	Troy	Logistics	0.2
Hobart Brothers	568	Troy	Manufacturing	0.8
Industry Products	440	Piqua	Manufacturing	0.6
ITW Food Equipment Group	320	Troy	Manufacturing	0.9

Employment Projections

In addition to projecting population, MVRPC also using Traffic Analysis Zone data to project employment growth out to 2040. In its 2016 Long Range Transportation Plan, MVRPC projects 0.7 percent overall growth in employment in Miami County between 2010 and 2040, which is an increase of about 127 employees per year. In comparison, Greene County is expected to gain around 553 employees per year and Montgomery County only 60 employees per year. The following map illustrates the employment growth projected from 2010 to 2040 at the Traffic Analysis Zone level in Miami County. As you can see, almost all of the projected employment growth is expected along the I-75 corridor. The eastern portion of Piqua is projected to see an employment increase of around 600 employees by 2040. This area is currently occupied by the Upper Valley Career Center and agricultural land south of the Shelby County border.

Exhibit 3.21: Projected Employment Change 2010-2040

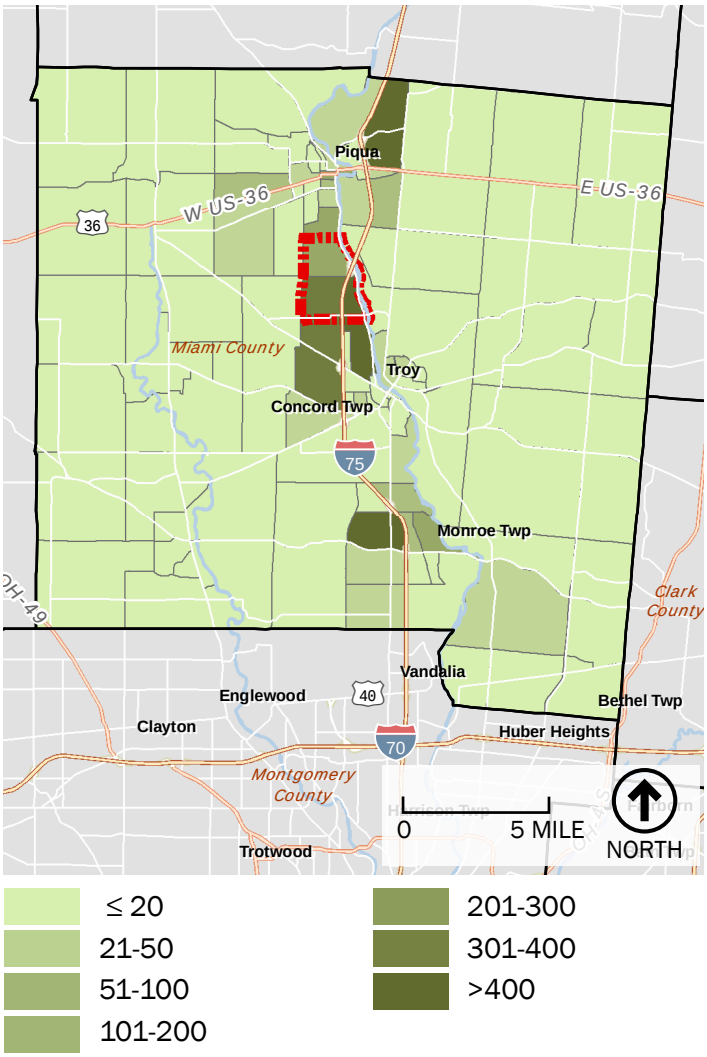


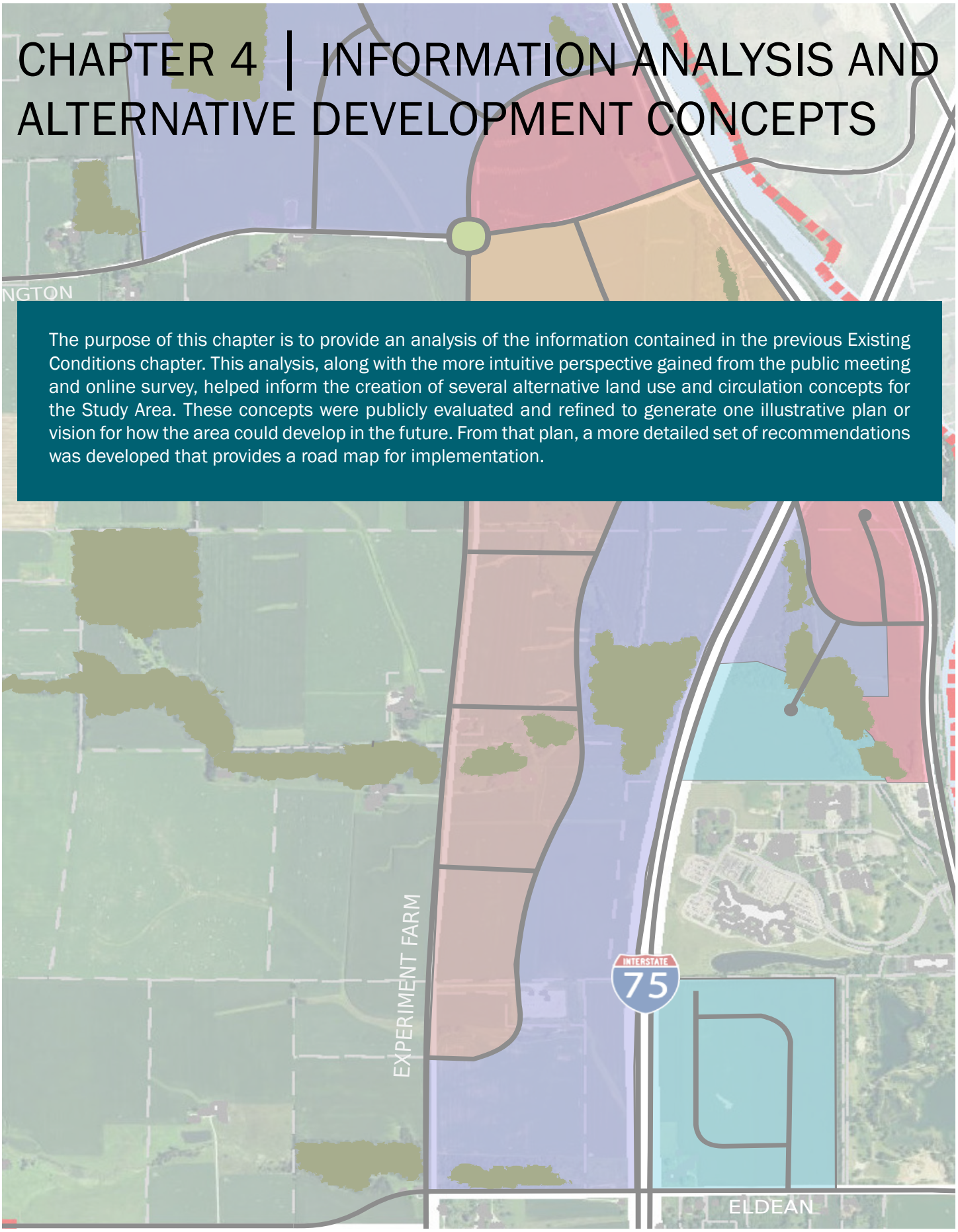
Figure 3.20: Premier Health Upper Valley Medical Center

Existing Conditions Conclusion

The County Road 25-A Special Planning Area is one of the few interchange sites in the region, let alone Miami County, that is largely undeveloped. For reasons outlined in this Existing Conditions report, this is not surprising. But the fact that the area remained undeveloped while the other interchange locations experienced rapid growth is more of a positive attribute than a negative one. The area surrounding this interchange is not required to develop in the same manner as the other interchanges. In other words, this pattern and type of development is not destined to be the only one. We now know from documenting the Built Environment what areas should and should not be built upon, what the capacity of the roadway system is to handle additional traffic, what historical and natural resources are available to conserve or preserve as amenities, and what the market can absorb. This part of the planning process, along with insights from the public, will provide a foundation for the next chapter, Information Analysis and Alternative Development Concepts. It is at that point the community will be given the opportunity to carefully consider and then choose, among several possibilities, a more desired rather than required future for this unique area.

CHAPTER 4 | INFORMATION ANALYSIS AND ALTERNATIVE DEVELOPMENT CONCEPTS

The purpose of this chapter is to provide an analysis of the information contained in the previous Existing Conditions chapter. This analysis, along with the more intuitive perspective gained from the public meeting and online survey, helped inform the creation of several alternative land use and circulation concepts for the Study Area. These concepts were publicly evaluated and refined to generate one illustrative plan or vision for how the area could develop in the future. From that plan, a more detailed set of recommendations was developed that provides a road map for implementation.



Market Analysis

Senior Living

One of the potential uses for the Study Area identified through market analysis and discussions with local leaders and stakeholders is a new senior living or senior care facility. The primary reason that this type of use would be very compatible within the Study Area is the presence of the Upper Valley Medical Center and the Koester Pavilion nursing care facility. To demonstrate need for another similar nursing care or assisted living facility, Urban Decision Group (UDG) conducted a demand analysis based on projected future age and income trends in Miami County.

For the purposes of this analysis, household and income projections for year 2022 were utilized because this is a probable year that any type of new facility in the area would begin to move in residents. Miami County was used as the primary market area for any potential senior care residents and it is assumed that 70 percent of new residents would come from within the county and 30 percent from outside the county. UDG also inventoried potential competition for both assisted living and nursing care facilities. This included any facilities within the county as well as some just outside the county limits. UDG also accounted for one planned facility just outside the market area, but realizes there may be other facilities that come online within the next five years. The following analyses illustrate the demand within Miami County for both assisted living and nursing care using similar yet slightly different methodologies.

Assisted Living Demand

To establish demand for assisted living units in Miami County, a pool of likely residents had to be established. Based on research of similar facilities and senior care studies, it was determined that most potential residents would be 75 years old or older and would come from 1-person or 2-person households. Using household-by-size projections from Esri, a third-party demographic data provider, and a propriety methodology developed by UDG, we were able to project the number of 1-person and 2-person households over the age of 75 within Miami County to be 4,927 households (Table 4.1).

Another limiting factor to the pool of potential residents is the ability to pay the fees for their stay. According to the Genworth 2015 Cost of Care Survey in Ohio[1], the average monthly cost for a stay at an assisted living facility in Ohio is $3,500 a month or $42,000 annually. This cost does not account for medications or personal items, which typically account for 20 percent of a resident's overall spending. This means that for a one year stay at an average Assisted Living facility, a person would have to receive $52,500 annually through Social Security and/or other retirement

Table 4.1: Miami County Assisted Living Demand Year 2022

Costs	
Average Monthly Fees for Assisted Living Facility in Ohio	$3,500
Average Annual Fees ($3,500 x 12)	$42,000
Amount Spent on Medications and Personal Items (20% of Financial Resources)	$10,500
Total Annual Cost (Income Requirement)	$52,500
Two Year Cost (Net Worth Requirement)	$105,000
Support	
Net Worth Qualified 1 & 2 Person HHs Age 75+	3,218
+ Income Qualified 1 & 2 Person HHs Age 75	1,311
-- 50% Overlap with Net Worth Qualified Households	655
= Total Asset and Income Qualified HHs Within Miami County	3,873
x Pct of the Population Age 75+ with 1-2 ADL Difficulties	26%
= Total Asset and Income Qualified HHs with 1-2 ADL Difficulties	1,007
+ 30% Support from Outside Miami County	432
= Total Support	1,439
-- Competitive Assisted Living Units Current	713
-- Competitive Assisted Units Planned	101
= Year 2022 Net Support (Units)	**625**

benefits. Based on the projected household by income data, this amounts to 1,311 income qualified households of the 4,927 in our initial pool.

In order afford rent at most senior facilities, many residents use a combination of retirement benefits and proceeds from recently sold assets. For many senior citizens, the most valuable asset they have to sell is their home. According to the National Center for Assisted Living[2], the median length of stay at an assisted living facility in the Unites States is around two years. This means that for a person to afford the fees and living expenses for a two-year stay they would need to have a net worth (total assets minus total debts) of at least $105,000. Based on Net Worth data from Esri, we estimate this figure to be 3,218 net worth qualified households out of the initial pool of potential residents.

After adding the net worth of qualified households to the income of qualified households, the total qualified household count comes to 8,145, which is obviously more than the initial pool of potential households. This happened because many households are double counted as being both income and net worth qualified. To avoid this, we need to remove half (50%) of the income qualified households because they are already net worth qualified. We estimated a 50% overlap based on analysis of the number of households within each income and a net worth cohort. After backing out 655 of the income qualified households we arrive at 3,783 income and net worth qualified households.

Because not every person 75 and over will need the services provided by an Assisted Living facility, another qualifier was utilized to determine the actual resident pool. Assisted living facilities cater to residents who need assistance with Activities of Daily Living (ADLs) on a frequent basis, ADLs include transferring, moving, dressing, eating and toileting. According to the Medicare Current Beneficiary Survey (2013)[3], as reported by the National Center for Health Statistics, 26 percent of seniors age 75 and over need help with one or two ADL's. After applying this percentage to the 3,873 income and net worth qualified households, the candidate pool is narrowed down to 1,007 households within Miami County. Assuming that 30 percent of support will come from outside of the county, this brings the total support to 1,439 households.

The other piece of this analysis is the supply side. Currently there are 713 Assisted Living beds within Miami County and just outside the county boundaries, with another 101 units set to come online in 2018 when the Danbury opens in Huber Heights, bringing the total existing and planned beds to 814 by the year 2022. After subtracting this figure from our support estimate of 1,328 households, we estimate that the market area (Miami County) should be able to support an additional 625 assisted living units by year 2022. **Table 4.1** supports calculations for this analysis on the previous page.

Nursing Care Demand

The demand analysis for nursing care beds is a similar exercise to assisted living, but with a few changes. The initial pool of candidates is 4,927 1-person and 2-person households age 75 and over, but because fees are almost double the cost ($72,000) annually, this limits the number of households that are income qualified. However, because the average length of stay at a nursing care facility is only about one-year, the amount of net worth needed to be eligible is less than an assisted living facility. After adding the income and net worth qualified households together and accounting for overlap, the total qualified households for an average nursing care facility in Miami County is 4,098 households.

Also, like the assisted living analysis, the pool of potential candidates is limited by those in poor enough health to need full time nursing care. Using the ADL measure again from the Medicare Survey, it is estimated that 19 percent of adults age 75 or over have difficulty with 3-6 ADL's. These are adults who would most likely need nursing care. Applying this percentage to the 4,098 income and net worth eligible households yields a total of 779 potential households. After accounting for 30 percent support from outside the county the total support number becomes 1,112 households.

According to data from the Ohio Department of Aging[4], there are currently 1,064 nursing care beds within or just beyond the borders of Miami County and none that are currently planned or under construction. After subtracting this figure from the support figure of 1,112 it is estimated that Miami County will be able to support 48 nursing care units by year 2022. **Table 4.2** supports calculations for this analysis on the following page.

Medical Office Demand

Growing demand for medical office space has been a trend throughout the United States for several years. One driving factor is an aging population, in which the number of adults age 65 and over is projected to grow

Table 4.2: Miami County Nursing Care Demand Year 2022

Costs	
Average Monthly Fees for Nursing Care Facility in Ohio	$3,500
Average Annual Fees ($6,000 x 12)	$72,000
Amount Spent on Medications and Personal Items (10% of Financial Resources)	$8,152
Total Annual Cost (Income Requirement)	$81,517
One Year Cost (Net Worth Requirement)	$81,517
Support	
Net Worth Qualified 1 & 2 Person HH's Age 75+	3,773
+ Income Qualified 1 & 2 Person HH's Age 75	649
-- 50% Overlap with Net Worth Qualified Households	325
= Total Asset and Income Qualified HH's Within Miami County	4,098
x Pct of the Population Age 75+ with 3-6 ADL Difficulties	19%
= Total Asset and Income Qualified HHs with 3-6 ADL Difficulties	779
+ 30% Support from Outside Miami County	334
= Total Support	1,112
-- Competitive Nursing Care Beds Current	1,064
-- Competitive Nursing Care Beds Planned	0
= Year 2022 Net Support (Units)	**48**

by 33 million people nationally and by 440,000 people in Ohio between now and year 2040. Another factor is the "retail" approach being taken by more and more hospitals and health systems. Translated, this means health care providers are shrinking the number of inpatient beds and building or leasing smaller out-patient facilities closer to where their patients live.

According to the most recent industrial employment projections available for the Dayton Metropolitan Statistical Area (MSA), local trends mimic that of the national trends. The top growing industry sector in the MSA based on total employment growth is the ambulatory health care services sector. The Bureau of Labor Statistics (BLS) defines this sector as the following, "Industries in the Ambulatory Health Care Services subsector provide health care services directly or indirectly to ambulatory patients and do not usually provide inpatient services. Health practitioners in this subsector provide outpatient services, with the facilities and equipment not usually being the most significant part of the production process."

The following industry groups are included in this subsector:

- Offices of Physicians
- Offices of Dentists
- Offices of Other Health Practitioners
- Outpatient Care Centers
- Medical and Diagnostic Laboratories
- Home Health Care Services
- Other Ambulatory Health Care Services

Based on 2017 BLS employment estimates for this sector and the 2024 projections, the Dayton MSA is expected to gain about 5,760 employees over the next seven years (**Table 4.3**). In Miami County there were 1,358 employees in this sector as of March of 2017, which is a 5.8 percent share of all sector employment in the MSA. This employment figure for the County does not include the hospital, which is counted as part of a separate industry sector.

If we assume that the share of workers in this sector will be the same in year 2024 as it is today, then Miami County can expect to see an increase of around 337 employees. To convert this employment figure into a square feet demand estimate, we assumed the average employment size for these types of establishment in the County to be eight employees, and the median size of a medical office in the County to be 3,190 square feet. These assumptions yield an average of 398 square feet per employee. If 337 more employees were added to the county, this would translate to approximately 134,200 square feet of medical office space needed somewhere within the County.

Based on research of current listings in the area, there is approximately 40,000 square feet of medical office space currently for-lease in Miami County. Assuming this space gets absorbed into the market by 2024 as employees are added, that would result in approximately and additional 105,000 square feet of medical office space needed to accommodate the additional workforce and maintain a healthy ten percent vacancy rate. One factor that is not considered in this demand calculation for medical office space is the aging building stock. Based on Miami County auditor data, about half of all medical office buildings were built prior to 1990 and only one building has been built since 2010. As these older spaces are taken off-line, the demand for new medical office space in the area will increase.

Theoretically, some of these medical office uses could be absorbed by traditional office space in Miami County, which has an office vacancy rate around 30 percent, according to market reports from Colliers International[7]. This is high, but not exceptional when compared to the market for such spaces in similar, less urbanized areas. Most of these spaces, are older Class B and Class C buildings that would require significant improvements to accommodate medical equipment. Therefore, we recommend that some type of medical office use be considered within the Planning Study Area given the anticipated demand, lack of inventory, and compatible hospital and nursing care facilities already located within the site.

Industrial Market Analysis

To identify the commercial uses most suited to the Planning Study Area, we considered a variety of factors. First, we spoke with local officials and stakeholders to get their input on what they felt was lacking in the area and what would work in terms of compatibility with surrounding uses. Then we analyzed the most current regional market reports to understand rental rates and vacancy rates for a variety of different commercial products. We also supplemented this data with analysis of individual for-lease and for-sale listings of commercial properties. Next, we studied current employment trends by industry within

Table 4.3: Ambulatory Health Care Services Industry Employment Projections

Ambulatory Health Care Services Industry Employment Projections							
Industry	Dayton MSA 2017 Q1 Employment	Dayton MSA 2024 Projected Employment	2014-2024 Change in Employment	Miami County 2017 Q1 Employment	2017 Miami County Employment Share	Miami County Projected Employment Growth 2017-2024	SF Needed to meet Employment Demand
Ambulatory health care services	23,240	29,000	5,760	1,358	6%	337	134,211

Figure 4.1: Ambulance on Farrington Road

Miami County as well as projected employment growth for the Dayton Metropolitan Statistical Area (MSA). Finally, we spoke with a local broker to supplement our quantitative data and to identify specific uses that may not have been identified through the other methods.

As discussed in the **Chapter 3**, manufacturing is a growth industry in Miami County. Between 2013 and the first quarter of 2017, Miami County added 580 manufacturing jobs - an overall growth rate of 5.8 percent. Within the Dayton MSA, the overall growth rate in manufacturing jobs was slightly higher at 7.1 percent. According to projected employment figures for the year 2024 provided by the Ohio Department of Job and Family Services[5] which were further adjusted to account for changes between their initial release and the latest figures from the Bureau of Labor Statistics, the MSA is projected to add another 7,000 manufacturing jobs between now and 2024. Applying the same share of manufacturing jobs for that year as Miami County currently holds within the MSA today, the county can expect to gain another 1,628 manufacturing jobs within the next seven years.

To answer how 1,628 manufacturing jobs translates into industrial square footage, the Project Team utilized business listing data from the third-party data provider Infogroup and identified every manufacturing business within the County based on its industry classification code. We then were able to establish an average employee size of 43 workers for those businesses. Using county building data, we were able to calculate an average building size for manufacturing uses to be 10,099 square feet. These two figures yielded an average of 234 square feet of industrial space needed per employee. Adding 1,628 employees to the county creates demand for 382,420 square feet of manufacturing space to be absorbed somewhere within Miami County (**Table 4.4**)

In many markets, some or all this demand for manufacturing space would be absorbed by existing facilities. However, according a recent market report from Colliers International, the Upper Miami Valley submarket of the Dayton region (which comprises most of Miami County and part of southern Shelby County) has an extremely low overall vacancy rate of 0.3 percent for manufacturing space. Aside from the Dayton North and Dayton West submarkets, this is far below the rate of the other Dayton submarkets. **Tables 4.5-6**, on the following page, illustrate the current mix of industrial space within the County and the vacancy rate of industrial spaces for all submarkets within the region.

Based on research of current listings for industrial space within Miami County, most of the space currently available can be described as light industrial or flex space with an office component. These spaces range from 10,000 square feet to 117,710 square feet and lease annually for an average of $3.60 per square foot on a triple net lease. The average year-built for these properties is 1988. Despite multiple listings found, the vacancy rate for light industrial space in the county is just 1.7 percent.

Another industry sector that the Study Area is uniquely equipped to accommodate is transportation and warehousing. The I-75/County Road 25-A interchange is positioned along a key transportation corridor for the auto industry and is just a few miles north of the Dayton International Airport. The interchange has the potential to accommodate the growing demand for “first-mile” distribution facilities in the Dayton area. “First-mile” distribution centers are identified as such because they act as the first-mile in the supply chain. This is the point at which the final product is assembled and shipped directly to the consumer.

Table 4.4: Top Growth Potential Industrial Sectors

Top Growth Potential Industrial Sectors							
Industry	**Dayton MSA 2017 Q1 Employment**	**Dayton MSA 2024 Projected Employment**	**2014-2024 Change in Employment**	**2017 Q1 Employment - Miami County**	**2017 Miami County Employment Share**	**Miami County Projected Employment Growth 2017-2024**	**SF Needed to meet Anticipated Employment Demand**
Non-store retailers	1,128	1,660	532	497	44%	234	1,611,344
Manufacturing	41,560	48,000	6,440	10,508	25%	1,628	382,420

Table 4.5: Current Industrial Inventory by Facility Type

Miami County Current Industrial Inventory by Facility Type		
Facility Type	**Current Inventory (Square Footage)**	**Pct. Of Total Industrial Space**
Bulk Warehouse	7,800,808	33%
Warehouse-Distribution	2,661,672	11%
Manufacturing	5,953,833	26%
Flex/R&D	334,848	1%
Light Industrial	6,602,329	28%
All Types	23,353,490	100%

One of the primary users of these types of "first-mile" facilities are non-store (E-commerce) retailers like Amazon, whose distribution facilities are typically upwards of one million square feet. According to data provided by the Bureau of Labor Statistics (BLS), non-store retailers are projected to add 532 jobs between now and 2024 within the Dayton MSA. Currently, Miami County holds a surprising 44.1 percent share of all non-store retail jobs within the MSA. If the county were able to maintain this same share in 2024, it would add an estimated 234 jobs in this sector. The employee to square footage calculation yields demand for 1.6 million square feet of warehouse distribution space. Even at the current ten percent vacancy rate for this type of space in Miami County, there is still plenty of space for a large-scale distribution facility. According to our research, the only space currently for lease that falls in this category is located at 950 S Dorset Road in Troy. This 76,800 square feet facility currently has 12,800 square feet available for lease at an annual rate of $4.60 per square foot - which includes everything from maintenance to snow removal.

According to discussions with commercial brokers in the area, unmet demand for larger distribution-warehouse type facilities in north Dayton is primarily being fulfilled by newer facilities around the Dayton International Airport. The airport area has a few advantages over Miami County. With respect to location, it is an ideal logistics hub because it sits just northwest of the I-70 and I-75 interchange. The City of Dayton, which owns the airport and the land surrounding it, has taken steps to create a Community Reinvestment Area (CRA) around the airport to lure companies through tax incentives. One company, Spectrum Brands Global Auto Care, recently consolidated its operations to a $33 million, 570,000 square feet distribution hub residing on airport property. The building was developed by NorthPoint Development group, which agreed to a 50-year lease agreement for the land upon which the building resides on. This means that the City of Dayton will collect around $7.5 million in revenue over the length of the lease. The project was financed partially through local and County grants and a $617,000 tax credit from the State, but the majority of the $33 million was bank financed[6].

Based on the analyses of both quantitative and qualitative data, we recommend that some type of distribution warehouse or light manufacturing facility be considered as part of the site plan for the Planning Study Area. Although

Table 4.6: Industrial Vacancy Rates by Submarket and Facility Type

Miami Valley Region Industrial Vacancy Rates by Submarket and Facility Type							
	Submarket						
Facility Type	**Upper Valley**	**Central**	**East**	**North**	**South**	**Upper East**	**West**
Bulk Warehouse	0%	3.	21%	4%	0%	0%	0%
Warehouse-Distribution	10%	14%	0%	2%	27%	0%	N/A
Manufacturing	0.3%	6%	8%	0%	16%	14%	0%
Flex/R&D	2%	16%	26%	2%	5%	31%	N/A
Light Industrial	2%	6%	1%	4%	3%	3%	0%
All Types	1%	8%	10%	3%	9%	7%	0%

the County has the potential to support over one million square feet of new industrial space, the actual size of a new facility would be dependent on more specific tenant requirements. Based on recommendations from brokers and research of similar, an agreement with a developer and a manufacturer/distributer would have to be in place before any development could be realized, and it would likely require the local government to provide incentives either through infrastructure improvements or local tax abatements.

Regional Comparative Analysis

The planning Study Area is relatively unique in the sense it intersects with a major Interstate and includes an interchange that has not attracted any major development. We wanted to perform a macro-level analysis of the surrounding area and compare it to other areas with similar demographic and/or economic characteristics. Before we could do this, we first needed to define a Study Area for comparative research. For this analysis, we chose the States of Ohio, Indiana, Illinois, Michigan, Wisconsin and Kentucky. Each of these states have many common characteristics. Michigan and Kentucky are traversed by I-75 which has historically, and continues to be, a major distribution route for the automobile industry, among others. Indiana and Illinois are traversed by I-70 which is one of the Country's primary east-west freight transportation routes. Wisconsin is a state with a strong agricultural and manufacturing backbone like Ohio.

For the next step, we identified every limited-access highway interchange within our six-state Study Area. We utilized a Geographic Information System (GIS) to compute a five-mile radius around each of the highway interchanges and then aggregated demographic and economic data for each of the five-mile areas. We identified three data points to use as a means of selecting areas with similar carrying capacities, with respect to residents, workers and businesses. In other words, we want to compare the Study Area to other areas with similar economic and social potential.

The data points used for selecting similar areas were: Total Population (2017), Daytime Worker Population (2017) and Total Businesses (2017). Rather than select only areas where the levels of each of these data points is like the Study Area, we established a range of low to high values for each variable and required that a comparative area fall within the "selection range" of only one of these three variables. Why? Because we want to compare it against areas of similar carrying capacity to reveal where our Study Area is both under- and over-performing areas with similar characteristics.

To be selected as an area for comparison, the data points had to fall within one of the following ranges:

Total population
- Lower bound: 45,000
- Upper bound: 57,000

Daytime worker population:
- Lower bound: 26,000
- Upper bound: 38,000

Total businesses
- Value 1,930
- Low range: 1,900
- High Range: 2,500

Applying this selection criteria, a total of 816 areas within the six-state region were selected for comparison. Over 150 demographic and economic variables were used to compare the Study Area with the 816 comparable areas. For each variable we computed the average, median, high value, low value, and standard deviation, for the respective aggregate area data and compared it to the levels represented within a five-mile radius of the Planning Study Area. The complete data table can be found in **Appendix B.**

On average, the Study Area supports approximately 25 percent less people than similar areas with the same carrying capacity. This means the area could conceivably support over 14,000 more people. The five-mile radius around the Study Area currently has a population density of 352 people per square mile. There are comparable areas with density levels greater than three times that of the area around the Study Area. We know cities such as Piqua and Troy, are better equipped to efficiently provide infrastructure and services to the residential population when compared to rural alternatives. Although Miami County has an abundance of agricultural land, developing more of that land as low-density residential housing would be a low-yielding, inefficient use of the land. Therefore, we recommend demand for single-family housing be absorbed within, or adjacent to, the cities of Troy and/or Piqua to maximize the value of the land within the Study Area. In other words, even a slight increase in the County's overall population density would yield greater economic returns than encouraging low-density, rural residential development.

The Study Area and its surrounding environs supports a significantly higher manufacturing base than comparable areas within the Midwest region. On average, the area employs almost 40 percent more manufacturing labor (1,800 workers) than comparable areas. This equates to a +32 manufacturing businesses advantage that results in an additional $109 million in revenue. Further, there is almost a one-to-one relationship between manufacturing occupations and manufacturing employees around the Study Area. This means most of manufacturing employees live within five miles of their employer. This data, when considered with the results of the Industrial Market Analysis, support the conclusion that Miami County enjoys a distinct advantage within the Industrial Sector, when compared to the areas throughout the Midwest region.

This is further supported by data provided by the U.S. Bureau of Labor Statistics' Census of Employment and Wages. Across the board, Miami County's manufacturing sector enjoys a competitive advantage (compared to the entire U.S.) with respect to manufacturing wages, employment levels and number of employers. The Location Quotient is a method to quantify how concentrated a industry or occupation is in a region when compared to the rest of the U.S. Values greater than one indicate that the region (in this case, Miami County) is relatively unique when compared to the national average. Within the manufacturing sector, Miami County's Location Quotients are 2.7, 3.0 and 3.2 for total establishments, total employees, and wages, respectively.

There are some things the County can do to further this advantage. Coordinating education programs with local community colleges and high schools and the employers should be a high priority. With respect to the Study Area, you should prepare for growth within the manufacturing sector. The Study Area is a prime location for manufacturing growth due to its proximity to I-75, the interchange at CR 25-A, and Experiment Farm Road, which has already proven to be capable of handling industrial traffic emanating from northern Troy.

Another industry sector that stands out in comparison to similar areas in the Midwest is Health Care. The Study Area and surrounding environs provide over 25 percent more health care employees than comparable areas within the Midwest region. This is even more impressive when you consider there are approximately 17 percent less health care facilities in comparison. Given what we know about the impending growth of the health care sector, it is reasonable to expect that Miami County will naturally require an increase in the amount of health care facilities. This is consistent with the local analysis of the medical office inventory which expects an increase of over 100,000 square feet of medical office space in less than ten years. The proposed Kettering Health Network hospital in Troy will certainly help to make up for the demand for health care facilities in Miami County.

A couple of the most obvious observations gleaned from the comparative analysis is the degree to which the Study Area and surrounding area is under-performing within the Transportation and Warehouse and Non-store Retail sectors when compared to similar areas in the Midwest. The number of Transportation and Warehouse establishments are 45 percent lower than comparative areas and employ over 54 percent less workers on average. Similarly, Non-store Retail businesses and employees lag their comparable brethren by 76 percent and 90 percent respectively. When you consider this information in the context of the expected demand per the BLS, it is safe to assume Miami County will see a tremendous amount of growth within these two sectors. Again, access to transportation networks is key to maximizing value and the Study Area is positioned logistically to take advantage of the impending growth.

Summary

The point of a regional comparative analysis is to better understand how the Study Area compares to similar areas within the region when considering location, demographics and economics. The data is both supplemental and complementary to the local analysis of industry sectors and their markets. When considered together, it is reasonable to conclude that the industry sectors of manufacturing, health care, transportation and warehouse are all poised for significant growth in the near- to mid-term. This growth must be absorbed somewhere within Miami County or else it will be absorbed somewhere else in the Miami Valley region. The Study Area is uniquely positioned to take advantage of the anticipated growth due to its location between Piqua and Troy, its proximity to transportation networks (which include Interstate 75, CR 25-A, and Experiment Farm road, including access to the Interstate interchange), and the abundance of suitable, developable land between the two cities. Further, the value of the land as an agricultural use is still relatively high, but repurposing some of the agricultural stock for these other uses would likely result in an increase in the value of the market land (as opposed to CAUV value) that remains as agriculture.

Agricultural Use Analysis

Current Agricultural Use Value (CAUV) in Ohio is calculated by utilizing a formula that considers the capitalization of net income from agricultural products assuming typical management, cropping and land use patterns, and yields for given types of soils assuming slopes of 25% or less. This means that in Miami County - which contains some of the most productive soils in the state – cropland typically commands a higher CAUV than in other regions.

According to the Miami County Auditor, the highest valued agricultural land within the Study Area is valued at $3,690 per acre. These are areas with very highly productive soils, little to no slope and good drainage. The Current Agricultural Use Value for all agricultural parcels within the Study Area is $6,311,810 or approximately $2,325 per acre. In comparison, the Market Land Value for the same parcels is $15,715,100 or $5,790 per acre. This means that average farmland within the Study Area could be valued at $3,465 per acre higher if it were to be used for its "highest and best" potential use.

West of Experiment Farm Road, where most of the prime farmland resides (**Figure 4.2**), the CAUV is $3,331,240 or $2,606 per acre on average. The total estimated market value for this same land is $7,742,100 or $6,057 per acre according to the Auditor data. Because these market values are estimates based comparable sales of similar properties in similar locations, there is no guarantee that farmland will sell for the estimated market value. There is also the possibility that the value of the farmland could increase due to changes in market conditions. According to the Bureau of Labor Statistics, average wages for those working in crop production in Miami County have increased every year since 2013. These are all important factors to consider – in addition to environmental concerns – when making any type of future land use recommendations.

Figure 4.2: Farmland west of Experiment Farm Road

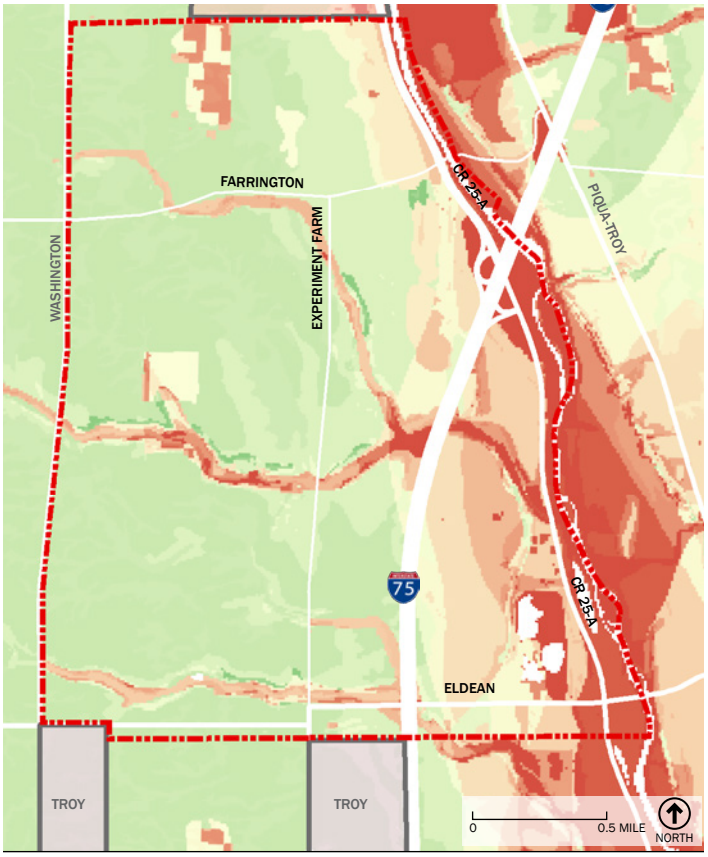
Green Print and Priority Growth Areas

In **Chapter 3**, the area's natural resources or green print were identified, mapped, and described. They generally include:

- Water Features
- Ground Water Yield
- Ground Water Pollution Potential
- Slope
- Depth to Bedrock
- Soil Drainage
- Prime Farmland
- Mineral Resources
- Land Cover
-

Exhibit 4.1, Environmental Suitability, is a composite of these nine natural resources or environmental features and shows a gradient of land suitability from high suitability for land development to low suitability. Aside from the locations at or near water resources adjacent and tributary to the Great Miami River - including steeply sloping terrain and areas subject to flooding - most of the Study Area is suitable for development. Portions of the Study Area with shallow depth to bedrock (**Exhibit 3.7**) are still developable but the process can be costlier due to the blasting and excavating required to construct foundations, provide maintenance, and access utility service.

Exhibit 4.1: Environmental Suitability



Those areas at or near water resources not suitable for development include steep slopes with a 12 percent (dropping 12 feet within a 100-foot distance) grade or more, land within the 100-year floodplain, and wetland sites. Land with steep slopes greater than 12 percent is often not stable, especially if existing vegetation is removed and requires more expensive post and beam construction. Most of the area within the 100-year floodplain is protected by the County's zoning regulations and the federal government's (FEMA) flood mapping program. Wetland sites over one acre are protected by the federal government through the Army Corps of Engineers. There are wetlands along the river and stream corridors within the Study Area and there is a wetland directly north of the site along County Road 25-A.

For the purposes of this study effort, land encompassing those areas not suitable for development is identified as being in the Natural Preserve category illustrated in **Exhibit 4.2**. The areas designated as "preserve" consist of those portions of the green print that are prohibited from being developed by either law or some form of contract. This includes the before mentioned areas of steeply sloping terrain (slope of 12 percent or greater), land within the 100-year floodplain, freshwater ponds, freshwater forested shrub, and wetlands.

Those areas that are suitable for development but are not currently protected are categorized as "natural reserve" (**see Exhibit 4.2**). This area is intended to supplement the Natural Preserve area as part of the overall green print. The Reserve areas include moderately sloping areas (6-12 percent), deciduous forest, evergreen forest, and mixed forest. All future efforts to preserve land (agricultural easements, land development regulations, etc.) should focus on shifting land from the more vulnerable Reserve areas into the Preserve category. Ultimately, the Preserve and Reserve areas can be combined to create a continuous system of natural or riparian corridors, (e.g. tributary streams to the Great Miami River) where feasible and practical.

It is also critical that the cultural and historical resources within the Study Area (as outlined in the Existing Conditions chapter) are recognized and made a part of the Natural Preserve (e.g. Miami and Erie Canal, Eldean Covered Bridge, Twin Arch Stone Culvert, and structures identifying the areas agricultural heritage). When combined, the Natural Preserve, the Natural Reserve and the areas cultural and historic resources contribute to what can be termed as the area's rural character which was so highly valued by the online survey respondents (see **Chapter 2**).

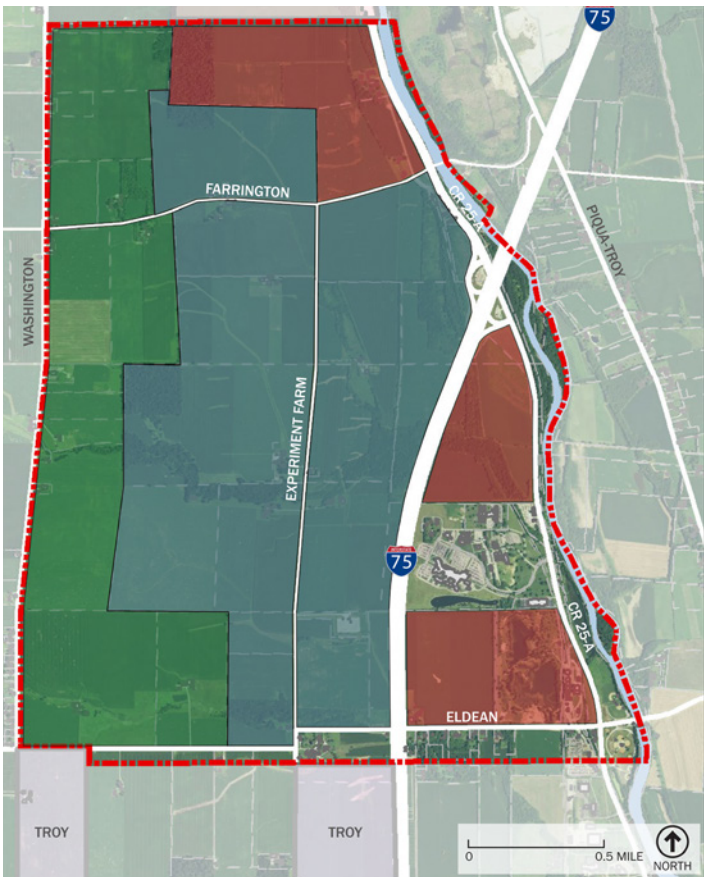
Even though most of the area that is identified as suitable for development (and not categorized as Natural Preserve or Reserve) will eventually develop, the priority order in which this area could develop is predicated on the availability of infrastructure, especially transportation and utilities. Areas that are immediately available to transportation and utilities are identified in **Exhibit 4.3** as Intended Growth Areas and should be one of the first areas to develop.

These sites can be accessed directly from existing roadways and are located adjacent to water and sanitary sewer lines. Areas of Controlled Growth have roadway frontage, but require roadway extensions to fully access the sites and are not proximate to water and sanitary sewer facilities. These utilities would require extension northward from the existing City of Troy system or southward from the City of Piqua's existing lines. Both utility providers have the capacity to provide facilities to treat and distribute water and to collect and treat effluent in both the Intended and Controlled Growth Areas. The area labeled as Restricted Growth is not only more distant from utilities, it is characterized as Prime Farmland (**Exhibit 3.9**). The area west of Washington Road is outside the Urban Service Boundary (2006 Comprehensive Plan).

Exhibit 4.2: Reserve & Preserve Areas

Reserve
Preserve

Exhibit 4.3: Priority Growth Areas



Intended Growth
Controlled Growth
Restricted Growth

Alternative Transportation and Land Use Concepts

As described in the Existing Conditions chapter, CR 25-A serves as a major rural collector and north-south route through Miami County, linking the County's three major cities. Its intersection with Interstate 75 (I-75) also gives it immediate access to and from major economic markets and population centers throughout the eastern half of the country. Farrington Road and Experiment Farm Road are both classified as collector roads within the County and Eldean Road has a Major Rural Collector classification. Farrington and Eldean Road both provide east-west access across the Great Miami River in strategic locations at the northern and southern edges of the Study Area. Because of the ability to travel east and west across the River at both Farrington and Eldean Roads, it is expected that access to sites within the Study Area will be primarily from those locations as well as CR 25-A.

It is imperative that the roadway network necessary to subdivide and develop the existing parcels within the Study Areas be as interconnected as possible in order to distribute traffic evenly to the north, south, east and west. It would be advantageous to use the easements created by the abandon rail spur that runs parallel to CR 25-A and provide an internal connection between the eastern and western portions of the Study Area. This would alleviate the necessity of creating an access off CR 25-A north of the interchange.

Because a major interchange is located within the Study Area, the types of land uses that are the most appropriate and have the greatest market potential are those that generally include highway service, light industrial, warehouse, and distribution uses as well as the possibility of accommodating office and office research facilities. As noted in the market analysis, the potential for residential within the Study Area is very limited. Even though the opportunity to vary the transportation network is restricted somewhat by the existing roadway configuration, it is possible to arrange certain land uses in a way that takes advantage of both visibility and access, two of the most important criteria in siting future development of this sort.

Exhibits 4.4-6 demonstrate alternative ways the future roadway network and associated land uses could be configured. **Exhibit 4.4** or Alternative A places the highway service and mixed-use commercial uses in two locations: south of the I-75 interchange fronting on CR 25 to take advantage of the immediate access from the northbound off ramp (right turn) and north of the interchange at the northwest corner of Farrington Road and CR 25-A. This alternative also assumes a connecting link under I-75 using the abandoned railroad spur easement. Office research uses are at the southwest quadrant of Farrington and CR 25-A with flex office and incubator uses west of Experiment Farm Road. Larger, light industrial warehouse and distribution uses are located along the western edge of I-75 to take advantage of the visibility afforded by the nearly level grade with I-75. Health care related uses are shown directly north and south of the hospital site.

The area west of Experiment Farm Road and south of Farrington Road remains undeveloped in this alternative. This area could remain in agriculture use and accommodate non-invasive uses like a farm of wind turbines. Wind power can provide an important economic boost to farmers. Large wind turbines typically use less than half an acre of land, including access roads, so farmers can continue to plant crops and graze livestock right up to the base of the turbines. The power generated could also be used to supply energy back to the overall DP&L grid or be part of a "microgrid" that serves the immediate area.

Exhibit 4.5, Alternative B, is similar to Alternative A but extends further west and adds a considerable amount of land for larger light industrial, warehouse, and distribution uses. There is still space to retain agriculture and accommodate a wind farm in this alternative, but the area would be significantly reduced in size.

Alternative C (**Exhibit 4.6**) is similar to Alternative B, but without the connecting link under I-75 using the vacated railroad spur easement. The location of the highway service oriented uses in this alternative are now fronting entirely on CR 25-A both north and south of the interchange. This forces primary access to the site off of CR 25-A where a parallel service or back road would be required to provide access and avoid multiple curb cuts on CR 25-A.

The next step in the planning process is to publicly evaluate each alternative and select one alternative - or a combination of elements from each alternative - to serve as a basis for creating a more detailed illustrative plan.

Exhibit 4.4: Alternative A

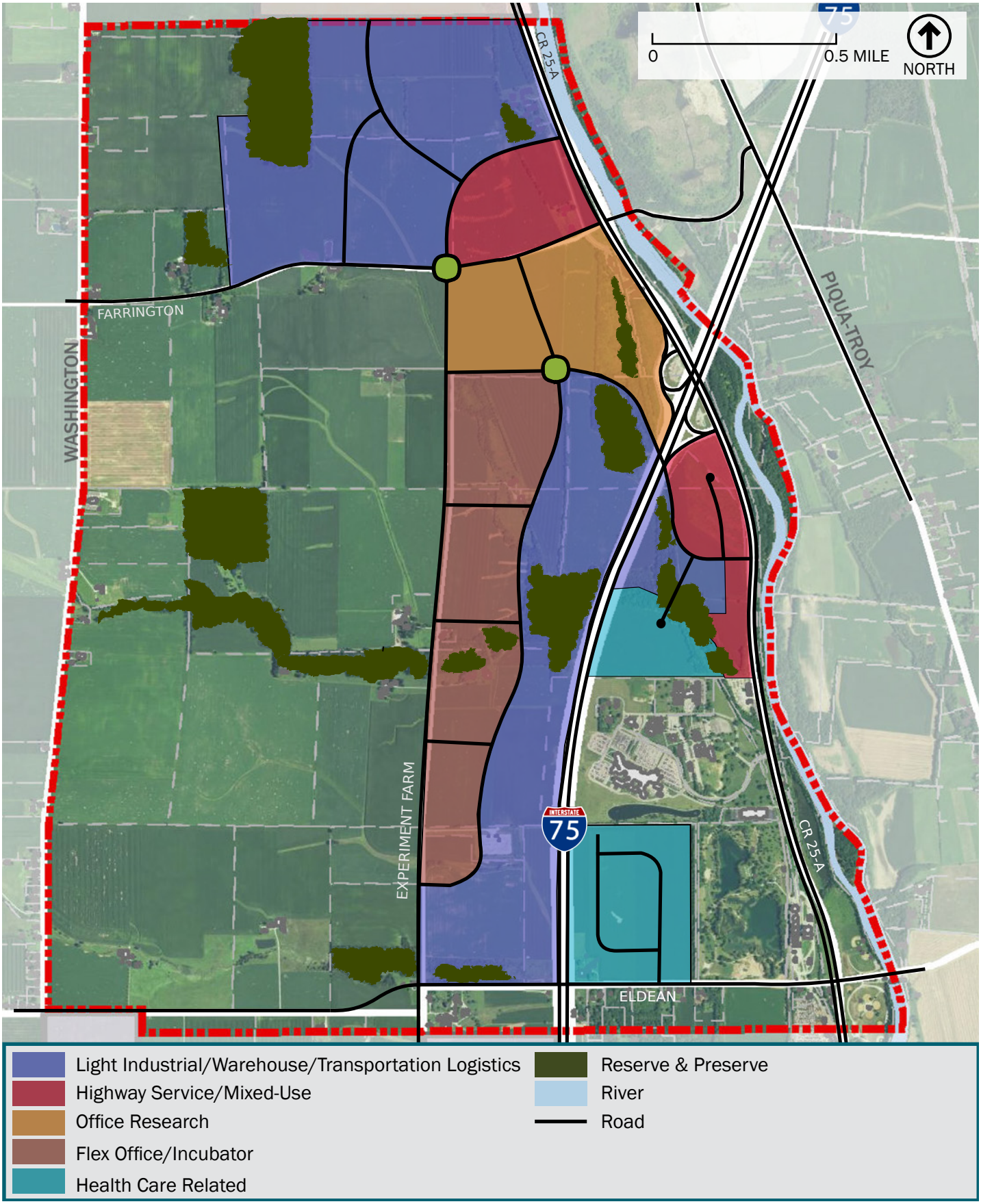


Exhibit 4.5: Alternative B

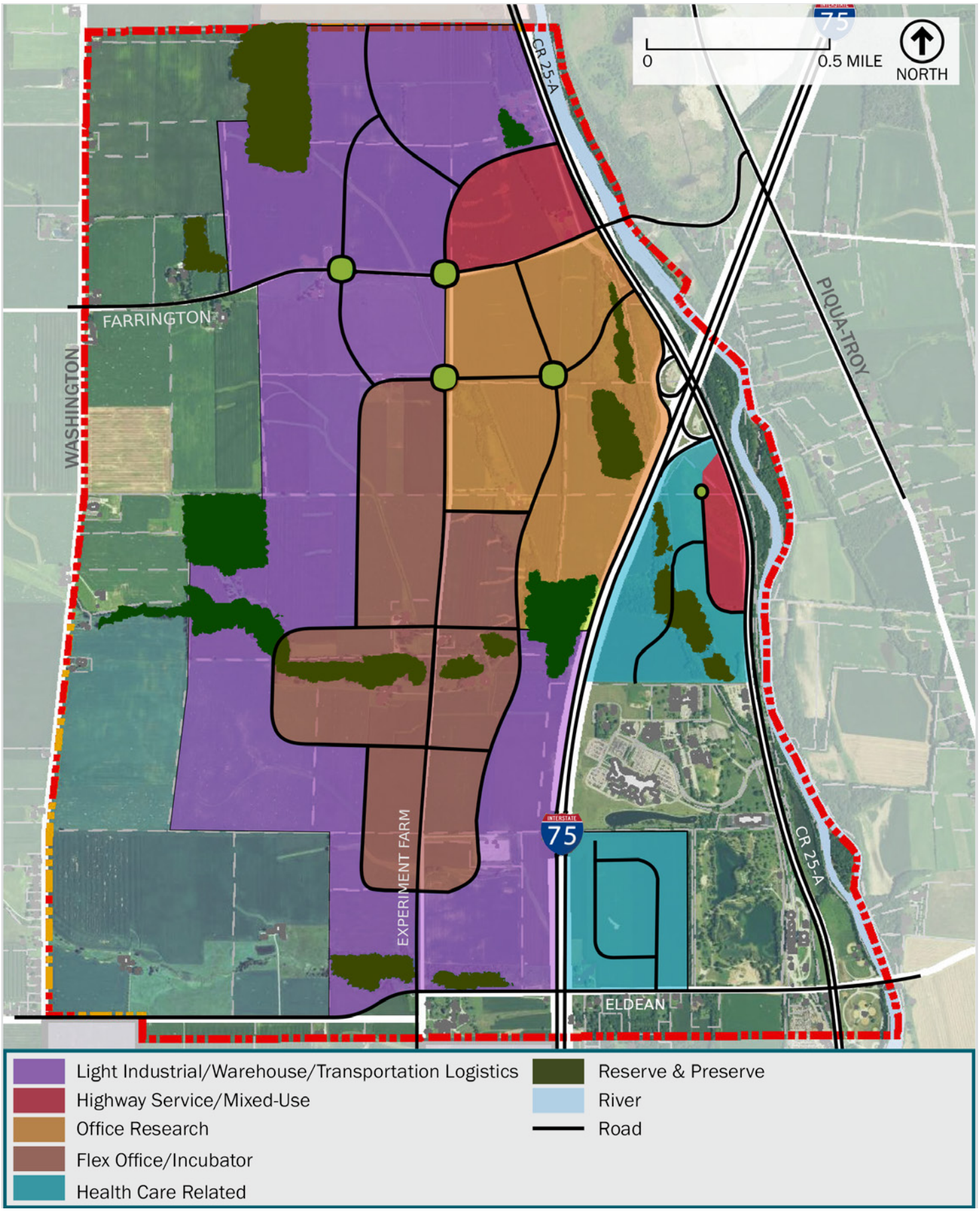
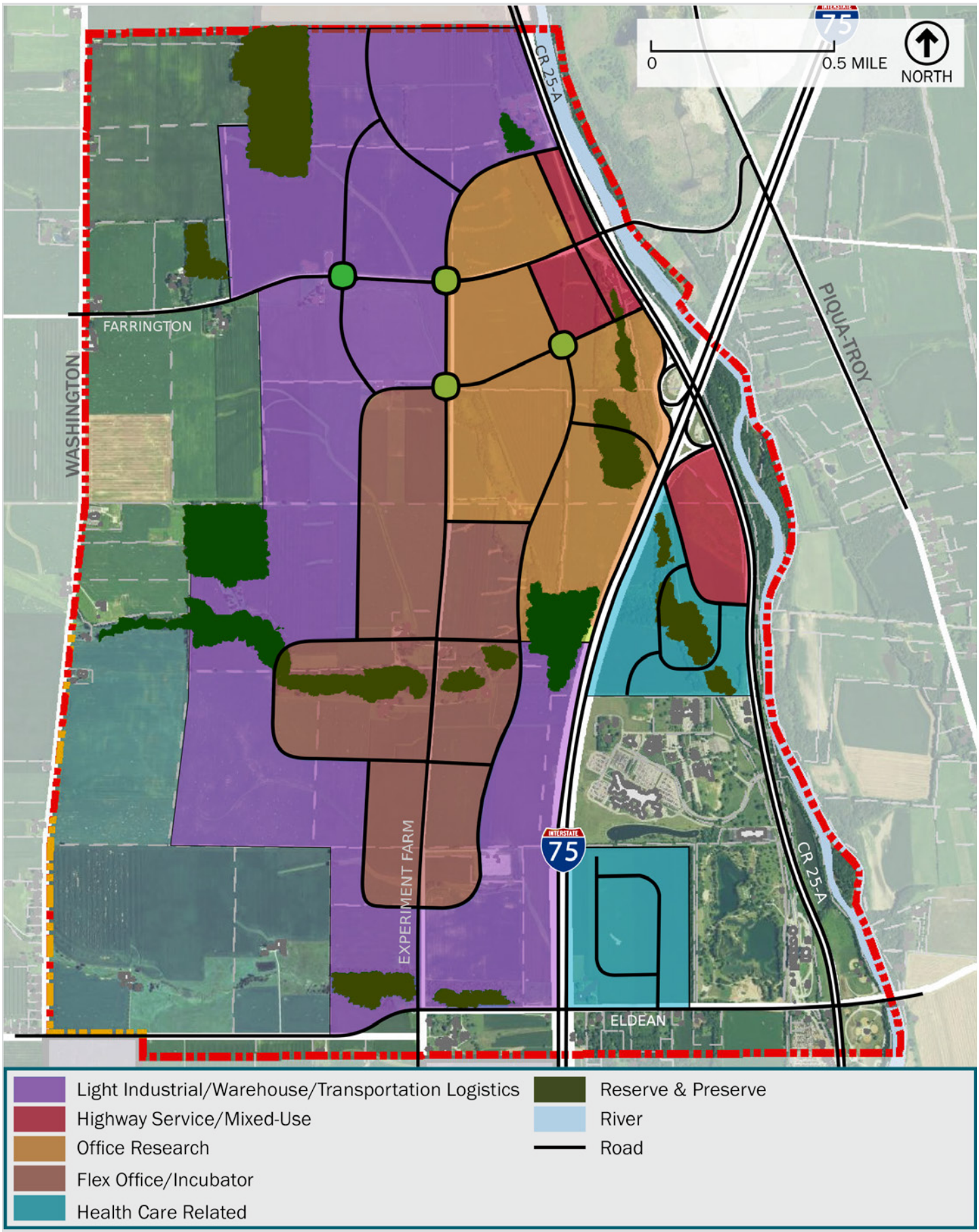


Exhibit 4.6: Alternative C



CHAPTER 5 | MASTER PLAN AND IMPLEMENTATION

Chapter 4 analyzed the area's existing conditions, provided a synopsis of what the potential market is for the area, and presented three alternative development scenarios for accommodating that potential. This chapter begins by outlining the ways in which development within the area could be marketed and financed and then evaluates each of the three alternative development scenarios, arrives at one preferred concept, and identifies the infrastructure required to support that concept. It also refines the concept into an illustrative plan with supporting graphics and provides a breakdown of goals, objectives, and strategies - sequenced over time - that can be used to track plan implementation.

Economic and Market Recommendations

Markets

Based on regional and national economic development trends and given the location of the area along a major interstate, it is believed that a mix of light industrial, distribution warehouse, or flex office/warehouse is most appropriate and has the greatest chance for success if sited between Experiment Farm Road and I-75.

Health Care and Senior Living related businesses will most likely be successful if they are located north or south of the Upper Valley Medical Center. Concentrating similar uses like a hospital, outpatient care facilities and senior care facilities is encouraged because they serve similar population groups and have a similar development intensity. These facilities also have a better chance for success if they are sited in the southern part of the site closer to residential areas.

Based on a recent hotel feasibility study conducted in Miami County, it is believed that a hotel situated near a major highway interchange in Miami County should be successful. Its location near the hospital and between the two cities of Troy and Piqua are also good reasons to believe a hotel would be an effective use. This development would most likely be supported by typical highway interchange uses like a service station with convenience and casual dining and retail options.

Development Incentives

There are several methods that local governments can use to stimulate new commercial and industrial development. The most common tool used is the promise of tax abatements to prospective new businesses. County governments in Ohio have three primary mechanisms they can use to offer tax abatements: establish a Community Reinvestment Area (CRA), establish an Enterprise Zone (EZ) or use Tax Increment Financing (TIF). For the purposes of this analysis, EZ and TIF are the most appropriate because they are used primarily for commercial and industrial purposes.

The Enterprise Zone Program in Ohio allows for tax abatement incentives to businesses planning to expand, construct, or renovate their facilities. Enterprise Zones must encompass an area with a population of at least 1,000 people and must be contiguous. Because the cities of Piqua and Troy each operate their own Enterprise Zones and the population within the Study Area is less than 300 people, a new Enterprise Zone would have to be drawn to include enough households to the east and west to satisfy the population requirement set by the state.

The other tool that the County could utilize to jump start development is Tax increment Financing. TIF can either be applied to a single parcel, a group of adjacent parcels, or an entire district. TIF is designed specifically for areas that need infrastructure improvements or utility extensions. This mechanism works by funding infrastructure costs through payments in lieu of taxes (PILOT) made by the property owner. In return, the property owner's taxes are locked into the base year rate and do not increase over the lifespan of the TIF agreement, which can be between 10 and 30 years.

Outside of these traditional methods, counties and property owners can create development agreements that satisfy both parties' interests. One approach could be to use subject-to property assessments to pay for infrastructure improvements. For example, if a property owner is proposing to build a warehouse on a vacant piece of land that both the owner and the county agree will be valued at $1 million once complete, the owner would be taxed at the $1 million rate upon the execution of the development agreement and the excess tax revenue generated would go towards the infrastructure costs initially paid by the county.

Promotion

There are several marketing platforms available to bolster the profile of a site that is ready for development. The Dayton Development Coalition provides an interactive mapping platform through their website where municipalities and county governments can market development-ready sites to developers and corporations. Working with a major national commercial realty firm, such as CBRE or Colliers International, and marketing properties on their websites would expose developable sites within the Study Area to a national base of developers.

Many cities and counties also provide site selection services and mapping on their websites with valuable information for potential new business. The cities of Piqua, Troy, and Tipp City all have similar site selection platforms on their city websites.

Responsibility and Financing

Community Improvement Corporations (CIC) are non-profit groups organized by local governments for the purposes of "advancing, encouraging, and promoting the industrial, economic, commercial and civic development

of a community or area.[1]" A CIC can be established for two distinct purposes. Some cities and counties establish a CIC as a land bank and some establish a CIC as a group responsible for promoting county economic development initiatives. They are designed to assist with the promotion and financing of economic development by providing loans to individuals and businesses and buying, selling, and leasing county owned land and property for economic development purposes.

Industrial and Warehouse Trends

The demand for flexible, small to mid-sized warehouse and light industrial facilities is the highest it has been in recent memory. Experts in the fields of distribution and logistics believe the future lies in the ability to manage the "last mile", which is the distance between a product's warehouse storage location and final destination: your doorstep. Real estate investors believe these properties have a bright future because investment vehicles such as Industrial/Warehouse Real Estate Investment Trusts (REIT's) have become an attractive alternative to traditional real estate investment in commercial and residential properties.

Lease rates for these spaces are at an all-time high in many U.S. markets due primarily to the rise of e-commerce. This trend is expected to continue as the retail sector downsizes and rearranges itself into a mix of warehouse and traditional brick and mortar stores - which will likely be used to serve as nodes in the "last mile" distribution network.

The configuration requirements (floor area ratio, ceiling heights, etc.) for these distribution facilities is much different than the standard one million square feet warehouses that are commonly found near airports and multi-modal hubs. This is due in part to the growing role that robotics and collaborative robotics is playing in the distribution and warehousing sector. Companies like Amazon have developed entirely new methods of inventory management – methods that emphasize bundles of goods over stacks of identical or similar goods. As a result, factors such as "clear height" are not as important as they once were, while trailer drop space is increasingly important.

In today's industrial/warehouse real estate market, location trumps the overall quality of the asset. This is good news for Miami County and potential suitors for locations upon which to build such facilities. The location of the Study Area has access to an underutilized interstate highway interchange and is near several mid-sized cities in all directions.

Although location is a significant factor, access to labor is trumping everything. The labor requirements for these facilities ranges from the highly skilled to the semi-skilled. The increasing role of robotics and automation are driving these demands on labor. Vocational programs in high schools and community colleges are the pipelines for this labor supply. As businesses begin to identify and establish facilities within the Study Area, it will be necessary to establish partnerships with these training grounds to ensure the labor requirements are met. Increasingly, site selection decisions are being made on the availability of labor.

Development Approach: Environmental and Agricultural Conservation

A conservation-oriented approach focused on sustainable development and preservation of farmland would distinguish the Study Area from other developable sites on the market. As indicated in **Exhibit 3.9**, a major portion of the area is identified as prime farm land, primarily because of its proximity to the Great Miami River, with the remaining Study Area labeled as prime farmland with conditions (e.g. artificially drained soils). **Exhibit 4.3** also shows areas identified as reserve (moderately sloping areas of 6-12 percent slope, deciduous forest, evergreen forest, and mixed forest) and preserve (land within the 100-year floodplain, freshwater ponds, freshwater forested shrub, and wetlands). In order to reduce the impact of future development on this portion of the Great Miami River watershed, it is critical to follow conservation practices as part of the design and development process, not only for the area with development potential, but also the area west of Experiment Farm Road that was designated in the 2006 Comprehensive Plan Update – Recommended Future Land Use as urban residential and agriculture.

Following conservation practices within the area is possible in three primary ways:

- Plant a riparian buffer around any streams, wetlands, and ponds on-site.
- Reduce the area that is mowed and convert some areas to native warm season grass meadows and wildflower gardens.
- Use rain gardens, swales, and vegetated detention basins to manage stormwater naturally.

Exhibit 5.1: Selected Land Use and Circulation Concept

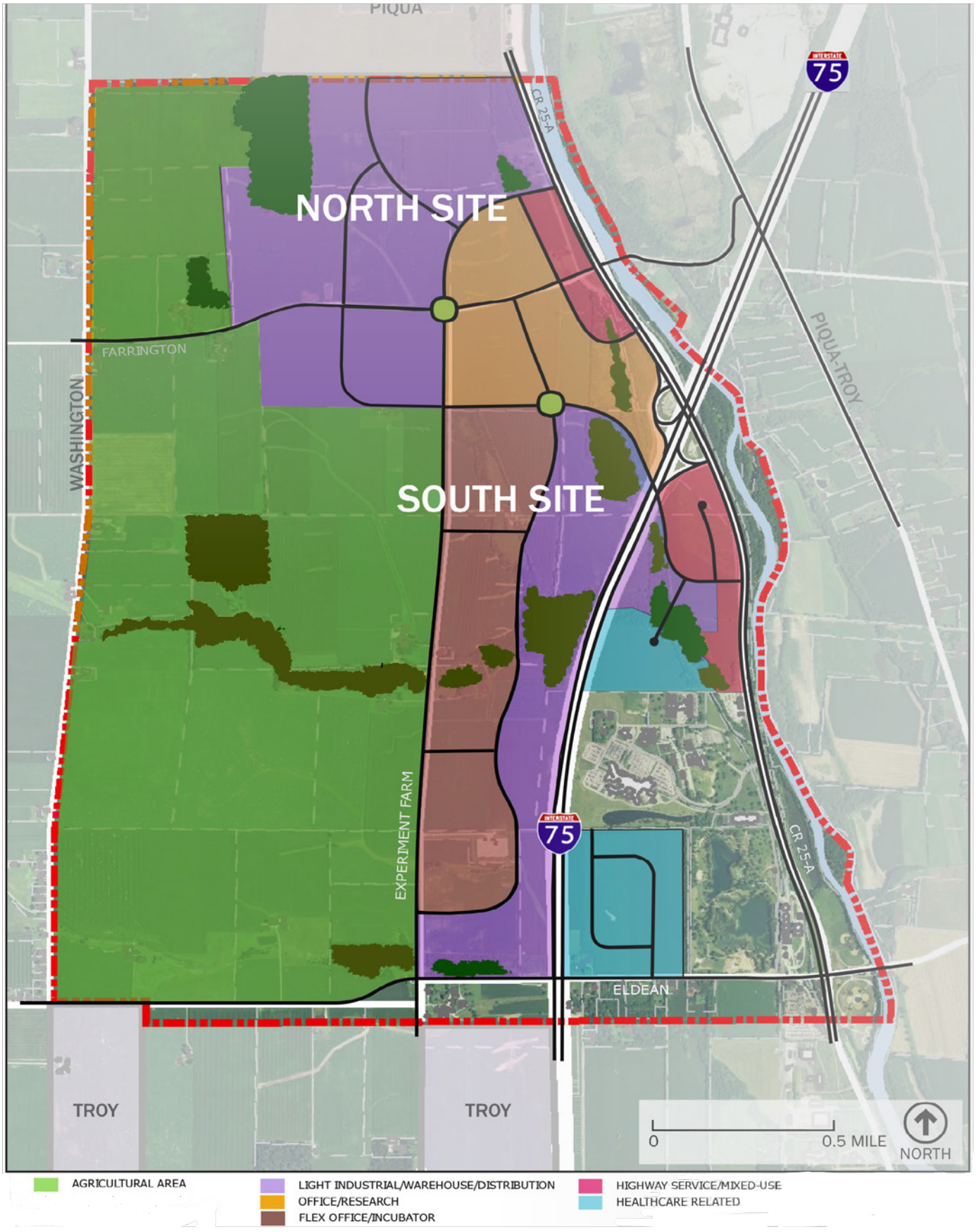


Exhibit 5.6, Illustrative Site Plan, shows how stormwater detention can be handled on multiple properties as the area develops. One approach that would reduce the number of detention or retention basins required to manage surface water flow would be management of stormwater regionally. The regional method has several distinct advantages over on-site detention, including:

- Reductions in capital, operations, and maintenance costs
- Reductions in risk of downstream flooding
- Opportunities to manage existing stormwater problems
- Flexibility to consider sites not currently being developed

To succeed, a regional management strategy requires local jurisdictions to assume several responsibilities, including 1) the preparation of more detailed planning studies to locate and develop preliminary designs for regional stormwater management facilities and 2) finance, design, and construct the stormwater facilities before development occurs, with reimbursement by developers over a five to 20-year build-out period. Maintenance, including algae control and dredging, may also be borne by the local jurisdiction.

Areas within the County designated as Urban Residential and adjacent to the Selected Concept could also develop using conservation practices. Bethel Township, located within southern Miami County adopted a Planned Development, or PD, District that includes a subdistrict entitled "Planned Development Residential Conservation (PD-RC).[2]" The minimum acreage for a PD-RC is 10 acres and allows uses permitted in the zoning code's R-1AAA, A-1 and A-2 districts. In the R-1AAA Residence District, single family residential, public and semi-public, and agricultural uses are permitted. The same uses are permitted in the A-1 Domestic Agriculture District. The A-2 General Agriculture District allows the same use as the A-1 and A-2 Districts but without public and semipublic uses.

One distinguishing feature of the subdistrict is the requirement to have 50 percent of the site reserved as open space, the highest of any PD district. According to district standards:

> *"Required common open space may include: woodlands, stream corridors, pedestrian walkways other than sidewalks, parkland, unimproved open areas, bridle paths, drainage ways and detention basins, swimming pools, clubhouses, tennis courts, golf courses, and other lands of essentially open or undisturbed or improved character, exclusive of off-street parking areas and street rights-of-way."*

The land may also be "transferred by the developer to a legally established homeowners association, private ownership, or if accepted, to the Board of Township Trustees, or other public or quasi-public agency." If the property remains in private ownership, a public easement may also be granted and recorded on the subdivision plat.

The area identified as "agriculture" on the Recommended Future Land Use map – but within the Urban Service Boundary could also develop as a conservation subdivision with similar provisions, including leaving all or a portion of the area dedicated as open space but allowing agriculture as a continued use.

The State of Ohio has initiated several programs to help ensure the preservation of agricultural land. The Clean Ohio Local Agricultural Easement Purchase Program (LAEPP) provides funding to farmland owners for placing an agricultural easement on their property, which will guarantee the land remains an agricultural use. Monies are issued for up to 75 percent of the points based on appraised value of a farm's development rights. A payment cap is set at $2,000 per acre, with a maximum of $500,000 per farm. All easement transactions are

Table 5.1: Alternative Concept Evaluation

Evaluation Criteria	Alternative A	Alternative B	Alternative C
Follows relevant project goals	♦	♦	♦
Retains agricultural heritage and rural character	♦	♦	♦
Enhances transportation linkages	♦	♦	♦
Addresses market potential	♦	♦	♦
Demonstrates appropriate arrangement of uses	♦	♦	♦

♦ = Meets Criteria
♦ = Partially Meets Criteria
♦ = Does Not Meet Criteria

recorded on the property deed and transfer with the land to successive owners.

The Ohio Agricultural Easement Donation Program (AEDP) provides landowners the opportunity to donate the easement rights on viable farmland to the department, which assures the land remains in agricultural use forever. Since 1999, the department has accepted the donation of agricultural easements from landowners who wish to protect their farm's soils and natural resource features. There are no stewardship fees or costs from the Ohio Department of Agriculture to the farmland owner for donating the easement, and all easement transactions are permanent. They are recorded on the property deed and will transfer with the land to successive owners. Landowners may also find financial benefits associated with easement donations.

Development Concept

The previous chapter (see **pages 58-61**) presented three alternative land use and circulation concepts for how the area could develop in the future and, at the same time, minimize the impact on the immediate environment. In order to arrive at a workable physical plan for the area, each concept was evaluated on the basis of five criteria:

- Follows relevant project goals;
- Retains agricultural heritage and rural character;
- Enhances transportation network connectivity/ linkages
- Addresses market potential; and
- Demonstrates appropriate arrangement of uses.

As **Table 5.1** shows, Alternative A was the highest scoring conceptual plan when compared to the five criteria. Unlike Alternative A, Alternative B and C scored lowest on "Retains agricultural heritage and rural character" primarily because they both showed development occurring west of Experiment Farm Road. All three alternatives dedicated more land to retail and office uses than was considered acceptable by the public in their response to the Online Community Survey. Alternative B only partially met "Enhances transportation linkages" because it did not include the roadway link between the Bruns property and the area west of I-75.

Selected Concept

Alternative A was chosen as the alternative primarily because it addresses many of the concerns expressed by the public. Even though Alternative A scored the highest among the three alternatives, modifications were made to the concept to reflect feedback from the online survey, the December 12, 2017 Second Public Meeting, and additional comments since the December meeting. These changes are reflected in the Selected Land Use and Circulation Concept (**Exhibit 5.1**). In this concept, commercial development north of Farrington Road (as shown on Alternatives A and B) is now shown fronting the old County Road 25-A alignment on both the north and south sides of Farrington Road. This is similar to the highly visible and accessible highway service/mixed-use project proposed for the Bruns property frontage off CR 25-A. The area identified as Office/Office Research/Medical Office takes advantage of visibility from I-75 as well as access to the roadway link to the Bruns property under I-75. The areas designated for office, industrial, and warehouse uses are the same as those shown in Alternative B. The area generally west of Experiment Farm Road in this scenario remains either as undeveloped/agricultural or as Urban Residential (as recommended in the 2006 Comprehensive Plan Update).

Light industrial or distribution and warehousing uses could eventually be developed at the southwest quadrant of the Farrington Road and Experiment Farm Road intersection (or the Piqua Materials/JRJ property) but more than likely in one of the later phases. Development of this property would require the extension of utilities, especially sanitary sewer, into this area which was identified in **Exhibit 3.15** "as not likely in the near future" because of its distance to existing sanitary service and the possibility of barriers (topography and existing roadways) to construction, placing it in the later fourth or fifth phase. If the site were developed, it should also interconnect with existing and proposed roadways using a roadway configuration similar to the one shown in Alternatives B and C (**Exhibits 4.6-7**) for this property.

Transportation Improvements

One of the key components of the Selected Concept was to demonstrate how an interconnected transportation system that encourages multiple travel modes could help minimize the impact on the existing roadway system and maintain the area's rural character. The following section looks at how controlling volumes, managing access, and making intersection and active transportation improvements can contribute to a well-integrated transportation system that supports the function of the land uses in the Selected Concept.

Traffic Volumes

The surface roads within the Study Area currently experience little or no congestion (see **Chapter 3**). While I-75 is congested during peak hours in both directions, traffic is confined primarily to the highway and does not affect the interchange with CR 25-A or surrounding roads.

Because current traffic volumes are low, any new development will impact the roadway network. Traffic volumes within the site will likely be highest near the I-75 and CR 25-A interchange. Both local and other traffic will use these two roads to access the site.

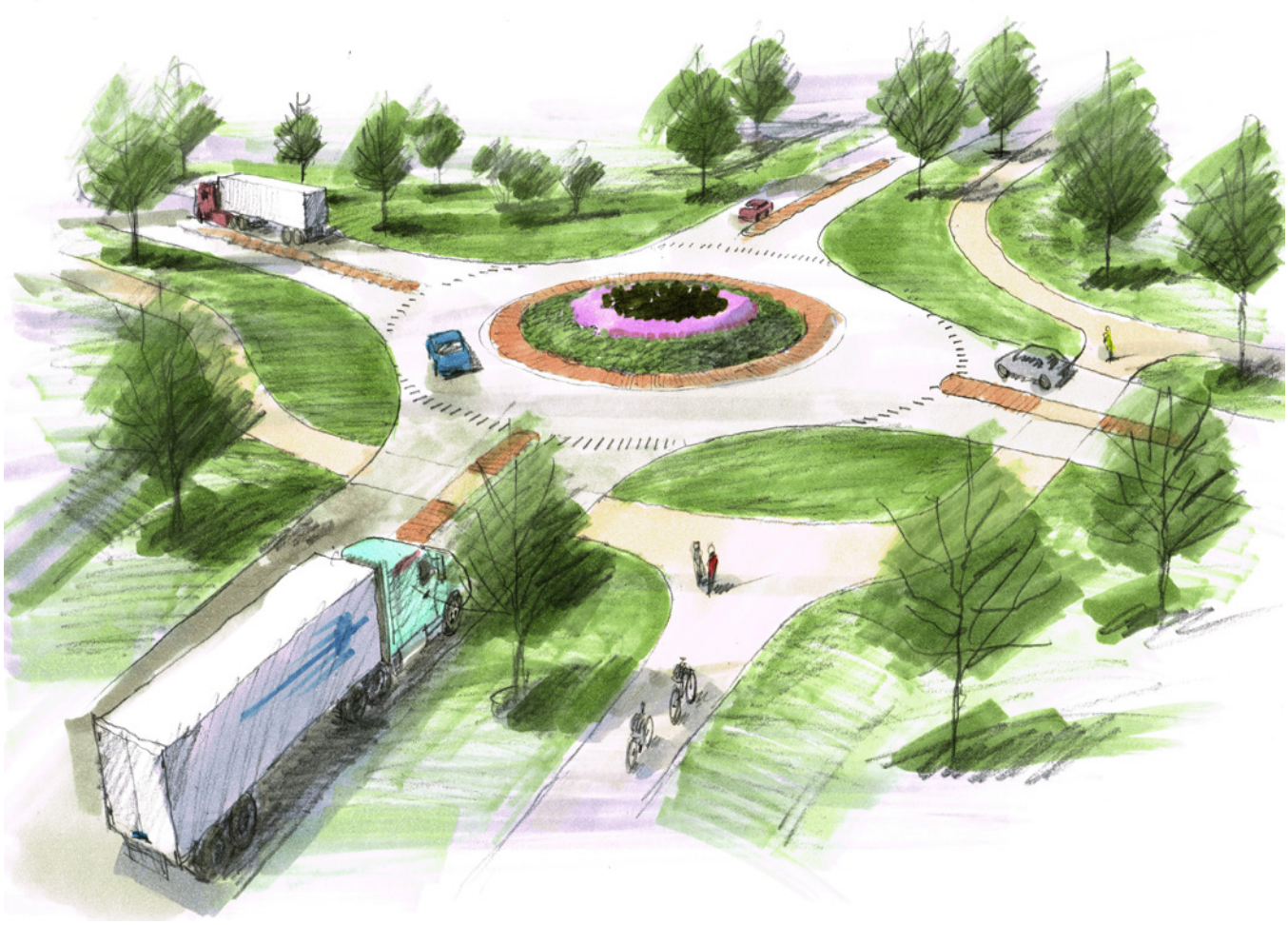
As the Study Area develops, traffic studies should be conducted for specific sites to determine their impacts. Based on the type of land use, proposed square footage of buildings, number of employees, rooms, and other attributes will be needed to produce accurate trip generation estimates.

Circulation and Access Management

Access management seeks to balance the goal of safe and efficient through-travel with the need to provide access to adjacent properties. An essential tool in determining how to best balance these needs is the categorization of road types. Some roads, such as freeways and interstates, are intended primarily (or solely) for through travel, while others are intended primarily for local property access, such as local streets. The Study Area's proposed internal roads align with the later category, while existing roads, such as CR 25-A and I-75, align with the former. This section provides a description of proposed access points to the Study Area and justification for limiting access to mitigate congestion and safety issues.

As shown in **Exhibit 5.1**, the proposed site plan features 12 access points that use existing and new roads. Two of them are major access points and are discussed in more detail below. A third point, at the south end on Eldean Road, will serve the light industrial and health care related

Exhibit 5.2: Roundabouts could be used as gateway treatments into the site.



uses on either side of I-75. There will likely be less traffic at the south end of the site due to industrial uses, which do not generate many trips, and because of its distance to the interchange at I-75 and CR 25-A.

Moving north, a new road south of the interchange on CR 25-A will connect to the middle part of the site via the currently unused railroad underpass that crosses I-75. This road will create a T-intersection with CR 25-A between the interchange and the existing entrance to the Upper Valley Medical Center. It will serve light industrial, health care related, office research, and highway service/mixed-use development. The road will cross the site diagonally, connecting with Farrington Road and creating a T-intersection at its northern terminus. Given its location at the center of the site and proximity to the interchange, this access point will likely carry higher volumes of traffic and may warrant signalization.

At the north end of the site, the existing T-intersection at Farrington Road and Experiment Farm Road could be converted to a roundabout with a new road extending north, terminating at CR 25-A. This road will serve the light industrial and highway service/mixed-use development north of Farrington Road. Because two of the site's internal roads will connect with Farrington Road, the intersection at Farrington Road and CR 25-A will experience higher volumes of traffic. Siting a new access point both north and south of the interchange will disperse traffic, mitigating possible congestion that could occur if only a single access point was available.

Four new roads will connect Experiment Farm Road to the primary north-south road within the site. Because most visitors will likely enter the site from the east, using CR 25-A and the I-75 interchange, the access points along Experiment Farm Road may not require signalization. Traffic volumes should be monitored to determine if signalized intersections are warranted in the future.

Restricting access to the Study Area at a limited number of strategic points will ensure ease of travel to, from, and within the site over the long-term. Developments that allow individual access for every business create unnecessary conflict points and suffer from chronic congestion and safety issues. Consolidating access allows for proper spacing on existing roadways so as to mitigate these hazards as traffic volumes increase.

Intersection Improvements

Several modifications are recommended to maintain acceptable levels of service as traffic volumes increase. The access points north and south of the interchange, at Farrington Road and at the new road between the interchange and Upper Valley Medical Center entrance, will attract freight traffic from I-75 traveling to the industrial uses in the site. These intersections should feature large curb radii to accommodate wide turning movements.

Roundabouts (**Exhibit 5.2**) are an effective gateway treatment to new developments, signaling a change from an agricultural landscape to a more built environment. Roundabouts are generally safer for all users than stop-controlled intersections and are also more efficient during busy periods. Native vegetation can be planted in the center and splitter islands of roundabouts to reinforce rural character and visually narrow the roadway, thus slowing traffic. Roundabouts reduce the need for traffic signals, utility poles, and other visual clutter, further enhancing the area's rural character.

Select existing intersections that would provide access to the new development could be reconstructed as roundabouts to accommodate increased traffic volumes. Installing new roundabouts at certain internal intersections in the development would optimize circulation and provide a distinct character from the surrounding area. Roundabouts should include crosswalks setback from the intersection to minimize crossing distances for pedestrians. Splitter islands on the approach to the intersection can also act as median refuge islands for pedestrians. Where present, on-street bicycle facilities should be continued through the intersection in the form of shared lane markings.

The intersection at Eldean Road and Experiment Farm Road is currently offset: Eldean Road east of Experiment Farm Road is roughly 350 feet north of the western segment of Elden Road. Two unsignalized intersections in such close proximity may pose safety hazards if traffic volumes increase in the future. It is recommended to realign the western segment of Eldean Road so that it connects directly with the eastern segment, creating a four-way intersection. This change would improve convenience for east-west travelers on Eldean Road and consolidate turning movements at a single intersection.

Active Transportation Improvements

While much of the new development will be occupied by highway service uses and other auto-oriented businesses, there is still opportunity to create a walkable, pedestrian-scaled environment in the Study Area. Most users will likely

reach the site by vehicle; but internal circulation between different land uses should accommodate pedestrians and bicyclists as well as motorists. Pedestrian-oriented uses, such as Medium Size Flex, Office, and Health Care Related/Assisted Living, should connect to adjacent land uses via sidewalks and trails. Sidewalk-oriented, people-scaled building entrances with attractive lighting, landscaping, and secure bicycle parking will encourage a mix of users, rather than entrances that face parking lots with few active transportation amenities. These features are increasingly common — and often required by zoning codes — in new developments, even if they are primarily auto-oriented.

Two factors are important to consider when siting and designing any new multimodal accommodations: connections to existing facilities and connections to future development. Detailed recommendations are included for the first factor, and conceptual recommendations are outlined for the second factor.

As **Exhibit 5.3** shows, the Great Miami River Trail already offers robust accommodations for active transportation users in the Study Area. Connecting future development to the Great Miami River Trail on the other side of CR 25-A is a primary goal of the active transportation recommendations, as it will increase accessibility and improve pedestrian and bicyclist safety. Currently, there is only one crossing point, where the trail crosses CR 25-A at Eldean Road via a standard crosswalk. Improving this facility and installing additional crossings on CR 25-A are recommended to connect the Study Area with the existing trail. Initially, two new crossing points should be considered: one at the Twin Arch Reserve trailhead across from the Upper Valley Medical Center and one at or near the Farrington Road intersection.

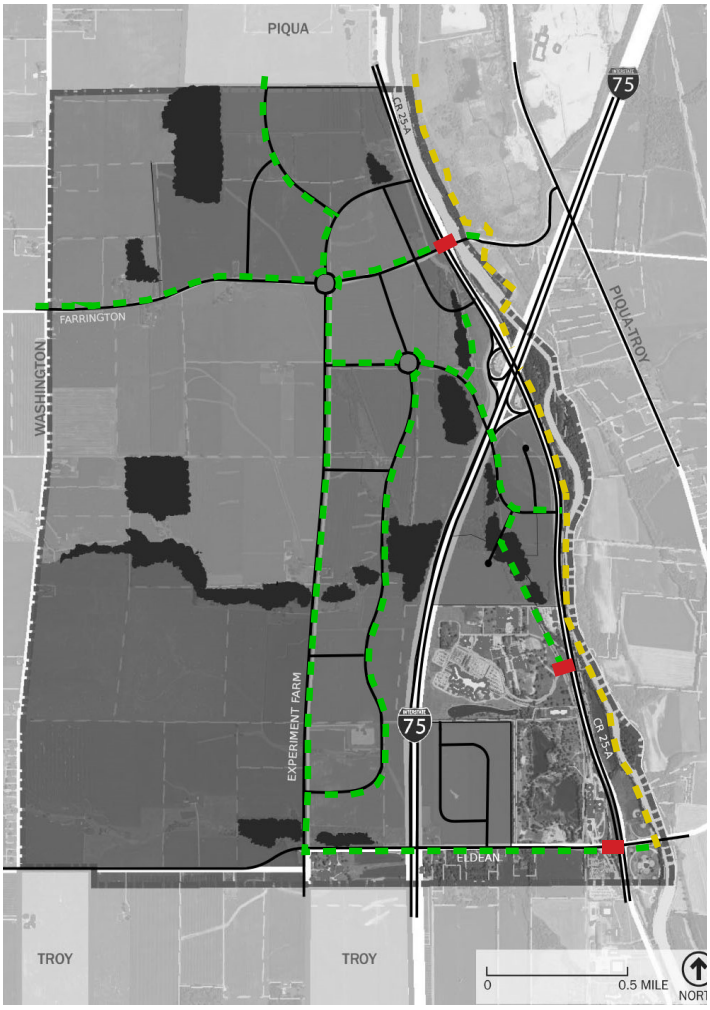
Installing a crossing at the Twin Arch Reserve trailhead would connect the trail to the medical center and future health care related uses north and south of the site. Regarding future development, it is more centrally located than the existing crossing at Eldean Road and would function as a main entry point into the Study Area for active transportation users. Depending on use, the existing facilities at the trail head (parking lot, restroom, and rest area) may need to be expanded to accommodate more users.

Developing trail access at the Farrington Road intersection would connect to the proposed light industrial and highway service land uses at the north end of the Study Area. It could also form part of the MVRPC-proposed Cardinal Trail. The Cardinal Trail would run east-west along Farrington/Peterson Roads, connecting with the Great Miami River Trail. The 20-mile trail would connect the Village of Covington, west of Piqua, and the community of Lena, on the eastern edge of the County.

The existing crossing provides direct access to the trail, as would the proposed crossing at the Twin Arch Reserve trailhead. The Farrington Road crossing would need to be connected to the trail via a short on-street facility on West Peterson Road. Once the Cardinal Trail is installed, direct off-street access would be established.

This trio of evenly spaced crossings along CR 25-A would provide safe and convenient access to and from the Study

Exhibit 5.3: Shared Use Path and Trails



Proposed Trail
Existing Great Miami River Trail
New/Improved Crossing

Figures 5.1-2: High-Visibility Crosswalk and Accessible Pedestrian Signal


Source: Burton Planning Services

Source: Burton Planning Services

Area. Future trail extensions and other facilities should direct active transportation users to these crossing points. Once they have been established, additional crossing locations may be evaluated as needed to further improve accessibility to the site (e.g. at the entrance to the Bruns development).

To comply with the Americans with Disabilities Act and conform to best practices, all future and existing crossings should include high-visibility, or continental, crosswalk patterns using white paint placed longitudinally across the roadway to increase the crosswalk's visibility to motorists (**Figure 5.1**). Markings can be spaced to avoid vehicle wheel paths, reducing maintenance needs. At signalized crossings, pedestrian signal heads and Accessible Pedestrian Signals (APS) should be installed (**Figure 5.2**). APS provide audio, visual, and vibrotactile feedback to pedestrians requesting a walk signal, replacing outdated pedestrian pushbuttons that do not accommodate users with disabilities. At unsignalized crossings active warning beacons can be used to alert drivers to yield when pedestrians or bicyclists are crossing the road. They are typically used at mid-block crossings. Warning signage could also be used at all crossings to inform motorists that pedestrians and bicyclists may be present. These elements are necessary to improve safety due to high speeds and the wide width of CR 25-A.

While linking the site to existing facilities is an important first step, ensuring connectivity within the area will be of equal importance as it is developed to guarantee safe and convenient access for pedestrians and bicyclists. Detailed recommendations for active transportation connections to future land uses and sites within the area will be established incrementally, as the site develops. In

Exhibit 5.4: Farrington Road

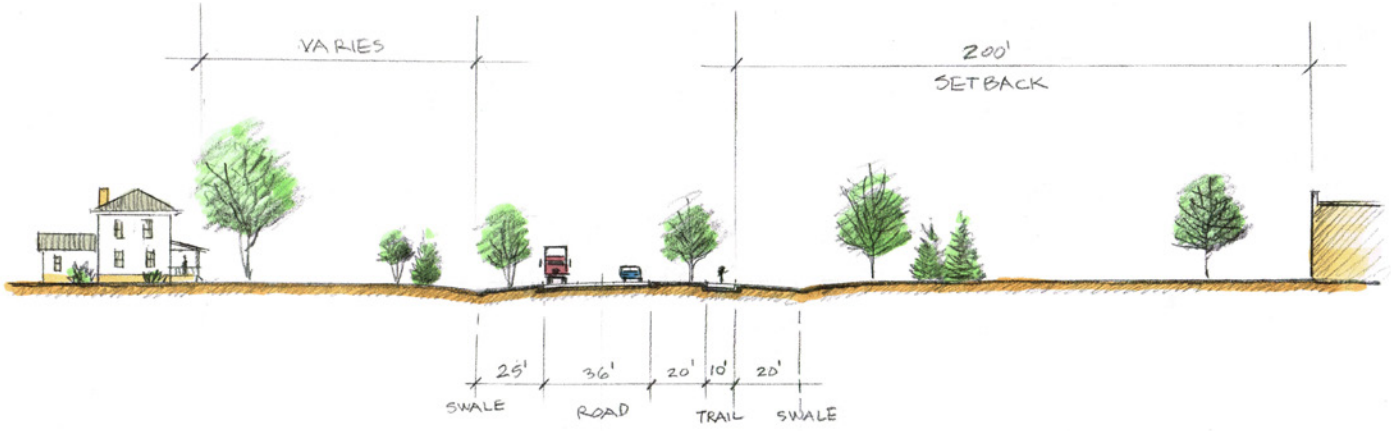
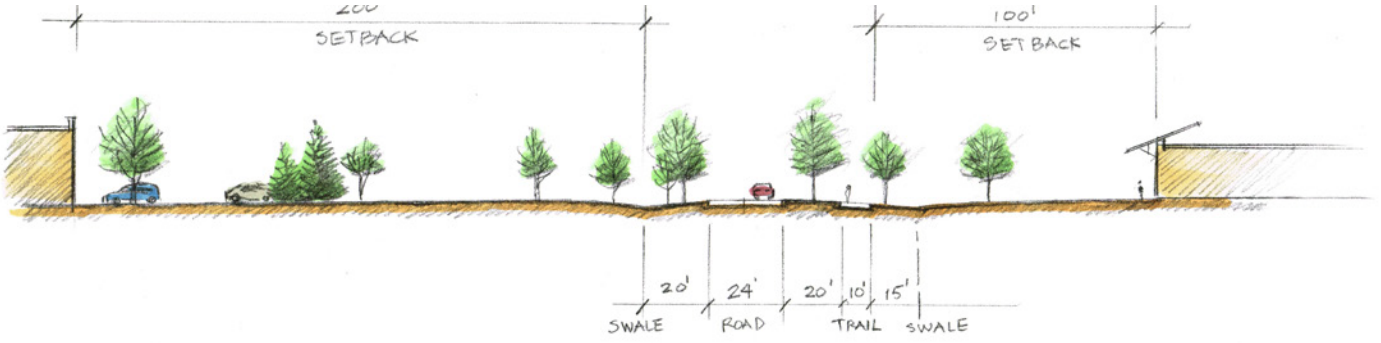


Exhibit 5.5: Internal Road



the interim, several planning principles could be applied to guide the planning process. First, off-street facilities should be preferred over on-street ones wherever possible. Separating active transportation facilities from the road maintains a narrow roadway width and a more rural character. Preserving the rural character of the area was identified as a high priority based on survey results and feedback during public meetings. Shared use paths (such as the existing trail) and sidepaths, which are paths located in the right-of-way adjacent to roads, are the preferred accommodation for future development. These facilities accommodate pedestrians as well as bicyclists, negating the need for sidewalks or on-street bicycle facilities (**Exhibits 5.4-5**).

Where it is infeasible to install shared use paths or sidepaths, on-street facilities should be used. Depending on traffic volumes and speeds, a combination of different bicycle facilities may be needed, from shared lane markings and signage to bike lanes. Sidewalks should be installed at all locations where sidepaths are not present.

Second, all future intersections should include crossing accommodations for active transportation users. Linking facilities across roadways enhances connectivity between destinations. It is especially important on roads that may otherwise be unsafe or uncomfortable for users to cross, such as those with high truck volumes (this could be an issue at the north end of the area). High-visibility crosswalks and APS are standard elements in new developments. In addition, ADA-compliant curb ramps should be included.

Accommodating active transportation users enhances quality of life, encourages physical activity, improves public health, and fosters a sense of community. Bicycle and pedestrian facilities provide alternative means of travel for those without access to private vehicles, and create safer, more livable places that attract and retain residents, businesses, and visitors.

Planning for Connected and Autonomous Vehicles

Experts predict that the freight industry will be one of the earliest adopters of connected and autonomous vehicle (CV/AV) technology on a large scale, in large part due to the cost savings it promises in reduced labor needs. Robotics and automated systems are already heavily integrated into manufacturing, distribution, and warehousing operations; once this automation extends beyond the factory and onto the road, management and oversight will become the responsibility of local governments and other regulatory agencies.

Autonomous trucking is currently being tested around the globe and will play a significant role in the distribution of goods in as little as five years. There are two factors driving innovation – relative ease of implementation (vs shared or user-owned personal vehicles) and a significant shortage in labor. As of today, autonomous trucking does not require significant investments in additional infrastructure other than perhaps embedding sensors intermittently along highway networks, but this is a rapidly evolving technology.

Autonomous trucking is arriving at the same time as e-commerce is maturing and the result is likely to put pressure on both labor markets and industrial/warehouse facility supply. Again, this is an opportunity for Miami County to take advantage of the Study Area's location and its "blank slate" appeal, and its proximity to skilled labor and Edison State Community College – a potential boon for training opportunities and partnerships.

Once driverless vehicles penetrate the commercial market, other impacts to the site may occur. Businesses could use passenger drop-off zones and remote parking facilities housed off-site, minimizing the need for on-site parking. Surface lots could be developed and built upon, potentially increasing development density, if market demand allows. Speeding, red light running, and other common risky behavior would decrease, allowing law enforcement to divert resources towards other safety issues in the area. These are just two examples of the many possible changes that driverless vehicles could bring.

IHS Automotive, an auto industry consultant, predicts that connected and autonomous vehicles will account for nine percent (21 million) of global automobile sales by 2035. Major changes may still be ten to 20 years away. However, the proposed development could take a similar amount of time to be fully built out. Therefore, the implications of connected and autonomous vehicles are highly relevant to this Plan and subsequent planning efforts for the CR 25-A area.

Utility Access

In addition to assuring that adequate transportation facilities are available to serve the area as it develops, it is important to understand the role that utilities have in the development process. To begin with, any initial attempt to develop the area would likely occur on the Bruns property, primarily because of the immediate availability of sewer

(eight-inch line) and a proposed water line extension (12-inch line) fronting the Upper Valley Medical Center. After the initial phase is developed, water and sewer service extensions could continue southward from the City of Piqua to serve the northern half of the area. The nearest sanitary sewer line extending along Experiment Farm Road originating from the City of Troy could serve the remaining southern half.

Because of their extensive network in Miami County, Vectren Corporation will more than likely provide additional natural gas lines to service the area. High-speed data transmission over fiber optic telephone lines are available through Verizon Wireless. Spectrum can provide cable TV and broadband telecommunications service if the industrial customers are of sufficient size to warrant connection. Dayton Power and Light Company (DP&L) is in a position to provide electric service to the entire area.

However, an alternative to tying into the centralized energy grid is to pursue distributed-generation and/or site-specific energy facilities that are typically located at or very near the end user. Establishing a "microgrid" could link properties within the area defined by the Selected Concept. A microgrid is a local, independent power grid that can run without electricity from the main network, and it can use any number of energy sources. Renewable energy sources, such as wind and solar, could power the microgrid. Solar panels could be placed on the expansive rooftops of warehouse and industrial buildings or within parking lots as protective cover (**Figures 5.3-4**). A bank of batteries within each facility would be required to store energy when wind or sun is not available or to provide power during inclement weather if the main grid fails.

Figure 5.3: Solar Parking Lot

Figure 5.4: Solar Roof

Combined-Heat-And Power System[3-5]

On-site generation of electricity can also allow for the use of a more efficient energy system, called a combined-heat-and-power (CHP) system. The generation of electricity produces waste heat, so a CHP system can capture and utilize waste heat, which can significantly improve the energy efficiency of the energy system.

Power Purchase Agreements[6-10]

Constructing a renewable energy-based microgrid that serves all or a portion of the future development in the Study Area could be cost-prohibitive because of the high short-term costs. So an option to consider would be to create a Power Purchase Agreement (PPA) for the site. The City of Piqua serves as its own electric utility, Piqua Power. It has existed for over 80 years and has won multiple awards for reliable service over the years. Because the City serves as its own utility, it is in an advantageous position to work with site developers to set up a microgrid via a PPA. The PPA would involve circulating a Request for Proposals from interested solar (or wind energy) installers to construct a renewable energy-based microgrid on-site. The PPA would result in no upfront construction and installation costs to the City or the property owners. In addition, the property owners would receive a guaranteed discounted rate on electricity and would not need to maintain the energy facilities. There would be some detailed contractual and legal negotiations needed in setting up the PPA, so the City Attorney (or other legal counsel for the City) would need to be involved in the initial stages.

Renewable Energy Special Improvement District[11-13]

Another option to support renewable energy installations in the Study Area is for the County and/or the cities and townships to work together to create a Special Improvement District for Renewable Energy (eSID) using Property-Assessed Clean Energy financing (PACE). The State of Ohio created legislation to enable and support the use of PACE and eSIDs, which allow property owners to borrow money at low interest rates to pay for renewable energy-based improvements on their properties. The amount borrowed is then applied as a special assessment

on the property. eSIDs are more flexible than traditional SIDs in that they do not require contiguous property owners to participate.

Building Types

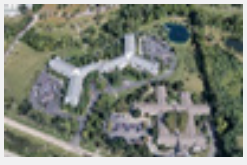
Table 5.2 shows five building typologies that are recommended to house the uses outlined in the Selected Concept (**Exhibit 5.1**). Large size Industrial/ Warehouse/Transportation Logistics buildings can range in size form 200,000 square feet to 500,000 square feet, even though the majority of the large buildings recommended are less than 300,000 square feet. Medium size Office/Incubator/Light Industrial/ Warehouse/Transportation Logistics buildings are between 100,000 and 200,000 square feet in building area. Most of the buildings will be one story in height with the Health Care Related/Assisted Living facility and potential hotel buildings reaching four stories.

The illustrative site plan (**Exhibit 5.6**) is meant to graphically depict how the area would appear if developed according to the Selected Concept. The area proposed for development between the City of Piqua Corporate limits and Farrington Road is referred to in this chapter as the North Site. The area between Farrington Road (including the Bruns property and the parcel south of the Upper Valley Medical Center) and Eldean Road is referred to as the South Site.

Illustrative Plan Description

The illustrative plan demonstrates how the area's natural characteristics are retained by grouping a majority of the larger industrial, warehouse, and logistics buildings into clusters while sharing loading and unloading space as well as access to individual properties. As a result, less impervious surface is created allowing more land to be dedicated to absorbing and filtering stormwater runoff and accommodating basins for retention or detention. Links between office developments are shown to allow shared access and shared use of parking lots which can also contribute to less imperious surface. Because the area lies within the Great Miami River watershed

Table 5.2: Building Types

Use	Recommended Building Types	Height (Stories)	Size (square feet)	Example
	Large Size Light Industrial/Warehouse/Transportation Logistics	1*	200,000-500,000	
	Office/Office Research/Medical Office	2	20-40,000	
	Medium Size Flex Office/Incubator/Light Industrial/Warehouse/Transportation	1*	100,000-200,000	
	Highway Service/Mixed-Use	1 - 4	10-50,000	
	Health Care Related/Assisted Living	1 - 4	5-40,000	

*** Assumes floor-to-ceiling height averaging 30 feet for high bay spaces.**

and is very close to the actual watercourse, it is especially important to minimize the amount of impervious surface and allow room for adequate filtration of surface pollution. Existing woodland areas and riparian tributaries were retained and should be left in reserve and protected by adequate setback from parking lots and buildings.

Having fewer access points consolidates turning movements and reduces the chance of conflict. Even though access to loading and unloading for tractor trailers is separated from visitor and employee access to parking, every effort was made to consolidate curb cuts and reduce potential conflict points at each development site.

As **Table 5.3** illustrates, a major portion of both the North and South sites are programmed for large and medium size warehouse and light industrial buildings, followed by office/office research and medical office, health care related, and highway service. A nearly even divide was maintained between the amount of building area dedicated to large size (200,000+ square feet) light industrial, warehouse and transportation/logistic facilities as medium size (100,000+square feet) light industrial, warehouse and transportation/logistic facilities. Most of the industrial/warehouse/transportation logistics buildings will be one story in height with the health care related/assisted living facility and potential hotel buildings reaching four stories.

One of the most important requirements for any development of this size is a formal entry to the area. The intersection of Farrington Road and CR 25-A provides the greatest opportunity to develop an identifiable entry point and celebrate the area's agricultural heritage. **Exhibit 5.7** shows how the "cultivated" land and existing agricultural outbuildings could be used to frame the entrance to the area and formally identify the development. **Exhibit 5.8** gives a "birds eye view" in three dimensions of both the North and South Sites looking south and west from CR 25-A. **Exhibit 5.9** looks in the opposite direction toward the north and east from Eldean Road.

Table 5.3: Building Area

Building Use	North Site Building Area (Sq. Ft)	South Site Building Area (Sq. Ft.)	Total Area (Sq. Ft)
Large Size Light Industrial/ Warehouse/ Transportation Logistics	2,059,520	2,196,200	4,255,720
Office/Office Research/Medical Office	252,000	728,000	980,000
Medium Size Flex Office/Incubator/ Light Industrial/ Warehouse/ Transportation Logistics	1,245,000	3,270,000	4,515,000
Highway Service/ Mixed-Use	48,000	88,500	136,500
Health Care Related/ Assisted Living	-	240,000	240,000

Development Controls

As an incentive to attract development and, at the same time, advance the recommendations of the 2006 Comprehensive Plan Update, the County should consider revising the current zoning regulations governing the area to include two types of planned zoning districts. The first district would encompass the area included in the Selected Concept and the Illustrative Plan, including the Bruns property. This district would permit the broad mix of non-residential uses, including highway service retail, general and medical office, office research, light industrial, warehousing, distribution and logistics facilities. Renewable energy (wind and solar) structures and equipment should also be permitted with specific standards controlling location, height, and setback as well as other requirements. Conservation techniques and practices should also be required to ensure that the area has a minimal impact on the immediate environment.

The second district would include the area designated in the 2006 Comprehensive Plan Update as Urban Residential (see **Exhibit 5.1**) and would involve a planned district that encouraged rural and agricultural conservation, as well as environmental protection. Like the zoning subdistrict in the Bethel Township zoning code, this subdistrict would require a base amount of open space to be dedicated along with promoting a "cluster" pattern of development that retains permitted gross densities.

Phasing

Due to the current and planned location of sewer and water service, roadway infrastructure currently in place, and existing zoning, it is recommended that the area designated on the Illustrative Plan be developed in at least five phases. As **Exhibit 5.10** on the following page shows, the first phase would involve the Bruns property which is already zoned I-1, Light Industrial, which allows a

broad range of non-residential uses from research and development to fabrication and processing. The second phase could occur within the North Site directly south of the Piqua corporate limits followed by the third phase, which includes the central section of the South Site and the property directly south of the Upper Valley Medical Center. Most of the area dedicated to retail and office uses would be part of the fourth phase. The final and fifth phase would include the southernmost portion of the South Site. Because of topographical constrains to extending sanitary sewer, Phases Two, Three (with the exception of the property directly south of the Upper Valley Medical Center), and Four would be serviced by the City of Piqua, with Phase Five serviced by the City of Troy. Phase One would tie into the existing lines serving the Upper Valley Medical Center. The property directly south of the Upper Valley Medical Center would be serviced by the City of Troy.

Implementation Guide

As previously described in **Chapter 1**, the Plan Advisory Group reviewed and evaluated a set of Goals for the Study Area. Each goal was scored and ranked in order of importance. Each goal was further defined by at least one objective and each objective was further detailed by one or more strategies which, as a policy hierarchy, establishes a framework for implementation. **Table 5.4** lists the goals in priority order and accompanying objectives, as well as a suggested time period within which each strategy is to be implemented: immediate (within one year), near-term (within two to eight years), mid- term (within five to nine years), and long-term (within ten to 15 years).

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Exhibit 5.6: Illustrative Site Plan

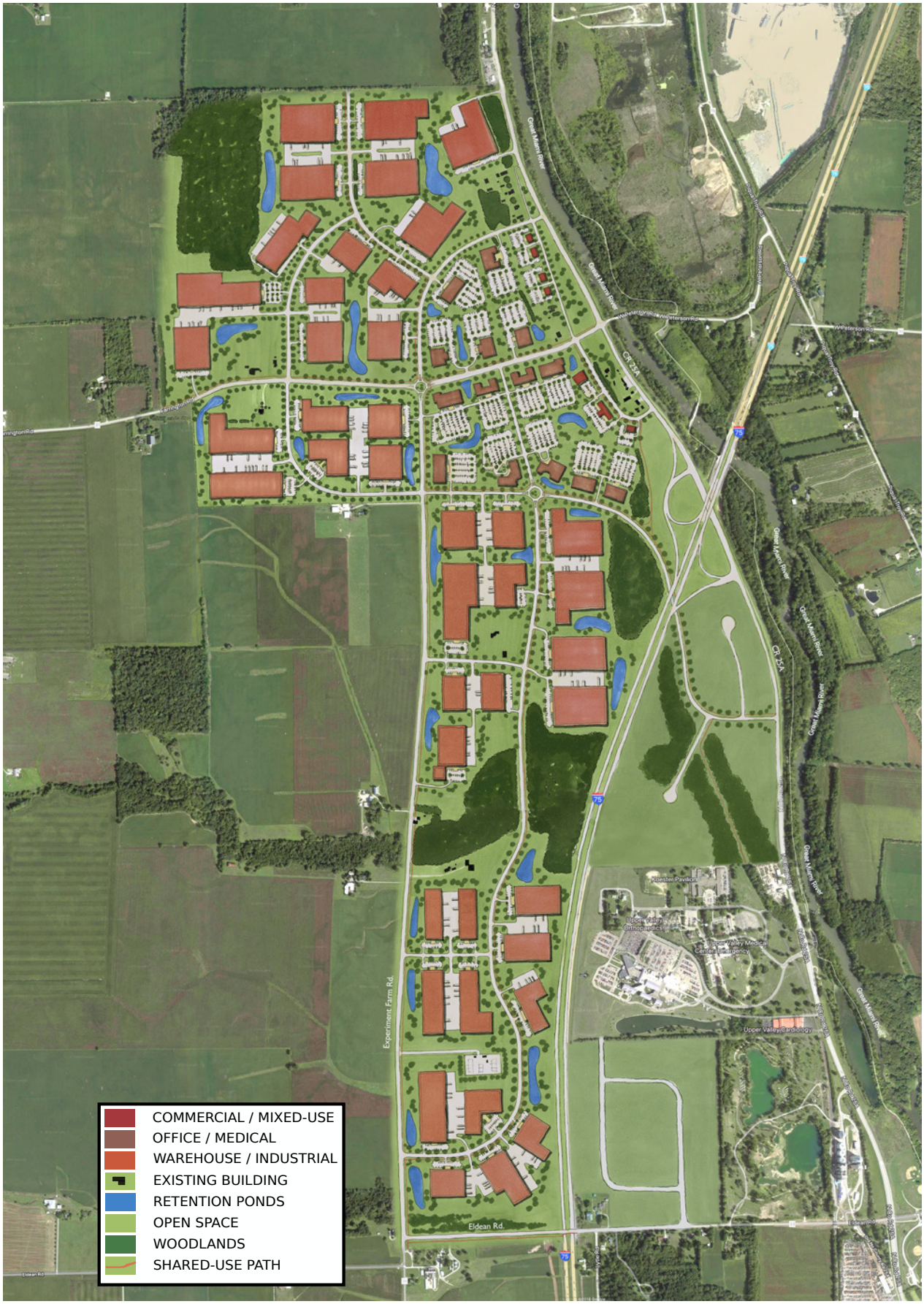

Exhibit 5.7: A gateway to the development at Farrington Road and CR 25-A.

Exhibit 5.8: Birdseye View from Northeast

Exhibit 5.9: Birdseye View from Southwest

Exhibit 5.7: A gateway to the development at Farrington Road and CR 25-A.

Exhibit 5.8: Birdseye View from Northeast

Exhibit 5.9: Birdseye View from Southwest

Exhibit 5.10: Phasing

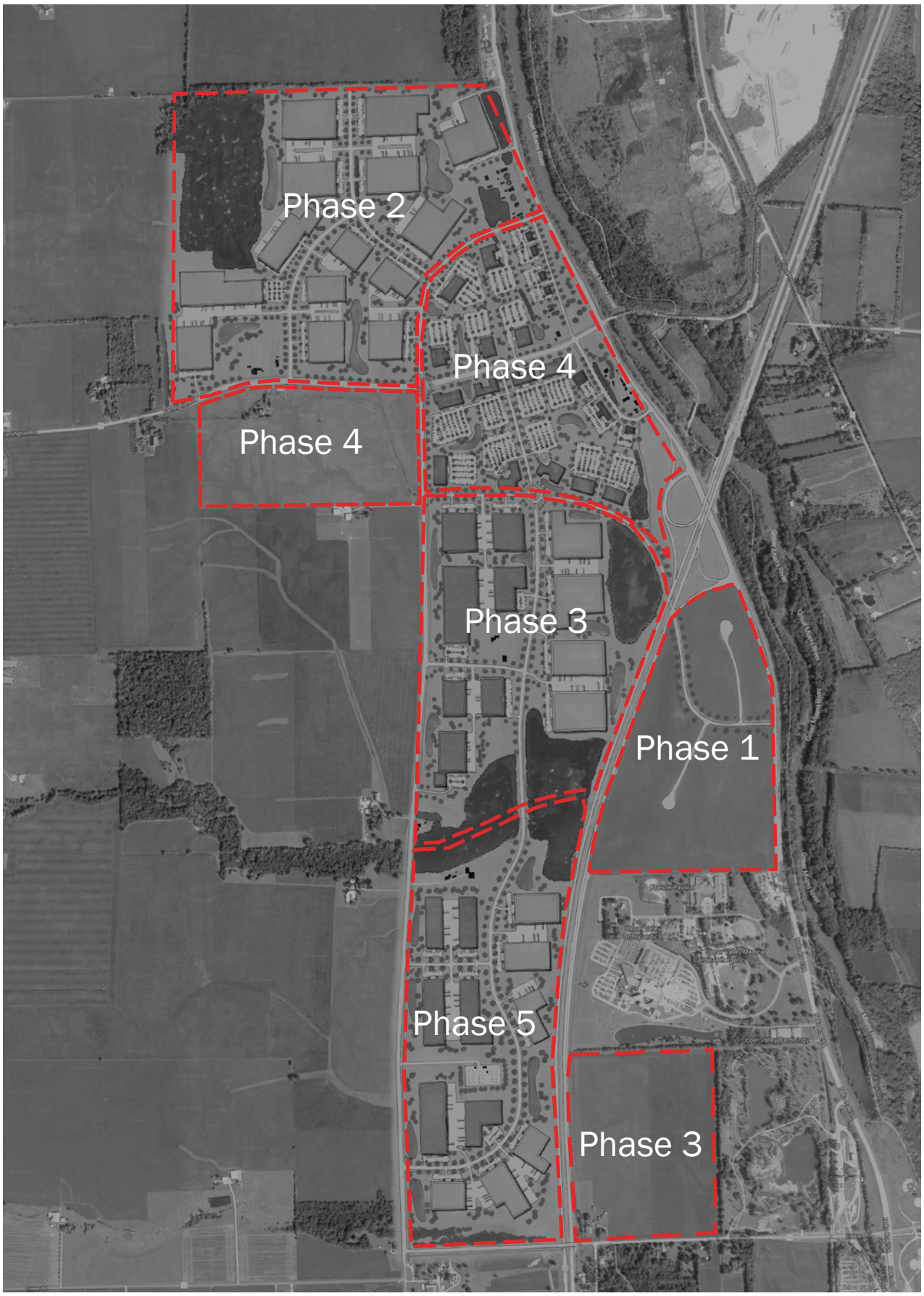

Table 5.4: Implementation Goals, Objectives, and Strategies

Goal	Objective	Strategy	Timing*			
			Immediate (> 1 year)	Near-Term (2-4 years)	Mid-Term (5-9 years)	Long-Term (10-15 years)
ECONOMY	**1.1: Incentivize New Commercial and Industrial Development within the Study Area**	1.1.1: Establish an Enterprise Zone Location: Entire Study Area		♦		
		1.1.2: Market the use of TIF and other financing methods to interested developers Location: Entire Study Area		♦	♦	♦
	1.2: Establish a Community Improvement Corporation	1.2.1: Engage County and Township leaders about their level of interest in forming a CIC Location: Entire Study Area		♦		
		1.2.2: Research other economic development CIC's in Ohio at the county level to determine their level of success in attracting capital investment Location: Entire Study Area		♦		
	1.3: Market the master plan for the Study Area to prospective developers both regionally and nationally	1.3.1: Contact a realty firm to develop a marketing strategy on how to package the Study Area to interested developers Location: Entire Study Area			♦	
		1.3.2: Develop a site selection mapping platform through the Miami County website Location: Entire Study Area		♦		
	1.4: Encourage the development of hospitality and transportation related services	1.4.1: Contact hotel developers in the region and gauge their level of interest and incentive requirements for developing a hotel near the interchange Location: CR25-A and I-75 interchange area		♦		
	1.5: Encourage the development of flex office and/or distribution warehouse facilities Between Experiment Farm Road and I-75	1.5.1: Research and Contact Industrial Real Estate Investment Trusts (REITs) in the region to gauge their interest in developing facilities within the Study Area Location: Study Area between Experiment Farm Road and I-75.		♦		

Table 5.4, continued

Goal	Objective	Strategy	Timing*			
			Immediate (> 1 year)	Near-Term (2-4 years)	Mid-Term (5-9 years)	Long-Term (10-15 years)
INFRA-STRUCTURE (Also see Goal 7, Mobility for Transportation Objectives and Strategies)	**2.1: Ensure adequate capacity within City of Troy and City of Piqua sewer and water treatment facilities and extend utility (sewer, water, gas, electric, telephone, and cable) lines and service to serve area.**	2.1.1: Extend sewer and water service to Phase 1 area Location: See **Exhibit 5.10**		♦		
		2.1.2: Extend sewer and water service to Phase 2 area Location: See **Exhibit 5.10**		♦	♦	
		2.1.3: Extend sewer and water service to Phase 3 and 4 areas Location: See **Exhibit 5.10**			♦	
		2.1.4: Extend sewer and water service to Phase 5 area Location: See **Exhibit 5.10**			♦	♦
	2.2: Promote integrated design of utility placement.	2.2.1: Design and construct accessible utility corridors for subsurface utilities within the roadway network to allow for maintenance, minimization of right-of-way disruption, and extended pavement lifecycle. Location: Entire North and South Site area		♦	♦	
ZONING	**3.1: Engage the public in drafting a planned commerce or employment center district to include warehouse, distribution/logistics, retail, office, institutional, and health care related uses**	3.1.1: Using the Illustrative Master Plan and other best practices, develop performance measures (e.g. noise levels and light pollution) to minimize the impact of permitted uses on adjacent agricultural and residential areas. Location: See **Exhibit 5.6**	♦			
		3.1.2: Establish an expedited development review process that minimizes the amount of time required for approval while allowing adequate public participation. Location: North and South Sites	♦			
	3.2: Engage the public in drafting a planned conservation zoning district for the Urban Residential area to include residential and agriculture/open space uses.	3.2.1: Organize focus groups with representatives from Miami Soil and Water Conservation District, State of Ohio Department of Agriculture, etc. to identify issues, opportunities, and best practices in rural conservation zoning. Location: See **Exhibit 5.11**	♦			
	3.3: Initiate rezoning of entire North and South site area to the planned commerce or employment center district	3.3.1: Hold public meetings or workshops explaining the purpose of the planned commerce or employment center district and its use as a tool to promote economic development in the County Location: North and South Sites		♦		

Table 5.4, continued

Goal	Objective	Strategy	Timing*			
			Immediate (> 1 year)	Near-Term (2-4 years)	Mid-Term (5-9 years)	Long-Term (10-15 years)
RESILIENCY	**4.1: Obtain energy through renewable sources, including wind and solar to reduce dependence on fossil fuels for energy**	4.1.1: Identify incentives for users to provide energy from renewable sources (e.g. Federal Renewable Electricity Production Tax Credit (expires for wind facilities in 2019), Ohio Energy Loan Fund (solar), Energy Conservation for Ohioans Program (Financial Incentive), etc. Location: Entire North and South Sites	♦			
	4.2: Encourage the formation of a micro-grid within the area to allow users to locally generate, distribute, and store energy from renewable sources.	4.2.1: Explore use of microgrid technology in other area (e.g. Pitt Ohio Company, Cheswick/Harmar, PA) and how the technology can be expanded to include whole neighborhoods. Location: Entire North and South Sites	♦	♦	♦	♦
ENVIRONMENT	**5.1: Retain natural, riparian corridors for habitat connectivity and require adequate buffers adjacent to parking lots, buildings, and other structures**	5.1.1: Include standards for protecting riparian corridors in zoning code revision. Location: Entire North and South Sites		♦	♦	♦
	5.2: As an alternative to conventional stormwater collection and conveyance systems, treat water as a resource rather than a waster product.	5.2.1: Address both the quantity and quality of runoff by incorporating bioretention, green roofs, porous pavement, rainwater harvesting and reuse, and native landscaping. Location: Entire North and South Sites		♦	♦	♦
	5.3: Encourage the preservation of agriculture though the use of agricultural easements in the Urban Residential and the Agricultural portion of the Study Area (see Exhibit 11).	5.3.1: Coordinate with the Ohio Department of Agriculture's Office of Farmland Preservation in obtaining the information necessary to assist farmers in creating agricultural easements. Location: Area included in the Urban Residential and Agricultural area mostly west of Experiment Farm Road.		♦	♦	♦
HEALTH	**6.1: Accommodate active transportation users with support facilities**	6.1.1: Encourage installation of safe and secure bicycle storage and provide on-site shower, changing, and locker facilities as an employee benefit. Location: Entire Study Area		♦	♦	♦

Table 5.4, continued

Goal	Objective	Strategy	Timing*			
			Immediate (> 1 year)	Near-Term (2-4 years)	Mid-Term (5-9 years)	Long-Term (10-15 years)
MOBILITY	**7.1. Assess the impact of additional development on the existing roadway network.**	7.1.1: Utilize land use and building area information generated by the master plan to develop trip generation estimates for use in modeling future traffic flow and distribution in the area. Location: Entire Study Area	♦			
		7.1.2: Monitor traffic volumes and crash data as the area develops to determine if any additional roadway improvements are necessary. Location: Entire Study Area			♦	♦
	7.2: Manage vehicular access to properties.	7.2.1: Minimize direct access to properties and reduce points of conflict from major roadways, including CR 25-A, Farrington Road, Experiment Farm Road, and Eldean Road by constructing an internal street network and providing more indirect and less conflicting access to properties. Location: Entire Study Area			♦	♦
	7.3: Improve safety and efficiency of roadway intersections.	7.3.1: Incorporate more cost-effective round-a-bout solutions to improve future intersection operations and safety. Location: Farrington Road and Experiment Farm Road and within the South Site's major north-south, east-west intersection.			♦	♦
		7.3.2: Realign the intersection of Elden-Road and Experiment Farm Road and by converting two closely spaced intersections into one four-way intersection (see **Exhibit 1**). Location: Experiment Farm Road and Eldean Road.			♦	♦

Table 5.4, continued

Goal	Objective	Strategy	Timing*			
			Immediate (> 1 year)	Near-Term (2-4 years)	Mid-Term (5-9 years)	Long-Term (10-15 years)
MOBILITY (continued)	**7.4: Make active transportation improvements to existing roadway facilities.**	7.4.1: Improve existing crossing points to access the Great Miami River Trail and connect future development at strategic locations Location: Existing crossing at CR 25-A and Eldean Road, Twin Arch Reserve across from the Upper Valley Medical Center, and the Farrington Road Intersection with CR 25-A.			♦	♦
		7.4.2: Comply with the Americans with Disabilities Act at all existing and future crossings. Location: Existing crossing at CR 25-A and Eldean Road, Twin Arch Reserve across from the Upper Valley Medical Center, and the Farrington Road Intersection with CR 25-A.			♦	♦
	7.5: Incorporate active transportation improvements to roadways serving future development	7.5.1: Provide off-street facilities, such as shared use or side paths where feasible in order to preserve rural character. Location: Entire Study Area.			♦	♦
		7.5.2: Include crossing accommodations for active transportation users at all future intersections Location: North and South Sites			♦	♦
HOUSING	**8.1: Encourage the Development of Health Care and Senior Living Related Uses North and South of the Upper Valley Medical Center**	8.1.1: Engage both Bruns Development Services and Premier Health about their level of interest in developing health care facilities Location: Southeast portion of Study Area		♦		
		8.1.2: Contact other health care networks and senior living facility operators in the region Location: Entire Study Area			♦	

COUNTY ROAD 25-A SPECIAL PLANNING AREA MASTER PLAN

APPENDICES

APPENDIX A

County Comprehensive Plan

The Miami County Comprehensive Plan was originally adopted in 1998. The most recent update of the Plan was prepared by the Miami Valley Regional Planning Commission and was adopted 2006 (**Figure 3.21**). The Plan is intended to serve as a 20-year guiding resource for those involved in making land use management decisions within the County and should be re-evaluated every five years. The primary objectives of the Plan include the following:

- Preservation of farmland
- Efficient use of public investment
- A knowledgeable application of zoning
- Continuation of agriculturally-supportive zoning
- Managed expansion of urban areas within identifiable urban service boundaries

Figure A.1: Comprehensive Plan 2006 Update

Prior to adopting the 1998 Comprehensive Plan, the County made several planning efforts including the establishment of Countywide zoning for eight of the twelve townships in 1972 (the eastern four townships have township zoning). The County also adopted a Thoroughfare Plan in 1974 and an Open Space Plan in 1991, which provides guidance for agencies charged with protecting open space and recreation sites.

The 2006 Plan divides the unincorporated areas of Miami County into 58 planning areas – a reduction from the 176 planning areas established in the 1998 Plan. The County Road 25-A Special Planning includes parts of planning areas from the 2006 Plan and four smaller planning areas from the 1998 Plan. The planning area falls primarily in Concord Township and part of Washington Township. The area is largely rural with some scattered commercial and residential uses. Naturally prime farms soils and prime farmland where drained, comprise 89% of soils in the planning area.

According to the 2006 Plan, the Planning Area was expected to have some growth and development south from Piqua. The Plan recommends that the Urban Service Boundary be adjusted southward from Piqua to accommodate growth along the Experiment Farm Road and I-75 corridors. This area was given a “Special Planning Area” designation in order to prepare for a variety of different potential land uses and to give thoughtful consideration when developing around unique farm homesteads. The Plan also discourages development patterns along the County Route 25-A corridor that involve multiple lot splits or plat splitting.

APPENDIX B: Endnotes

Chapter 3: Existing Conditions

1. (Miami County) http://www.co.miami.oh.us/DocumentCenter/View/560
2. (City of Troy, Ohio) http://www.troyohio.gov/DocumentCenter/Home/View/60
3. (Miami County) http://www.co.miami.oh.us/DocumentCenter/View/481
4. U.S. Census, Esri, Miami Valley Regional Planning Commission
5. Bureau of Labor Statistics
6. Miami County Chamber of Commerce
7. (Miami County Park District) http://www.miamicountyparks.com/park/twinarch
8. (Ohio History Connection) http://www.ohiohistorycentral.org/index.php?title=Miami_and_Erie_Canal&oldid=28976
9. (Ohio Round Barns List) http://www.dalejtravis.com/barn/ohio/htm/oh05502.htm
10. (Miami Valley Regional Planning Commission) Miami County, Ohio Comprehensive Plan Update
11. (FEMA) https://www.fema.gov/national-flood-insurance-program/definitions#F
12. (US EPA) https://www.epa.gov/wetlands/what-wetland
13. (Ohio EPA) http://www.epa.ohio.gov/dsw/401/mitigation.aspx#149198484-special-waters-list
14. (Ohio EPA2) http://epa.ohio.gov/Portals/28/documents/gwqcp/gwfactsht.pdf
15. (ODNR) https://water.ohiodnr.gov/portals/soilwater/pdf/maps/groundwater%20pollution/Preprinted/Miami_PP_Report_wMap.pdf
16. (USDA) https://www.nrcs.usda.gov/wps/portal/nrcs/detail/null/?cid=nrcs143_014052
17. (USGS) https://www.usgs.gov/news/earthword-rock-vs-mineral
18. (Dayton Daily) http://www.daytondailynews.com/news/local/miami-county-news-residents-oppose-surface-mining-facility/6eJ6xADoUeDnC6mqUQtbFM/
19. (Michael Auer) https://www.nps.gov/tps/how-to-preserve/briefs/20-barns.htm

Chapter 4: Information Analysis and Alternative Development Concepts

1. Genworth 2015 Cost of Care Survey. Genworth Financial. March 20th 2015. https://www.genworth.com/dam/Americas/US/PDFs/Consumer/corporate/130568_040115_gnw.pdf.
2. National Center for Assisted Living – Resident Facts and Figures. National Study of Long-Term Care Providers, 2013-2014. Harris-Kojetin L, Sengupta M, Park-Lee E, et al. https://www.ahcancal.org/ncal/facts/Pages/Residents.aspx
3. Medicare Current Beneficiary Survey 2015. Office of Enterprise Data and Analytics of the Centers for Medicare & Medicaid Services. https://www.cms.gov/Research-Statistics-Data-and-Systems/Research/MCBS/Codebooks.html
4. Ohio Department of Aging Long Term Care Consumer Guide. https://www.ltc.ohio.gov/
5. The Ohio Job Outlook - Dayton MSA. Ohio Department of Jobs and Family Services and the U.S. Department of Labor. http://ohiolmi.com/proj/OhioJobOutlook.htm
6. Dayton Business Journal. "Massive industrial building coming to Dayton airport". Kaitlin Schroeder. July 28th 2016. https://www.bizjournals.com/dayton/news/2016/07/28/massive-industrial-building-coming-to-dayton.html.
7. Dayton Market Reports. Colliers International. http://www2.colliers.com/en/Research#sort=%40fdatez32xpublished55910%20descending&f:location=[Dayton]

Chapter 5: Master Plan and Implementation

1. Ohio Rev. Code Section 1724.01 (2009), available at http://codes.ohio.gov/orc/1724
2. Bethel Township (Miami County, Ohio) Zoning Resolution, (2007), available at http://www.bethelTownship.org/zoningresolution.html
3. Power Purchase Agreement Checklist for State and Local Governments (PDF) https://www.nrel.gov/docs/fy10osti/46668.pdf
4. Powering Up: A Report on the Economic Benefits of Renewable Electricity Development (PDF) https://static1.squarespace.com/static/58ecc722197aea316e9b93fc/t/58f136356a4963e42984950f/1492203069150/Ohio_Economic_Development_Report1.pdf
5. Solar Power Purchase Agreements(EPA Website) https://www.epa.gov/greenpower/solar-power-purchase-agreements
6. Combined Heat and Power Basics (DOE Website) https://energy.gov/eere/amo/combined-heat-and-power-basics
7. What is CHP? (EPA Website) https://www.epa.gov/chp/what-chp
8. Combined Heat and Power in Ohio (PUCO Website) https://www.puco.ohio.gov/industry-information/industry-topics/combined-heat-and-power-in-ohio/
9. (Exiting) Combined Head and Power Facilites (in Ohio-map)) https://www.puco.ohio.gov/puco/index.cfm/industry-information/industry-topics/combined-heat-and-power-in-ohio/existing-ohio-chp-map/
10. (Potential) Combined Head and Power Facilites (in Ohio - map) https://www.puco.ohio.gov/puco/index.cfm/industry-information/industry-topics/combined-heat-and-power-in-ohio/potential-ohio-chp-map/
11. Local Option - Special Energy Improvement Districts (DOE) https://energy.gov/savings/local-option-special-energy-improvement-districts (DOE Website)
12. Ohio Revised Code (Enabling Legislation) http://codes.ohio.gov/orc/1710
13. Columbus-Franklin County Finance Authority (Website) https://columbusfinance.org/services/energy-program/ https://docs.google.com/viewer?url=https%3A%2F%2Fcolumbusfinance.org%2Fwp-content%2Fup-

APPENDIX C

The following tables summarize the data used to conduct the comparative regional analysis that can be found within the market analysis section of this report. Each table contains values for a five-mile radius around the Study Area as well as the median, high value, low value, average and standard deviation, for the respective aggregate comparative area data. There are also two fields that compare the five-mile radius around the Study Area to the average of the aggregate area data as both a raw number and an overall percentage difference.

The first table summarizes basic demographic variables: total population, total households, household tenure and daytime population. All of the data points are estimated for year 2017 and were provided by our third-party data prover Esri.

The second table summarizes the employment data within the Study Area radius and aggregate comparative area. For this data, each employed adult (age 16 and over) that lives within the Study Area and aggregate comparative area is assigned to one of the industry categories, regardless of the location of their job. Employment data was also provided by Esri.

The final table summarizes the businesses that fall within the Study Area radius and aggregate comparative area. Each business was categorized by its industry sector and then aggregated by number of businesses, annual sales (in thousands) and number of employees. Business data was provided by third-party data provider Infogroup.

Table B.1: Comparative Interchange Analysis - Demographic Data

Comparative Interchange Analysis - Demographic Data								
DEMOGRAPHIC VARIABLES	**STUDY AREA**	**MEDIAN**	**LOW**	**HIGH**	**AVG.**	**ST DEV**	**(SITE - AVG.)**	**PCT DIFF**
Total Population	47,296	55,373	24,449	133,874	61,714	19,830	-14,418	-23.4%
Total Households	19,425	22,356	6,339	53,250	24,401	7,570	-4,976	-20.4%
Owner-Occupied Households	11,553	15,161	1,417	38,222	16,127	5,680	-4,574	-28.4%
Renter-Occupied Households	7,872	7,723	1,691	21,627	8,274	3,394	-402	-4.9%
Total Daytime Population	53,231	61,381	29,999	117,113	63,105	15,245	-9,874	-15.6%
Daytime Population: Workers	27,878	31,398	5,579	83,558	30,877	7,666	-2,999	-9.7%
Daytime Population: Residents	25,353	28,607	12,113	80,354	32,229	11,482	-6,876	-21.3%

Table B.2: Comparative Interchange Analysis - Employment by Industry

Comparative Interchange Analysis - Employment by Industry								
EMPLOYMENT BY INDUSTRY	STUDY AREA	MEDIAN	LOW	HIGH	AVG.	ST DEV	(SITE - AVG.)	PCT DIFF
Civilian Pop. 16+ in Labor Force	23,649	28,946	5,335	71,398	31,516	10,156	-7,867	-25.0%
Employed Civilian Pop. 16+	22,248	27,413	4,753	68,033	29,734	9,613	-7,486	-25.2%
Unemployed Population 16+	1,400	1,532	393	6,296	1,782	906	-382	-21.4%
Unemployment Rate	6	5	2	15	6	2	0	3.7%
Agric/Forestry/ Fishing/Hunting	48	150	16	923	178	116	-130	-73.0%
Mining/Quarrying/Oil & Gas Extr	1	15	0	579	28	50	-27	-96.5%
Construction	1,023	1,312	152	4,534	1,450	629	-427	-29.5%
Manufacturing	6,397	4,405	583	14,517	4,618	1,932	1,779	38.5%
Wholesale Trade	501	699	50	2,591	769	387	-268	-34.8%
Retail Trade	2,963	3,193	691	8,008	3,416	1,083	-453	-13.3%
Transportation/ Warehousing	1,134	960	119	5,193	1,208	762	-74	-6.1%
Utilities	59	226	3	1,101	264	163	-205	-77.7%
Information	242	359	64	1,386	398	192	-156	-39.2%
Finance/Insurance	343	1,198	42	5,895	1,371	828	-1,028	-75.0%
Real Estate/Rental/ Leasing	326	434	83	1,724	483	231	-157	-32.5%
Prof/Scientific/Tech Services	617	1,305	91	6,349	1,645	1,022	-1,028	-62.5%
Mgmt of Companies/ Enterprises	0	13	0	154	20	24	-20	-100.0%
Admin/Support/Waste Mgmt Svs	974	1,045	135	3,585	1,167	485	-193	-16.6%
Educational Services	1,568	2,382	199	10,004	2,706	1,263	-1,138	-42.1%
Health Care/Social Assistance	2,451	4,149	823	11,996	4,499	1,611	-2,048	-45.5%
Arts/Entertainment/ Recreation	369	536	85	1,838	606	338	-237	-39.1%
Accommodation/Food Services	1,644	2,274	456	5,602	2,424	835	-780	-32.2%
Other Services (excl Publ Adm)	936	1,209	114	3,385	1,318	459	-382	-29.0%
Public Administration	652	993	311	5,571	1,167	688	-515	-44.1%

Table B.3: Comparative Interchange Analysis - Business Variables

BUSINESS VARIABLES	STUDY AREA	MEDIAN	LOW	HIGH	AVG.	ST DEV	(SITE - AVG.)	PCT DIFF
Total Businesses	1,930	2,189	384	3,619	2,165	507	-235	-10.9%
Total Sales ($000s)	$5,099,150	$5,683,393	$801,765	$17,891,849	$6,094,655	$2,533,850	-$995,505	-16.3%
Total Emp	31,713	32,650	5,629	133,563	32,942	10,484	-1,229	-3.7%
Agriculture Biz	9	7	0	54	8	5	1	12.0%
Agriculture Sales ($000s)	$2,532	$3,320	$0	$102,823	$5,558	$9,444	-$3,026	-54.4%
Agriculture Emp	36	32	0	698	48	67	-12	-25.4%
Mining Biz	0	1	0	19	2	2	-2	-100.0%
Mining Sales ($000s)	$0	$2,153	$0	$370,704	$10,806	$41,534	-$10,806	-100.0%
Mining Emp	0	10	0	815	43	111	-43	-100.0%
Utility Biz	1	4	0	13	4	2	-3	-75.0%
Utility Sales ($000s)	$3,276	$18,867	$0	$1,690,868	$56,160	$138,219	-$52,884	-94.2%
Utility Emp	25	50	0	5,159	135	358	-110	-81.5%
Construction Biz	104	149	16	472	157	57	-53	-33.7%
Construction Sales ($000s)	$114,681	$221,073	$19,937	$1,256,157	$250,909	$144,597	-$136,228	-54.3%
Construction Emp	676	1,252	100	9,415	1,410	892	-734	-52.0%
Manufacturing Biz	126	86	4	305	94	42	32	34.3%
Manufacturing Sales ($000s)	$1,210,224	$736,570	$25,033	$10,271,678	$1,101,830	$1,233,439	$108,394	9.8%
Manufacturing Emp	5,648	3,187	93	13,792	3,784	2,544	1,864	49.3%
Wholesale Biz	65	78	10	240	81	30	-16	-20.2%
Wholesale Sales ($000s)	$1,963,257	$1,559,441	$220,058	$10,656,315	$1,990,974	$1,423,009	-$27,717	-1.4%
Wholesale Emp	2,076	1,222	182	10,180	1,504	1,107	572	38.1%
Retail Biz	314	324	70	623	322	94	-8	-2.4%
Retail Sales ($000s)	$906,129	$1,112,144	$145,240	$12,001,385	$1,158,612	$772,413	-$252,483	-21.8%
Retail Emp	4,271	4,643	652	96,874	5,171	5,873	-900	-17.4%
Auto-related Biz	42	44	3	100	44	16	-2	-5.0%

Table B.3, continued

BUSINESS VARIABLES	STUDY AREA	MEDIAN	LOW	HIGH	AVG.	ST DEV	(SITE - AVG.)	PCT DIFF
Auto-related Sales ($000s)	$135,949	$209,857	$7,703	$875,995	$239,924	$146,322	-$103,975	-43.3%
Auto-related Emp	510	586	20	3,794	620	443	-110	-17.7%
Furniture Biz	10	16	2	47	17	8	-7	-41.0%
Furniture Sales ($000s)	$9,567	$22,788	$802	$802,866	$38,603	$85,228	-$29,036	-75.2%
Furniture Emp	76	125	4	5,521	209	572	-133	-63.7%
Electronics Biz	23	14	1	40	14	6	9	60.9%
Electronics Sales ($000s)	$20,809	$27,071	$924	$173,045	$29,457	$21,728	-$8,648	-29.4%
Electronics Emp	112	136	3	669	146	111	-34	-23.1%
Home & Garden Biz	25	26	3	70	27	9	-2	-6.4%
Home & Garden Sales ($000s)	$131,216	$111,220	$2,720	$496,929	$125,787	$68,099	$5,429	4.3%
Home & Garden Emp	533	415	9	1,720	448	227	85	19.0%
Food & Bev Biz	37	37	9	97	39	15	-2	-5.8%
Food & Bev Sales ($000s)	$328,520	$147,827	$10,201	$514,084	$164,266	$87,966	$164,254	100.0%
Food & Bev Emp	945	799	53	3,554	876	452	69	7.9%
Health Personal Biz	32	33	7	75	33	12	-1	-3.8%
Health Personal Sales ($000s)	$44,995	$77,415	$7,542	$922,332	$101,993	$89,501	-$56,998	-55.9%
Health Personal Emp	248	331	44	5,356	452	487	-204	-45.1%
Gas Station Biz	17	13	2	58	16	9	1	9.3%
Gas Station Sales ($000s)	$84,249	$81,605	$8,859	$1,088,757	$132,302	$165,842	-$48,053	-36.3%
Gas Station Emp	102	101	9	905	158	175	-56	-35.6%
Clothing Biz	30	29	2	126	35	23	-5	-14.7%
Clothing Sales ($000s)	$24,414	$21,767	$762	$221,557	$35,613	$34,242	-$11,199	-31.4%
Clothing Emp	222	161	6	2,453	292	334	-70	-24.0%
Sports Hobby Book Music Biz	19	21	2	55	22	9	-3	-11.8%
Sports Hobby Book Music Sales ($000s)	$13,932	$26,328	$1,244	$221,423	$33,229	$27,068	-$19,297	-58.1%

Table B.3, continued

BUSINESS VARIABLES	STUDY AREA	MEDIAN	LOW	HIGH	AVG.	ST DEV	(SITE - AVG.)	PCT DIFF
Sports Hobby Book Music Emp	99	192	11	2,478	253	279	-154	-60.9%
General Merch Biz	21	18	1	42	18	7	3	14.6%
General Merch Sales ($000s)	$65,608	$126,298	$898	$503,722	$135,665	$79,300	-$70,057	-51.6%
General Merch Emp	1,120	846	5	2,928	879	488	241	27.4%
Misc Store Biz	57	48	6	100	48	17	9	18.6%
Misc Store Sales ($000s)	$45,407	$47,580	$1,700	$10,647,241	$102,060	$643,976	-$56,653	-55.5%
Misc Store Emp	294	313	16	88,292	725	5,347	-431	-59.5%
Nonstore Biz	2	8	0	24	8	4	-6	-75.9%
Nonstore Sales ($000s)	$1,464	$6,904	$0	$431,819	$19,712	$45,598	-$18,248	-92.6%
Nonstore Emp	11	41	0	4,107	113	237	-102	-90.3%
Trans Warehouse Biz	26	43	6	224	47	22	-21	-44.6%
Trans Warehouse Sales ($000s)	$46,507	$87,375	$3,391	$1,511,484	$127,293	$164,340	-$80,786	-63.5%
Trans Warehouse Emp	430	669	31	7,333	936	871	-506	-54.0%
Information Biz	33	40	7	100	41	14	-8	-20.0%
Information Sales ($000s)	$134,407	$105,695	$15,031	$1,284,217	$138,205	$115,889	-$3,798	-2.7%
Information Emp	337	520	43	3,518	593	396	-256	-43.2%
Finance Insurance Biz	114	123	12	266	126	42	-12	-9.2%
Finance Insurance Sales ($000s)	$148,900	$204,159	$23,855	$3,367,270	$265,217	$242,837	-$116,317	-43.9%
Finance Insurance Emp	685	899	66	17,463	1,402	1,844	-717	-51.1%
Central Bank Biz	46	46	6	95	46	14	0	-0.1%
Central Bank Sales ($000s)	$88,373	$104,239	$8,400	$918,276	$121,256	$89,363	-$32,883	-27.1%
Central Bank Emp	375	465	41	2,355	530	322	-155	-29.2%
Security Commodity Biz	31	26	2	87	29	15	2	7.1%
Security Commodity Sales ($000s)	$24,439	$35,757	$2,575	$643,578	$51,215	$48,158	-$26,776	-52.3%
Security Commodity Emp	85	113	8	1,999	157	150	-72	-46.0%

Table B.3, continued

BUSINESS VARIABLES	STUDY AREA	MEDIAN	LOW	HIGH	AVG.	ST DEV	(SITE - AVG.)	PCT DIFF
Ins. Funds Trust Other Biz	37	50	0	124	51	20	-14	-26.9%
Ins. Funds Trust Other Sales ($000s)	$36,089	$44,888	$0	$3,079,312	$92,746	$203,201	-$56,657	-61.1%
Ins. Funds Trust Other Emp	225	265	0	15,964	715	1,714	-490	-68.5%
Real Estate and Rental Biz	93	113	22	210	114	29	-21	-18.7%
Real Estate and Rental Sales ($000s)	$42,789	$84,218	$7,891	$1,078,190	$100,228	$69,953	-$57,439	-57.3%
Real Estate and Rental Emp	402	613	48	2,447	675	305	-273	-40.4%
Prof. Scientific Tech Svs Biz	118	161	19	432	170	63	-52	-30.7%
Prof. Scientific Tech Svs Sales ($000s)	$74,003	$136,356	$22,499	$610,550	$162,270	$97,591	-$88,267	-54.4%
Prof. Scientific Tech Svs Emp	680	1,339	236	5,962	1,560	906	-880	-56.4%
Legal Biz	30	34	1	121	36	20	-6	-17.1%
Legal Sales ($000s)	$17,212	$20,264	$307	$314,535	$29,465	$37,524	-$12,253	-41.6%
Legal Emp	166	162	4	1,981	222	253	-56	-25.2%
Management Company Biz	1	2	0	8	2	2	-1	-47.8%
Management Company Sales ($000s)	$2,750	$1,591	$0	$1,120,562	$8,247	$56,347	-$5,497	-66.7%
Management Company Emp	6	14	0	2,006	56	151	-50	-89.3%
Admin Support Biz	51	78	12	170	80	26	-29	-36.1%
Admin Support Sales ($000s)	$24,367	$58,828	$3,460	$255,190	$69,131	$39,050	-$44,764	-64.8%
Admin Support Emp	339	714	117	3,707	807	423	-468	-58.0%
Education Biz	50	59	14	118	60	17	-10	-17.0%
Education Sales ($000s)	$708	$2,384	$0	$106,995	$3,847	$6,164	-$3,139	-81.6%
Education Emp	2,080	2,190	425	12,279	2,454	1,477	-374	-15.3%
Health Care Biz	173	204	17	432	208	69	-35	-16.9%
Health Care Sales ($000s)	$226,993	$308,041	$26,852	$2,174,443	$368,661	$244,376	-$141,668	-38.4%
Health Care Emp	6,113	4,419	226	16,779	4,837	2,623	1,276	26.4%
Arts Entertainment Biz	34	42	5	88	42	13	-8	-19.0%

Table B.3, continued

BUSINESS VARIABLES	STUDY AREA	MEDIAN	LOW	HIGH	AVG.	ST DEV	(SITE - AVG.)	PCT DIFF
Arts Entertainment Sales ($000s)	$10,599	$31,130	$1,087	$890,262	$49,087	$78,586	-$38,488	-78.4%
Arts Entertainment Emp	294	548	56	9,091	708	842	-414	-58.4%
Accomm. Food Svs Biz	139	151	30	271	154	41	-15	-9.7%
Accomm, Food Svs Sales ($000s)	$150,139	$142,383	$18,586	$532,462	$154,820	$63,582	-$4,681	-3.0%
Accomm. Food Svs Emp	2,873	2,943	381	5,742	2,969	976	-96	-3.2%
Accommodation Biz	12	15	1	41	16	8	-4	-22.9%
Accommodation Sales ($000s)	$9,428	$21,714	$103	$348,209	$31,476	$37,574	-$22,048	-70.0%
Accommodation Emp	150	268	1	1,575	309	228	-159	-51.4%
Food Service Biz	128	136	28	265	138	38	-10	-7.5%
Food Service Sales ($000s)	$140,711	$121,419	$17,746	$279,601	$123,344	$41,311	$17,367	14.1%
Food Service Emp	2,724	2,656	368	5,573	2,660	857	64	2.4%
Other Services Biz	282	287	67	608	293	86	-11	-3.8%
Other Services Sales ($000s)	$36,891	$67,261	$8,371	$504,969	$72,696	$33,151	-$35,805	-49.3%
Other Services Emp	1,480	1,803	389	5,770	1,877	685	-397	-21.1%
Auto Repair Biz	54	52	3	121	53	19	1	1.6%
Auto Repair Sales ($000s)	$20,265	$28,147	$1,380	$479,475	$32,665	$22,765	-$12,400	-38.0%
Auto Repair Emp	203	280	12	4,287	320	211	-117	-36.5%
Public Admin Biz	139	81	10	384	90	50	49	54.6%
Public Admin Sales ($000s)	$0	$0	$0	$3,244	$104	$406	-$104	-100.0%
Public Admin Emp	3,257	1,520	128	26,017	1,920	2,230	1,337	69.6%
Unclassified Biz	59	63	12	209	70	31	-11	-15.3%
Unclassified Sales ($000s)	$0	$0	$0	$208	$0	$7	$0	-100.0%
Unclassified Emp	5	23	0	1,031	53	106	-48	-90.5%