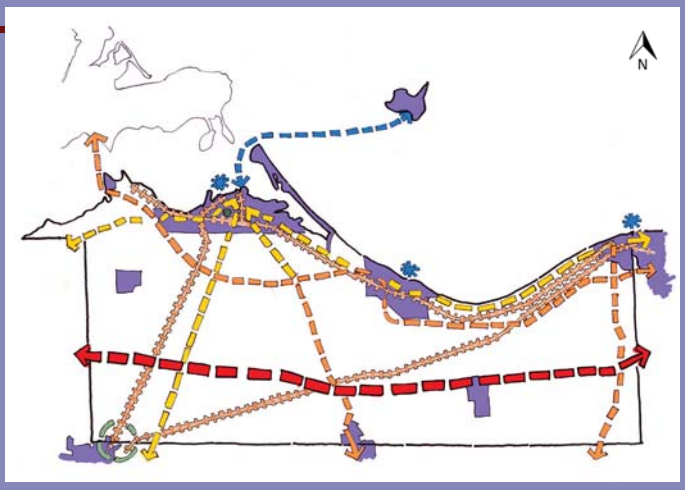
2045 Long-Range Transportation Plan

July 2020

ERIE COUNTY

METROPOLITAN PLANNING ORGANIZATION



RESOLUTION NUMBER 2020-09
A RESOLUTION OF THE METROPOLITAN PLANNING ORGANIZATION POLICY COMMITTEE OF THE ERIE REGIONAL PLANNING COMMISSION APPROVING THE 2045 LONG RANGE TRANSPORTATION PLAN

WHEREAS, Fixing America's Surface Transportation Act (FAST Act) required that all transportation programs in urban areas of more than 50,000 population be prepared by the metropolitan planning organization (MPO) based on a continuing, comprehensive, transportation planning process carried on cooperatively between state and local communities; and

WHEREAS, the MPO refers to a forum for cooperative transportation decision making for the metropolitan planning area; and

WHEREAS, Erie Regional Planning in conjunction with the local and state representation has prepared a 2045 Long Range Transportation Plan Update as part of the transportation planning process; and

WHEREAS, Erie Regional Planning has performed a public involvement process consistent with the MPO Public Involvement Policy and state orders restricting public gatherings (due to COVID 19);

WHEREAS, the public involvement included a public meeting, online presentations, stakeholder surveys, public surveys, website postings, social media postings, newspaper advertisements, and presentation of the transportation plan in various regular MPO committee meetings; and

WHEREAS, Erie Regional Planning has seriously considered the many comments received from individuals, organizations and committee membership in developing the recommendations of this plan; and

WHEREAS, the projects and programs in the 2045 Long Range Transportation Plan Update are fiscally constrained; and

WHEREAS, This Committee is the Metropolitan Planning Organization (MPO) for Erie County; and

WHEREAS, the Lorain County portion of the City of Vermilion is included in the Erie Regional Planning Commission MPO boundary and the ERPC 2045 Transportation Plan Update; and

WHEREAS, Lorain County is part of nonattainment areas for ozone and fine particulates; and

WHEREAS, the ERPC 2045 Long Range Transportation Plan Update must address transportation conformity for the Lorain County portion of the City of Vermilion; and

WHEREAS, the requisite Transportation Plan and TIP conformity analyses for this geography are conducted by the Northeast Ohio Areawide Coordinating Agency (NOACA) and the most recent US DOT conformity determination for the Cleveland-Akron air quality area for 2008 and 2015 ozone and 2006 and 2012 PM 2.5 is dated March 18, 2020 with federal approval on June 29, 2020 as determined by inter-agency consultation first initiated on October 31, 2019; and

WHEREAS, the ERPC 2045 Transportation Plan Update recommendations do not include new capacity additions within the Lorain County portion of the City of Vermilion and, therefore, the update remains consistent with the March 2020 conformity determination; and

WHEREAS, the 2045 Long Range Transportation Plan has been submitted to and reviewed by the Technical Advisory Committee and the Policy Committee:

NOW THEREFORE BE IT RESOLVED:

1. That this Policy Committee hereby approves the 2045 Long Range Transportation Plan and submittal of the plan to the appropriate agencies; and

2. That this Policy Committee hereby determines that the ERPC 2045 Transportation Plan Update recommendations for the Lorain County portion of the City of Vermillion conform to the Ohio State Implementation Plan.

3. That this Committee authorizes the Erie Regional Planning Commission Director and staff to take any and all actions that in their judgment is necessary to carry out the purposes of this Resolution and to provide copies of this Resolution to the appropriate agencies as evidence of action by the Metropolitan Planning Organization.

Patrick Shenigo, 2020 Chairperson
Erie Metropolitan Planning Organization Policy Committee
Erie Regional Planning Commission

July 23, 2020
Date

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CHAPTER 1. INTRODUCTION

1.1 Transportation Planning History

The Federal-Aid Highway Act of 1962 created the requirement for urban transportation planning, largely in response to the construction of the Interstate Highway System and the planning of routes through and around urban areas. This was the first legislative mandate requiring planning as a condition to receiving federal transportation funds. The Act required that transportation projects in urbanized areas of 50,000 or more in population be based on a continuing, comprehensive transportation planning process undertaken cooperatively by the states and local governments also known as the "3C" (continuing, comprehensive and cooperative) planning process.

Two features of the act were significant with respect to the development of Metropolitan Planning Organizations (MPOs). First, it called for a planning process in urban areas on a regional rather than a city level, and second it called for the process to be carried out cooperatively by the states and local communities. At the time, qualified planning agencies were lacking in many urban areas. Therefore, the Bureau of Public Roads (predecessor to the Federal Highway Administration) required the creation of entities that would be capable of carrying out the required transportation planning process. Hence MPOs quickly came into being due to the rapid growth of the highway system and the federal financing of the planning process.

Later transportation legislation, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), and its successor, the Transportation Equity Act for the 21st Century (TEA-21), strengthened the role of the MPOs, required stakeholder involvement, encouraged a multi-modal approach to transportation planning and identified specific "planning factors". In 2005, the President signed into law the Safe Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) with guaranteed funding for highways, highway safety and public transportation representing the largest surface transportation investment in the Nation's history at the time. SAFETEA-LU featured a strong fundamental core formula program with emphasis on targeted investment. In 2012, the President signed a new transportation bill replacing SAFETEA-LU with Moving Ahead for Progress in the 21st Century, or MAP-21. A new requirement of MAP-21was that it mandated MPO's and state transportation departments to create performance measures in its planning programs. MAP-21 also impacted the funding category of Transportation Enhancement converting it to Transportation Alternative dollars.

In 2015, President Obama signed the latest transportation bill, replacing MAP-21 with Fixing America's Surface Transportation Act (FAST Act). Under this act performance measures are still followed as in MAP-21 but includes two new previsions including penalties for state's freight performance measures as well as providing shorten timeframes for States and MPOs to make progress towards meeting performance measure targets. Shortened project delivery is emphasized under the act.

All MPOs are required to produce three documents: 1.) A fiscally constrained Long-Range Transportation Plan to address projects, programs and policies for at least a twenty-year timeframe, 2.) A four-year Transportation Improvement Program (TIP) to identify highway, transit and non-motorized improvements (bike, pedestrian etc.) which receive federal funding and 3.) An annual comprehensive Unified Planning Work Program (UPWP) (that determines the MPO's transportation planning activities annually).

1.2 What is a Long-Range Transportation Plan?

The LRTP was developed cooperatively by the Erie Regional Planning Commission (ERPC) along with local, state, federal and private stakeholders to identify short-, mid-, and long-range transportation goals (see **Chapter Nine**) for the planning area. Some of the identified projects have been designated for federal funding, some are illustrative and have no cost or designated funding associated with them and some simply list the type of funding they (the municipality) plans to pursue to complete a desired project. The financial capacity analysis (see **Chapter Ten**) is a tool used to illustrate jurisdictional ability to finance and comply with the federal LRTP mandate of fiscal constraint. Planning efforts are guided by federal requirements of the Fixing American's Surface Transportation (FAST) Act, the Americans with Disabilities Act of 1990 (ADA), the 1964 Title VI Civil Rights Act, the 1994 Environmental Justice Executive Order 12898, and the Clean Air Act Amendments of 1990 (CAAA).

The ERPC Long-Range Transportation Plan (LRTP) also provides tools and strategies for the area's jurisdictions to work cooperatively enabling them to provide a well-maintained, integrated and accessible transportation system that efficiently moves people and goods (freight). It covers a 25-year timeframe and addresses all modes of transportation including air, bicycle, pedestrian, rail, road, transit and waterborne. The goal of the plan is to offer fiscally constrained planning initiatives and policy directives to preserve the infrastructure and improve the effectiveness of the Erie County metropolitan transportation system through the year 2045.

***As this plan is being updated the COVID-19 pandemic is still widespread. The Governor of Ohio has issued schools and select businesses to close. There have been social distancing measures and restrictions put on public gatherings. As a result, there has been an extreme decrease to normal levels of operating traffic across the MPO region. As this is an abnormal situation, ERPC determined it would acknowledge the unusual condition but continue to develop the plan based upon fully open operational conditions. ***

Statewide Multi-modal Transportation Plan Access Ohio 2045: Running concurrent with the development of the ERPC long-range plan update, the Ohio Department of Transportation (ODOT) completed the update of their statewide long-range multi-modal transportation plan, Access Ohio 2045 (AO 2045). Similar to ERPC's long-range plan, the purpose of the document is to guide, inform, and support transportation policies and investments. While ERPC's long-range plan identifies the most critical transportation investments that expand and improve its regional transportation system, AO 2045 does the same but for the entire statewide transportation system. Even though regional needs could vary some from statewide needs (due to differing regional profiles and constituent needs) there are many transportation priorities shared by both the state and ERPC. Aligned priorities identified as the same between AO 2045 and ERPC's long-range plan include relieving congestion, improving safety, improving modal linking, ensuring good freight and transit systems, and increasing opportunities for non-motorized travel. These aligned priorities demonstrate the compatibility between the statewide long-range plan and ERPC long-range plan and are utilized in the development of this plan's goals and objectives (see Chapter 2).

1.3 Metropolitan Planning Organization (MPO) Functions

The Erie Regional Planning Commission is the designated MPO for the Sandusky urbanized area (**see Figure 1-3.2**) which is comprised of all of Erie County as well as the incorporated areas of the City of

Vermilion in Lorain County. The MPO's primary role is to provide guidance and leadership on transportation and land use planning issues in the Sandusky metropolitan area. A key goal is to focus the area's limited transportation funding on projects that yield the greatest benefit and integrate with the existing transportation system. In addition, emphasis is placed on a regional approach to ensure that all government entities in the planning area have equal access to federal surface transportation funding. The MPO also conducts studies, develops plans/programs and submits projects for funding in the metropolitan area.

Role and Structure: In 2003, ODOT sent the required correspondence to formally establish the MPO in Erie County. The letter stated that the MPO would handle all federal transportation funds flowing through the MPO's planning area. A Policy Committee (more on this below) was established and designated to serve as the MPO while ERPC was designated to serve as administrative agents. In other words, ERPC would provide staff for the daily MPO operation and conduct the area's urban transportation planning process with the direction and guidance of the Policy Committee. During the 2010 Census, the MPO area was revealed to have a population of just under 50,000 people in the Sandusky urbanized area. Due to the support on the local, state and federal levels ERPC still maintains its designation as a MPO.

The ERPC MPO Policy Committee is made up of local officials, operators of major modes of transportation and the Ohio Department of Transportation (ODOT). The committee was strengthened by the formation of a Technical Advisory Committee (TAC) to aid in the project review and the selection process. The TAC consists of members who work locally within the transportation system (such as engineers and planners) and can provide technical guidance to the Policy Committee members upon request.

To ensure greater public outreach and comments as a component of MPO projects a Public Involvement Plan (PIP) was created in addition to a Citizens Advisory Committee (CAC). More on public involvement is discussed in **Chapter Three**.

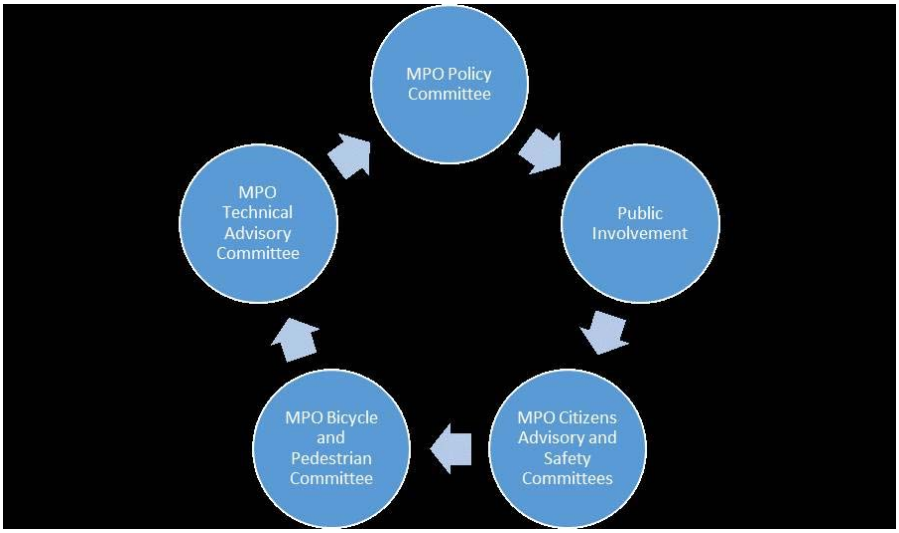


Figure 1-3.1: MPO committees

Figure 1-3.2: MPO planning area

1.4 Review of Planning Literature

While updating the LRTP, projects from the entire planning area were reviewed and considered. To obtain this information staff reviewed numerous planning studies when feasible to complement public outreach efforts. Below, is a comprehensive list of documents that were reviewed. Synopses of these studies are provided in Appendix G. The plans have been summarized in regard to their relationship to transportation. It should be noted that although some of the studies go back a number of years, the recommendations are still relevant and have been incorporated into the LRTP 2045 five-year update.

Table 1:4.1 Review of Previous Studies

Title and Year	Type	Prepared By:
Erie County Comprehensive Development Plan, 1995	Land Use Plan	ERPC
Erie County Thoroughfare Plan Update, 1995	Transportation Plan	Poggemeyer Design Group, Inc.
City of Vermilion Comprehensive Plan, 2000	Land Use Plan	ERPC
A Transportation and Land Use Analysis of the SR 250 Corridor, 2005	Corridor Study	Mannik and Smith Group, Inc. and Stilson Consulting Group
City of Huron Comprehensive Plan 2020, 2012	Land Use Plan	City Architecture
Perkins Township Comprehensive Plan, 2005	Land Use Plan	ERPC
Vermilion Township Comprehensive Plan, 2007	Land Use Plan	ERPC
Comprehensive Economic Development Study, 2008	Economic Development	ERPC
Sidewalk Inventory Study, 2013	Non-motorized Transportation	ERPC
Erie County Freight Plan, 2013	Transportation Study	ERPC/GPD Group
SR 60 Corridor Study, 2012	Corridor Study	Poggemeyer Design and the EDGE Group
Safe Routes to School Sandusky, 2013	School Travel Plan	ODOT, Parsons Brinckerhoff
Ohio Statewide Freight Plan, 2013	Statewide Transportation Plan	ODOT, Parsons Brinckerhoff
Access Ohio 2040, 2014; Access Ohio 2045 (Draft – July 2020)	Statewide Transportation Plan	ODOT
Erie County Hazard M1itigation Plan, 2014	Safety Plan	Erie County Emergency Management, URS
The Economic Impact of Tourism in Erie County, Ohio 2017	Economic Plan	Tourism Economics
Safe Routes to School Huron, 2015	School Travel Plan	ERPC
Safe Routes to School Perkins Township, 2015	School Travel Plan	ERPC
Long-Range Transportation Plan 2040, 2015	Long-Range Transportation Plan	ERPC
US 4 Safety Plan, 2015	Corridor Study	Poggemeyer Design Group
Strategic Plan City of Sandusky, 2016	Strategic Plan	City Architecture
Safe Routes to School Edison Schools, 2015	School Travel Plan	ERPC

Safe Routes to School Vermilion, 2016	School Travel Plan	ERPC
SR 4 Safety Study, 2017	Corridor Study	ODOT
Sandusky Bay Pathway, 2018	Pathway Plan	Environmental Design Group
US 6 Corridor Plan, 2019	Corridor Study	ODOT, TranSystems
Regional Road Safety Plan, 2020	Safety Study	ODOT, WSP Consultants
Erie County Bicycle and Pedestrian Plan, 2020	Non-motorized Transportation	ERPC

CHAPTER 2. PLAN GOALS AND OBJECTIVES

2.1 Overview

The following plan goals and objectives will help shape transportation development in the Erie County MPO region through the Year 2045 and will aid decision makers by providing policy direction. Goals are defined as the desired end condition reflecting the concerns and needs in better managing the transportation system. These goals will strengthen interrelationships between transportation modes and will achieve a more integrated network. Objectives are broad action statements that will aid in accomplishing targeted goals. Together these goals and objectives provide a policy platform for the 2045 Long-Range Plan.

The general goals for the Long-Range Plan Update are set forth in the federal legislation for funding transportation improvements. This legislation governs the planning, funding and implementation of transportation improvements throughout the County. The latest version is titled Fixing America's Surface Transportation Act (FAST Act) and was signed into law December 4, 2015. It builds on previous federal transportation legislation and is designed to deal with the transportation challenges in today's environment. It places a new emphasis on areas related to safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability and reduced project delivery times. The FAST Act also has incorporated program evaluation requirements through the use of national performance-based planning. Performance-based planning utilizes performance measures and targets where a performance measure is a metric used to assess progress toward meeting an objective and a target is a specific level of performance that is desired to be achieved within a certain timeframe. The goals and objectives for this update of the 2045 Transportation Plan were developed with addressing FAST Act requirements in mind.

2.2 Goals and Objectives

ERPC's first Long-Range Transportation Plan was adopted in 2005 with five year updates conducted in 2010 and 2015. The 2005 and the 2010 approved plans were passed under previous transportation bills. Planning factors for the 2015 plan update were developed under MAP-21. For the 2020 plan update, current federal regulation requires ten planning factors be considered:

(1) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
(2) Increase the safety of the transportation system for motorized and non-motorized users;
(3) Increase the security of the transportation system for motorized and non-motorized users;
(4) Increase accessibility and mobility of people and freight;
(5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
(6) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
(7) Promote efficient system management and operation;
(8) Emphasize the preservation of the existing transportation system;

(9) Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
(10) Enhance travel and tourism.

Also, ODOT's Access Ohio 2045 (AO 45) long-range transportation plan was considered to ensure compatibility of transportation priorities. As many MPO planning efforts coincide with statewide system level considerations, ERPC collaborated with ODOT to ensure that its long-range transportation plan aligned with transportation priorities identified in AO 2045. Critical topics identified between both plans included system preservation, safety, freight, non-motorized, transit, and system efficiency and were also used to guide the development of plan goals and objectives. During ODOT's plan development, ERPC acted as a conduit for local government and public/stakeholder involvement. ERPC attended various ODOT presentations/public meetings, completed plan update draft reviews and prepared comments for inclusion into AO 2045. Additionally, implementation of performance measure based planning and the importance of establishing good working relationships contributed to shared regional and statewide transportation goals.

As a component of performance measure based planning, under the FAST Act, ERPC must also ensure the Long-Range Transportation Plan incorporates a system performance report. The system performance report is included as an appendix in this document. The report strives to provide an overview of the impact of transportation investment funding upon the region's transportation network. Key performance measures, as prescribed in the FAST Act, are listed and reported out in the system performance report.

All of the above factors were utilized in the 2045 plan as a base, the goals and objectives were developed through an internal process involving public input, MPO Policy and Technical Committee oversight, a review of existing conditions data, an identification of transportation system deficiencies and a review of state and regional goals and objectives. The following Goals and Objectives will also assist with the evaluation of potential transportation improvements throughout the Erie County MPO region and in the incorporated portion of the City of Vermilion in Lorain County.

Goal	Goal Statement	Objectives
Safety	In the ERPC's transportation network achieve a reduction in fatalities & serious roadway injuries for motorized and non-motorized users	• Encourage clear signage on roadways throughout the MPO area • Improve hazardous intersections • Support projects that increase safety • Use transportation project selection criteria to accentuate projects that encourage safety • Promote educational safety programs
Infrastructure Condition	Maintain the existing transportation infrastructure assets in a state of good repair	• Use transportation project selection criteria to accentuate system preservation projects • Support efforts for the proper maintenance of the existing transportation system & the use of non-motorized methods of transportation to reduce stress on the current system

	Goal Statement	Objectives
System Reliability	Improve the efficiency of the local surface transportation system	• Use transportation project selection criteria to accentuate projects that improve the efficiency of the local transportation system • Reduce travel time & delays when feasible • Support improved east-west travel through the county • Identify developing & expanding corridors & implement appropriate regulations prior to development occurring
Freight Movement & Economic Vitality	Improve the local freight network & support the economic vitality of the MPO area	• Develop a transportation network that supports movement of world-wide freight markets • Increase access to employment areas & sites, especially those that utilize or are related to freight • Use transportation project selection criteria to accentuate projects that give priority to transportation projects that support freight movement & support economic vitality • Encourage public/private partnerships to leverage funding from federal, state & other sources • Give priority to transportation projects that improve and provide access to area tourist destinations & amenities

Goal	Goal Statement	Objectives
Environmental Sustainability	Protect the environment in the MPO system & enhance the transportation system's performance simultaneously	▪ Use transportation project selection criteria to promote alternative transportation methods &/or projects that protect & enhance the environment ▪ Maintain a planning process that integrates & coordinates transportation planning with land use, water & natural resource conservation ▪ Minimize, avoid &/or mitigate environmental impacts of transportation improvements ▪ Provide equitable & environmentally just transportation facilities & services ▪ Promote consistency between transportation improvements, local planned growth & economic development patterns ▪ Support energy conservation initiatives with special emphasis on those being undertaken in the MPO region related to wind energy, biofuels & other alternative fuels
Reduced Project Delivery Times	Reduce project costs, promote jobs & the economy & expedite the movement of people & goods by accelerating local project completion through the elimination of delays in the process	▪ Support efforts that coordinate local policies & projects with those at regional & state levels ▪ Encourage expedited project delivery ▪ Use transportation project selection criteria to promote reduced project delivery times that expedite the movement of people & goods

Goal	Goal Statement	Objectives
Congestion Reduction	Reduce congestion in the MPO area	✚ Use transportation project selection criteria to promote alternative transportation & other congestion relief methods ✚ Enhance transit services to promote service to major employment centers, educational facilities, medical offices, commercial developments & tourist destinations ✚ Maximize bicycle & pedestrian connections to roadways, transit services & area amenities such as the waterfront & regional parks ✚ Encourage communities to incorporate bicycle & pedestrian facilities within major new residential & commercial developments

CHAPTER 3. PUBLIC INVOLVEMENT SUMMARY

Please note that this chapter is not yet completed as public involvement is an ongoing process during the plan creation process. Text highlighted in yellow may change as the remainder of the plan develops

3.1 Development of the Public Involvement Process

The key component of any long-range planning process is public outreach and citizen participation through a variety of methods to gather citizen data. As a result, the ERPC has committed itself to pursuing a pro-active public outreach effort throughout the development of the Erie County MPO 2045 Long-Range Transportation Plan. Public outreach efforts focused on soliciting community involvement in order to maximize awareness and provide a forum for public participation in order to build support and gain public input for the plan. The principles of the Public Involvement Plan (PIP) were to:

- Establish/maintain a partnership between residents, the business community and the core area stakeholders
- Involve the communities, local units of government early and at key junctures throughout the project
- Conduct a fair and equitable process
- Ensure that the plan reflects the goals of Erie County

The Public Involvement Plan (PIP) details the techniques that were used in the LRTP to identify, notify and gain input from all those potentially affected within the study area. The techniques outlined in the plan ensured that the principles of the plan were met. The approach to public involvement for the Erie County LRTP will utilize the PIP's strategies to encourage early and on-going involvement in the project by:

- Providing helpful information
- Providing timely notice
- Providing public access to key decisions
- Ensuring consideration of significant comments

3.2 Implementation of the Public Involvement Process

The first phase of the development of the Erie County MPO LRTP began in the winter of 2019 with the collection of a wide variety of background information regarding existing transportation conditions in the county. The collection and analysis included current land use, transportation system data, issues identification and goals and objectives. Throughout the data collection process, staff carried out the project's public involvement process. In March 2020, a statewide stay at home public health order was ordered due to the Coronavirus (COVID 19) pandemic. As a result, this limited the amount of public meetings, in person interviews, and group presentations that could be conducted and ERPC made necessary adjustments to its outreach program to ensure it stayed within the parameters of the State's orders. After consultation with the Federal Highway Administration and Ohio Department of Transportation Columbus offices, ERPC made the decision to move to an online public outreach for the remainder of the plan's development. The section below describes those public outreach results and issues identified.

3.3 Results of the Public Involvement Process

Three major public involvement techniques were planned to be utilized during the public involvement process. These activities included:

- Public Meeting
- Emails
- Flyers/Handouts
- Online Public Survey
- Online Stakeholder Surveys
- Newspaper advertisements
- Social media postings
- Online postings of draft plan, maps, survey results, and other related materials
- Comment forms

Public Meeting: During the course of the development of the Erie County MPO LRTP (and prior to the State's stay at home order), there was one public meeting held to inform the public of the LRTP update, gather public input, keep the public informed of the plan's progress.

The first public meeting was held on February 12th, 2020 at 4:00 PM in the commissioner's chambers at 247 Columbus Avenue Sandusky, Ohio 44870. The meeting was to inform the general public about the long-range transportation plan and to act as a conduit to gather public input about transportation needs and issues in Erie County. The public meeting was advertised through ERPC's Facebook page and on the ERPC website. An ad was also run in the local newspaper announcing the meeting. In preparation of the meeting, staff had prepared a presentation to describe the purpose of the meeting and provide an overview of the long-range transportation planning process. The presentation also included a survey of those present to gather input in regard to transportation issues across the MPO study area. Hand held keypads were used by participants to answer questions in hopes to further engage meeting attendees. Large display boards were also available for review, and staff made themselves available to speak one-on-one with meeting attendees. Although notices were posted and the meeting was advertised, public turnout was low.

Additional public meetings had been scheduled to occur throughout plan development (April 22nd and June 17th, 2020); however, as previously mentioned, the state of Ohio restricted public gatherings due to the Coronavirus (COVID 19). As such, ERPC adjusted its public involvement to an online format. Staff posted the draft plan on its website and solicited for public review and comment through use of email, social media postings, newspaper advertisements, flyers, and comment forms. Staff also prepared power point presentations regarding the summary of completed chapters of the Long-Range Plan and the results of the stakeholder surveys and public comments that they had received. Staff was also made available by email, phone, or fax to answer any questions that the public may have. All public comments received have been incorporated into the document and included in the public involvement appendix at the end of this document.

Stakeholder Surveys: In lieu of in person stakeholder interviews, ERPC conducted online stakeholder surveys. Stakeholders represented public, private and non-profit interests whose organizations have a major stake in transportation and development in Erie County. Staff identified over 140 stakeholders (see public involvement appendix for full stakeholder list) to provide insight into what they considered critical in understanding the development and transportation issues impacting the Erie County MPO study area. An online survey was developed and emailed to stakeholders to better assess what business and

community leaders of the county perceive to be the key transportation issues in Erie County for the next twenty-five years; and how best to solve current or anticipated transportation problems in the future.

Staff received 49 survey responses to the email survey request. The project team followed up via telephone and email with those stakeholders that did not complete the online survey in an attempt to gather additional stakeholder input. Below are the survey questions that were asked to stakeholders:

1. What transportation issues concern you in Erie County?

2. How have your transportation needs, or the needs of your community changed over the last five to ten years? Have you noticed changes in local transportation patterns, if so where? Have you observed new transportation needs that need addressed, if so what?

3. Where do you believe are the predominant travel corridors within and through Erie County? What routes are being used, by who and how?

4. What portion(s) of Erie County is/are difficult to access and why? How could these area(s) be improved? Please be specific as possible.

5. Do you think better road signage is needed in Erie County, if so why and where?

6. What do you think about the Sandusky Transit System?

7. Have you used any alternative transportation methods (carpooling, telecommuting) to commute in the last five years? If not, what would encourage you to do so?

8. What are your impressions of the bicycle and pedestrian facilities in Erie County? Where would you suggest improvements be made? Should more transportation funding resources be diverted towards these facilities?

9. Do you believe that new development and/or re-development activities could generate significant traffic congestion and parking problems within Erie County? If so, where do you think these problem areas will be and what do you believe to be potential solutions?

10. What subset(s) of transportation planning do you think planners should focus on? Please pick up to <u>three</u> choices.

___Transit ___Vehicle Traffic ___Safety
___Freight ___Alternative Transportation

___Maintaining the Current Transportation System ___Expanding the Current Transportation System

_____ Congestion ____Electric/Autonomous Vehicles

11. How do you feel about a route connecting Erie County directly to the City of Columbus? If so, where should it be built and why?

12. Do you own or plan to purchase an electric car within the next five years? If so where would you like to see charging stations? Please be specific.

13. Do you have any transportation project ideas for the Erie County 2045 Long-Range Transportation Plan Update? If so, where and why?

14. Is there anything else you would like to comment on in regards to Erie County's transportation system that was not discussed?

Responses: The compiled summary of responses from the online surveys and interviews are included in the public involvement appendix at the end of this document. A summary map of the issues and concerns that were collected through stakeholder interviews is shown in **Figure 3-3.1**. A majority of those surveyed indicated the following:

- Interviewees indicated that they were most concerned about multi-modal access, safety and congestion on the region's transportation network.

- The needs of the community/organization that have changed as a result the transportation system include infrastructure and regulations/policy. Many also mentioned travel patterns changing due to navigation devices/GPS routing.

- Many believed that more signage is needed along main routes (especially those leading to Cedar Point). Also, many mentioned the need for larger signs that motorists can read easier.

- Respondents felt that public transit has become more accessible and that it can be improved by expanding service, access and undergoing a fare reduction. Many also mentioned the need for bus shelters at stops and having bus pull-offs in an attempt to not to impede traffic flow on the main roads.

- A majority believed that new development and redevelopment activities have increased congestion and have created parking problems. Within the City of Sandusky (congestion) and the City of Vermilion (parking) were identified. The top solutions suggested were increasing capacity and adding parking.

- Bicycle and pedestrian facilities in the area were perceived as needing improvement. They are viewed as being disconnected and in poor condition. Overall, improvement of facilities was recommended.

- The biggest concern about the future transportation system was funding.

- Sidewalks on US 250 (from Bogart Road to Kalahari) were also mentioned by many to be a safety concern, especially for bicyclists and pedestrians.

- Additional improvements along the US 6 corridor were mentioned by many respondents.

Special Presentations: In addition to public meetings, substantial outreach efforts were planned to occur throughout the LRTP process in order to solicit community input. Due to public gathering restrictions, staff was unable to conduct in person presentations and flyers with information about the LRTP update and a public survey link were instead provided for neighborhood groups/service organizations among others via email. Organizations that were contacted included the Self-Advocates Group through the Erie County Department of Disabilities as well the Erie County Community Council. The Erie County Community Council consists of a networking group for local non-profits in the area.

Online Public Survey: An online survey was also created to engage the public. The online survey consisted of 17 questions in a multiple-choice format. In total, there were 28 citizens that participated in the survey. Staff analyzed these survey results and utilized them throughout the planning process (see Public Involvement Appendix). In order to obtain a more condensed compilation of answers, only limited options were available for a response. Below is a summary of the analyzed results:

- Survey takers felt that US 250 (Milan Road) was the most congested route in the area

- There was support for the following: more east-west connectors to provide better access, widening road shoulders for bike lanes when applicable and widening SR 4

- 67% said they have no plans to buy an electric vehicle in the near future and 68% indicated they would not feel comfortable using an autonomous vehicle

- 57% reported access to the outlying areas of Erie County was difficult

- The most popular side road taken to avoid congestion in Sandusky and Perkins Township is Columbus Avenue

- Regarding good accessibility to Columbus, OH and east-west connections throughout the area almost 75% of respondents stated that new routes are needed

- It was reported that the area most likely to develop in the next twenty years was Sandusky's downtown waterfront and the US 250 corridor south of State Route 2

- There was a majority of positive feedback received on the improvements implemented on US 250

- In regards to bicycle and pedestrian routes, survey takers showed a preference for added facilities in and around the northern portions of Perkins Township going into the City of Sandusky

- In regard to freight, survey takers indicated that roads were the most important asset to the area

Overall Results and Issue Resolution: As documented above and below in this chapter, project planners received a wide range of comments regarding Erie County's transportation needs. All the comments are important for documenting existing conditions in the county and for defining goals and objectives for the plan. However, in some instances, county residents and stakeholders identified issues for which action has been, or will be, taken by state and local entities. The most frequently cited issues are provided below along with an explanation of how the issue has been addressed or will be addressed soon**.** It should be noted, many of the issues expressed in the original 2005 LRTP still remain relevant today. Therefore, they continue to be listed with updates on the progress to resolve those issues in the Government Action/Resolution portion of the narrative.

- *Congestion and Safety:* Residents and stakeholders indicated the most pressing problems in the county are congestion and safety. The top two corridors respondents felt that we most traveled and congested in the MPO area were the US 250 and US 6 Corridors. Numerous mentions were made relative to that increased congestion is also starting to occur on local roads due to navigation/GPS routing of traffic. Also expressed was the need to increase safety for all modes of transportation.

  Government Action/Resolution: The Ohio Department of Transportation financed a safety and congestion control study for US 250 north of Bogart Road that was completed in 2005. The study, evaluated a number of improvement scenarios including (but not limited to) intersection improvements such as signal timing phases and turn lane additions; signal system improvements; roadway geometry improvements; interchange improvements (US 250 and SR 2); and access

management strategies including driveway consolidation, shared driveways, frontage roads and turn restrictions. MPO staff worked to obtain financing to complete the recommended improvements listed in the study. Safety funding was also obtained to complete the reconstruction of intersections located at Strub Road/US 250 and Perkins Avenue/US 250. MPO staff assisted ODOT D3 with acquiring funding to complete the remaining corridor improvements. The Transportation Review Advisory Council (TRAC) did award funding and the project was completed in 2017. Mostly positive feedback on the improvements was received with the exception that many noted that one of the receiving lanes for US 250 northbound left turning traffic should be lengthened. This would allow traffic more time to merge down into a single westbound traffic lane on Strub Road. ODOT has acknowledged this issue and the lane is scheduled to be extended to allow the left turning traffic more distance to merge (in 2021). Until that time, ODOT has restriped US 250 at the Strub Road intersection allowing just one northbound left turn lane instead of dual left turn lanes.

In 2019, a study of the US 6 Corridor (from Rye Beach Road to Sycamore Line Road including analysis of Butler Street in the City of Sandusky and Rye Beach Road to the railroad crossing in Huron) was finalized. The study's purpose was to review existing conditions and recommend improvements related to traffic flow and safety for both motorized and non-motorized users. Many survey respondents noted that development is likely to continue to occur along the corridor. It was noted that two large sports park facilities on the corridor have been recently constructed which has contributed to an increase in traffic volumes. Also mentioned was an increase in traffic on the corridor stemming from a promotion run through Cedar Point (the "Gold Pass"). As a result of these events there has been increased congestion along the corridor during summer and fall peak times. Recommendations from the US 6 Corridor study included specific intersection, mainline and multi-modal improvements. Since the completion of the study, ERPC has facilitated a meeting of jurisdictional stakeholders to discuss how to proceed with the plan recommendations. Upon ODOT District Three guidance, four separate safety applications were submitted to ODOT's safety program in April 2020 requesting funding to implement the recommended corridor improvements.

- *Bicycle and Pedestrian Planning:* Several comments were received regarding the lack of bicycle and pedestrian amenities in the county. Individuals stated that it is difficult to walk or bicycle in the county and that facilities are in poor shape.

  Government Action/Resolution: Since 2015, planning staff has been actively involved with the formation and facilitation of the bicycle and pedestrian committee. The committee's purpose is to work collaboratively on implementing the Bicycle and Pedestrian plan's goals. The committee consists of local jurisdictions and stakeholders. In addition to meeting with the committee throughout the year, ERPC also completed the 2020 Bicycle and Pedestrian Plan Update. The update is important since it resets the goals and strategies of the committee to current needs and of the planning area.

- *Impact of Future Development on US 250 (south of Bogart Road):* Some county residents were concerned that US 250 between the Ohio Turnpike and Bogart Road would become increasingly congested due to development that is occurring or is being planned along the roadway. It was suggested that planning efforts should be undertaken to manage access and traffic volumes. Many

also suggested that sidewalks/bicycle paths should be implemented to Kalahari Drive for the safety of pedestrians and bicyclists.

Government Action/Resolution: Prior to the widening of US 250 south of Bogart Road, the highway was designated as a limited access highway and the ERPC developed an Access Management Plan. Therefore, access will be controlled as development occurs south of Bogart Road on US 250. It should be further noted, the Erie County Engineer's Office completed access management regulations in April of 2006 that will guide access management throughout Erie County as a whole. In the spring of 2020, ERPC, the Ohio Department of Transportation (ODOT) District 3, Huron Township, Perkins Township, the Erie County Engineers and Sheriff Offices met to discuss pedestrian safety at the US 250 and Kalahari Drive intersection. ODOT D3 has requested and received safety funding to make improvements across US 250 which include pedestrian crossing push buttons and pavement markings. In addition, ERPC is working with Perkins Township to apply for safety funding for the installation of a sidewalk from the Bogart Road intersection to the existing sidewalk at Kalahari.

- *Transit Service:* Project planners heard that the public transit services have improved, but there is still a great need for expansion of the system, availability and for a reduction of fare costs.

  Government Action/Resolution: In the last few years, the City of Sandusky has been able to increase the fixed route service area through the creative use of grants, contracts and local contributions (the City of Vermilion). Through these efforts, they have managed to keep the system running (with the City of Sandusky covering most of the costs). It is noted that the concerns brought up span multiple government agencies since transit is something that impacts all of the local municipalities within the planning area. In regard to Erie County, planning staff has worked with the transit system in obtaining federal funds since 2003 (although financial support ended in 2003 as a result of a failed levy).

  Since its inception, planning staff has been working towards improving the transit system through Coordinated Planning efforts. It is noted that since the last long-range plan update the Ohio Department of Transportation has greatly changed its requirements for the Coordinated Transportation Plan Program. New procedures include the creation of a stakeholder committee consisting of all local transit providers and users. The purpose of the committee is to work towards the goals and strategies outlined in the Coordinated Transportation Plan which were derived from transit stakeholders. Erie County Regional Planning staff assists the local mobility manager (provided through GLCAP) in these coordination meeting efforts. It is anticipated that once planning strategies and goals are put into action, they will alleviate some of the concerns mentioned above.

- *Partnerships and Duplication:* Several stakeholders and local citizens indicated that there is a lack of coordination and cooperation between local governments and the state to implement economic development and transportation projects as well as to seek innovative means for financing projects. In addition, people noted that there is also a lack of coordination between the local governments and private interests and developers.

General Actions/Resolutions: Private and public partnerships have been created to develop major projects like the widening of US 250 south of Bogart Road. To make this project a reality, funding was provided not only by ODOT, but also by Erie County, the City of Sandusky, the Ohio Turnpike, Lake Erie Shores and Islands and Cedar Point. This cooperation enabled the ranking of the US 250 widening project to increase to where the project became buildable. The county, cities and Erie County Economic Development Corporation have several economic tools to help in project development such as: Tax Increment Financing (TIF), Community Reinvestment Areas (CRA), Revolving Loan Funds (RLF), Enterprise Zone tax abatements and various other state programs. In addition, the MPO has assisted organizations in applying for Transportation Funding (5310). Through this program agencies have been awarded transit buses and funds to conduct a feasibility study, regarding hiring a mobility manager for the area.

- *Funding Shortage:* Several stakeholders and residents noted they are concerned about a lack of funding available to implement and maintain transportation projects in the future.

  Government Action/Resolution: Transportation and other funding programs (economic development and formula) are available due to the local the MPO either directly or indirectly though supportive services. The MPO enables the county to receive additional revenue for road projects. Some of these revenue sources include the County Surface Transportation Program (CSTP), Local Bridge Program (LBR), Surface Transportation funding (STP), Transportation Alternative funding (TA), Safety Funding, the Safe Routes to School Program (SRTS) and the Community Development Block Grant (CDBG). In July of 2019, there was an increase in the Ohio gas tax of 10.5 cents per gallon and 19 cents per gallon for diesel. Impacts of increasing the tax resulted in additional revenue that the state and local jurisdictions needed to adequately maintain facilities and/or construct new facilities. ODOT estimated that the increased revenue funds (in Erie County) would be $1,642,486 in 2020 and $1,656,665 for 2021. However, as travel has significantly decreased due to the COVID-19 pandemic these amounts are projected to be less. Regardless, current efforts will still be made to continue to ensure that programmed projects are delivered on time, within scope and on budget to ensure maximum benefits are received for the area.

CHAPTER 4. REGIONAL PROFILE

Introduction: Since the next US Census will not be completed until after 2020, much of the data reported in this and other sections of the document are from the 2010 US Census. However, in some cases more recent data was found through the American Community Survey (ACS) which is a nationwide survey completed by the Census Bureau. It is also important to note, the Ohio Department of Development (ODOD) county-level population control totals will be reflected in the final adopted Transportation Plan and air quality conformity determination and associated travel demand modeling procedures. Any variation from the ODOD county-level population control totals, for the Transportation Plan and Conformity Determination, will require substantial documentation, including interagency consultation. ODOD population control totals are not required for transportation and land use alternatives scenario planning.

***Please note that during the update of the COVID-19 pandemic was occurring. The data presented is the most recent available, although it is anticipated that many areas such as employment are not reflective of the current conditions. ***

4.1 Existing Conditions

Geography: Erie County is one of eight coastal counties situated on the eastern border of the Northwestern Ohio region with a land area of 255 square miles, water area of 371 square miles, and a population density of 294 people per square mile.[1] Erie County consists of approximately 55 miles of shoreline along Lake Erie. Erie County is bounded by Lorain County to the East, Huron County to the South, Sandusky and Ottawa Counties to the West and Lake Erie to the North. The majority of the county consists of cropland (52%) and forest (19%).[2] The transportation network in Erie County consists of 26 interstate highway miles, 42 US highway miles, and 114 state highway miles.[3] There are 623 county, township, and municipal road miles, three small public-use airports, two shipping ports, and 78 miles of rail line.[4] The City of Sandusky, incorporated in 1824, is the largest city in Erie County and serves as the county seat.

Population: Since the last long-range plan there has been a decrease in population within the MPO planning area of 10%, with the current population totaling 80,440 people in 2018.[5] Staff noted that all but one (Huron Township) of the urban areas were estimated to have lost population between the years 2010 and 2018. It is noted that population loss was minor in some townships with an estimated loss of fewer than one hundred residents per the following townships: Margaretta, Berlin, Milan, and Florence (**see Figure 4-1.1**).

[1] http://www.city-data.com/county/Erie_County-OH.html accessed 5/2020
[2] Ohio Office of Policy, Research and Strategic Planning, 2018
[3] Ohio Office of Policy, Research and Strategic Planning, 2018
[4] ODOT, Erie County Freight Plan, 2013
[5] ACS Demographic And Housing Estimates ACS Five Year, 2018

Political Jurisdiction	1950	1960	1970	1980	1990	2000	2010	2018 ACS
Berlin Township	1,540	1,970	2,222	2,725	2,628	3,017	3,009	2,948
Florence Township	1,278	1,648	1,576	2,119	2,101	2,500	2,448	2,380
Huron Township	1,602	1,161	1,745	2,156	2,267	2,572	3,548	3,605
Huron City	2,515	5,197	6,896	7,123	7,030	7,958	7,149	6,893
Margaretta Township	3,112	4,390	3,845	4,759	4,601	4,662	4,497	4,407
Milan Township	1,233	1,517	1,749	2,129	2,093	2,661	2,602	2,551
Perkins Township	4,382	8,955	10,451	10,989	10,793	12,578	12,202	11,728
Sandusky City	29,375	31,989	32,674	31,360	29,764	27,844	25,793	24,713
Vermilion Township	1,253	2,256	2,946	4,393	4,051	4,638	4,945	4,783
Vermilion City*	2,214	3,183	5,500	5,634	5,483	4,937	4,742	4,612

*** Erie County Portion Only – (2018 Lorain County portion of City of Vermilion = 5,825)**

Figure 4-1.1: Largest Places Population Changes

Sex and Age: Overall the largest population cohorts in the county consist of those aged 25-44, 45-64, and 65 and older. It was noted that the cohort of those aged 65 years and older is approximately 20%. The median age in the area has increased to 45 years old.[6] This is discussed further in **Section 4.4**. It is assumed that one out of every three 65-year-olds today will live at least to age 90, and about one out of seven will live at least to age 95.[7] As noted in **Figure 4-1.2,** in Erie County there are larger numbers of older population cohorts than younger. Although this is true for the state of Ohio also, Erie County's pattern starts decreasing at a steeper level showing a decrease from those 50 and younger; which means that there will be a disproportionately older population in the coming years compared to the younger population.

Another important demographic characteristic of the population is gender structure. Gender can be used as an indicator of population and as a future planning tool as females typically live longer than males. According to data compiled by the Social Security Administration, A man reaching age 65 today can expect to live, on average, until the age of 84. A woman turning age 65 today can expect to live, on average, until the age of 86.[8] In Erie County, the ACS lists the female population of the area at 38,273 which is slightly higher than the number of males which was 36,863. [9]

[6] Ohio Office of Policy, Research and Strategic Planning, 2018
[7] https://www.ssa.gov/planners/lifeexpectancy.html accessed 5/2020
[8] https://www.ssa.gov/planners/lifeexpectancy.html accessed 5/2020
[9] Demographic And Housing Estimates ACS Five Year, 2019

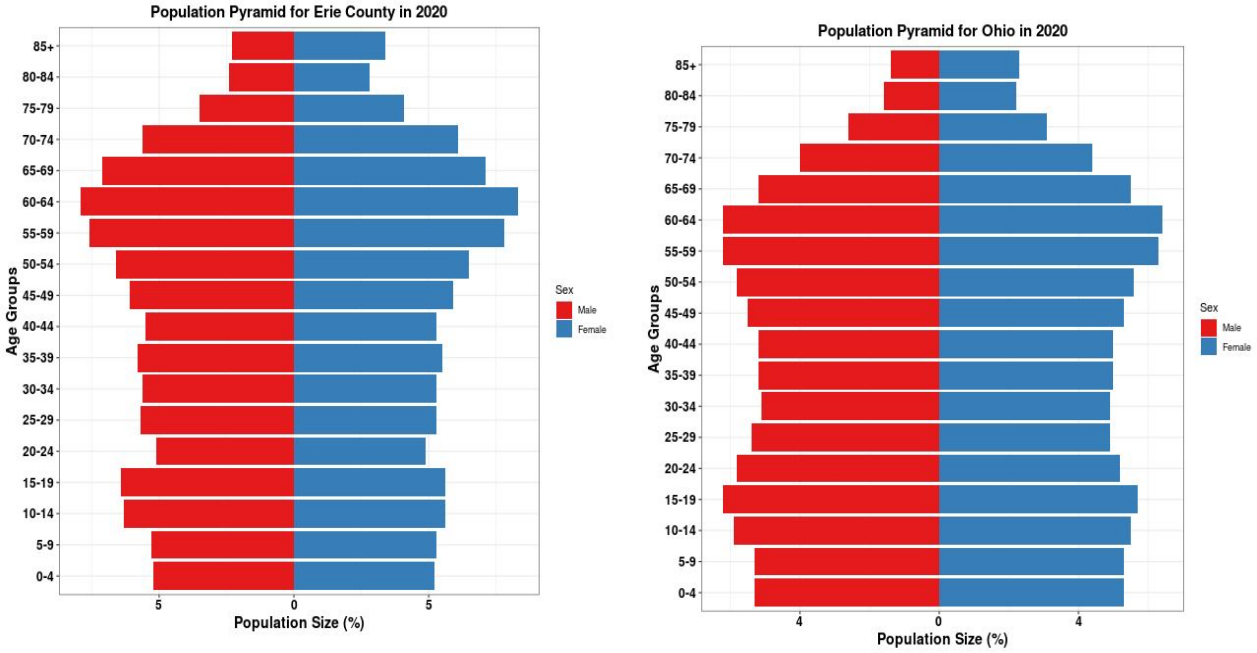


Figure 4-1.2: Population Pyramids

Density: The majority of the county's population is located within the urban areas as identified in the map below. The population (by census block groups) for the Erie County area is shown below in **Figure 4-1.3**. Nearly three-fourths of the population lives within urbanized areas or in urban clusters. Outside the urbanized areas, census block groups are quite large. Therefore, the population map may be mistakenly interpreted suggesting a greater concentration of people in rural areas. Housing density information is a useful consideration in the evaluation of various transportation facilities. Transportation improvements that serve more households per unit of improvement will generally produce greater utility, all else being equal. For example, public transit service in a higher density residential area can serve more households per vehicle mile of service than transit service in a lower density residential area. Similarly, a mile of sidewalk or trails in a high-density area can serve more people than in a low-density area.

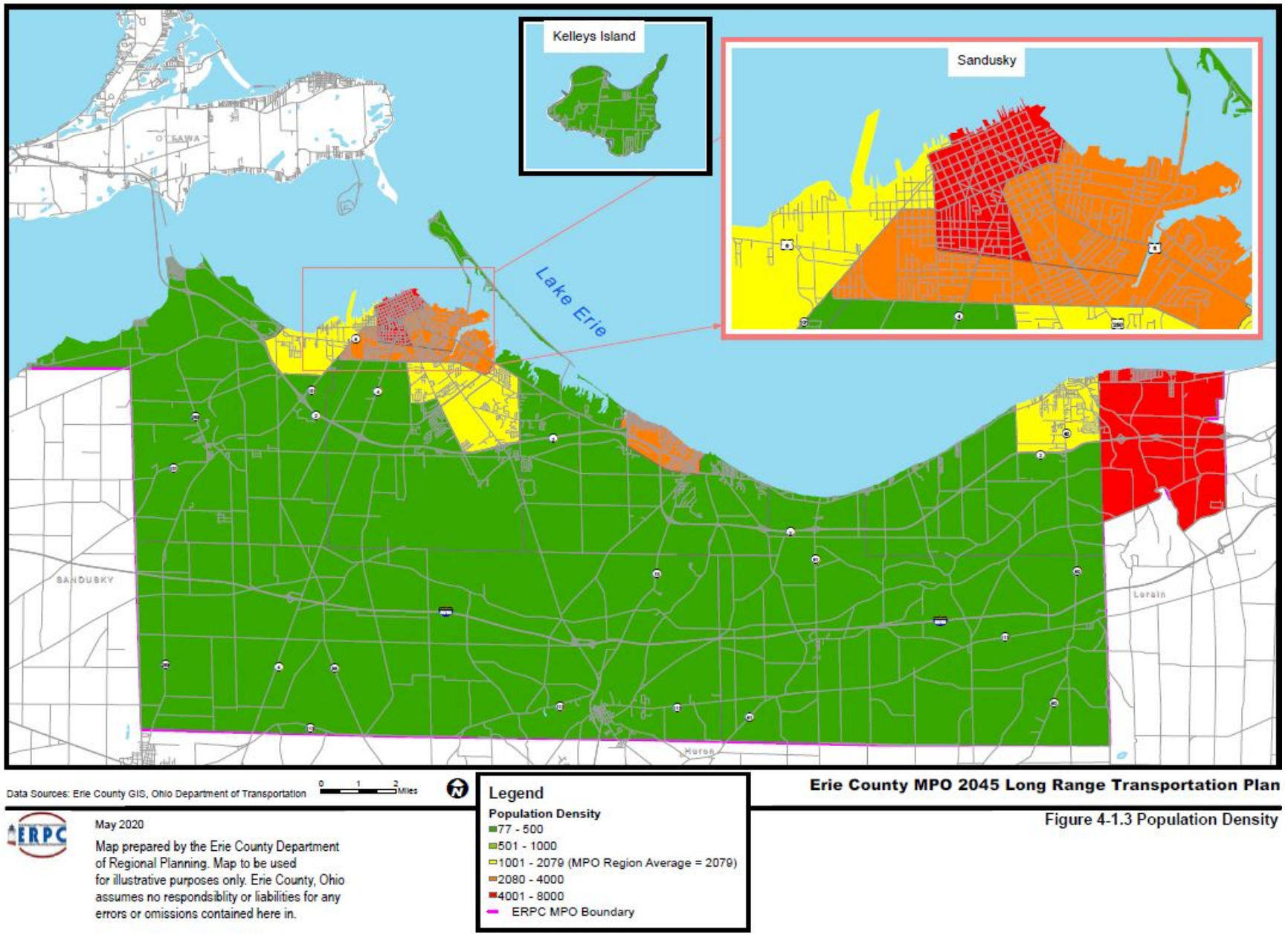


Figure 4-1.3: Density by Block Groups

Education: The population within the planning area consists of 92% of residents having at least graduated high school and approximately 23% having a Bachelor's degree or higher (see **Figure 4-1.4**). Within the planning area, there are several colleges including BGSU's Firelands and Resort and Attraction Management Campus (opening in the Fall of 2020), and Ohio Business College. There also is a vocational school, EHOVE.

Education

	Erie County, Ohio, OH
Total Population 25 yrs or older, 2018*	53,613
No high school degree	4,331
High school graduate	49,282
Associates degree	5,553
Bachelor's degree or higher	12,194
Graduate or professional	4,536
Percent of Total	
No high school degree	8.1%
High school graduate	91.9%
Associates degree	10.4%
Bachelor's degree or higher	22.7%
Graduate or professional	8.5%

Figure 4-1.4: Education[10]

Household Types: The majority of households within the planning area consists of married couple families followed by non-family households. Of these households, 64% do not have children living in the household while 21% have children at home under the age of 18. The average household size is 2.36 persons per household, and 2.91 persons per family household. [11]

Homeownership: Owner-occupied housing units consist of 84% of housing units while the remaining 31% are rental units and 17% are vacant. The median housing value is $132,400. The median costs of a monthly mortgage payment is $1,114 and the median gross rental cost per unit is $739.

Employment: Erie County enjoys a diverse economic base. Staff found that as of March 2020 the total labor force was 35,200 and 32,800 of that population active in the labor force.

Job Types: Education, health care, and social assistance were the top employment sectors consisting of almost 22% of the workforce followed by manufacturing consisting of 18% of the workforce**.** Worker classes are shown below in **Figure 4-1.5.**

[10] Headwater Economics, 5/2020
[11] Ohio Office of Research accessed 5/2020

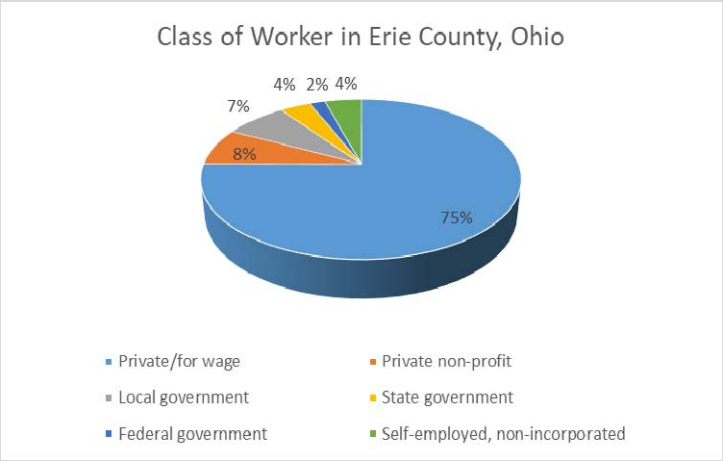


Figure 4-1.5: Worker Class[12]

	Erie County, Ohio, OH
Civilian employees > 16 years, 2018*	36,035
Ag, forestry, fishing & hunting, mining	˜447
Construction	1,909
Manufacturing	6,730
Wholesale trade	˜750
Retail trade	3,839
Transport, warehousing, and utilities	1,964
Information	˜651
Finance and ins, and real estate	1,527
Prof, mgmt, admin, & waste mgmt	1,927
Edu, health care, & social assistance	7,753
Arts, entertain, rec, accomod, & food	5,389
Other services, except public admin	1,477
Public administration	1,672
Percent of Total	
Ag, forestry, fishing & hunting, mining	˜1.2%
Construction	5.3%
Manufacturing	18.7%
Wholesale trade	˜2.1%
Retail trade	10.7%
Transport, warehousing, and utilities	5.5%
Information	˜1.8%
Finance and ins, and real estate	4.2%
Prof, mgmt, admin, & waste mgmt	5.3%
Edu, health care, & social assistance	21.5%
Arts, entertain, rec, accomod, & food	15.0%
Other services, except public admin	4.1%
Public administration	4.6%

Figure 4-1.6: Job Sectors of Civilian Employees[13]

(top portion numbers are the number of jobs) (orange denotes a possible inaccurate estimate)

[12] ACS Five Year Class Of Worker By Sex For The Full-Time, Year-Round Civilian Employed Population 16 Years And Over, 2018
[13] Headwater Economics, 5/2020

Company	Estimated Employees
*Service- Producing**	
Firelands Regional Medical Center	1,954
Kalahari Resorts	850
NOMS	847
Erie County	800
Ohio Veterans Home	568
Cedar Point	382/+3,282 Seasonal
Civista Bank	300
Great Wolf Lodge	300
Meijer Inc.	292
Freudenberg-Nok General Partnership	280
Goods-Producing	
Ventra Sandusky LLC	2,300
PPG	215
Bettcher Industries, Inc.	209
Certainteed Corporation	202
Lewco, Inc.	190
JBT	186
Thorworks Industries, Inc.	175
Okamoto Sandusky	150
Humanetics Innovative Solutions, Inc.	145
Erie Group of Companies	140
**School Systems not included*	

Figure 4-1.7: Top Regional Employers and Employee Numbers[14]

[14] Erie County Economic Development Corporation, 2020

Wages and Employment

Wages*, 2018	Erie County, Ohio, OH
All Sectors, 2018 (2019 $s)	$39,266
Private	$37,615
Services	$33,270
Trade, Transportation, Utilities	$34,818
Information	$40,112
Financial Activities	$55,973
Professional and Business	$47,452
Education and Health	$43,045
Leisure and Hospitality	$21,760
Other Services	$27,419
Non-Services	$51,493
Natural Resources and Mining	$39,199
Construction	$50,553
Manufacturing (Incl. Forest Prod.)	$52,858
Government	$49,623

Percent of Employment*, 2018	Erie County, Ohio, OH
Total Private	86.3%
Services	65.7%
Trade, Transport., Utilities	17.4%
Information	1.1%
Financial Activities	2.4%
Professional and Business	3.8%
Education and Health	14.8%
Leisure and Hospitality	24.0%
Other Services	2.2%
Non-Services	20.6%
Natural Resources and Mining	1.6%
Construction	2.8%
Manufacturing (Incl. Forest Prod.)	16.1%
Government	13.7%

Figure 4-1.8: Erie County Local Job Sectors and Average Wage[15]

Unemployment: According to the 2020 Ohio Labor Market Information, 35,200 are employed in Erie County with 2,400 people listed as unemployed. As of March 2020, prior to the COVID pandemic, Erie County was ranked #58 out of 88 counties in Ohio in unemployment rates according to the Ohio Department of Jobs and Family Services. [16] Unfortunately, something to consider is that unreliable transportation can be a huge barrier to employment. For example, historically, low-income residents across the country live near urban centers, while the majority of the jobs they qualify for are in the suburbs. Public transit is often designed to take suburban residents from a central point outside the city into various areas within the city- but more often than not, city residents aren't able to take public transit to jobs in the suburbs.[17] Erie County is fortunate to have the Sandusky Transit System, which may be assisting with keeping the unemployment rate low since it covers the entirety of the county.

[15] ACS Wages and Employment ACS Five Year, 2018
[16] https://ohiolmi.com/Home/Lausbycounty?page85851=1&size85851=48&sort85851=Rate&sortdir85851=desc accessed 5/2020
[17] http://www.vehiclesforchange.org/unemployment-problem-complicated-by-public-transit/ accessed 5/2020

Table 4-1.1: Unemployment[18]

Year	Unemployment % in Erie County
As of 3/1/2020	6.8%
2019	5.0%
2018	6.2%
2017	6.2%
2016	5.8%

Income: According to the ACS 2018 the median family income in Erie County was $66,607. Additionally, 38% of households received Social Security. The average income from Social Security was $19,346. 73% of households received earnings as listed in **Figure 4-1.9**. These income sources are not mutually exclusive; that is, some households received income from more than one source. With the relationship to transportation, something to consider is that transportation is the second-largest expense for most households after housing. Living closer to a workplace allows for greater disposable income which can improve the quality of life. In places with fewer transportation choices, savings on housing costs can be more than offset by increased transportation expenses. When applying this concept to transportation and land use planning more compact development could be explored. Compact, connected communities also allow residents to use less energy and spend less money to get around by making fewer or shorter car trips, or using other less expensive modes of transportation like bicycling, walking, or transit.[19] As reported in 2019, Ohioans spent an average of $2,900 annually on transportation (**see figure 4-1.10**).[20]

Household Earnings

	Erie County, Ohio, OH
Total households, 2018*	31,301
Labor earnings	22,791
Social Security (SS)	12,034
Retirement income	8,696
Supplemental Security Income (SSI)	1,583
Cash public assistance income	685
SNAP (previously Food Stamps)	3,900
Percent of Total^	
Labor earnings	72.8%
Social Security (SS)	38.4%
Retirement income	27.8%
Supplemental Security Income (SSI)	5.1%
Cash public assistance income	2.2%
SNAP (previously Food Stamps)	12.5%

^ Total may add to more than 100% due to households receiving more than 1 source of income.

Figure 4-1.9: Household Earnings[21]
(orange denotes a possible inaccurate estimate)

[18] https://ohiolmi.com/Home/RateMapArchive accessed 5/2020
[19] http://www.fhwa.dot.gov/livability/fact_sheets/transandhousing.pdf accessed 5/2020
[20] https://www.businessinsider.com/average-spending-on-commute-how-much-money-2019-7#texas-287572-23 accessed 5/2020
[21] Headwater Economics, 5/2020

A highway in Ohio. chrismetcalfTV/Flickr

Transportation spending totaled over $2,900 annually in Ohio. The Midwestern state had 5,476,583 working individuals for this average; like Texas, the commute time averaged 23.6 minutes.

Drove alone: 83.3%
Carpooled: 7.7%
Public transportation (excluding taxicab): 1.5%
Walked: 2.1%
Other means: 1.2%
Worked from home: 4.2%

Figure 4-1.10: Ohio Transportation Statistics

Low-Income Populations: Low-income populations are defined as a person whose household income is at or below the US Department of Health and Human Services poverty guidelines. These numbers can be found at https://aspe.hhs.gov/computations-2019-annual-update-hhs-poverty-guidelines-48-contiguous-states-and-district-columbia. The highest concentration of those in poverty in the MPO area are located in in the City of Sandusky (**see Figure 4-1.11**).

No Vehicle Households: For some, not owning a vehicle represents a lifestyle choice. Such individuals may live in locations where car ownership is particularly expensive or impractical, and there are plentiful transportation alternatives for accessing jobs and meeting other household needs. Census data has shown that the majority of these zero-vehicle households face economic constraints to automobile ownership. Not only are cars themselves expensive, but households with lower incomes may also face higher costs for financing a car. Used cars offer a cheaper sticker price but tend to incur higher annual operating costs. Not owning a car may impart further economic disadvantage as well, as workers with cars work more hours per week than those without cars, enabling them to earn higher incomes.[22] Within Erie County, 3.2% of households do not have a vehicle available. This percentage is higher than the State of Ohio's Average which is 3%. The majority of households who do not have a vehicle available are located within the City of Sandusky (**see Figure 4-1.12**)

Minority Population: According to the 2017 ACS, 12% of the total population in the MPO area consists of minorities. The largest group is identified as black, or African American at 11%. The majority of minorities are located within the City of Sandusky. Annually the environmental justice analysis examines this area for any possible negative environmental impacts when undergoing any transportation projects **(see Figure 4-1.13).**

Elderly Populations: The elderly population is defined as individuals aged 65 years and older. According to the 2017 ACS, the 65 and overpopulation consist of 22% of the population (**see Figure 4-1.14**) The majority of those aged 65 or over are located on Kelleys Island, Huron Township, and the Cedar Point peninsula on the eastern edge of the City of Sandusky.

[22] https://www.brookings.edu/wp-content/uploads/2016/06/0818_transportation_tomer.pdf accessed 5/2020

Disabled Population: The US Census defines a disability as a long-lasting physical, mental or emotional condition. This condition can make it difficult for a person to do activities such as walking, climbing stairs, dressing, bathing, learning, or remembering. This condition can also impede a person from being able to go outside the home alone or to work at a job or business. There is a concentration of disabled populations within the Cities of Sandusky and Vermilion (**see Figure 4-1.15**). Within Erie County, approximately 11,014 people have disabilities or 15% of the population.[23] Of those who are disabled, 28% reported ambulatory related disabilities, 22% reported independent living related disabilities followed by 18% reporting cognitive related disabilities.[24]

Limited English Speaking Ability: Within Erie County, 2,300 people, or 2.3% reported speaking another language other than English**.**[25] A person with Limited English Proficiency (LEP) is one who does not speak English as their primary language and who has a limited ability to read, speak, write, or understand English. ERPC strives to reach out to all sectors of the population including those who cannot speak English very well. It is noted the eastern side of the City of Sandusky and Perkins Township have a higher concentration of populations with limited English speaking ability (**see Figure 4-1.16**). This may be attributed to the various tourism-related industries located in these areas that frequently employ J1 students and workers from abroad. Depending on the time of year there are many different populations (Filipinos, Jamaicans, Ukrainians, Argentina, Peruvians, etc.) from all over the world that temporarily call Erie County home during the tourist season. The majority of the housing units established for these visitors are located within these areas.

- 725, or 32% of people that reported English as their second language felt that they spoke English "less than well"

- 1,147 people reported speaking Spanish as their primary language. 37% of those speakers reported speaking English "less than well"

- 907 reported speaking an Other Indo-European derived language as their primary language. 21% of those speakers felt they spoke English "less than well"

- 199 reported speaking Asian and Pacific Islander derived language as their primary language. 48% of these speakers reported speaking English "less than well".[26]

Environmental Justice Analysis: Annually, ERPC staff conducts an environmental analysis of the projects occurring within the planning region**.** Environmental Justice (EJ) means identifying and addressing disproportionately high and adverse effects of the agency's programs, policies, and activities on minority populations and low-income populations to achieve an equitable distribution of benefits and burdens. ERPC intends to not adversely affect any specific population of our community. To assure this, all the Transportation Improvement Program (TIP) projects that the MPO helps fund are evaluated. The identification of targeted population areas was completed by assessing poverty, minority, 65 years and older, disability status, limited English proficiency and zero vehicle household levels in the county based on regional averages (respectively 13.7%, 17.8%, 20.2%, 15.6%, 3.3%, and 7.9%). Demographic

[23] ACS Five Year Disability Characteristics, 2018
[24] ACS Five Year Disability Characteristics, 2018
[25] ACS Five Year Language Spoken At Home, 2018
[26] ACS Five Year Language Spoken At Home, 2018

information was compiled from the 2010 Census and the 2017 Five Year American Community Survey data. To calculate poverty levels with the available data, demographic data on a census tract level was utilized. The data was reviewed to identify areas where the targeted populations were significantly higher than the county average. These target areas have been mapped along with capacity expansion projects, maintenance projects, and transportation enhancement projects to aid in the impact analysis. Subjective analysis for each project includes completing an environmental justice analysis matrix considering potential impacts that a project could have on an identified environmental justice area.

To analyze EJ impacts for the projects in the ERPC MPO region, staff reviewed the projects using the long-range travel demand model for the Sandusky Urbanized Area that was developed by the Modeling and Forecasting Section of ODOT's Office of Statewide Planning and Research. The model aided in quantitatively evaluating the effectiveness of the projects and their impact potential to the targeted populations. The MPO region was divided into over 400 traffic analysis zones (TAZs) based on the review of census data, residential patterns, employment, education, recreational locations, and travel characteristics. Travel times were used to analyze the results of project implementation to assess accessibility to the generator zones for both targeted and non-targeted populations. Travel times to identified destinations for eleven EJ traffic analysis zones (where poverty, minority, 65 years and older, limited English proficiency, disability, and households with no vehicles available were two times above the county averages) were compared against five non-EJ TAZs. Results show an average decrease in travel times (-0.2 minute) for EJ target zones as compared to average travel times for those non-EJ zones. Programmed projects improved travel times for those identified EJ target areas and did not negatively affect the target groups. The total average travel time difference for all EJ and non-EJ areas show an overall decrease of 18 seconds. 88% of projects in the TIP for FY 2021-2024 for the ERPC MPO region can be considered system preservation projects while the other 12% are all projects that include sidewalk installations. Preservation type projects include resurfacing, culvert replacement, signal projects, and overall general maintenance of the transportation system. These types of projects have little or no adverse impact on the population. The factors listed above were considered upon review of the projects to measure the impact upon the targeted areas:

- Bodily impairment, infirmity, illness or death
- Air, noise, and water pollution and soil contamination
- Destruction or disruption of man-made or natural resources
- Destruction or diminution of aesthetic values
- Destruction or disruption of community cohesion
- Destruction or disruption of a community's economic vitality
- Destruction or disruption of the availability of public and private facilities and services
- Vibration
- Adverse employment effects
- Displacement of persons, businesses, farms or nonprofit organizations
- Increased traffic congestion
- Isolation
- Exclusion or separation of minority or low-income individuals within a given

community or from the broader community	• The denial of, reduction in, or significant delay in the receipt of, benefits of DOT programs, policies, or activities

In summary, the MPO is dedicated to identifying any adverse or negative impacts on a population as a result of a project and will consider possible alternatives should a disproportionately high and/or adverse human health or environmental effect be of concern.

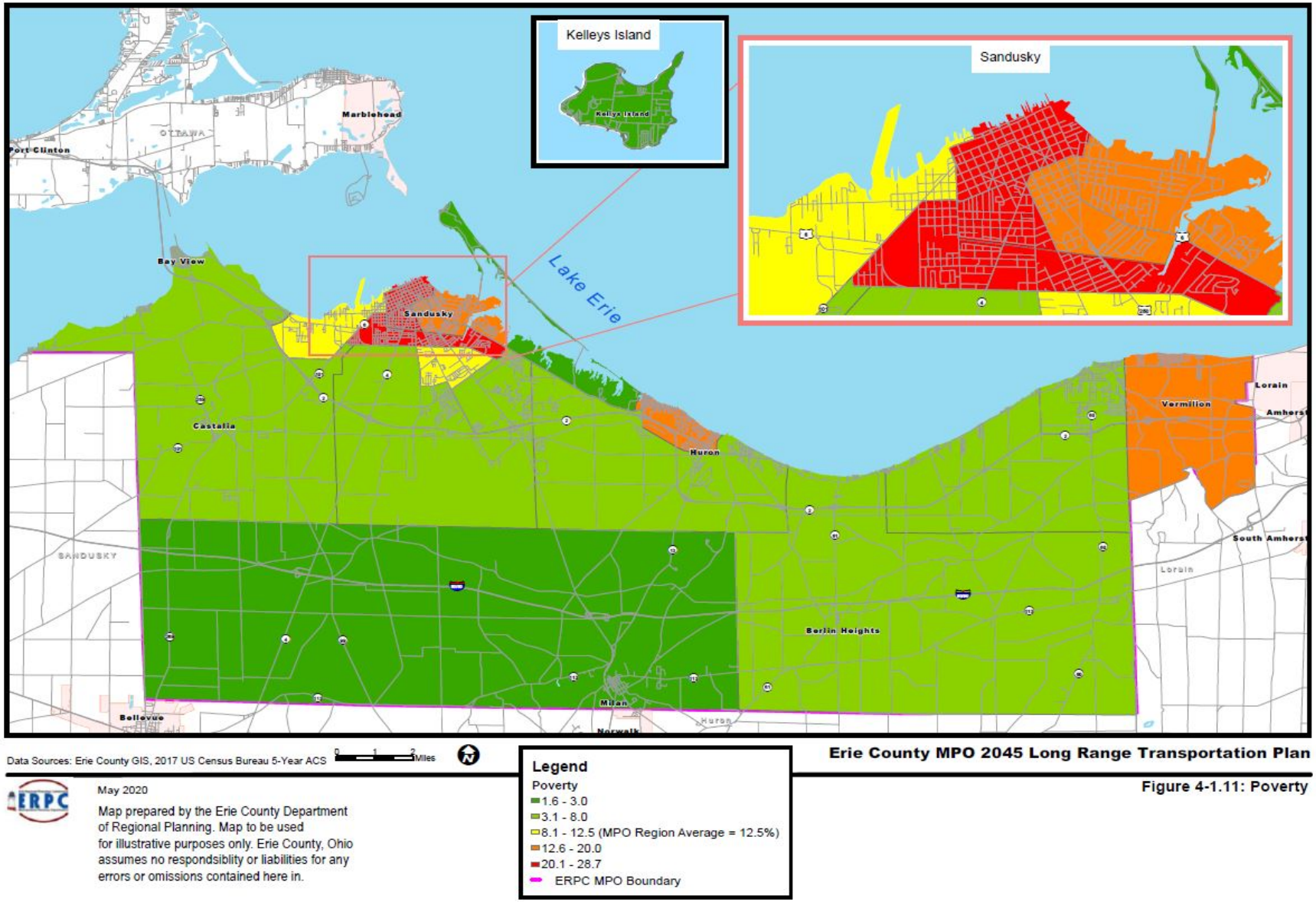


Figure 4-1.11: Population in Poverty

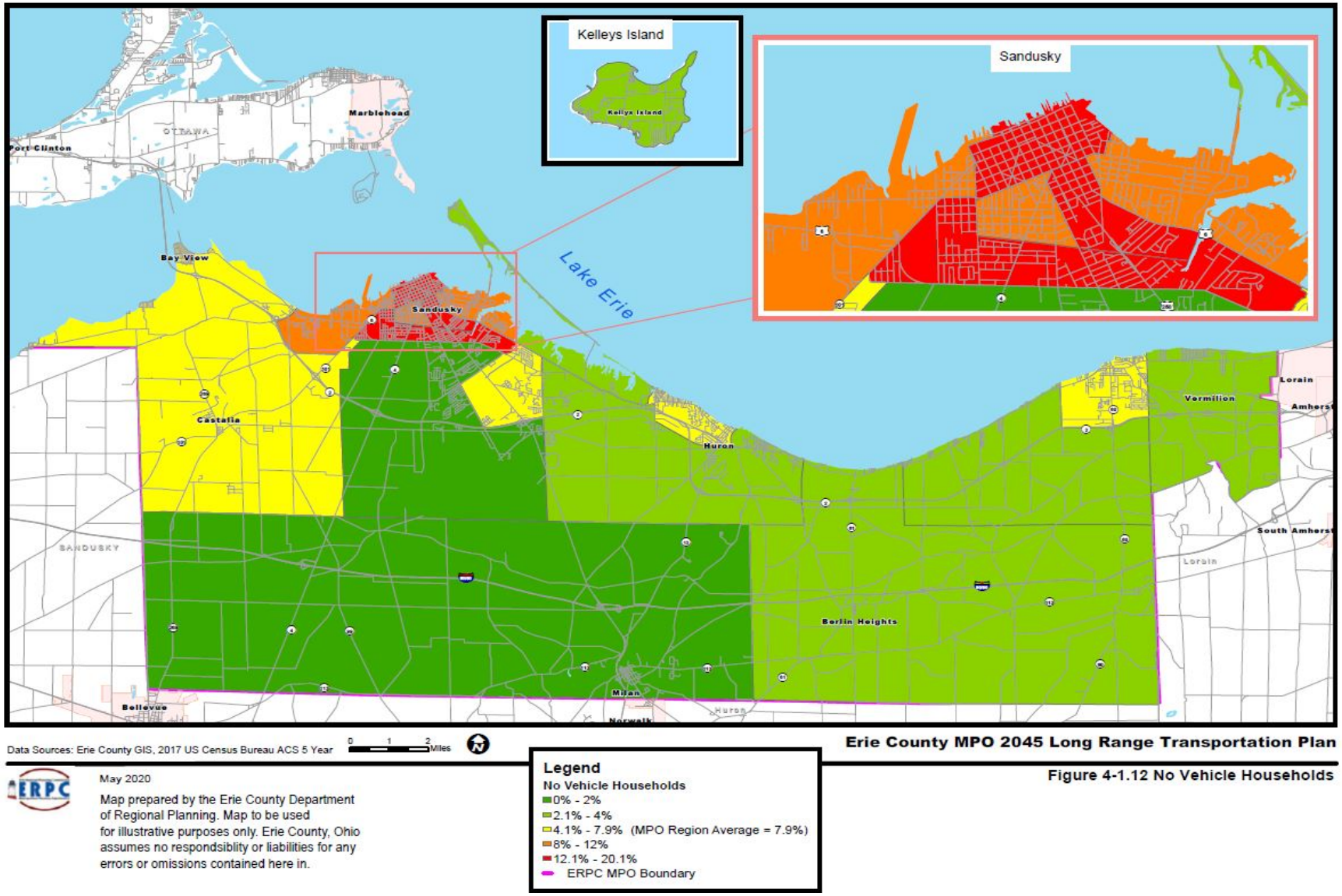


Figure 4-1.12: No Vehicle Households

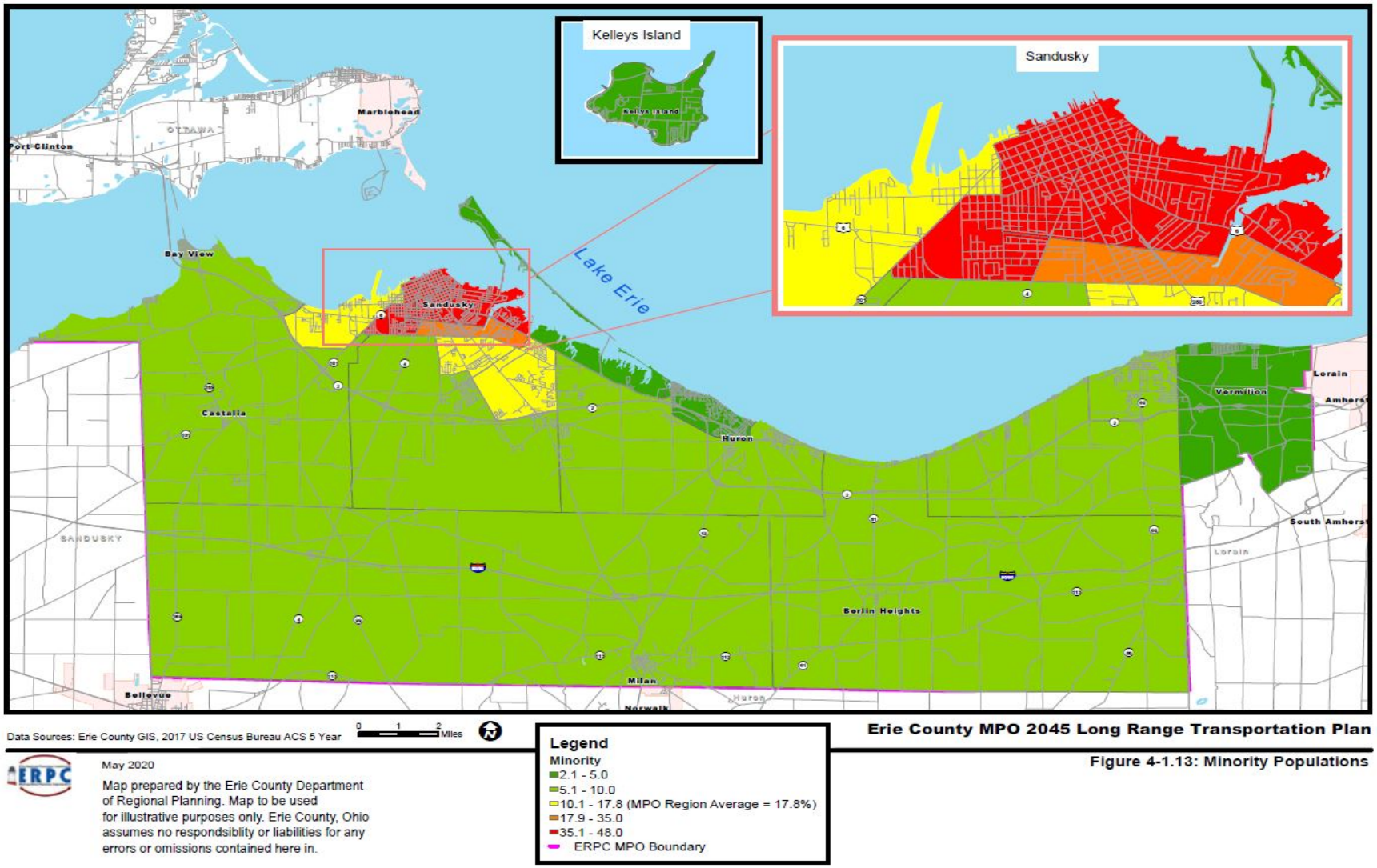


Figure 4-1.13: Minority Populations

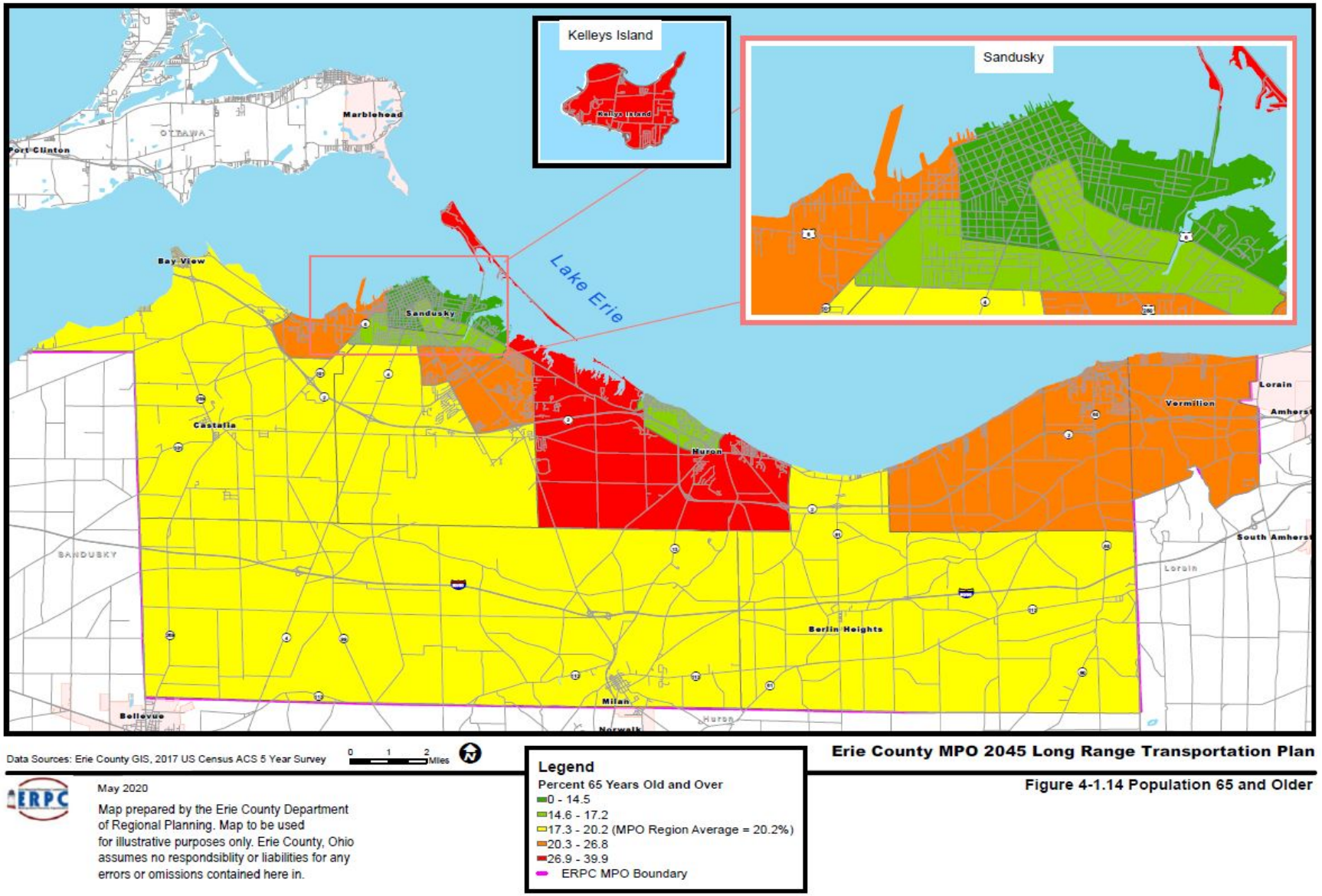
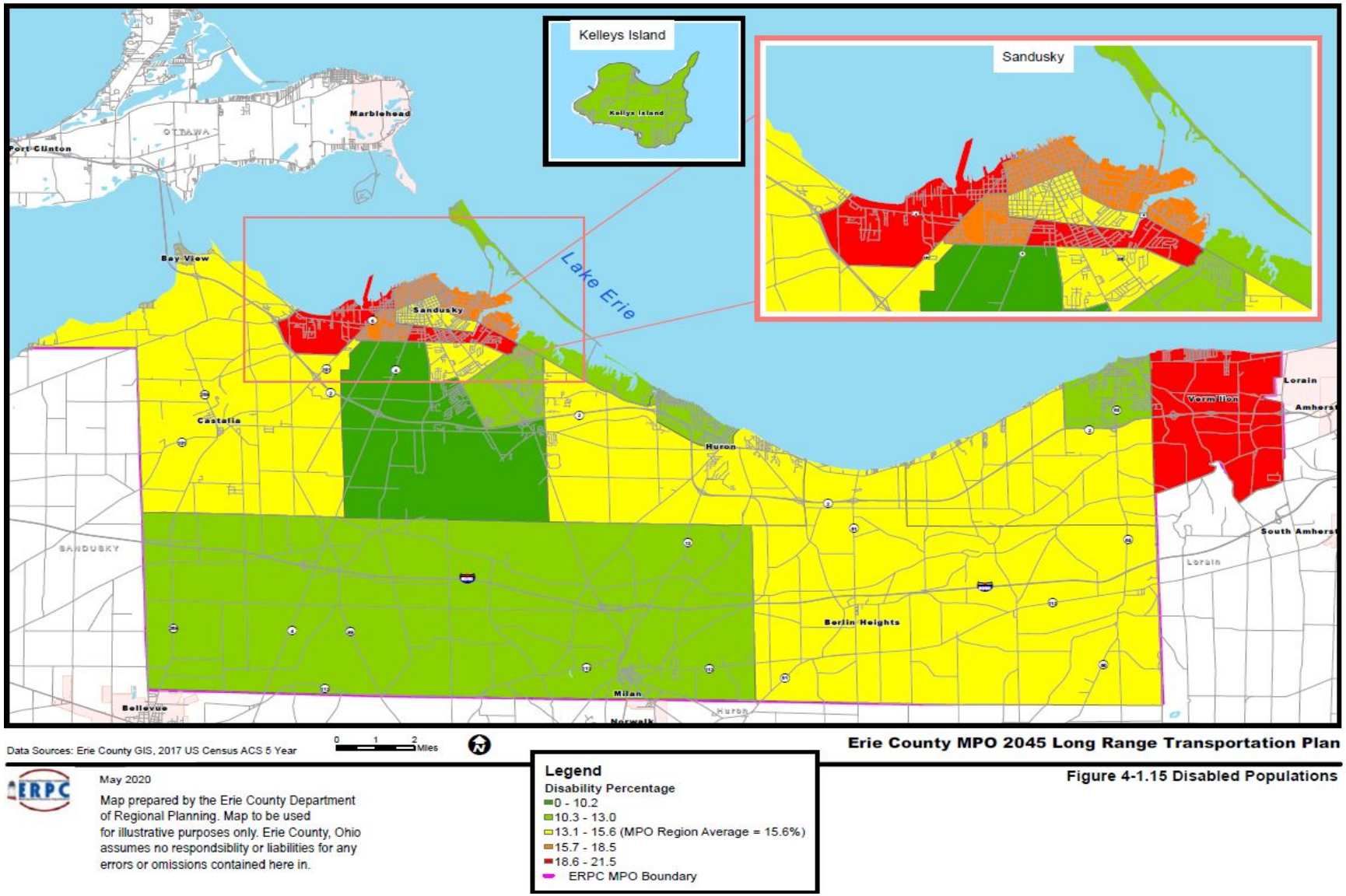
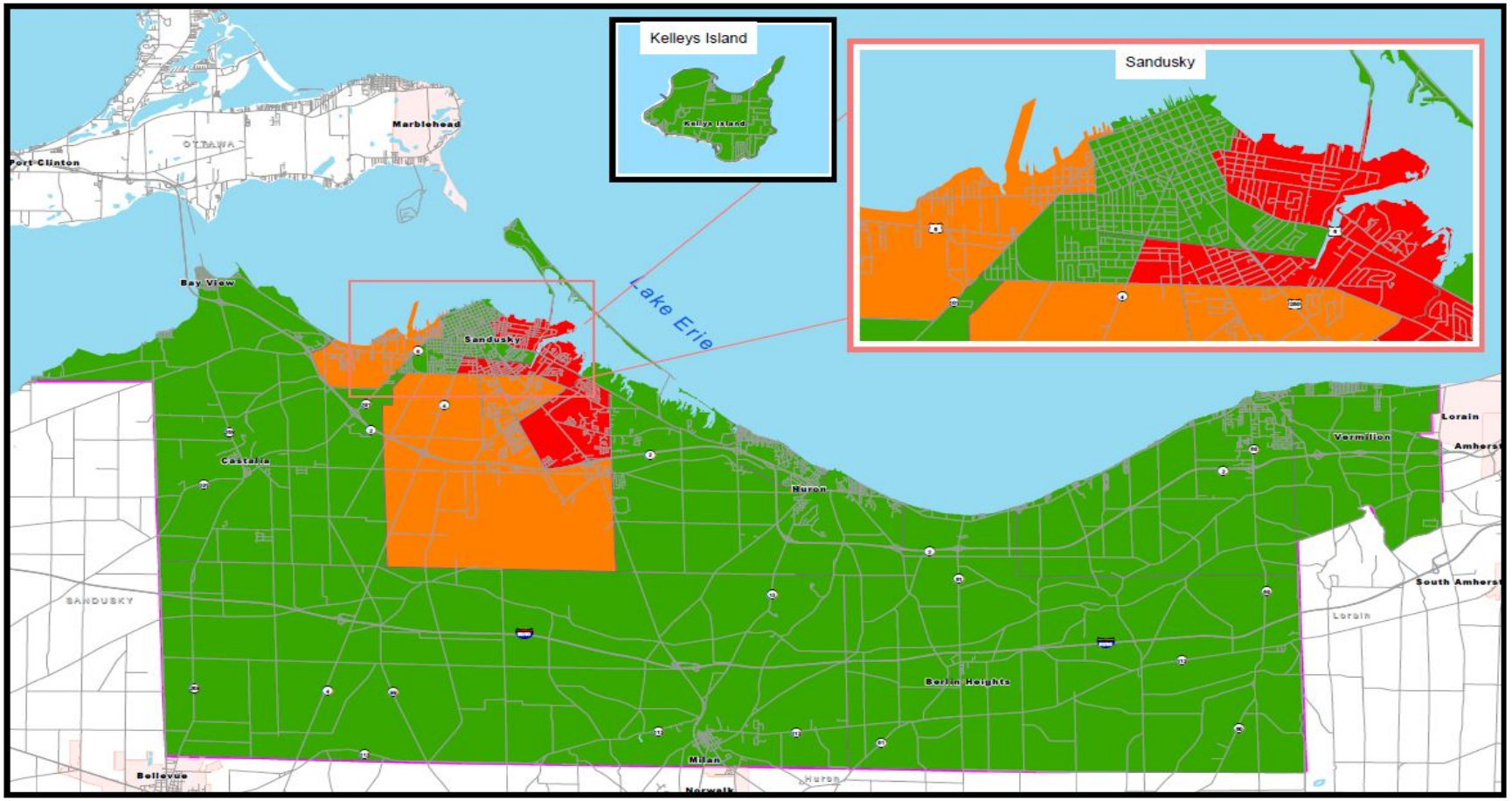


Figure 4-1.14: Population 65 and Older



Map 4-1.15: Disabled Populations by Census Tract



Map 4-1.16: Limited English Speaking Population

4.2 Economic Conditions:

Tourism: Erie County's location on the southern shores of Lake Erie makes it an attractive destination for both tourists and residents. Lake Erie Shores and Islands is the visitor's bureau in the area and consists of data from multi-communities including Berlin Heights, Castalia, Elmore, Genoa, Huron, Kelleys Island, Marblehead, Middle Bass, Milan, Oak Harbor, Port Clinton/Catawba, Put-In-Bay, Sandusky and Vermilion which collaboratively make up the Lake Erie Shores and Islands. Annually, more than 11 million trips are made to Lake Erie Shores and Islands.[27] In addition, one-third of the total tourism sales in Northwest Ohio ($6.5 billion in 22 counties) are generated in the Lake Erie Shores and Islands region's two counties, Erie and Ottawa.[28]

Erie County is home to many attractions including Cedar Point, Thomas A. Edison's Birthplace, Maritime Museum, Glacial Grooves, and Inscription Rock at Kelleys Island State Park, Merry-Go-Round Museum and Follett House Museum. The Lake Erie Islands, via boat, plane or ferry, offer a variety of attractions as well. Lake Erie's coastline and the park facilities offer natural areas and historic resources for tourists and residents to enjoy. Other destinations include the Kalahari Resort home to Ohio's largest indoor water park. The 174, 000 square foot Kalahari Resort includes a 215,000 square feet convention space as well as 890 rooms. Other attractions in the area include the Great Wolf Lodge, Castaway Bay, Quality Inn and Suites Park, and Sawmill Creek Resort.

New venues that have been constructed since the last plan includes SportsForce Parks, which was completed in 2017. In 2020, the Cedar Point Indoor Sports Complex also opened. The 145,000-sq.-ft. facility features ten full-size basketball courts, which can convert to 20 full-size volleyball courts, a championship arena with retractable seating, sports medicine facility, fitness area, and family activities center.[29]

Tourists destined for Erie County primarily arrive by automobile as indicated by a survey conducted by Lake Erie Shores and Islands. Other available modes of transportation include rail service to Sandusky provided by Amtrak and bus service provided by Greyhound. According to the Lake Erie Shores and Islands, the top five reasons for visiting Erie County were: the Lake Erie Islands, beaches, lighthouses, historic sites, and Cedar Point. The survey stated that the majority of tourists are between the ages of 35 to 54.[30]

Economic Impact of Tourism in Erie County: Tourism is an integral and driving component for the Erie County economy. There is a diverse composite of economic activities, including transportation, recreation, retail, lodging, and the food and beverage sectors. LESI reported that tourists support over 13,918 employees creating $357 million in wages and generates over 255 million in taxes and sales. Tourism is an integral and driving component of the Erie County economy. Tourism-generated local taxes save Erie and Ottawa County households an average of $1,081 annually. [31] Historically, manufacturing was a major employer in the area. In the 1980s the Services sector started to dominate the economy (**see Figure 4-2.2**). Currently, the travel and tourism make up 26% of local employment with accommodations and food consisting of almost 16% (**see Figure 4-2.1**).

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[27] State of Tourism, 2018 LESI
[28] Economic Impact of Tourism research, 2017
[29] https://www.shoresandislands.com/download/travel-guide accessed 5/2020
[30] LESI, 2013 Visitor Survey
[31] State of Tourism, 2018 LESI

Percent of Total Employment

	Erie County, Ohio, OH
Private, 2018	86.3%
Travel & Tourism	26.4%
Retail Trade	2.5%
Gasoline Stations	1.0%
Clothing & Accessories	0.9%
Misc. Store Retailers	0.6%
Passenger Transportation	0.0%
Air Transportation	0.0%
Scenic & Sightseeing	na
Arts, Entertainment, & Rec.	8.4%
Performing Arts & Spectator Sports	0.2%
Museums, Parks, & Historic Sites	0.1%
Amusement, Gambling, & Rec.	8.1%
Accommodations & Food	15.5%
Accommodation	5.4%
Food Services & Drinking Places	10.1%
Non-Travel & Tourism	51.0%
Government, 2018	13.7%

Figure 4-2.1: Employment[32]

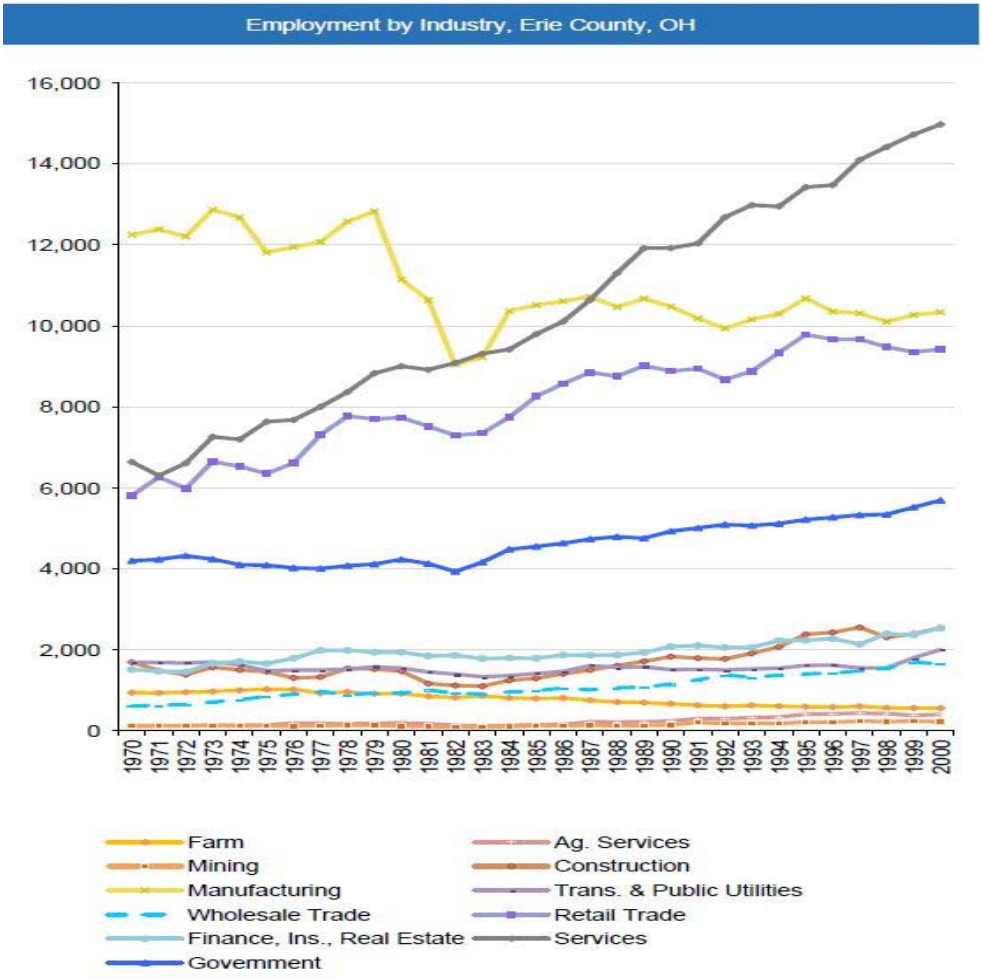
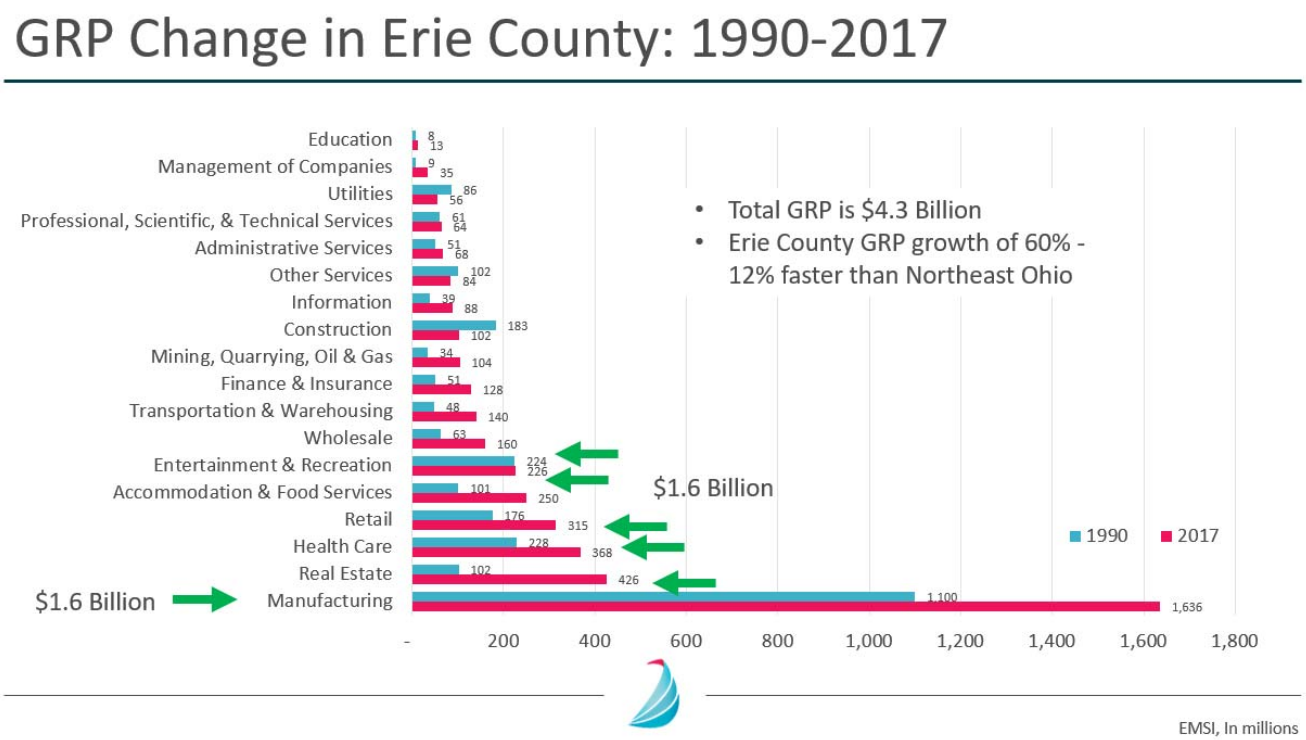


Figure 4-2.2: Erie County Employment[33]

[32] Headwater Economics , 5/2020
[33] Headwater Economics , 5/2020



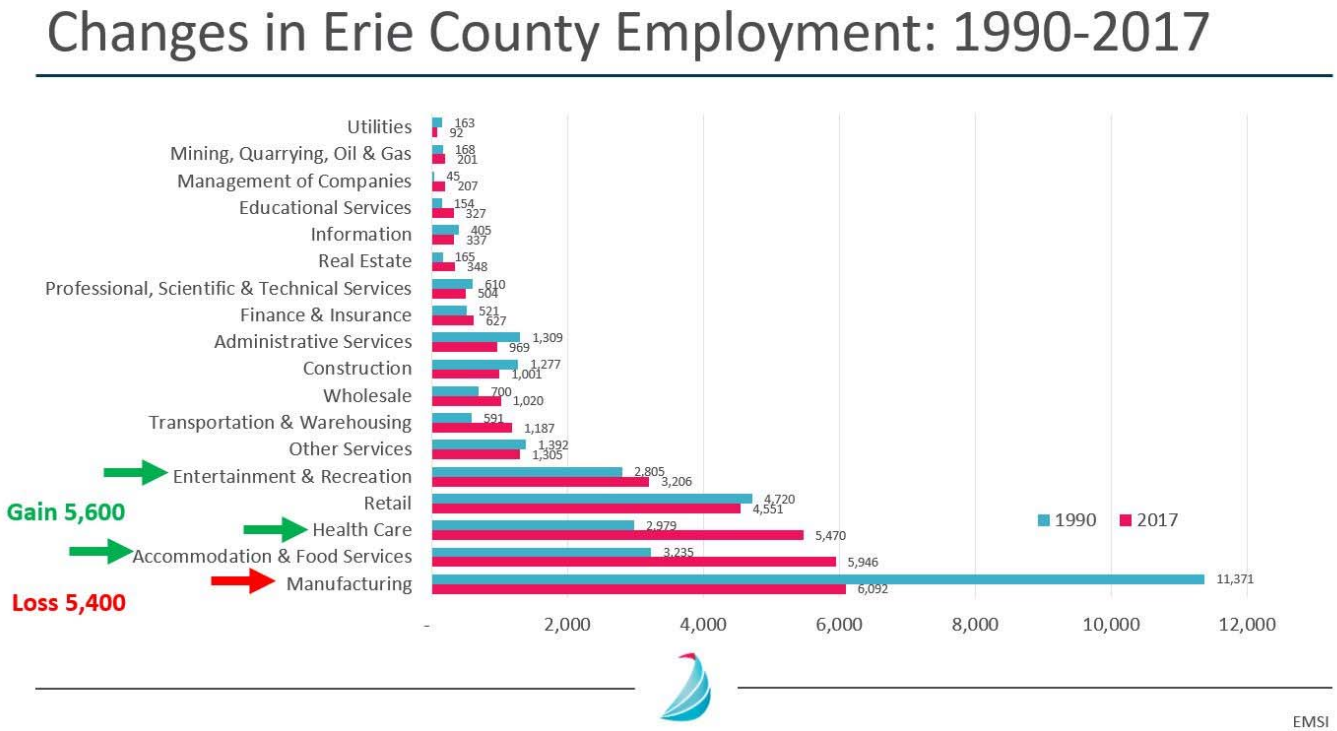
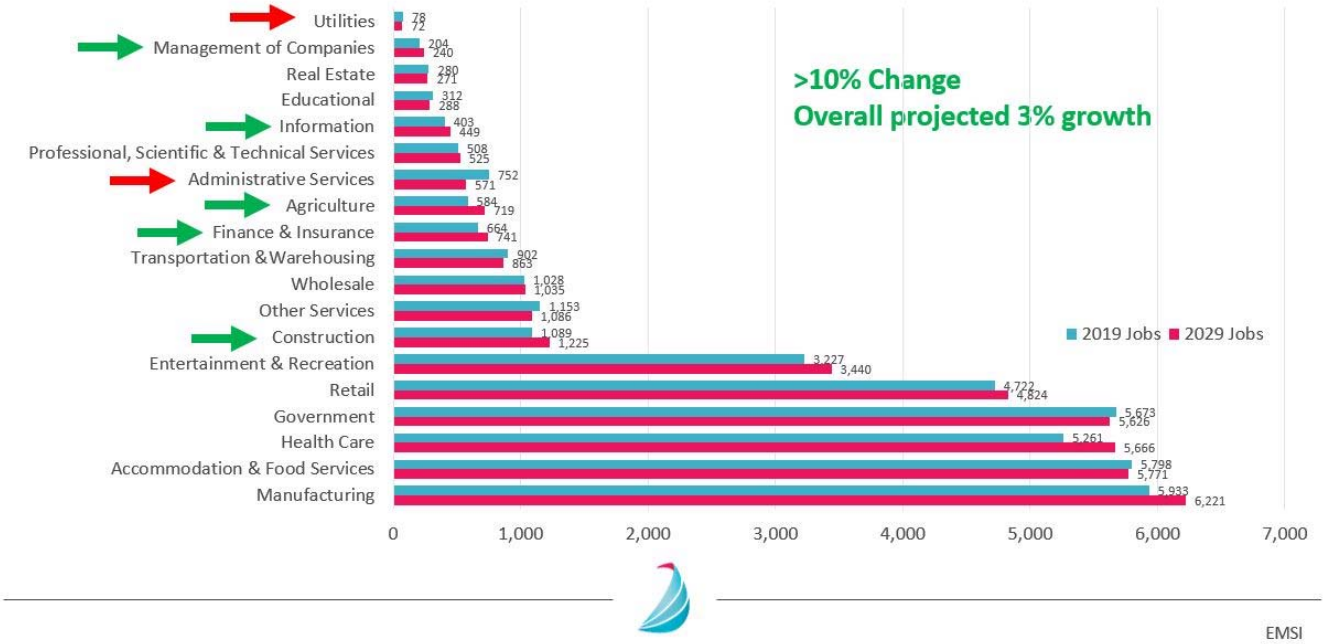


Figure 4-2.3: Changes in Gross Regional Product and Employment[34]

[34] Erie County Economic Development Corporation

Changes in Erie County Employment: 2019-2029



EMSI

4.3 Historic Conditions, Comprehensive Plans, and Land Use

Erie County History: Originally part of the Firelands, Erie County was formed in 1838 when the Legislature split the land to create Huron and Erie Counties. Erie County can trace its heritage to the Revolutionary War. During the war, numerous Connecticut residents were burned out of their homes by British soldiers and as compensation, the Connecticut Assembly awarded the citizens 500,000 acres in the westernmost portion of the Western Reserve, which became known as the Firelands. The area is now Erie and Huron Counties, as well as Ruggles Township in Ashland County and Danbury Township in Ottawa County. Erie County quickly became a transportation center through the creation of the Mad River and Lake Erie Railroad in 1835 and the Milan Canal in 1839. The City of Sandusky, the county seat, was uniquely platted in the shape of the Masonic symbol in 1818. Because of its location on Lake Erie and the number of railroad lines that went through the city, Sandusky was a major terminal on the Underground Railroad. Similarly, the City of Huron also became an active terminal along the Underground Railroad. The City of Vermilion became established as a major shipbuilding port due to its location on the Vermilion River, which flows into Lake Erie. With the opening of the man-made Milan Canal, the inland Village of Milan became a canal town with a link to the Huron River and Great Lakes. For a time, Milan was a leading Great Lakes port, however, with the advent of the railroad, Milan's canal and warehouses were eventually abandoned. Today, the Lake Erie Ports of Huron and Sandusky provide access to Great Lakes shipping and world ports through the St. Lawrence Seaway.

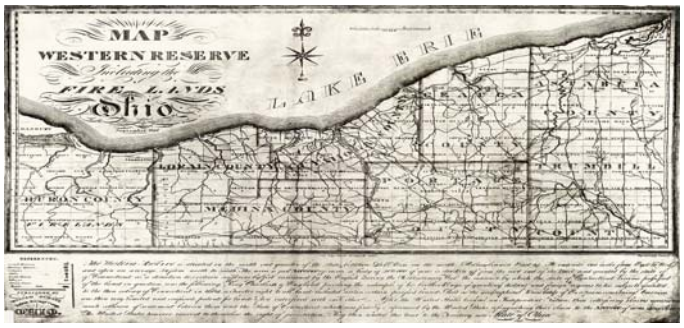
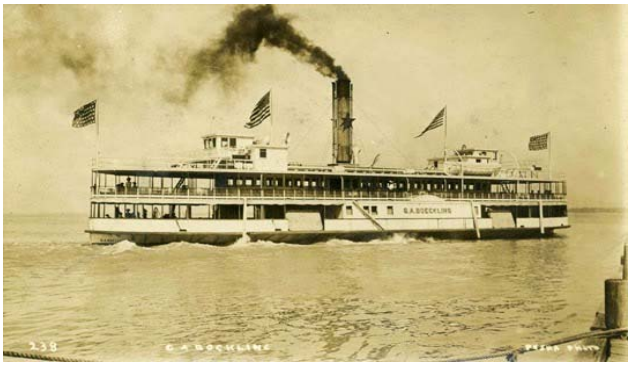


Diagram of the Firelands Circa 1826 and Historical Plaque [35],[36]



GA Boeckling[37]

Columbus Avenue Sandusky, OH 1910[38]

[35] Cleveland Library
[36] http://www.thehuronhistoricalsociety.org/historical-markers/the-firelands-of-ohio/ accessed 5/2020
[37] http://sanduskyhistory.blogspot.com/ accessed 5/2020
[38] http://sanduskyhistory.blogspot.com/ accessed 5/2020

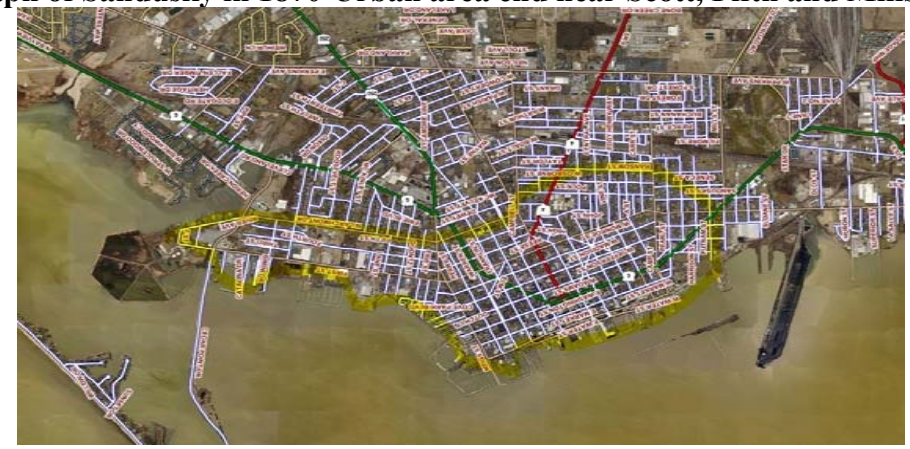
Lake Erie Railroad (Liberty Avenue) in Vermilion and Ferry Boat Service[39]
Figure 4-3.1: Historic Pictures

Relationship Between Transportation and Land Use: The organization of daily life has created a demand for travel. The demand for publicly accessible transportation connections between geographic locations grew into a desire for faster and more comfortable travel. The result of this demand has been the development of extensive transportation networks and technological advances in the means of transportation. These transportation improvements in turn have impacted daily activities, where geographic distances are less of an impediment than in the past. Not long ago, walking distances defined the geographic relationship between daily activities. The destination of one's work, shopping, social and religious institutions needed to be within a reasonable walking distance of one's home. These distances were a function of time and the location of one's home and one's daily destinations were tied to how much time people were willing to take to travel between destinations. These "time budgets," were defined by the transportation system and the transportation modes available. Households still make travel decisions based on on-time budgets. However, the development of automobiles and the corresponding roadway infrastructure has made it possible to travel much greater distances within an allotted time, allowing daily activities to be located much farther from one's home.

Just as the transportation system impacts location and destination decisions the mix and design of destinations greatly impact the demand for the transportation system. Improved transportation systems allow greater accessibility between dispersed land uses. In turn, dispersed land uses require more travel and thus more demand for transportation infrastructure. The importance of land use and transportation should not be underestimated. Land use patterns and development decisions are often seen as controlled solely by market forces, leaving public agencies to respond to the transportation demand created in their wake. However, public land-use policies directly affect private land-use decisions such as zoning regulations and minimum parking requirements. Therefore, land-use policies need to be considered with the impact of transportation just as transportation policies need to be considered with land use. Transportation systems and land use patterns have a well-documented reciprocal relationship. As communities have grown, the demands for transportation system improvements have also grown. However, these transportation improvements have also provided more convenient access to land farther out, thus spurring further growth. The automobile has impacted land use patterns more than any other transportation system over the past half-century

[39] http://www.vermilionohio.org/vermhispix.html accessed 5/2020

Lithograph of Sandusky in 1870-Urban area end near Scott, Fifth and Mills Streets[40]



Same Area Present Day-Yellow Lines show the Approximate 1870 Urban Boundaries

Figures 4-3.2: Land Use Changes

[40] Library of Congress, Rugers Map 1870 https://www.loc.gov/item/73694516 accessed 5/20

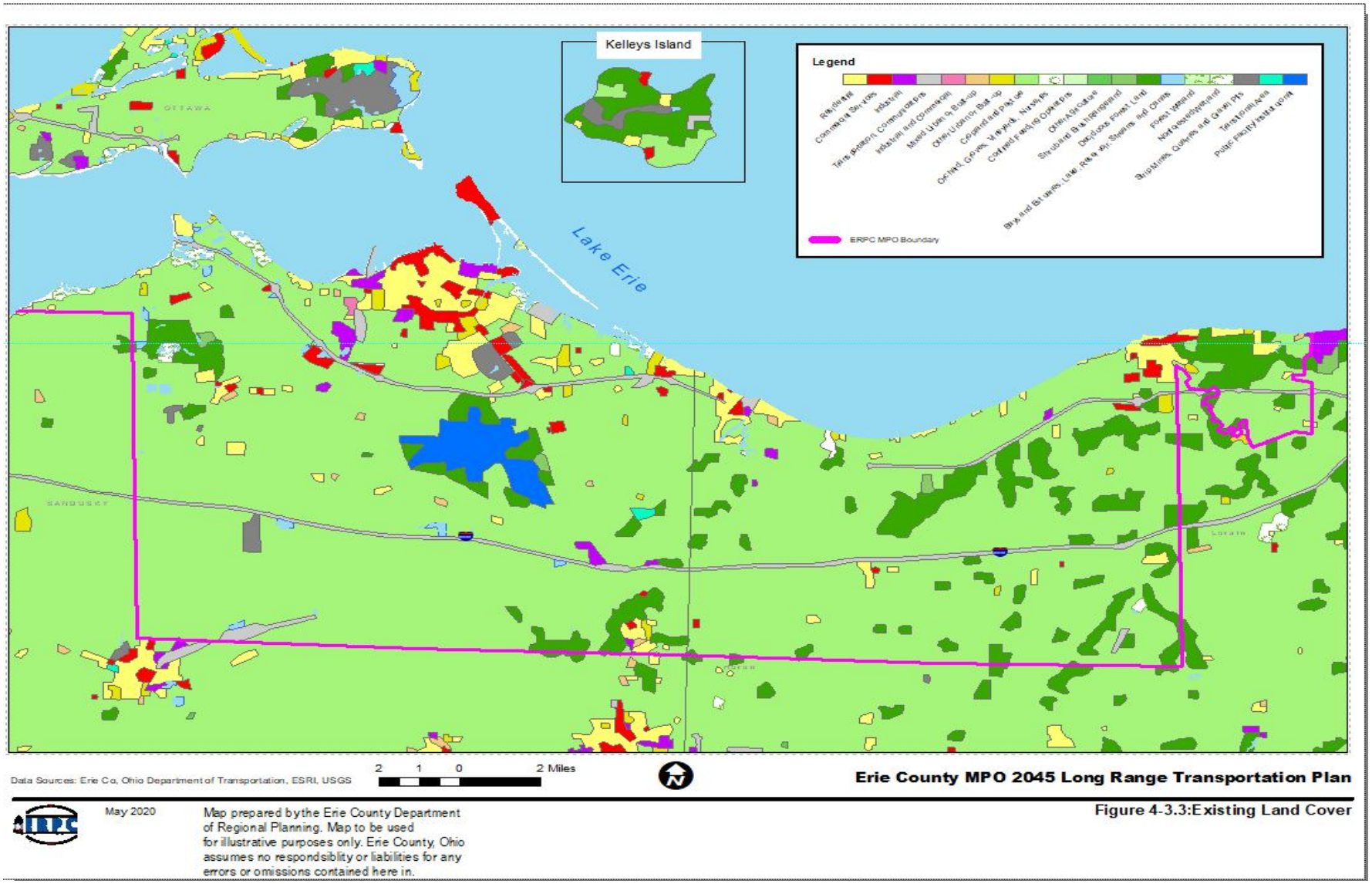


Figure 4-3.3: ERPC Existing Land Cover Map

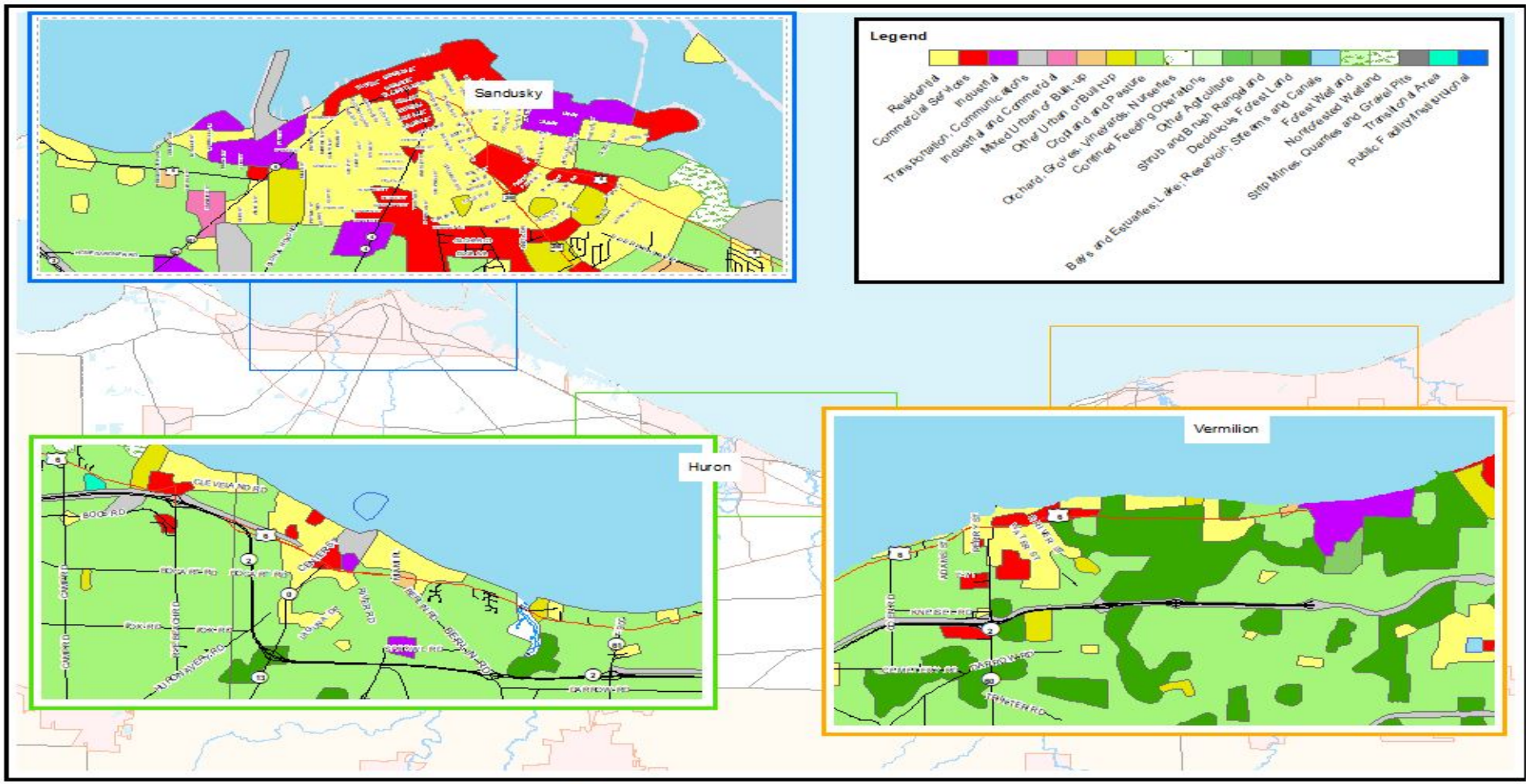


Figure 4-3.4: ERPC Existing Land Cover Map

Land Use, Ownership, and Agriculture: The majority of the planning area consists of privately held land (96%) with the state owning a small portion (approximately 3%) (**see Figures 4-3.5**). The majority of the land is made up of mixed cropland (86%) and water (4%) (**see Figure 4-3.7**). There has been a 5% increase in residential development since 2000.[41] Farming is prevalent in the region with oilseed and grain being the most common crops followed by vegetable and melons (**see Figures 4-3.8 and .9**).

Land Ownership

	Erie County, Ohio, OH
Total Acres	163,568
Private Lands	157,038
Conservation Easement	1,122
Federal Lands	0
Forest Service	0
BLM	0
National Park Service	0
Military	0
Other Federal	0
State Lands	4,596
State Trust Lands*	0
Other State	4,596
Tribal Lands	0
City, County, Other	1,932
Percent of Total	
Private Lands	96.0%
Conservation Easement	0.7%
Federal Lands	0.0%
Forest Service	0.0%
BLM	0.0%
National Park Service	0.0%
Military	0.0%
Other Federal	0.0%
State Lands	2.8%
State Trust Lands*	0.0%
Other State	2.8%
Tribal Lands	0.0%
City, County, Other	1.2%

Figure 4-3.5: Land Types[42]

Forest, Grassland, and Other Land Cover

	Erie County, Ohio, OH
Total Acres (2006)	163,568
Forest	4,907
Grassland	3,271
Shrubland	490
Mixed Cropland	140,668
Water	6,543
Urban	3,271
Other	490
Percent of Total	
Forest	3.0%
Grassland	2.0%
Shrubland	0.3%
Mixed Cropland	86.0%
Water	4.0%
Urban	2.0%
Other	0.3%

Figure 4-3.6: Land Types[43]

[41] Headwater Economics, 5/2020
[42] Headwater Economics, 5/2020
[43] Headwater Economics, 5/2020

Number and Size of Farms

	Erie County, Ohio, OH
Number of Farms, 2017	382
Land in Farms (Acres), 2017	86,440
Average Farm Size (Acres)	226
Approximate Land Area (Acres)	160,954
Approximate Percent of Land Area in Farms	53.7%

Figure 4-3.7: Farms [44]

Types of Farms

	Erie County, Ohio, OH
All Farms, 2017	382
Oilseed & Grain Farming	169
Vegetable & Melon Farming	23
Fruit & Nut Tree Farming	19
Greenhouse, Nursery, etc.	14
Other Crop Farming	64
Beef Cattle Ranch. & Farm.	34
Cattle Feedlots	2
Dairy Cattle & Milk Prod.	0
Hog & Pig Farming	9
Poultry & Egg Production	8
Sheep & Goat Farming	6
Animal Aquaculture & Other Animal Prod.	34
Percent of Total	
Oilseed & Grain Farming	44.2%
Vegetable & Melon Farming	6.0%
Fruit & Nut Tree Farming	5.0%
Greenhouse, Nursery, etc.	3.7%
Other Crop Farming	16.8%
Beef Cattle Ranch. & Farm.	8.9%
Cattle Feedlots	0.5%
Dairy Cattle & Milk Prod.	0.0%
Hog & Pig Farming	2.4%
Poultry & Egg Production	2.1%
Sheep & Goat Farming	1.6%
Aquaculture & Other Prod.	8.9%

Figure 4-3.8: Farms Types [45]

[44] Headwater Economics, 5/2020
[45] Headwater Economics, 5/2020

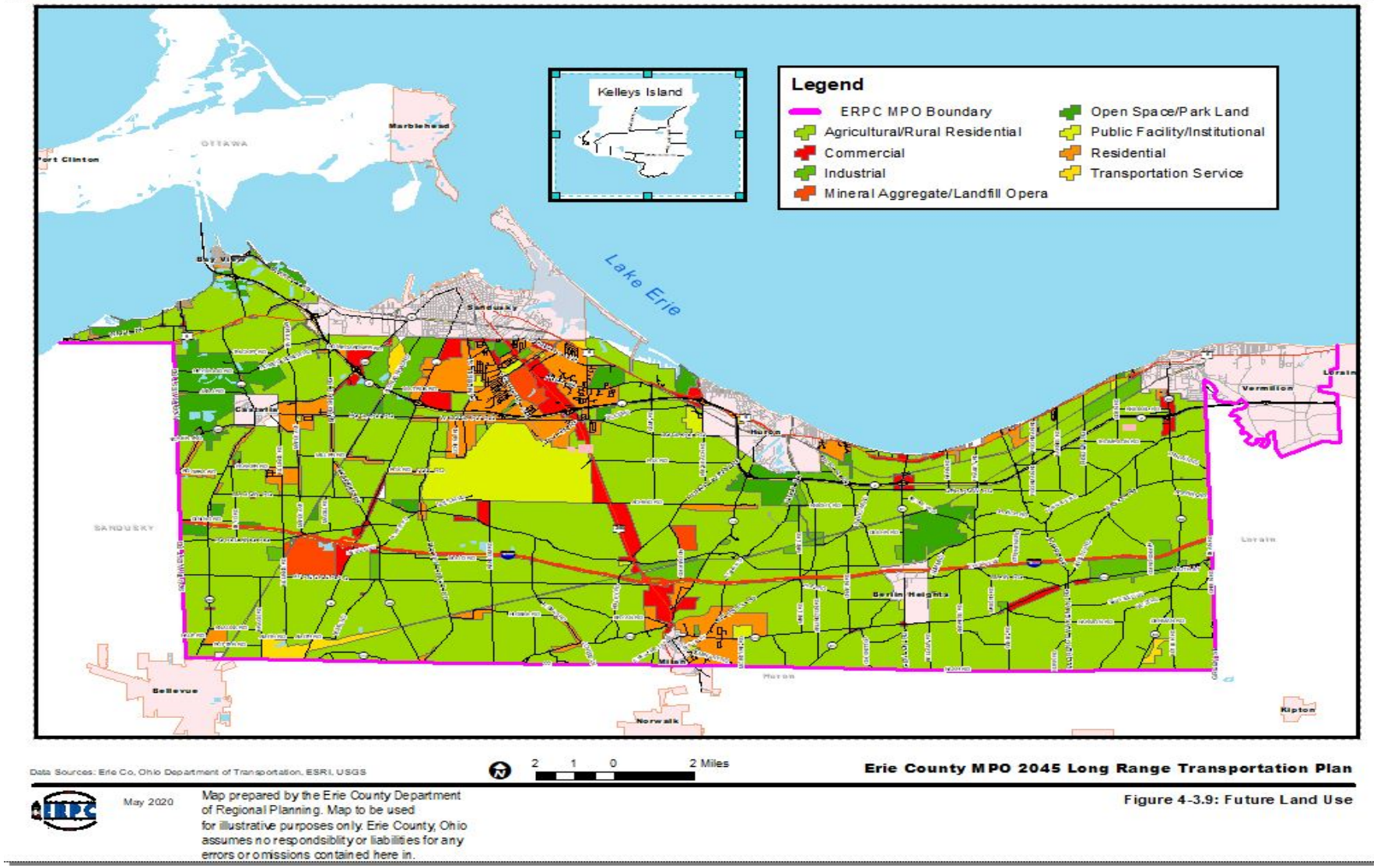


Figure 4-3.9: ERPC Future Land Use Map

Local Land Use: Land use descriptions from the major urban areas in the planning area are described below.

City of Vermilion: Major land use clusters consist of residential, commercial, industrial, and open space.

- **Residential land use** primarily extends **east and west along the coast** and on the **western side** of the city west of the river.
- M**ajor approaches** include **US 6, SR 2,** and **SR 60**. In addition, two railways run east-west through the city.
- **Commercial** areas are primarily located along **US 6/Liberty Avenue** and **SR 60**.
- **SR 60** has developed with a **mixed-use of residential/commercial** north of SR 2 and **farmland/residential south** of SR 2**. Sailorway Campus** is also located off SR 60. A large portion of this development is located in **Vermilion Township**.
- **Industrial** areas are clustered towards the **east end of the city.** There is an industrial park located off **Sunnyside Road** on the east end of the city.
- **Open spaces** include **Sherod Park, Main Street Beach, Showse Park** located along the lakefront**, Exchange Park** and **Victory Park (located** off Main Street**), a pocket park (located** off Liberty Avenue), and **agricultural land** in the southeastern portion of the city.

City of Huron: Major land use clusters consists of residential, commercial, industrial, and open space.

- **Residential land** use primarily **extends east and west along the coast**, **north of US 6,** and along **Main Street**.
- **Commercial** areas include the **central business district** and along **Rye Beach Road** from Bogart Road to Cleveland Road.
- **Industrial areas** are located west of the **central business district** in the city and the southeast portion of the city east of **River Road** and north of **Sprowl Road** extending to the lakefront. The **Sawmill Industrial park** and **Huron Corporate Park** are located west of the city on the north side and south side of the railroad tracks, respectively.
- **Major open spaces** include **Thunderbird Golf Course, the Huron Boat Basin,** and **Fabens Park**. **Sheldon's Marsh** is located west of the city and **Old Woman's Creek National Estuarine Preserve** to the east.
- **Major approaches include Cleveland Road (US 6), SR 2, Berlin Road, SR 13,** and **Huron-Avery Road**. In addition, two railways run east-west and north-south through Huron.
- **Major activity centers** include **the waterfront** and the **central business district**.

City of Sandusky: Major land use clusters in the city consist of residential, commercial, industrial, and open space. Residential land uses to encompass the largest percentage of the city's area.

- A majority of the **residential land use** is concentrated within a mile of the **Sandusky's central business district,** on the **west side** of the city and **north of Perkins Avenue** on the eastern half.

- **Major open space** is located through the western area of the city at **Mills Creek Golf Course** and along **Sandusky Bay**. There are numerous parks located throughout the city with the largest being **Shoreline Park**, **Battery,** and **Lions Park** in addition to **the Boat Marina** and **Jackson Street Pier**.

- **Commercial development** is concentrated around three areas: the **central business district**, along **US 250** starting at the overpass, along **Perkins Avenue** from Mills Street to US 250, and on **Cleveland Road/US 6**.

- **Industrial clusters** are concentrated along the **western waterfront** and along the western portion of US 6 including **Venice Road** and along the railroad that traverses the city. There is also an industrial park located south of Venice Road. **First Street** on the east side also has a cluster.

- **Major activity centers** include **Cedar Point Amusement park**, **waterfront,** and **central business district**, Firelands Community Hospital, **Jackson Street Pier,** and the Sandusky Plaza.

- **Major approaches** include **Cleveland Road/Venice Road (US 6), Columbus Avenue, Hayes Avenue (SR 4**), and **Milan Road (US 250)**. Two railways run east-west and north-south through Sandusky.

- **Key entry points** are located at the intersections of **Cleveland Road (US 6)** at the City Limits, **Columbus Avenue** and **Perkins Avenue**, **Fremont Avenue (US 6) and SR 2**, **Hayes Avenue (SR 4)** and **Perkins Avenue**, V**enice Road (US 6)** and **Tiffin Avenue (SR 101)** and **Tiffin Avenue (SR 10**1) at the City Limits.

Perkins Township: Major land use clusters of residential, commercial, and industrial development.

- Generally, the **commercial/retail** development of the township is concentrated along **Perkins Avenue** and **US 250 (Milan Road**).

- **Industrial development areas** were identified on **Hayes Avenue and Old Railroad Road** on the west side of the township, on **Columbus Avenue** immediately **north of SR 2** and along **Perkins Avenue**.

- The township is largely **residential** between **Campbell Road** and **Columbus Avenue** and the far eastern portion of **Perkins Avenue**. The portion of the township **south of SR 2** is a mixture of single-family development, NASA Plumbrook, and agricultural or undeveloped lands except for US 250.

- **Major approaches/corridors** include **SR 6, SR 4, SR 2, Perkins Avenue**, and **Columbus Avenue**.

- **Entry points** are located off of **SR 2** at **US 250** and **SR 4.**

  -US 250 is the commercial focal point of Erie County. Located between SR 2 and Perkins Avenue it is a **regional shopping center** as well as **strip commercial development**. Traffic on the US 250 Corridor includes a mix of traffic that requires the roadway to serve multiple purposes. The mix of traffic includes the following: A large influx of seasonal **tourist traffic**; local traffic from residential/retail/commercial areas; Commercial traffic from a large quarry; traffic from a multitude of businesses; and pedestrian/bicycle traffic.

  -The second major access to Perkins Township is **SR 4** (Hayes Avenue) at SR 2. **Hayes Avenue** has become a health care corridor.

- **Major activity centers** are as follows:

  - Along **US 250** there is a major commercial development, and several hotels including **Great Wolf Lodge** and Water Park, **Sandusky Mall**, **Lakecrest Shopping Center**, **Park Place Center**, Outback Plaza, the **Crossings Plaza** and Meijers Center. Government facilities include the **Ohio Soldier's and Sailor's Home**, **Township Fire Station,** and recreation facilities consisting of Pelton Park. **Perkins Plaza** east of US 250 is also developed as a commercial area. **Kalahari Water Park** is located near the southeastern edge of the township.

  -SR 4/Hayes Avenue consists of a multitude of **commercial and health care businesses**.

  -Campbell Street includes government, school, and commercial facilities. **Thorworks** is located off the northern portion of Campbell Street.

  -Perkins Avenue east of the SR 4 has a variety of commercial businesses. The **Perkins Plaza** is located on the south side of Perkins Avenue near Columbus Avenue.

4.4 A Glimpse Into the Year 2045

Population and Households: By the year 2045, the Ohio Department of Development projects that the population in Erie County will struggle to grow. This assumption is based on the loss of manufacturing jobs in the Erie County area, which will minimize in-migration while maximizing out-migration to areas with job growth. Erie County currently has a largely middle-aged population and a smaller younger population beneath it. By 2045 this difference will be even more evident. From 2010 to 2018 the median age of Erie County residents has already increased by 2.3 years (**see Figure 4-4.1**). In the future, the transportation system will have many of its users coming from an older demographic and will require a different approach then what has traditionally been done in the past. It is predicted that this change will be more pronounced in Erie County than in the State of Ohio who overall has a median age of 39.5[46] Another difference between the planning area and the state of Ohio is the number of younger residents in which the state model is more balanced (**see Figure 4-4.2**).

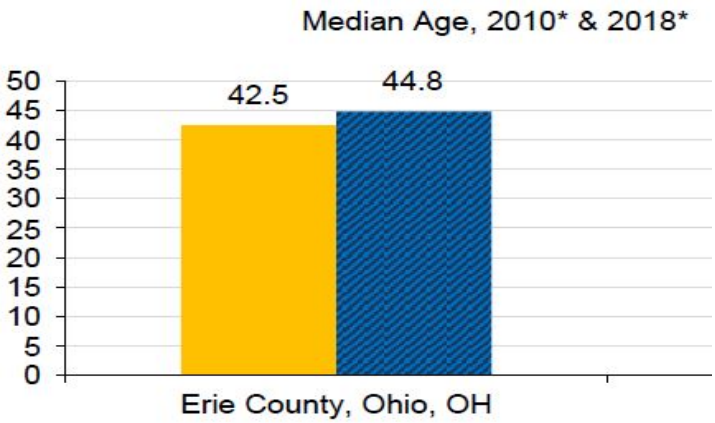


Figure 4-4.1: Median Ages[47]

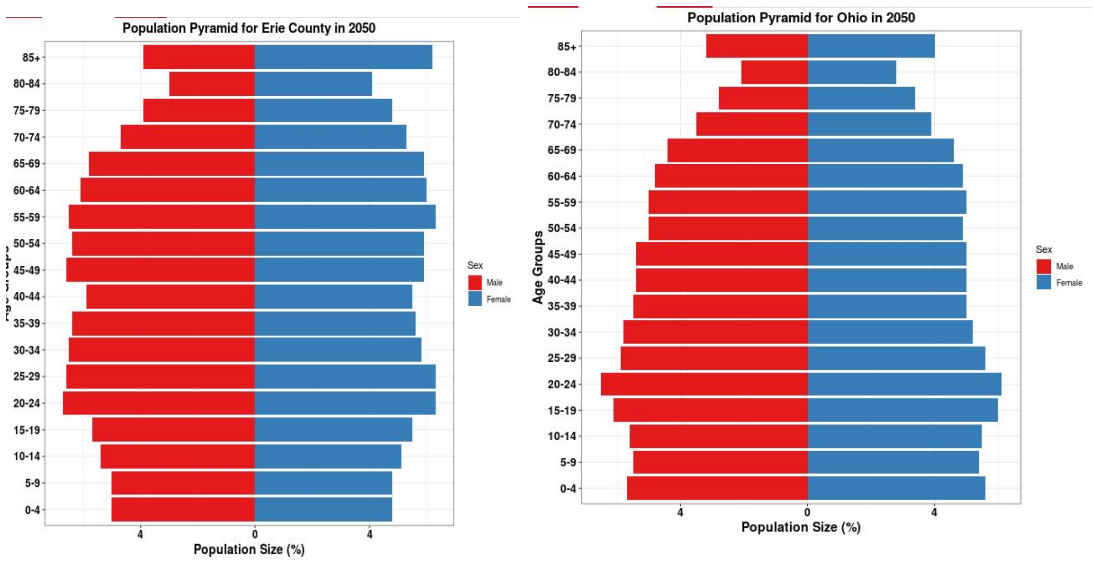


Figure 4-4.2: 2050 Population Pyramids Projection Erie County (left) and Ohio (right)

[46] https://datausa.io/profile/geo/ohio/ accessed 5/2020
[47] Headwater Economics, 5/2020

Elderly Population: While limited population growth is projected for Erie County, several different services will emerge as a result of an aging population. It is important to remember that many older adults live active lives, are safe drivers, and can use public transit. There is no universally accepted age at which people are no longer safe drivers, even though chronic conditions and disability, which occur more frequently in old age, certainly impact that skill. Accessible transportation services are critical for enabling older adults to live independently. The vast majority of older adults, nearly 90%, according to AARP – choose to age in place in their homes and communities. Successful community living requires access to medical and other essential services. While the health impact of reduced access to needed medical services is obvious (missed appointments, emergency hospital visits, lack of continual care), social isolation due to lack of transportation can also have an equally negative effect on health and mental health. Without accessible, reliable, and affordable transportation, many older adults could face the possibility of placement in a long-term care facility.[48]

Erie County is fortunate to have the **Sandusky Transit System** which provides many of the needed services for a reduced rate for applicable seniors.[49] Besides, **Serving Ours Seniors**, a private, non-profit, geriatric social service agency funded through the Erie County Senior Services tax levy, volunteers and donations assist local seniors with staying healthy, obtaining food, and medicine, paying utility costs and obtaining transportation. [50] It is anticipated that ridership numbers, and those seeking Serving Our Seniors services, will continue to climb as the population ages.
Some options to assist seniors with staying mobile and having the ability to age in place locally include:

Sandusky Transit System's Fixed Routes: Six different routes run seven days a week in the City of Sandusky and Perkins Township.

Sandusky Transit System's Dial-a-ride: A curb-to-curb service at an agreed-upon time.

Volunteer transportation programs: Through Serving Our Seniors and through GoOhio ride share[51] which is not active in the planning area, but in the adjoining counties.

Assisted transportation: A service used by older adults who need more than a ride, assisting the door to the car or an "escort" to stay with them throughout the trip.[52] The Sandusky Transit System provides paratransit services to qualified individuals for those who live near a fixed route, but can not physically access it. Drivers also assist riders onto the bus when needed and attendants ride free.

[48] https://www.nadtc.org/about/transportation-aging-disability/unique-issues-related-to-older-adults-and-transportation/ accessed 5/20
[49] http://www.ci.sandusky.oh.us/residents/sandusky_transit_system/index.php accessed 5/20
[50] http://www.servingourseniors.org/about/history/ accessed 5/20
[51] https://gohiocommute.com/#/ accessed 5/20
[52] http://trimet.org/pdfs/publications/elderly-and-disabled-plan.pdf, 2012 accessed 5/20

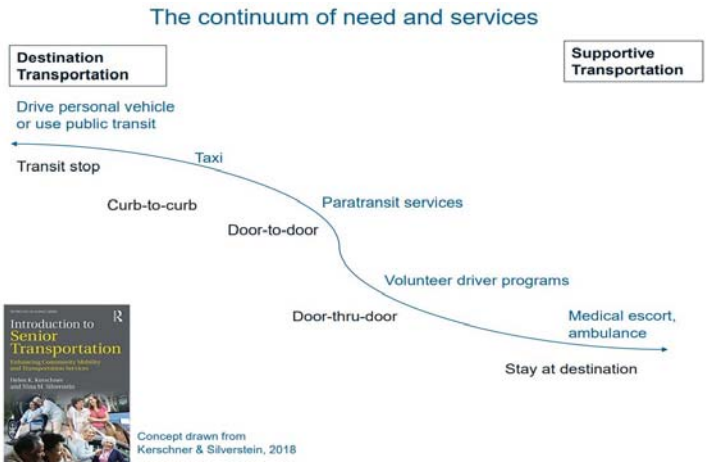
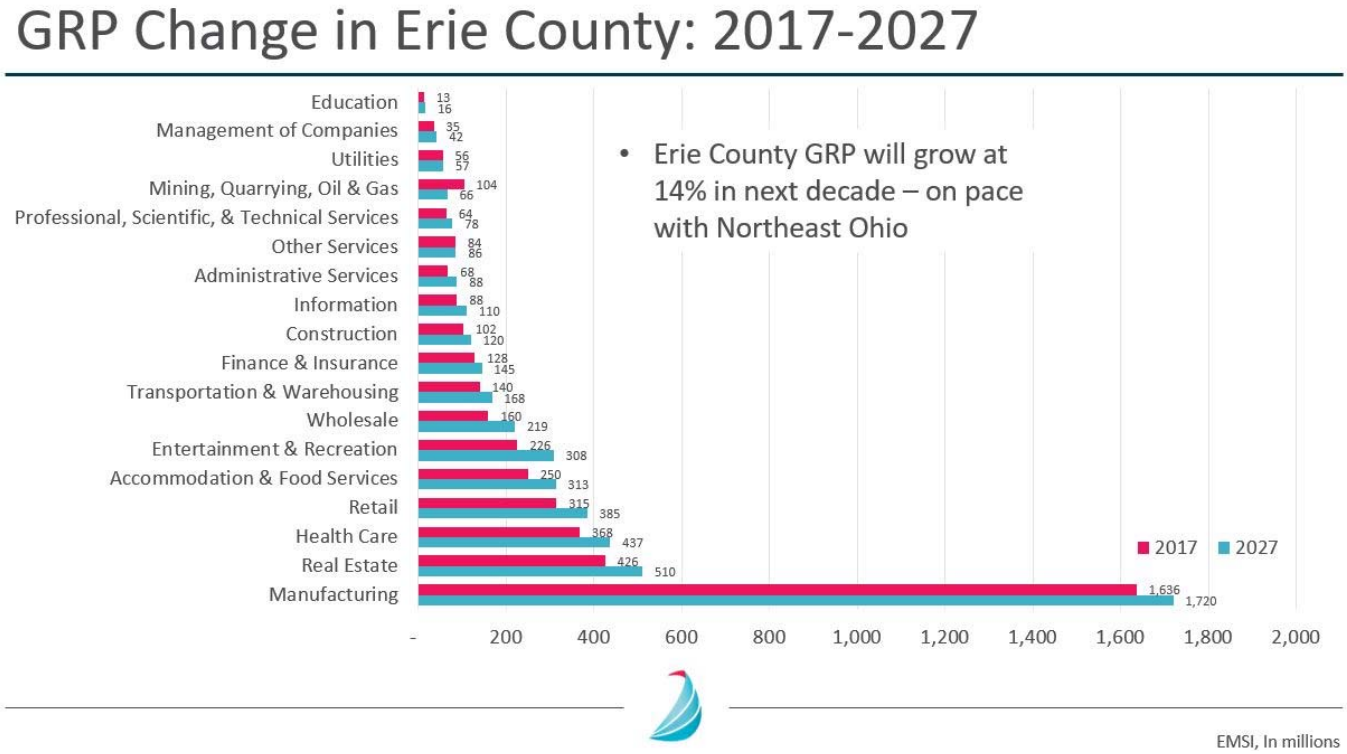


Figure 4-4.3: Continuum of Transportation Options for Elderly and Disabled Population[53]

Housing: Housing needs will also change over time in the planning area. Older persons, on the whole, require different kinds of living arrangements both in cost and design than younger families. These living arrangements typically include low-priced, small dwelling units with specially designed interiors, sometimes existing within a compound that provides common eating, medical and recreational facilities. Smaller dwelling units comprised of one- or two-person households will become increasingly common. Additionally, specially designed interiors which include grab bars, non-slip floors and bathtubs, one-floor layouts, increased illumination, and so on will also increase in popularity. Currently, the **Erie County Metro Housing Authority** assists in housing for many senior citizens who are struggling with housing.[54] Serving Our Seniors also assists in keeping seniors in their homes through home repairs and other related activities. It is anticipated that these services will continue to grow in the future.

Employment and Impacts on the Transportation System: Employment projections were provided by the Erie County Economic Development Corporation through 2029. These projections are widely used for studying long-range economic and employment trends, planning education and training programs, and developing career information. Only sectors with major employment gains or losses were analyzed. Areas that are anticipated to grow the most in the future include Manufacturing, Retail, Agriculture, Health Care, Entertainment and Recreation, Construction, and Finance and Insurance. Areas that are anticipated to decline include Education, Transportation and Warehousing, Administration Services, and Other Services.

[53] https://mahealthyagingcollaborative.org/wp-content/uploads/2018/06/UMB_scanTransportation06192018Final.pdf
[54] http://eriemetrohousing.org/public.aspx accessed 5/20



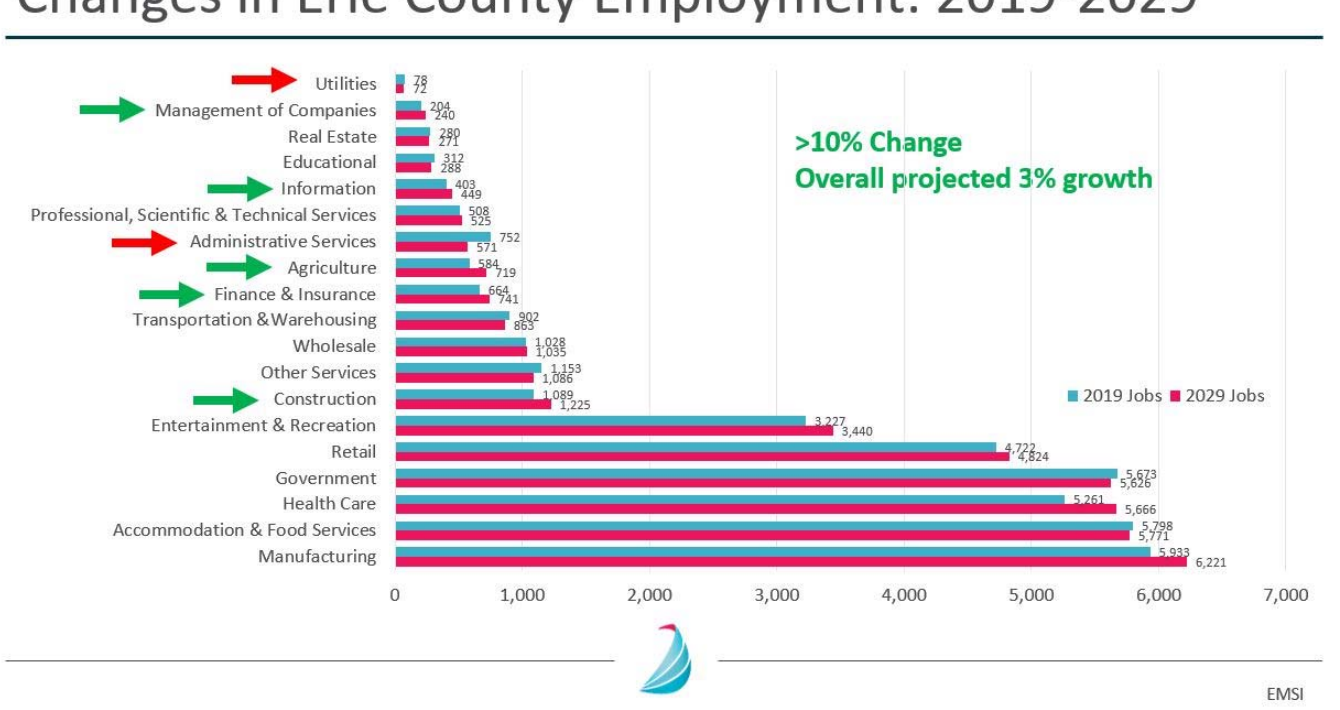


Figure: 4-4.4: Changes in Gross Regional Product and Employment[55]

[55] Erie County Economic Development Corporation

CHAPTER 5. EXISTING TRANSPORTATION SYSTEM CONDITIONS

5.1 Overview

This chapter summarizes the existing transportation conditions within the MPO area. It includes an evaluation of individual transportation modes and explores their interaction and connectivity with the surrounding land uses and environment. The analysis of existing conditions is a "snapshot" of a place and time that is continually changing due to new policies and/or development. This "snapshot" of the current system is important to planning efforts as it is used to forecast future conditions (explored in **Chapter 7**).

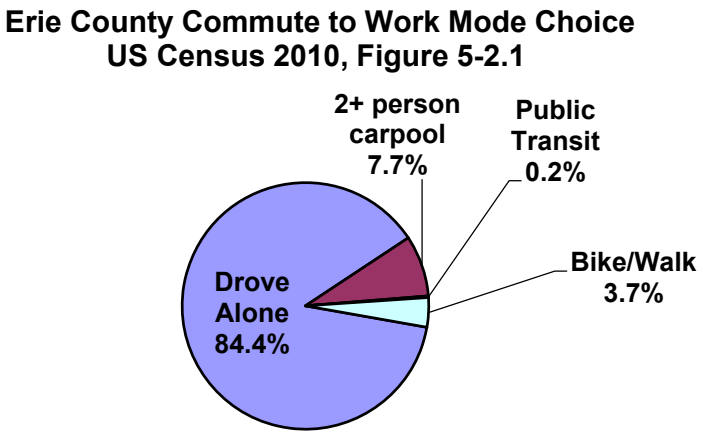
It is noted that during plan development, a stay at home order was issued by Ohio's Governor due to the COVID 19 pandemic. The order closed schools, select businesses, and restricted public gatherings. The order contributed an extreme decrease to normal levels of operating traffic across the MPO region. As this was an unordinary situation, ERPC determined it would acknowledge the unusual condition but continue to develop the plan based upon fully open operational conditions.

5.2 Travel Behavior Summary

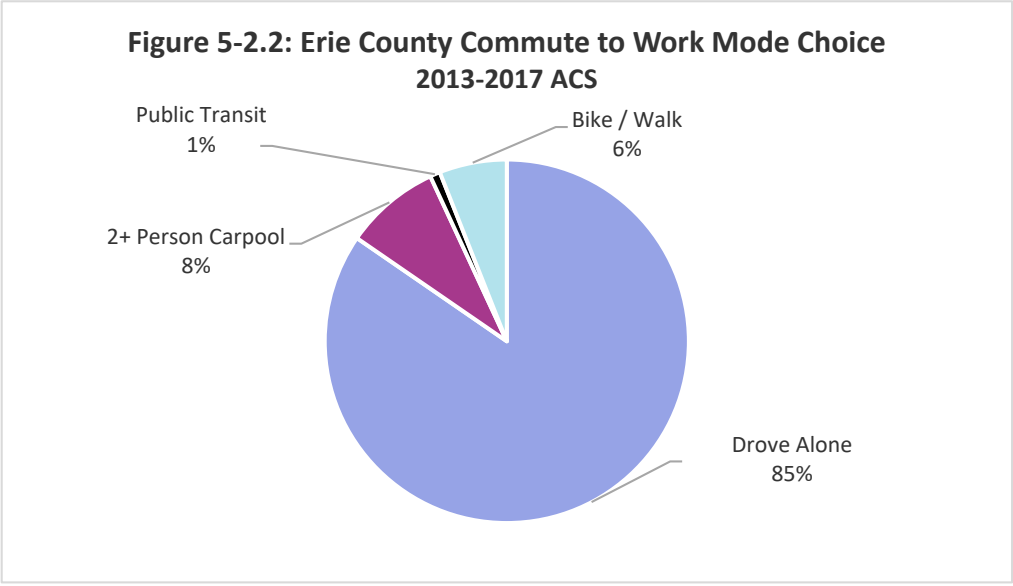
Travel Behavior: An analysis of people's travel patterns and behaviors are essential to understanding how the transportation system is used. Erie County's traffic patterns differ depending on the time of year as the tourism industry is heavily rooted in the area. As such, Erie County's traffic flows and travel patterns fluctuate substantially between peak (summer) and non-peak (winter) tourist seasons. With the introduction of new year- round tourist attractions, the area may experience a transition to a more stable transportation system.

The following is a summary of the most recent census data; first information provided by the US Census Bureau for the 2010 decennial census is listed, followed by data from the 2013-2017 5-year American Community Survey:

2010 Census: Commuter Mode Choice: More than 96 percent of Erie County residents reported generally using a private vehicle to get to work in 2010; of those, just over 85 percent drove by themselves and 7.7 percent carpooled with at least one other person on a regular basis. According to the US Census Bureau, 0.2 percent reported regularly using public transit to get to their job. 3.7 percent of those living in Erie County reported regularly walking or biking to work **(Figure 5-2.1)**.



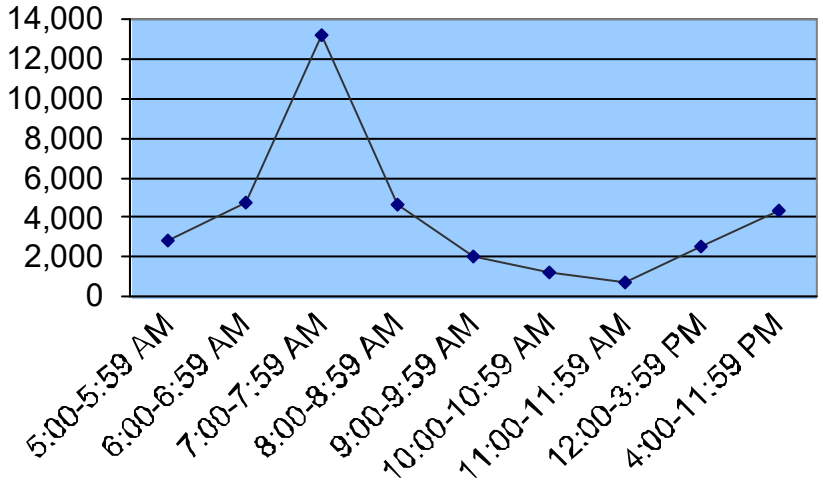
2013-2017 ACS Estimates Commuter Mode Choice: According to the Census Bureau's 2013-2017 ACS, approximately 93% of Erie County residents reported generally using a private vehicle to get to work; of those, 85 percent drove themselves and nearly 9 percent carpooled with at least one other person on a regular basis. Approximately 1 percent reported regularly using public transit to get to their job while 6 percent reported regularly walking or biking to work **(Figure 5-2.2)**.



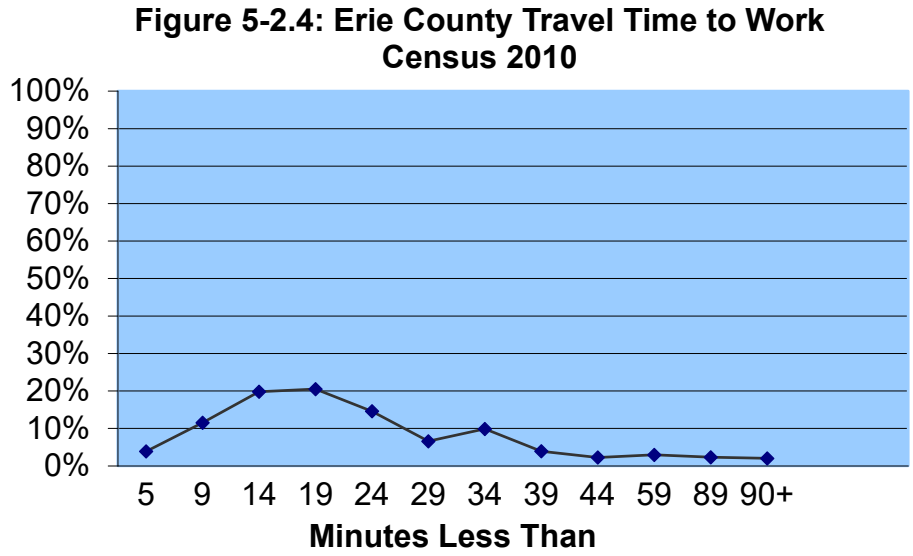
It is noted that an average of 2.7 percent Erie County workers have worked from home. Locally, telecommuting employees has increased 1.4 percent from five years ago. This small increase shows little evidence to suggest that telecommuting has had much of an impact on commuting behaviors. In fact, most of stakeholders interviewed for the LRTP update responded that they have had little to no experience with telecommuting. Additionally, when comparing the US 2010 census data to the ACS 2013-2017 data, there was a slight increase of residents that reported bicycling/walking, carpooling, or taking transit as their mode choices to commuting to work. This could suggest that workers might be looking to lower cost modal options for transportation to and from work.

2010 Census: Time Leaving for Work*:* Nearly 40 percent of residents within Erie County reported leaving for work between 7:00 and 8:00 AM in 2010 (**Figure 5-2.3).** Another 14 percent reported leaving for work between 6:00 and 7:00 AM, and 14 percent leave between 8:00 and 9:00 AM. In 2010, 76 percent of workers reported leaving for work between the four hour time period between 5:00 and 9:00 AM.

Figure 5-2.3: Time Leaving For Work Census 2010



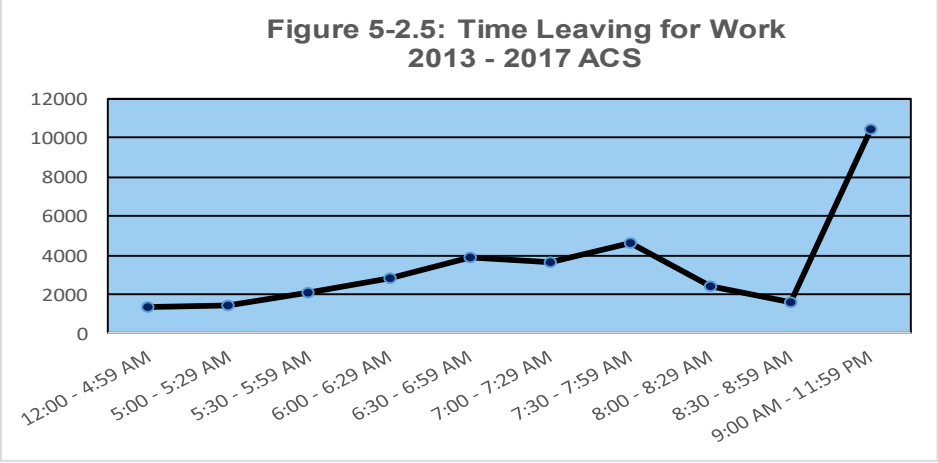
Travel Time to Work: Travel times are an important factor in measuring the effectiveness of the transportation system. The amount of time it takes to get to work for those living in Erie County, according to the 2010 Census (**Figure 5-2.4)**. Almost 56 percent of Erie County residents reported traveling 19 minutes or less to get to work and about 31 percent report commute times of between 19 minutes and 34 minutes. Approximately 15 percent of Erie County residents reported that their travel time to work was less than 10 minutes and 2 percent travel longer than 34 minutes. In 2010, Erie County resident's mean travel time to work was 20 minutes.



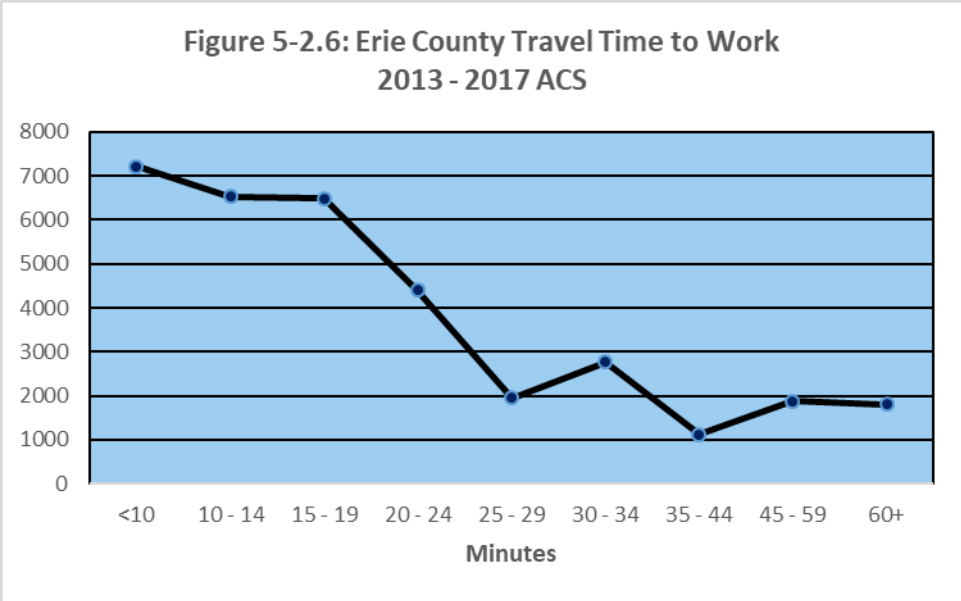
The travel time information indicates that people tend to make decisions based on a "travel time budget." In other words they tend to live within a particular distance from where they work with respect to the travel time between the two rather than the distance. As such, time saving transportation improvements often impact land use decisions.

Most people living in Erie County also work here. In 2010, 25,390 people both lived and worked in Erie County. Of the 35,553 total workers living in Erie Country, slightly more than 28 percent worked outside the county. Of the total number working in Erie County, almost 31 percent of them commute in from other counties; which calculates to over 1,100 more workers that came into Erie County to work than those that left the County.

2013-2017 ACS Estimates Time Leaving For Work: It was noted that 24.1 percent of residents within Erie County reported leaving for work between 7:00 and 8:00 AM in the 2013-2017 ACS, as shown in **Figure 5-2.5.** Another 19.5 percent and 11.8 percent leave for work between 6:00 and 7:00 AM and 8:00 and 9:00 AM, respectively. The ACS also showed that two-thirds of workers reported leaving for work between the four hour time period between 5:00 and 9:00 AM.



Travel Time to Work: The amount of time it takes to get to work for those living in Erie County, according to the 2013-2017 ACS, is illustrated in **Figure 5-2.6**. Almost 60 percent of Erie County residents report that they travel less than 20 minutes to work. While those residents traveling over 30 minutes to work is 22.2 percent.



5.3 Transportation Network

Roads: The urbanized area of the MPO is connected to the surrounding communities and rural areas by a system of Federal, State and County highways. The MPO's transportation system includes approximately 580 miles of roadway. Major routes include: US 6, US 250, State Routes 2, 4, 13, 60, 61, 99, 101, 113 and 269. The Ohio Turnpike, I-80/90, is accessible at two locations within the county and is one of the primary east-west connections.

Functional Classification System: Functional Classification is the grouping of roads, streets and highways in a hierarchy based on the type of highway service they provide. Streets and highways do not operate independently. They are part of an interconnected network, and each one performs a service in moving traffic throughout the system. Generally, streets and highways perform two types of service. They provide either traffic mobility or land access and can be ranked in terms of the proportion of each service they perform.

Roadways are also divided into urban and rural functional classification systems. The urban system covers all streets, roads and highways located within urban boundaries designated by the US Census Bureau including small urban areas (population 5,000 or more separate from any urbanized area) and urbanized areas (population 50,000 or more.)

The rural functional classification system covers all streets, roads and highways outside small urban and urbanized areas. While urban and rural areas differ, for example, in terms of the density of the land use

and intensity of traffic and travel, the same general functional concepts apply to highways in both systems. The principal difference between the two systems is the length of trips both in time and distance.

There are four classes of highways in the Functional Classification System; 1.) Principal arterials, 2.) Minor arterials, 3.) Collector streets, and 4.) Local streets.

The Urban Principal Arterial system is divided into three subclasses: a) Interstates; b) Other Freeways/Expressways- non-Interstate principal arterials with limited access; and c) Other, principal arterials without limited access.

Rural Principal Arterials have two subclasses: a) Interstates, those routes specifically designated as Interstate highways; and Other, principal arterials.

Because of greater population concentrations, more intense land use, and high traffic volumes in urban areas, some characteristics of urban classes differ slightly from their rural counterparts, for example, in the density and spacing of the urban network and the traffic volume and length of trips. **Figure 5-3.1** below was taken from the 2013 FHWA Highway Functional Classification, Concepts, Criteria, and Procedures manual. The table shows the relationship between classification and travel characteristics.

- Interstates and freeways offer no access to land, only to other roadways in the highway system and carry large amounts of traffic longer distances. The Ohio Turnpike and SR 2 in the MPO area are examples. Principal arterials are usually expressways or major highways such as US 250 and US6 between SR 2 west of Sandusky and SR 2 to the east. They still carry large amounts of traffic longer distances but also offer access to land. Problems arise when in developing areas, developers and community leaders allow the access to land function become more important than the mobility function. Numerous driveways and cross streets create conflicts which can result in congestion and delay with large volumes of traffic.

- Minor arterials support the principal arterial system. Generally they move smaller volumes of traffic moderate to longer distances. In rural areas they connect large towns to each other and larger urbanized areas. US 6 (Sandusky to Fremont) and SR 4 (Sandusky to Bellevue and Bucyrus) are examples in the MPO area. In Urban areas minor arterials are generally major streets such as Perkins Avenue and Columbus Avenue in Sandusky and Perkins Township or US 6 on the east side of the City of Huron or on the west side of the City of Vermilion.

- Collectors collect traffic from local streets (usually residential streets in urban areas and township roads in rural) and deliver it to the arterial street system. Collectors provide access to land but also have a through traffic component. Strub Road in Perkins Township, River Road in the City of Huron, and West River Road in the City of Vermilion are typical urban collectors. Rural major collectors are the principal connections between townships, provide longer distance intra county travel and deliver traffic to arterials. At an urban-rural boundary, rural major collectors connect directly to urban minor arterials. Rural minor collectors are secondary connectors for townships and small communities. Rural collector roads often link to State Routes (major collectors) or County Routes (minor collectors).

- Local streets provide access to land-residences and businesses in urban areas: farms, residences and occasional business in rural areas. In urban areas most city streets are local roadways in rural areas they are township roads. The traffic on local roads is usually the traveler who intends to access a residence or business along the street.

Functional Classification	Distance Served (and Length of Route)	Access Points	Speed Limit	Distance between Routes	Usage (AADT and DVMT)	Significance	Number of Travel Lanes
Arterial	Longest	Few	Highest	Longest	Highest	Statewide	More
Collector	Medium	Medium	Medium	Medium	Medium	Medium	Medium
Local	Shortest	Many	Lowest	Shortest	Lowest	Local	Fewer

Table 5-3.1 Relationship Between Functional Classification and Travel Characteristics

Maps 5-3.1 and 5-3.3 show the functional classification and Average Daily Traffic (ADT) of roadways in the MPO area. In looking at the map and reading the descriptions of each class it becomes clear that functional criteria and characteristics are more qualitative rather than quantitative. Geography, population density and land use, the size of road network, and travel patterns vary too greatly from state to state, county to county, or city to city, to develop exact criteria for trip lengths, traffic volumes, spacing of routes, or size of population centers. However classification studies by various states show the relative size of their systems are similar when expressed as a percentage of their total mileage. **Table 5-3.2** below summarizes data taken from the 2013 FHWA Highway Functional Classification Concepts, Criteria and Procedures manual. The table presents a range of percentages to be used in establishing the relative size of the rural and urban systems. In establishing the functional classification of roadways in the MPO area, these guidelines are considered. **Table 5-3.2** also shows the final distribution of the Rural and Urban functional classes in the ERPC MPO area.

Table 5-3.2: Proportion of Roadway Classes in a Regional Network

Roadway Functional Classification Group	Range Guideline for Class Group Based On:				In ERPC MPO Area:	
	Rural		Urban			
	VMT [% of total] (vehicle miles of travel)	Miles [% of total]	VMT [% of total] (vehicle miles of travel)	Miles [% of total]	Rural % of Miles	Urban % of Miles
Principal Arterial	14 to 30	2 to 6	16 to 31	4 to 5	1.3	6.9
Minor Arterial	11 to 20	3 to 7	14 to 25	7 to 14	3.1	8.7
Major Collector	12 to 23	9 to 19	5 to 13	7 to 15	24.6	13.9
Minor Collector	2 to 9	4 to 15	5 to 13	7 to 15	10.8	0.6
Local	8 to 23	64 to 75	6 to 25	63 to 75	59.1	63.2

The Functional classification system has traditionally been used as a method for allocating transportation improvement funds particularly those considered Federal Aid or received through ODOT from the Federal Highway Trust Fund. Prior to 1991 all roads classified as collectors (other than rural minor collectors) and arterials were eligible for Federal Aid. In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) created the National Highway System (NHS). The NHS would include the Interstate System plus selected other major roadways serving high volumes of traffic and those providing connections ports and to military facilities. The Interstates and other NHS routes then became the "Federal" system, which Congress and the Federal Highway Administration would focus on. The states (and metropolitan areas) would also receive a block of Federal Aide identified as the Surface Transportation Program, which would cover non-NHS routes except local roads. (Initially Rural Minor Collectors were also excluded.)

The selection of routes eligible for NHS funding was also based on functional criteria although the connectivity to ports and other selected facilities requirement has resulted in lower class roadways such as collectors and local roads are part of the NHS system[1] while principal arterials are not. **Figure 5.3-1** highlight the NHS system in the MPO area. There are approximately 103 miles of NHS highways in the MPO including 30 miles of Interstate on the Ohio Turnpike. 41.4 miles of the remaining miles are located on SR 2 and US 250. US 6 has approximately 16 miles on the system in the MPO area with 15.6 miles as intermodal connectors covering the remaining portion. Regarding the National Truck System (shown in **Map 5-3.2**), the MPO area contains approximately 95.6 miles. SR 2, SR 4 and the Turnpike (80/90) make up most of this route (approximately 75.5 miles). The remainder of the route is located on US 6 and SR 250.

[1] Updated January 2020, FHWA

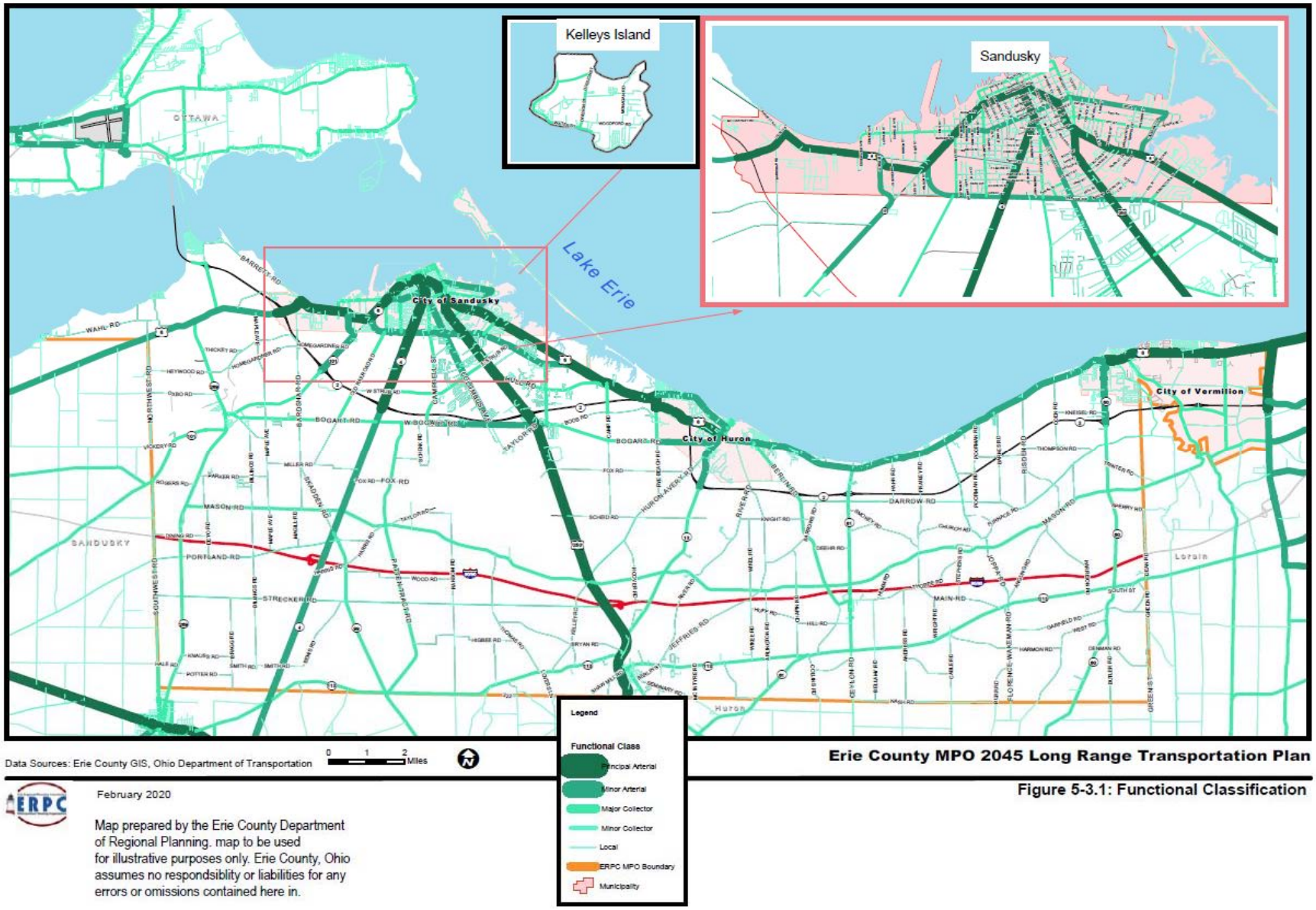


Figure 5-3.1: Functional Classification

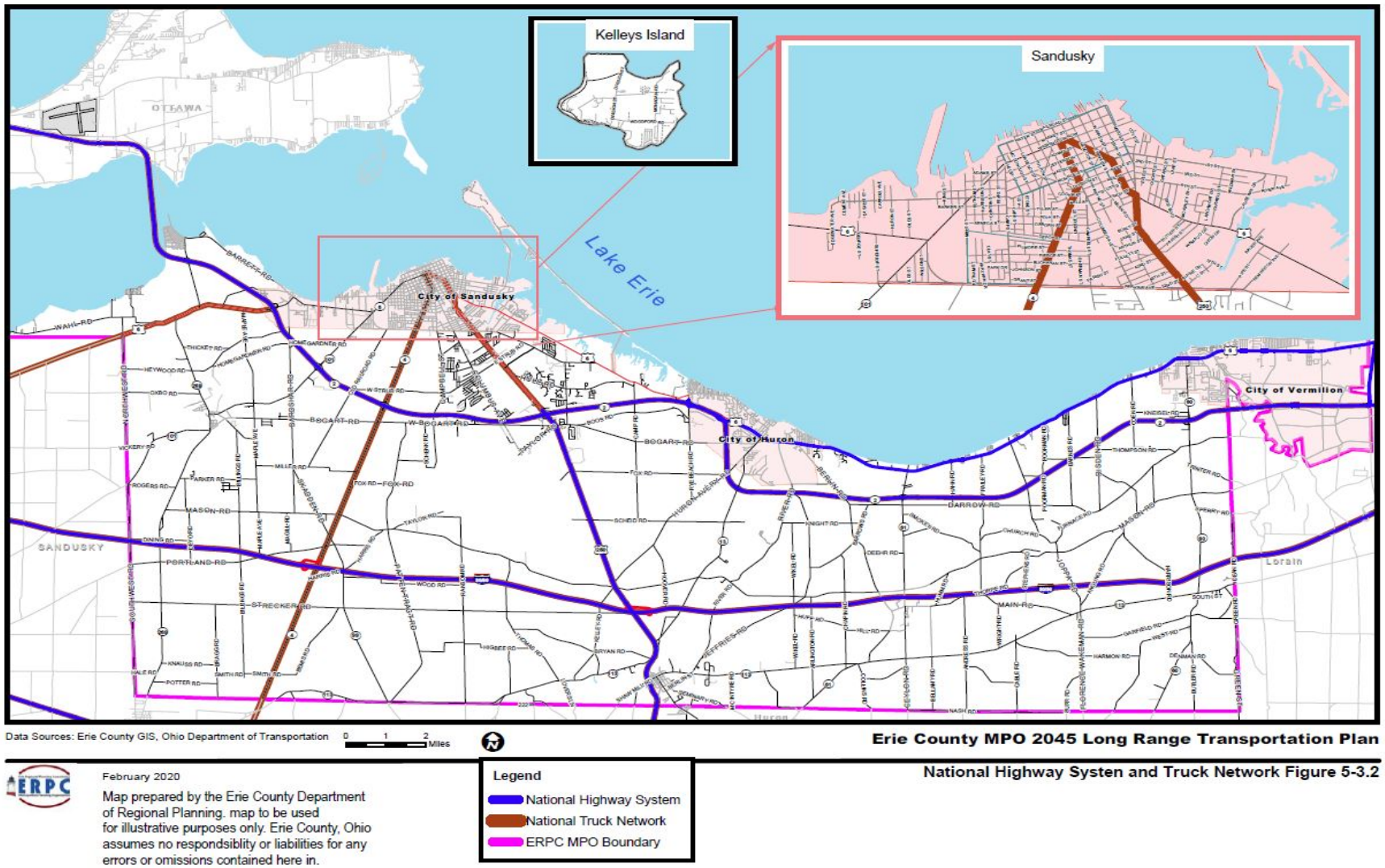


Figure 5-3.2: National Highway System

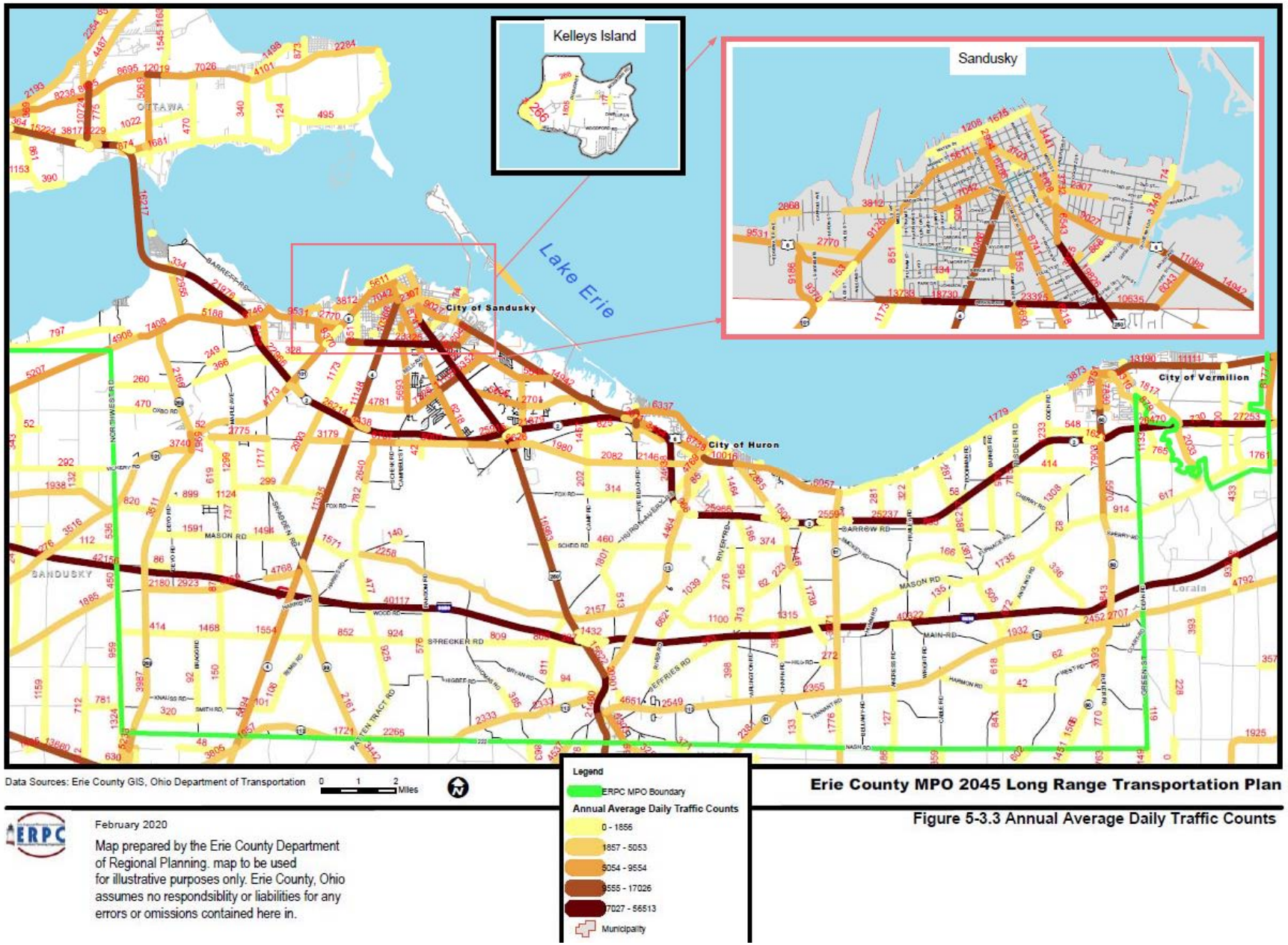


Figure 5-3.3: Annual Average Daily Traffic Count

Level of Service Analysis: An analysis was completed to evaluate the existing roadway systems Level of Service (LOS). LOS is a qualitative measure describing operation conditions within a traffic stream under a given demand. The system uses levels to represent a range of operating conditions defined by measures of effectiveness. The transportation LOS system uses the letters A through F, with A being best and F being worst. The Transportation Research Board's Highway Capacity Manual and **American Association of State Highway and Transportation Officials (**AASHTO) Geometric Design of Highways and Streets ("Green Book") list the following levels of service:

- **LOS A** is the best, described as conditions where traffic flows at or above the posted speed limit and all motorists have complete mobility between lanes. LOS A occurs late at night in urban areas, frequently in rural areas, and often seen generally in car advertisements.

- **LOS B** is slightly more congested, with some hindrance of maneuverability; two motorists might be forced to drive side by side, limiting lane changes. LOS B does not reduce speed from LOS A.

- **LOS C** has more congestion than B, where ability to pass or change lanes is not always assured. LOS C is the target for urban highways in some places, and for rural highways in many places. At LOS C most experienced drivers are comfortable, roads remain safely below but efficiently close to capacity, and posted speed is maintained.

- **LOS D** is perhaps the level of service of a busy shopping corridor in the middle of a weekday, or a functional urban highway during commuting hours: speeds are somewhat reduced, motorists are hemmed in by other cars and trucks. LOS D is a common goal for urban streets during peak hours, as attaining LOS C would require a prohibitive cost and societal impact in bypass roads and lane additions.

- **LOS E** is a marginal service state. Flow becomes irregular and speed varies rapidly, but rarely reaches the posted limit. On highways this is consistent with a road at or approaching its designed capacity. LOS E is a common standard in larger urban areas, where some roadway congestion is inevitable.

- **LOS F** is the lowest measurement of efficiency for a road's performance. Flow is forced; every vehicle moves in lockstep with the vehicle in front of it, with frequent slowing required. Technically, a road in a constant traffic jam would be at LOS F. This is because LOS does not describe an instant state, but rather an average or typical service.

Figure 5-3.4 shows LOS under summer weekday condition; which was determined overall to have more traffic than spring or summer weekends. Most low ranking LOS facilities on the map are located within the City of Sandusky. As tourism levels hit their height during summer weekdays, traffic increases along main routes particularly those leading to the Cedar Point Amusement Park. Also, it is important to note that the level of service maps generated from the travel demand model may not totally reflect site specific conditions and as such, forecasts of future congestion patterns are typically followed up with site-specific studies before specific improvements are proposed by the MPO's member jurisdictions. **Figure 5-3.4** displays the results of the LOS analysis for existing intersection conditions within the MPO. The map shows LOS for intersections based on delay during a peak hour period. All facilities classified as a local

road were excluded in this analysis due to low volumes and the fact that as they are not included in the federal aid highway system, they are not eligible for MPO funding.

Safety Analysis: Crashes are a measure of highway safety. One way to identify high crash locations is the absolute number of crashes occurring at a location in a specified time period, which is usually three years. Another way is to use the crash rate, or the absolute number of crashes in the time period divided by the number of vehicles passing through the location in that time period. The location with the highest number of accidents is ranked first, followed by the location with the second highest number of accidents, and so on. This method does not consider the differing amounts of traffic at each location. Therefore, the frequency method tends to rank high volume locations as high crash locations, even if those locations have a relatively low number of accidents for the traffic volume.

Another way to identify high crash locations is by the crash rate, the absolute number of crashes in the time period divided by the number of vehicles passing through the location in that time period. ERPC uses the frequency method to select a group of high-accident locations and then uses the crash rate method (where traffic counts are available) to calculate the crash rate. ERPC will continue to make concerted efforts in the upcoming traffic counting seasons to capture traffic counts for those locations on the crash frequency list in order to calculate crash rates.

Table 5-3.3 lists the highest-ranking crash intersections by absolute number of crashes (within 0.10 mile from the intersection) during the three-year period 2016, 2017 and 2018. Calculated crash rates are also listed where traffic volume data were available; however, crash rank order is based on the frequency of crashes at a particular location. Since several locations have the same number of incidents, the top 19 ranked by number of crashes results were listed displaying 51 different intersections.

The highest number of crashes at any location was 45 in the three-year period, which occurred at US 250 and Strub Road. This is 32 accidents less than the highest crashes as listed in the 2040 LRTP update. The lowest number of crashes at a location (by number or crashes) was nine in the three-year period and this occurred at nine different intersections. Where traffic information was available for all streets at the intersection, the crash rate ranged from 0.33 crashes per million vehicles to 2.41 crashes per million vehicles. Crash information as presented here is an initial step in determining whether a location has an important and correctable safety problem. Both absolute numbers and the crash rate are important guides. However, the crash rate often carries more weight because the number reflects the potential for a crash at a location. The crash rate is expressed as “crashes per million vehicles entering the intersection”. The crash rate provides a basis for identifying "high crash" sites. Typically, optimal levels for crash rates is 1.0 or below. The crash rate takes into account the traffic volume at the intersection, which is one of the greatest predictors of the quantitative risk of a crash. For example, the intersection at SR 4 and Strub Road had 28 crashes with a crash rate of 1.67. In comparison, SR 269 at Portland Road shows fewer crashes at 17, but the crash rate is higher at 2.41

Also, it is noted that many crashes are not considered by definition accidents. An accident is defined as no reasonable amount of driver car, caution or roadway improvements could prevented it from occurring while crashes are the result of driver carelessness-speeding, following too closely, driving too fast for conditions, or DWI etc. In some cases, correctable roadway conditions have a direct or contributing effect on the number and severity of crashes at a location. A traffic safety study is usually conducted to determine the seriousness of the crash problem at a location and to identify potential remedies to identified

deficiencies. Those remedies can include physical improvements such as new roadway geometry, signals to conveying information about roadway conditions to drivers, or enforcing driving related laws.

ODOT and the MPO regularly review the highest (based on absolute numbers and the crash rate) crash locations to identify those with the most serious conditions. That evaluation includes summary statistics on the severity (fatalities, injuries or property damage), weather conditions, time of day, etc. The most serious crash locations are placed on ODOT's Highway Safety Improvement Program (HSIP) list for further evaluation and recommendations for potential improvements (**Figure 5-3.3a**).

TABLE 2: CRASH RATES FOR HIGH CRASH FREQUENCY LOCATIONS (where ADTs Available)

Rank	Jurisdiction	Intersection	Number of Crashes	Crash Rate
1	PERKINS TOWNSHIP	US 250 @ STRUB RD	45	1.52
2	SANDUSKY	PERKINS AVE @ COLUMBUS AVE	40	
3	PERKINS TOWNSHIP	SR 4 @ PERKINS AVE	35	1.06
4	PERKINS TOWNSHIP	US 250 @ HULL RD	34	
5	PERKINS TOWNSHIP	STRUB RD @ COLUMBUS AVE	29	
6	PERKINS TOWNSHIP	SR 4 @ STRUB RD	28	1.67
6	SANDUSKY	US 250 @ PERKINS AVE	28	0.87
6	PERKINS TOWNSHIP	US 250 @ BOGART RD	28	0.82
7	PERKINS TOWNSHIP	PERKINS AVE @ CAMPBELL ST	27	0.81
8	GROTON TOWNSHIP	SR 4 @ SR 99	23	1.89
9	HURON TOWNSHIP	US 6 @ PERKINS AVE	22	1.65
9	MILAN TOWNSHIP	US 250 @ SR 13	22	0.98
9	PERKINS TOWNSHIP	US 250 @ MALL BLVD	22	
10	PERKINS TOWNSHIP	US 250 @ KALAHARI DR	20	
10	PERKINS TOWNSHIP	US 250 @ FUN DR	20	
10	SANDUSKY	COLUBMUS AVE @ MONROE ST	20	
11	PERKINS TOWNSHIP	US 250 @ CROSSINGS RD	18	
12	MARGARETTA TOWNSHIP	SR 269 @ PORTLAND RD	17	2.41
13	SANDUSKY	US 6 @ CEDAR POINT DR	16	
13	HURON TOWNSHIP	US 6 @ CAMP RD	16	0.95
13	PERKINS TOWNSHIP	US 250 @ SR 2 (WB Ramps)	16	0.48
14	SANDUSKY	TIFFIN AVE @ VENICE RD/SANFORD ST	14	0.87
14	SANDUSKY	SR 4 @ TYLER ST	14	0.99
15	HURON	RYE BEACH RD @ SR 2 (WB Ramps)	13	
15	SANDUSKY	MONROE ST @ WAYNE ST	13	
15	MILAN TOWNSHIP	US 250 @ MASON RD	13	0.68
15	MILAN TOWNSHIP	US 250 @ SR 113 East	13	0.53
16	SANDUSKY	PERKINS AVE @ CALDWELL ST	12	
16	PERKINS TOWNSHIP	US 250 @ SR 2 (EB Ramps)	12	0.33
17	PERKINS TOWNSHIP	US 250 @ DEWITT AVE	11	0.51
17	SANDUSKY	WARREN ST @ SCOTT ST	11	
17	VERMILION TOWNSHIP	SR 60 @ SAILORWAY DR	11	
17	HURON	US 6 @ RYEBEACH RD	11	
17	SANDUSKY	PERKINS AVE @ 52ND ST	11	
17	SANDUSKY	MONROE ST @ CAMP ST	11	1.11
17	MILAN TOWNSHIP	MASON RD @ KELLEY RD	11	
17	SANDUSKY	MONROE ST @ HANCOCK ST	11	
18	SANDUSKY	US 6 @ REMINGTON AVE	10	
18	SANDUSKY	PERKINS AVE @ PIPE ST	10	0.76
18	SANDUSKY	COLUMBUS AVE @ PARISH ST	10	
18	SANDUSKY	COLUMBUS AVE @ FARWELL ST	10	
18	HURON	US 6 @ SR 13	10	0.68
18	MILAN TOWNSHIP	US 250 @ HURON AVERY RD	10	0.56
18	SANDUSKY	SR 4 @ PEIRCE ST	10	0.80
18	PERKINS TOWNSHIP	SR 4 @ SR 2 (EB Ramps)	10	0.83
18	MILAN TOWNSHIP	US 250 @ SR 113 West	10	0.40
19	BERLIN TOWNSHIP	SR 113 @ SR 61 (South)	9	2.71
19	MARGARETTA TOWNSHIP	US 6 @ SR 269 (North)	9	0.92
19	VERMILION	US 6 @ SUNNYSIDE RD	9	1.39
19	SANDUSKY	MILAN RD @ SCOTT ST	9	
19	PERKINS TOWNSHIP	SR 4 @ BOGART RD	9	0.62

Note: Intersection only crashes with 9 or more crashes over the years 2016-2018 are listed
Source: Ohio Department of Transportation TIMS/GCAT System (250 ft. buffer applied around each intersection)

Table 5-3.3: Crash Intersection Locations[2]

[2] ERPC 2019 Crash Summary Report- Ranked by Frequency

2018 Highway Safety Improvement Program (HSIP) Priority Locations - Erie County

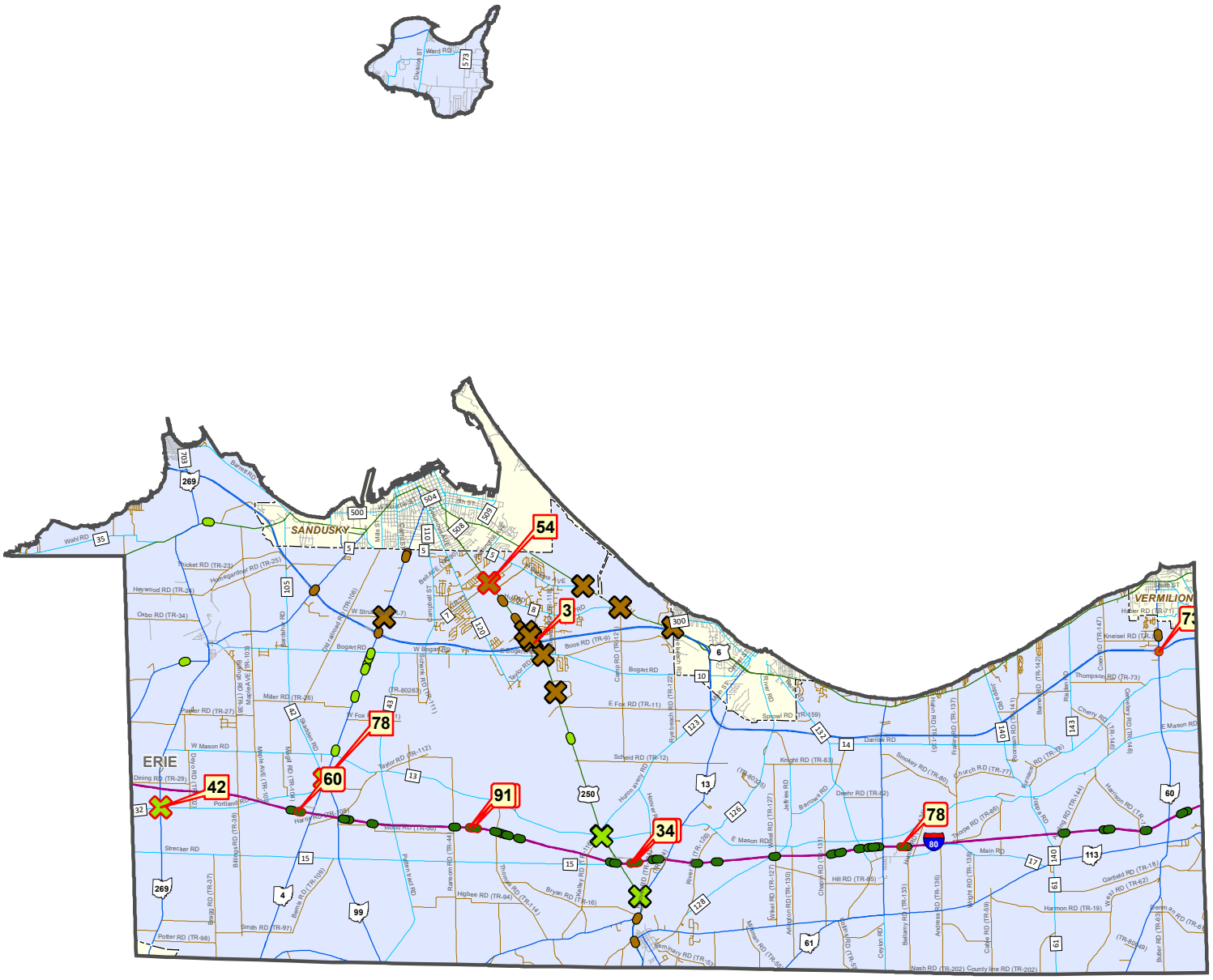


Figure 5-3.3a HSIP Map

City Boundary

Roads by Type

- Other Routes
- Interstate Route
- United States Route
- State Route
- County Road
- Township Road

Safety Priority Category

- Rural Intersections
- Suburban Intersections
- Urban Intersections

Safety Priority Category

- Rural Freeway
- Rural Non-Freeway
- Rural Ramp
- Suburban Non-Freeway
- Urban Freeway
- Urban Non-Freeway
- Urban Ramp

Date: 9/14/2019

0 1.25 2.5 5 7.5

Miles

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Division of Planning
Program Management

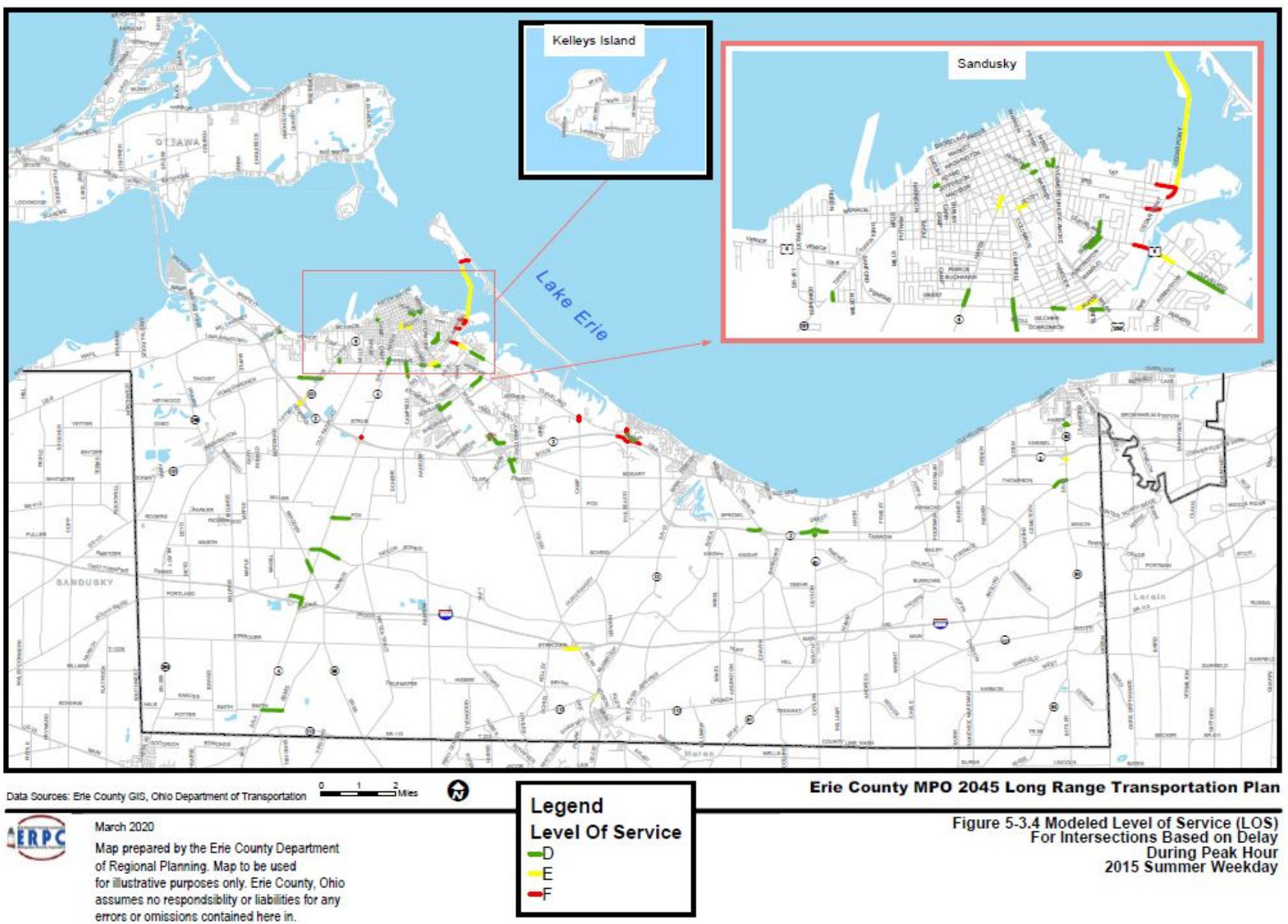


Figure 5-3.4 Existing Intersection Level of Service (LOS)

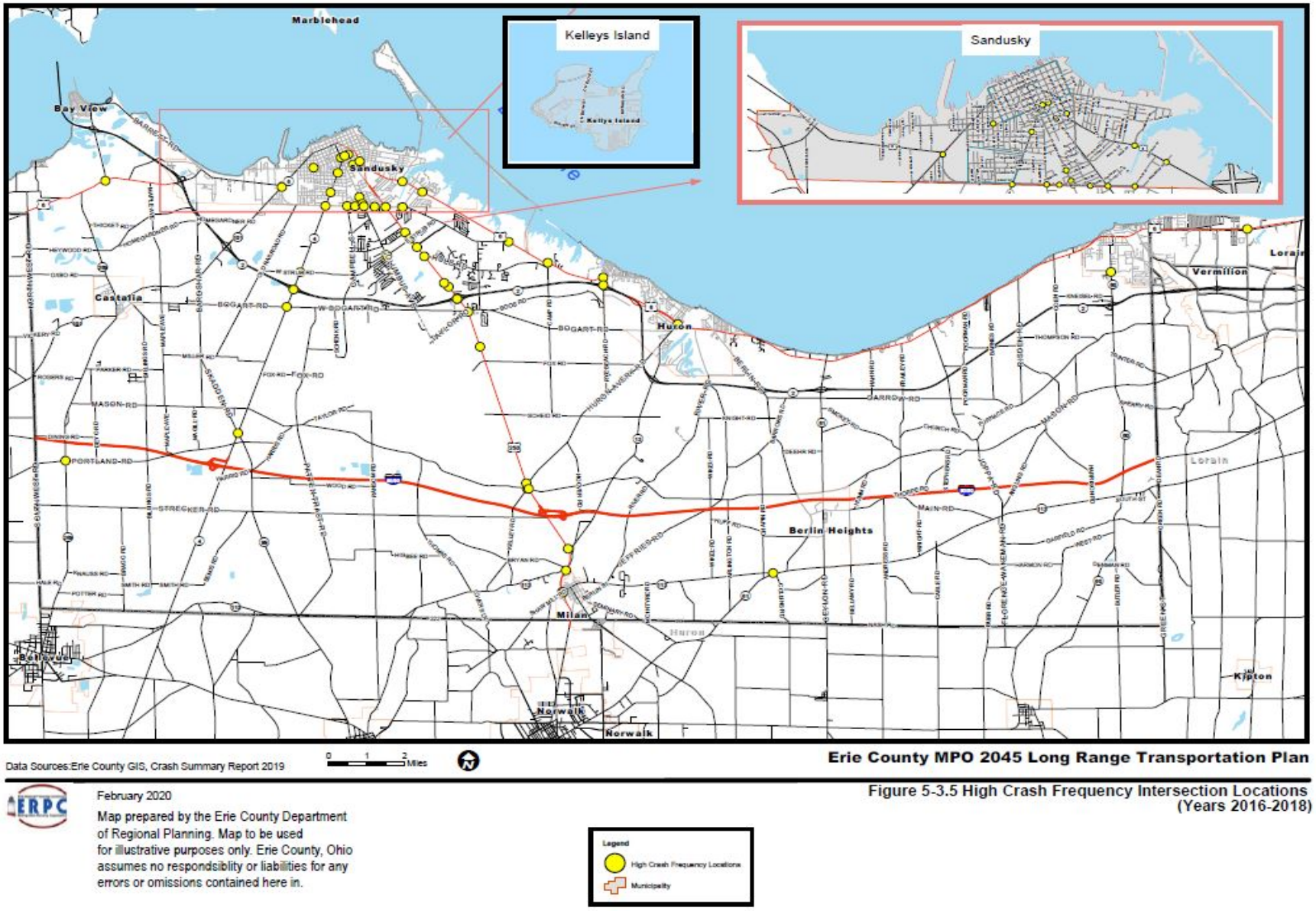


Figure 5-3.5: High Crash Frequency Intersection Locations

Pavement Conditions: A major element of a transportation plan is to maintain the system. Pavements deteriorate for a variety of reasons. In northern Ohio, weather, road deicing salts, lack of maintenance, and traffic are the principal causes. Heavy trucks, both by size and numbers, also have a significant effect on road deterioration. In addition to fixing rough pavements (cracks, patches and disjointed pavement slabs) for comfort, safety, and to prevent future problems, it is also important to eliminate wheel ruts, which hold water and result in hydroplaning or slippery conditions when the water freezes.

There is no formula for estimating the need for pavement maintenance as pavement conditions reflect how the pavement was constructed, the amount and kind of traffic, and weather conditions. Therefore, larger agencies responsible for roadway maintenance have a pavement management system and regularly rate pavement conditions on the streets and roads under their jurisdiction. The general practice is to rate pavement on a scale of 1 to 100 based on observed conditions and some testing. Lower values mean poorer pavement conditions. ODOT classifies roads into one of three policy systems: the priority system, general system or urban system.

Priority Systems: There are three priority systems including: 1.) All interstate routes, excluding the Turnpike 2.) All divided National Highway System routes (NHS) routes inside incorporated areas with populations of 5,000 or more that have a functional class of 12 (other urban freeways and expressways) and 3.) All divided NHS routes outside of incorporated areas with populations of 5,000 or more. ODOT considers priority system pavements to be in or approaching poor condition if the pavement condition rating (PCR) is less than 65.

General System: Includes all non-priority routes outside of municipalities with populations of 5,000 or more. ODOT considers general system pavements to be in or approaching poor condition if the PCR is less than 60.

Urban System: Includes all non-priority routes within municipalities with populations of 5,000 or more. ODOT considers urban system pavements to be in or approaching poor condition if the PCR is less than 55. ODOT's pavement condition rating records were utilized in the evaluation of roads for the ERPC MPO region for this plan. Of those roads that ODOT evaluated, none were currently rated as being in poor condition.

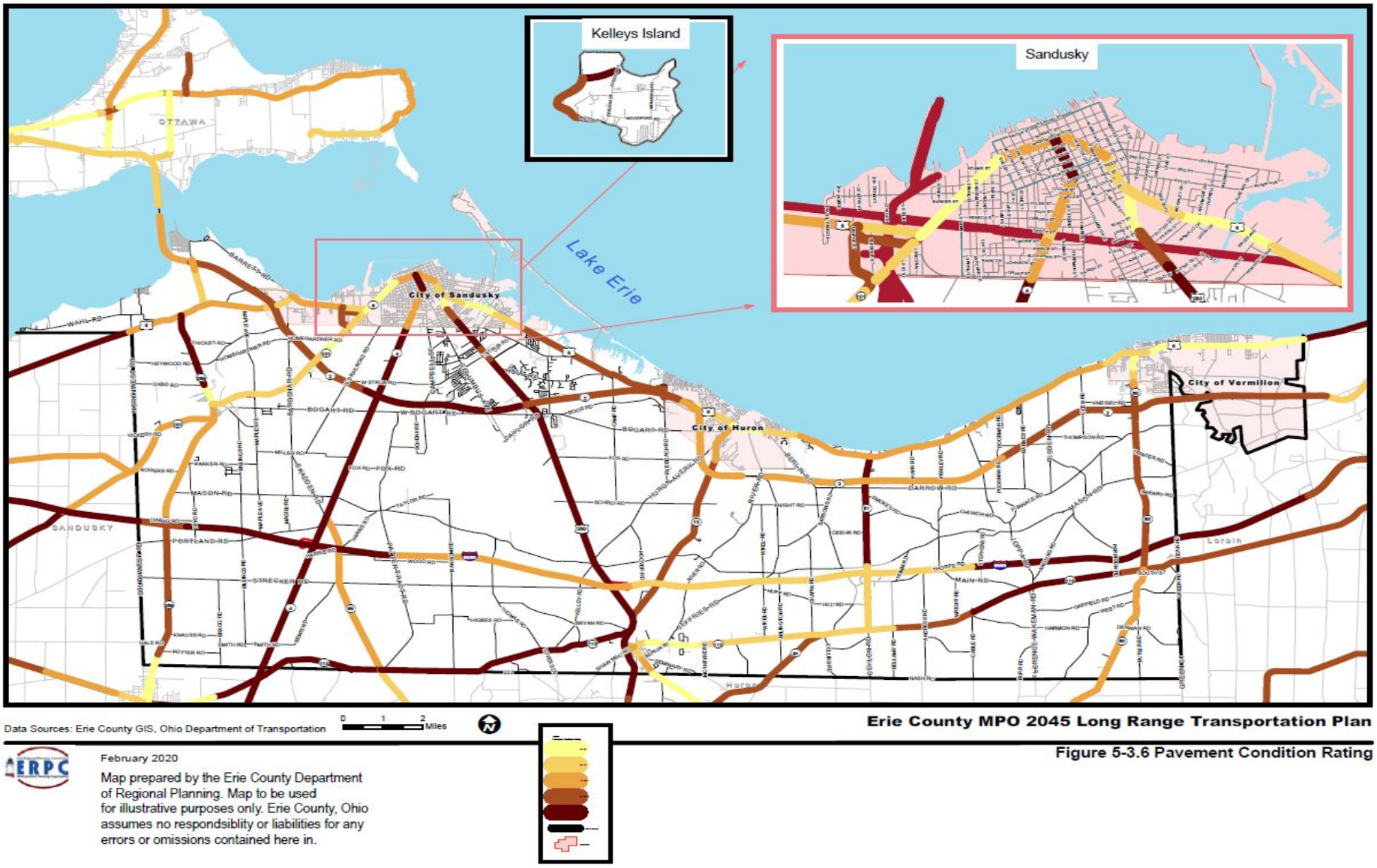


Figure 5-3.6 Pavement Condition Rating (2020)

Bridges: Bridges are structures over ten feet long, which carry a road way over an obstruction such as a river, railroad or another roadway. Bridges have different, usually longer, maintenance and functional lives than the roadways on either end. Therefore, bridge maintenance is often carried out at a different time than the adjoining roadway. When maintenance is required, however, the maintenance cost can be considerably higher than adjoining road repairs. The closure of bridges can greatly impact the traffic flow in an area and can limit access. The combination of the disruption to the transportation system the high cost for repairs/ maintenance have resulted in bridges have special funding categories.

There are 337 bridges in the MPO area. ODOT is responsible for 124 bridges; the Ohio Turnpike Commission, 47; Erie and Lorain (in the City of Vermilion) Counties (for county, township and village bridges), 137; and the larger municipalities, 14. These bridges are inspected annually, and the structures rated. The bridge is then appraised, based on the bridge rating, traffic, and other factors to determine a priority for maintenance. The bridge appraisals are on a ten-point scale with lower numbers indicating more serious structural deficiencies and high impacts to the traveling public should the bridge be closed, while larger numbers indicate bridges in good condition. **Table 5.3-4** lists the general appraisals for bridges in the MPO as of February 2020:

Table 5.3-4: Bridge Conditions

Bridge Condition	Appraisal Rating	Number of Structures
Critical	0 through 2	0
Poor	3 and 4	6
Fair	5 and 6	92
Good	7 through 9	239

The Federal Highway Administration (FHWA) Bridge Inventory manual provides ranking criteria on all bridges. There are three criteria by which bridge conditions are measured: 1.) The deck, 2.) The superstructure and 3.) The substructures. Below these criteria are shown as applicable to the planning area:

- The bridge deck condition describes the overall condition rating of the surface. Three in service bridges in the MPO area have a ranking of poor while the remaining are fair or better.

- The superstructure ranking criteria evaluates the condition of all structural components of the bridge. Six bridges in the region are listed as having poor superstructures.

- The substructure criterion describes the physical condition of the abutments, piles, piers and other base structural components. Three bridges in the area are listed as having poor substructures.

Each of the bridges with poor ratings on deck, substructure, or superstructure also have overall general appraisal ratings of poor. The six structures are located at: US 6 near 101 Norfolk and Southern Railroad (2), SR 4 Norfolk and Southern Bridge in Sandusky, Jerusalem Road and Claus Road, North Ridge Road and Claus Road, and US 6 and Anchorage Circle.[3]

[3] TIMS

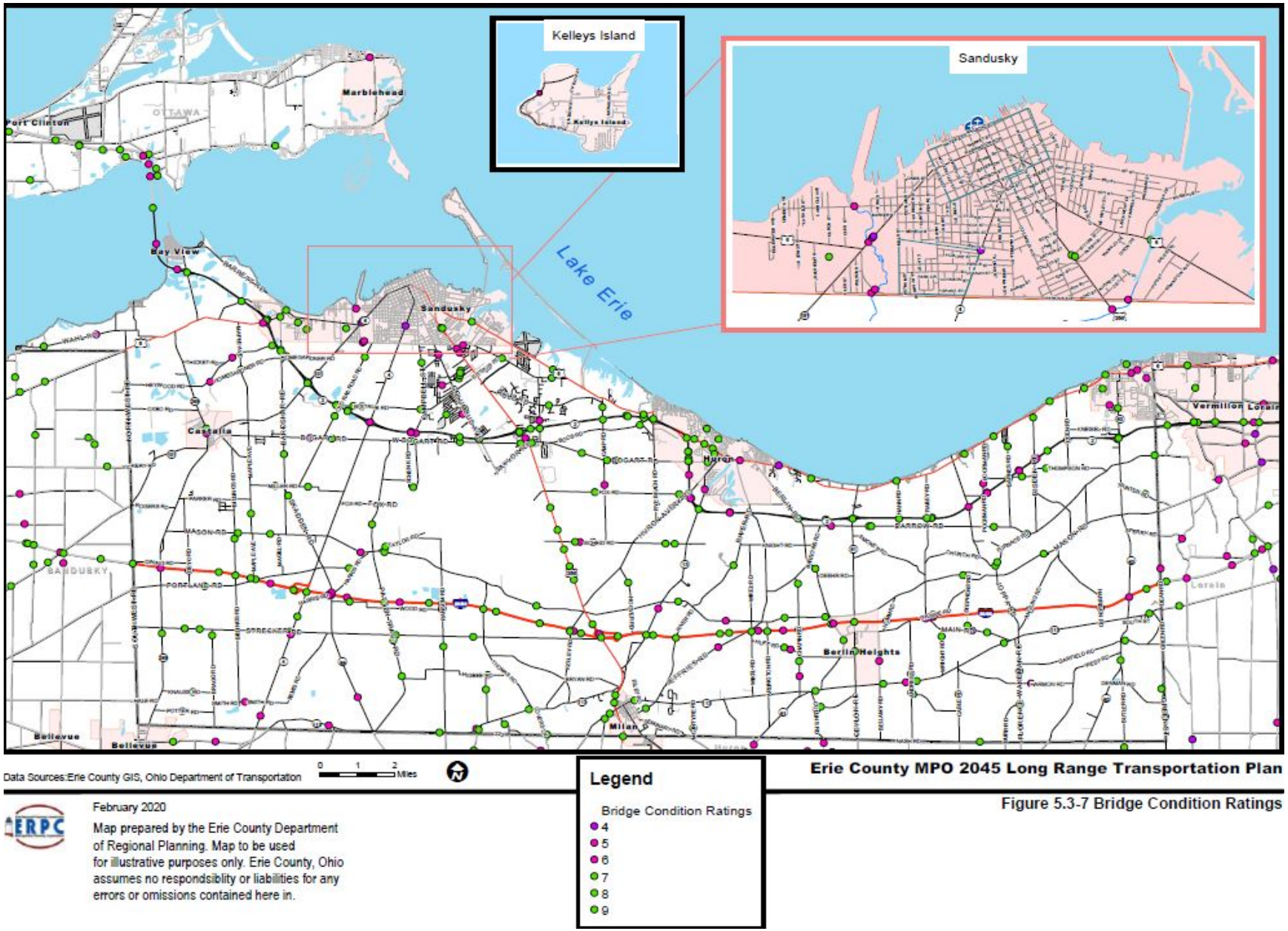


Figure 5.3-7 Bridge Condition Rating (2020)

Connectivity: Connectivity can be considered the global concept of access. It is the ability to move relatively directly and easily between one are and another. For the MPO there are external trips, between the MPO and the rest of the State, and internal trips, within the MPO. There are as many connectivity issues as there are travelers with an origin (often home) and a destination (work, shopping and recreation). Some of the more important internal connectivity issues raised by stakeholders and the public include the following:

- **Erie County, East-West Connectivity:** The Huron River, NASA's Plum Brook Station and, to a lesser extent, the Wagner Quarry restrict east-west connectivity across the County and the MPO area.

- **City of Sandusky, East-West Connectivity:** The historical roadway pattern of multiple radial roads to the Downtown (and the port) makes east-west travel more difficult.

- **Cedar Point:** This major traffic destination is difficult to reach because the route designated for visitors is highly congested both with visitors and local residents going to shopping facilities as well as traffic signal proliferation and spacing and lack of access management.

- **Marinas:** The Cities of Sandusky and Vermilion and to a smaller extent Huron, have marinas and associated business including boat sales/repair and waterfront restaurants/motels developing in the old port areas. Reaching these destinations from neighborhoods, rural areas and SR 2 for longer distance users cross older urban streets which can be difficult. However; most users are engaged in recreational activities and therefore willing to accept longer and more difficult commuting patterns.

- **Downtown Sandusky:** The Sandusky Downtown business district can be difficult to reach although the principal arterial network functions to service this area. In addition, most of the roadways are narrow and are angled in way that makes them difficult to navigate.

- **The Islands:** Although not completely a roadway issue, public access to Kelley's Island (and externally to the other Lake Erie Islands) is an issue for people in both the Cities of Sandusky and Vermilion. The Erie Ottawa Airport (located across the Sandusky Bay near the City of Port Clinton), and ports (located in the Cities of Sandusky and Vermilion) are considered important to maintain.

In addition to the connectivity issues listed above there were also more localized connectivity/access issues that were raised in the Public Involvement Summary. It is noted that many of these issues that were mentioned were identified as being unique to a specific area and therefor will need to be addressed locally. As specific improvements for these issues are developed the MPO is then able to include them in the LRTP update.

Another issue that emerged through thee public involvement phase was external connectivity. Unfortunately, these connectivity issues cannot be solved solely by the MPO Area, but with the assistance of other agencies such as ODOT, other MPOs or Small Urban Areas some of these issues may be collaboratively remediated and addressed. The more significant regional issues include:

- **Travel to the City of Cleveland:** Some residents in the eastern part of the MPO, particularly the City of Vermilion, work in the City of Cleveland. Improving travel, possibly with commuter rail, to Cleveland is a desirable undertaking as voiced through public input.

- **Travel to Central Ohio:** Currently east-west routes in the MPO area include I-80/90, SR 2 and to portions of US 20. These routes provide good east-west connectivity with roads constructed to interstate/freeway standards. US 20 for example has a four-lane expressway with urban by-passes standards. When travelling south into Central Ohio from Erie County there are two lane rural arterials with at grade intersections that pass through small villages and towns. Improved routes might include avoiding travel through larger towns and road widening when feasible.

- **Connections to I-71 and I-75:** This issue is a companion of the Central Ohio corridor addressed above. To reach one of these two north-south Interstate routes travelers must go east of west from the MPO area (for at least an hour via car). Upgraded connections could save considerable time for travelers taking the Interstate System to destinations outside the state to the south.

Access Management: Access management is a means of organizing and designing access points along roadways to balance the movement function while still providing access to lowered classes of roadway or to property. Access management also includes the consideration of access to high-and low-class roadways. Access points are an important part of access management. Access points are "points of conflict" where vehicle movements are across or against each other. Remedies include drivers slowing down or traffic engineers installing stop signs, signal or other design elements to minimize the potential conflicts and crashes. These restrictions on traffic movement also reduce the carrying capacity of a roadway.

Currently there are three agencies with access management policies in the MPO area. The first agency is ODOT. ODOT has an access management policy for all roadways under its jurisdiction including all US and State Routes in unincorporated areas. The second agency is the Ohio Turnpike Commission. The Turnpike Commission manages access to the Interstate Routes in the MPO as the only designated Interstate Highways are under OTC jurisdiction. OTC access policies generally follow ODOT's policies for Interstate routes with the additional consideration the access points also must meet a revenue test. The third agency is Erie County; which has prepared an access manual as authorized by the Ohio Revised Code for county and township roads. The manual, as adopted in by the County Commissioners and effective as of August of 2018; defines the general requirements for access such as the spacing of access points and access point dimensions. The regulation works in conjunction with County and township master plans and associated zoning regulations. It also includes the need for traffic impact studies for new developments generating high volumes of traffic. The cities in the MPO area do not have access management plans but have some control of access with zoning and building codes.

5.4 Transit Systems

Coordinated Transportation Plan Update: Since its inception the MPO staff has assisted STS and other transit providers in obtaining funds through the Erie County Coordinated Transportation Plan. In order to receive many of these supplemental state funds the planning area of the recipient must have a state approved plan. ERPC staff has played a main role in writing the plan and keeping it up to date over the years. The plan contains information, analyses and findings compiled from an evaluation of community

characteristics, a stakeholder assessment and an inventory of existing transportation services. It also provides a description of the unmet transportation needs in the Erie County Area determined by using various methods such as agency surveys, demographic research and ongoing stakeholder input.

Historically, the first coordinated plan was completed in 2007. The document was prepared by the ERPC MPO staff. Representatives from the Sandusky Transit System (STS) and Serving Our Seniors (SOS) were key partners in its development. Since then the plan has been updated several times including 2010, 2013 and 2018. An official statewide plan template and annual review requirement was created by ODOT in 2018. Erie County completed their state approved plan using the new template in 2018 and their first annual review in 2019.

Mobility Management: The *Yes Express*, a feasibility plan, was conducted in 2013 with Local Government Innovation Funding. The study recommended the hiring a transportation coordinator. In 2018 that recommendation became a reality. A mobility manager was assigned to Erie County and the City of Vermilion through a transit grant from ODOT. The mobility manager is housed and employed by the Great Lakes Community Action Partnership. Staff works with the mobility manager to implement strategies listed in the Coordinated Plan.

Small Scale Transit Providers: Although much smaller, Ability Works has created a fixed route system on US 250 through using supplemental transit grants. The service was launched in 2019 and runs as supplemental transit to STS. The fleet consists of one van, but the organization has stated that they have applied for additional vehicles in the last application round. ERPC staff has assisted other local agencies (Lucy Idol Foundation, Serving Our Seniors, The Meadows etc.) in obtaining 5310 and other funds for supplemental transit services.

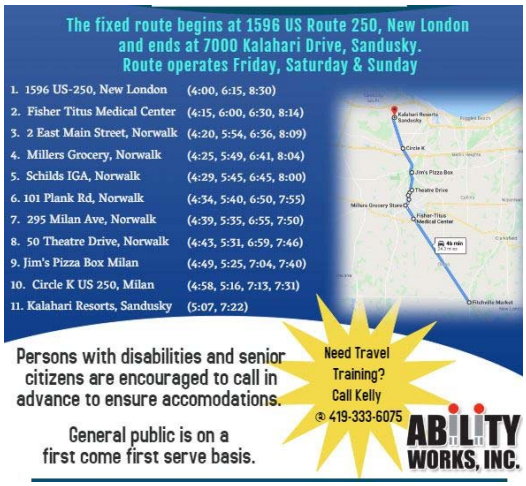


Figure 5-4.1: Ability Works

Background of the Sandusky Transit System: The Sandusky Transit System (STS) is the main transit provider in the planning area. Services include demand response service county-wide including the entire City of Vermilion. STS shares their facility (dispatch center and vehicle parking/maintenance facility) with other local transit providers including both Greyhound and AMTRAK. The transit hub is located on Depot Street in the City of Sandusky.

The system was created in late 1992 and began providing demand response service in the city limits (Sandusky) and to 32 locations in the county. The next year, STS began operating a contract service with

the Erie County Board of Development Disabilities (ECBDD). In 1997, Erie County (as well as ODOT) began providing financial support to STS in order to expand the service area of STS beyond the Sandusky city limits. The expansion was incremental and by 1999 service was available to the entire county. In 1999, STS also began providing Saturday service, a US 250 corridor service and a summer weekend service.

Funding cuts at both the state and local levels beginning in 2001 led to a reduction in the size of the system's service area and hours or service. In 2002, the City of Sandusky and Erie County capped their contributions to the transit system. The result was that the system reduced its hours and raised its fares for the first time. In 2003, Erie County withdrew its financial support from the transit system after a sales tax levy with funding for transit failed to pass. The system further reduced its service area to the Sandusky City limits and a small area surrounding the city that became known as "Zone Two". "Zone Two" trips were required to start or end in Sandusky. Several bus shelters were added to the system from 2013-2019. In 2018 the system was rebranded, and the name SPARC was discontinued and renamed the Sandusky Transit System's fixed route. Also, during this time routes and stops were reorganized and expanded as well as private contracts with local agencies and organizations.

Rural and Urban Transit Designations: The 2000 Census revealed that the densely populated area around the cities of Sandusky and Huron meets the definition of an "urbanized area." With the urbanized area designation, STS transitioned from being a rural transit grantee to a Federal Transit Administration Section 5307 Urban System. To assist with the transition and to help meet the needs of the service area, STS undertook a Transportation Development Plan (TDP) in 2003. Since February 2004, STS began working to implement the recommendations of the TDP. STS expanded the service area to include the entire urbanized area and lifted the requirements that trips in "Zone Two" must begin or end in Zone One. In 2005, STS re-structured its contract with MR/DD which created additional revenue that would be used as a local match for Federal grants. The local match allowed the system to receive more Federal funding and increase its hours of service. In 2005, STS extended its weekday hours and provides service on Saturdays. The 2010 Census revealed that there was a population decline within the urbanized area and that it no longer had enough population to be considered an urban system. The system was re-designated as a rural transit system around 2012.

STS Fixed Route: By 2020, the fixed route system of STS expanded, and it now consists of six different intersecting routes. The fixed route system was previously called SPARC. Schedules for the routes are located online (**see Figure 5-4.2**). Other changes include additional signage at bus stops, shelters at some locations and online tracking capabilities for passengers. Fixed routes costs $1.50 per trip. Time and service vary per route. Fare tickets can be purchased in $15 denominations at the City Building on Columbus Avenue. It is anticipated that STS will be implementing an electronic ticket purchasing option by late 2020.

Paratransit: Paratransit is another service available through STS. It is available seven days a week from 5 AM to 12 AM. The service is available only to qualified individuals who apply. Applications are available online or by request. Eligibility for the program requires an assessment from both STS staff and a healthcare professional. Paratransit service allows eligible riders to be picked up to ¾ a mile in distance from an existing fixed STS route.

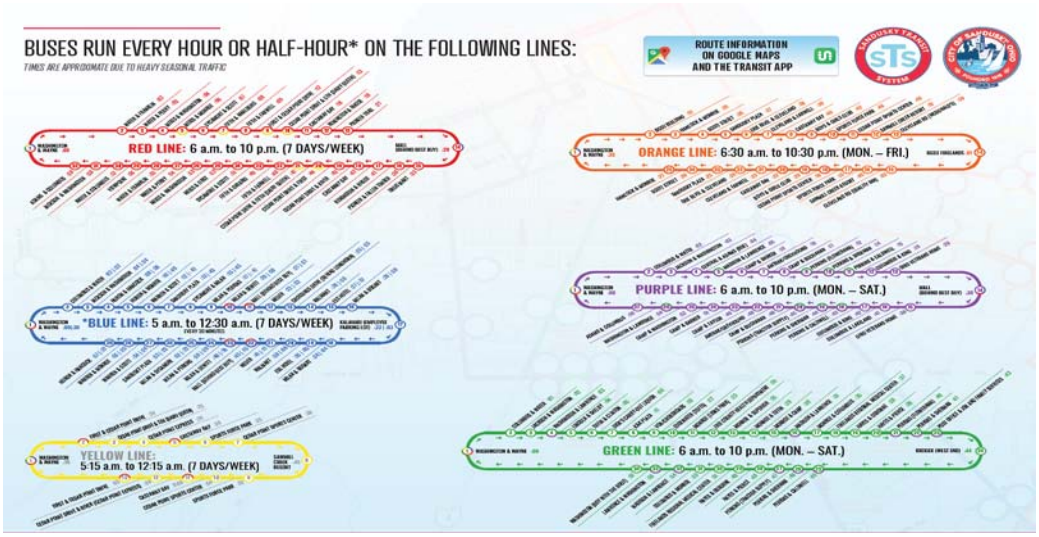


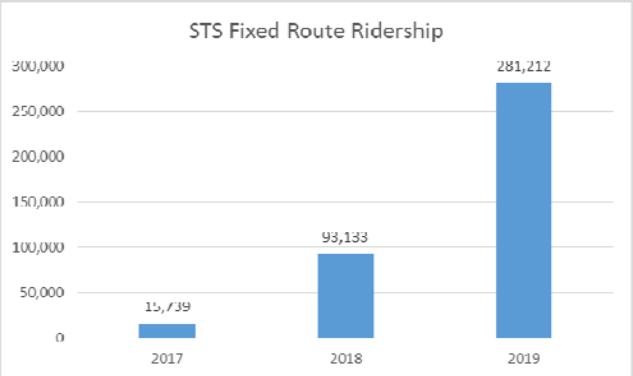
Figure 5-4.2: Sandusky Transit System routes

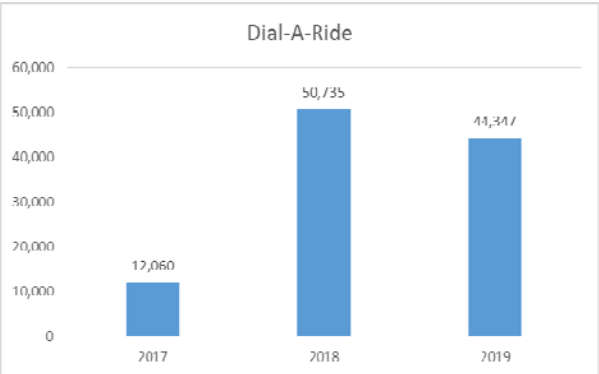
Contract Services: STS has entered into several contracts with local organizations such as Serving Our Seniors, the ECBDD, Erie County Job and Family Services, Cancer Services, Veteran Services, Cedar Point, Sandusky City Schools etc. which has allowed the system to expand due.

Dial-A-Ride: STS currently provides a demand response service via reservations only. The service runs Monday through Saturday from 5:00 AM to 10:00 PM. It is open to the general public and there are no restrictions on trip purpose. Trips can be reserved up to two weeks in advance or reserved two days in advance if there is availability. The one-way fare for a trip within the county is $5.00 Fare traveling to/from the City of Vermilion and within a ten mile radius of the city is $3.00.

Ridership Numbers: Since 2017 ridership levels have increased for the fixed route service from around 16,000 to 281,000 and 12,000 to 44,000 for Dial-A-Ride.

Rolling Stock: As of 2020, STS vehicle inventory fleet consisted of 36 vehicles. The buses are mainly used for general public service and service contract service. The general public service is provided using a mixture of sedans and vans. The STS operator, First Transit also owns some of the vehicles that are utilized for transit service.





Figures 5-4.3: STS Fixed Route and Dial-A-Ride Ridership

5.5 Bicycle/Pedestrian Facilities and Activities

Bicycle and Pedestrian Plan: Bicycle and pedestrian facilities and multi-use use trail systems are valuable community assets, which serve utilitarian transportation and recreational purposes. Over the last couple of decades, many communities around the country have been promoting the use of bicycles and walking as an important transportation component that also serves recreational purposes and encourages healthy living. Similarly, in 1999 ERPC developed a Bicycle and Pedestrian Plan that addressed bicycle and pedestrian education, safety and the creation of bicycle and pedestrian routes throughout the county. The plan has gone through several updates in 2010, 2014 and in 2020. The 2020 plan identifies seven consolidated goals in addition to the recommendation to establish a standing bicycle and pedestrian committee (2015). The committee has been involved in plan updates and other related activities since its inception and meets quarterly.

Programs: ERPC also promotes active transportation through a variety of activities held throughout the year. ERPC staff has actively been growing its alternative transportation planning activities with events such as Active Transportation Month and active transportation website resources. Staff has also participated in educational outreach activities.

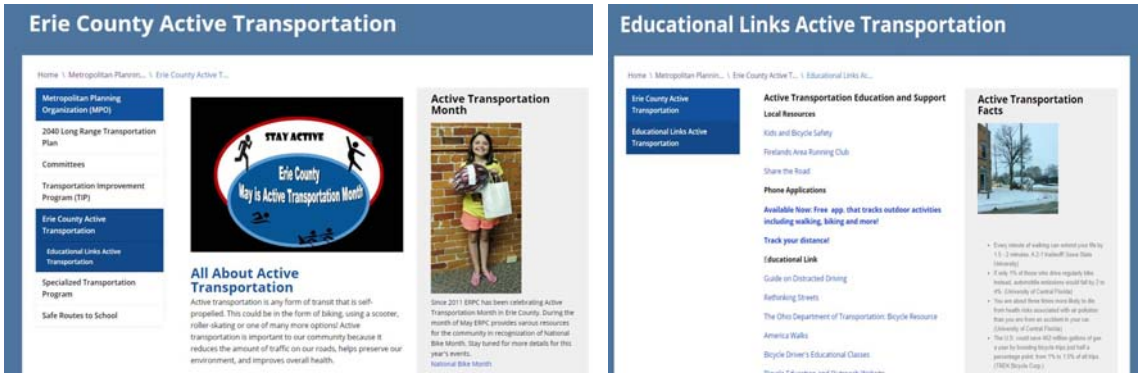


Figure 5-5.1: ERPC's website

Safe Routes to School Program: Under the transportation bill SAFETEA-LU the Safe Routes to School (SRTS) program was established. This program has continued under Moving Ahead for Progress in the 21st Century, or MAP-21 which was passed in 2012. The SRTS program is designed to enable community leaders, schools and parents across the nation to improve safety and encourage more children to safely walk and bicycle to school. Locally, the jurisdictions of the Village of Milan, City of Sandusky, City of Huron, City of Vermilion and Perkins Township have developed school travel plans and have all applied for funding through the program.

State and National Bicycle Routes: The Ohio Department of Transportation has also been actively working on designating bicycle routes on both state and national levels. Locally two routes have been identified (**see Figure 5-5.2**).[4]

[4] http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/ActiveTransportation/Pages/State%20and%20US%20Bike%20Route%20System.aspx

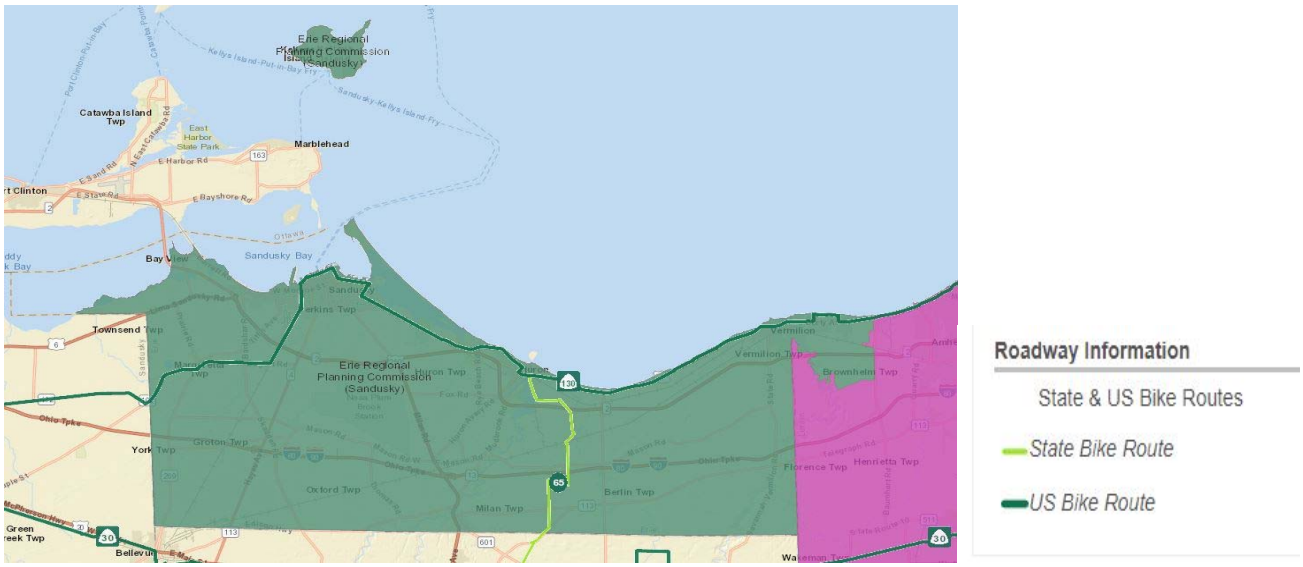
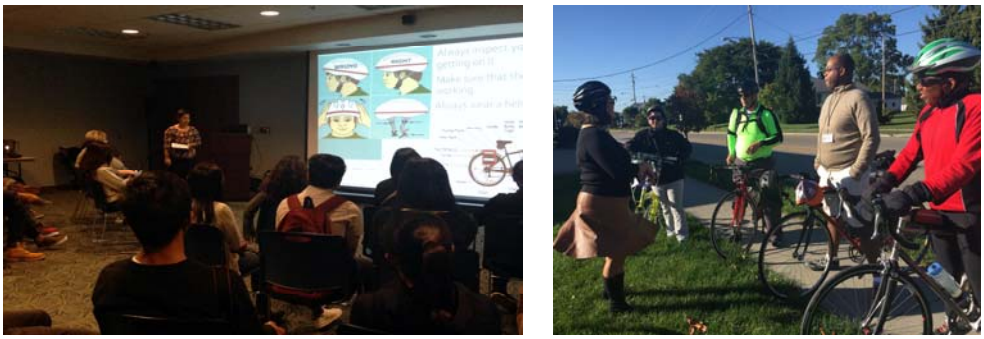


Figure 5-5.2: ERPC MPO planning area

Figures 5-5.3: Bicycle Rodeo in Milan, 2016 and Perkins Township, 2018



Figures 5-5.4: ERPC staff conducting a safety training, 2016

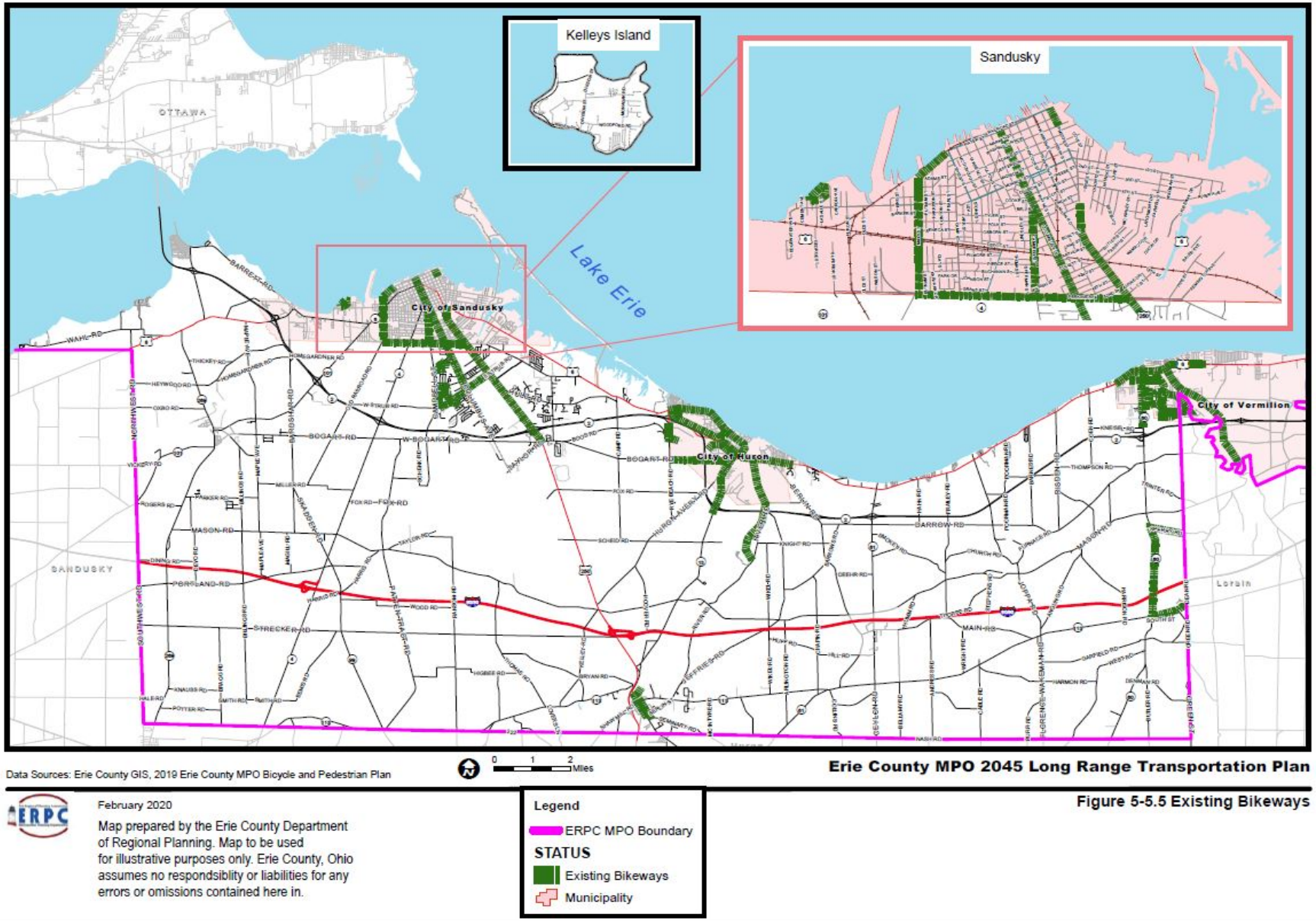


Figure 5-5.5 Existing Bicycle and Pedestrian Facilities

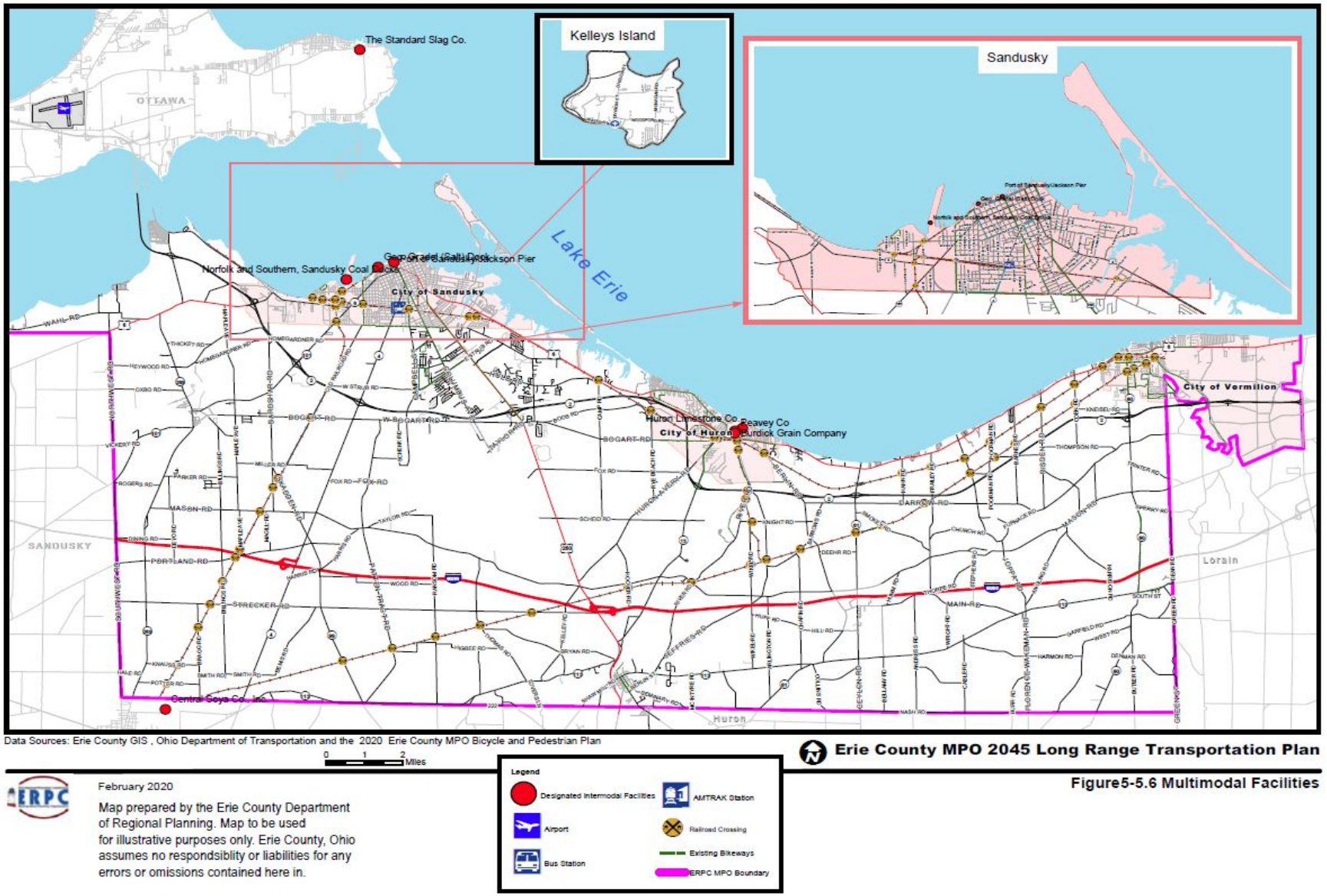


Figure 5-5.6: Multi-Modal Facilities

5.6 Freight and Regional Transportation

Freight: The MPO's freight system is made up of a variety of components including:

- Approximately 187.5 miles of state truck routes and approximately 20 miles of county routes with weight limits of 40 tons
- Two ports linked to the world market via the Great Lakes and Norfolk Southern rail
- Over 78 miles of active rail line
- A shared airport with Ottawa County

Freight Study: In 2013, ERPC staff worked alongside with consultants from the GPD Group to create a freight study. The study provided an assessment of existing conditions for elements of freight transportation and also provided recommendations for freight related improvements. Group sessions and stakeholder interviews were conducted during the process, which provided additional insight into issues or concerns the freight community might have in regard to the current transportation system.

A survey was conducted during the study. Many of the surveyed companies not only found the roadway network critical to operations, but also their ability to access and utilize other modes such as rail, water, and air. From the responses, it can be gleaned how important a trained workforce, and sound multimodal infrastructure is to the Erie County economy. Also, as it was evident that leisure and manufacturing dominate the region's economy, the study revealed that the industry composition is such that half of the region's total output is generated by freight-oriented industries. This is higher than either Ohio or US economies:

Table 5-6.1: Freight-Oriented Percentages of Total Output

Location	Percentage of Total Output From Freight-Oriented Industries
Erie County, Ohio	50.5%
State of Ohio	40.8%
United States	35.8%

- Outbound commodity flows are currently at 6.9 million tons with a value of over $5.78 billion. Projections into 2030 have total export tonnage increasing to 7.43 million tons. Approximately 72% (by volume) of the exports is tied to the mineral industry.
- Inbound commodity flows are currently at 2.9 million tons with a value of over $6.94 billion. Projections into 2030 estimate total import tonnage will increase to 4.07 million tons. Approximately 31% (by volume) of the imports are "other minerals".[5]

[5] Erie Regional Planning Commission Freight Study, 2013

Freight travels in and out of the MPO region by road, rail, air, and water. Below is an overview of the existing transportation facilities that serve the freight industry.

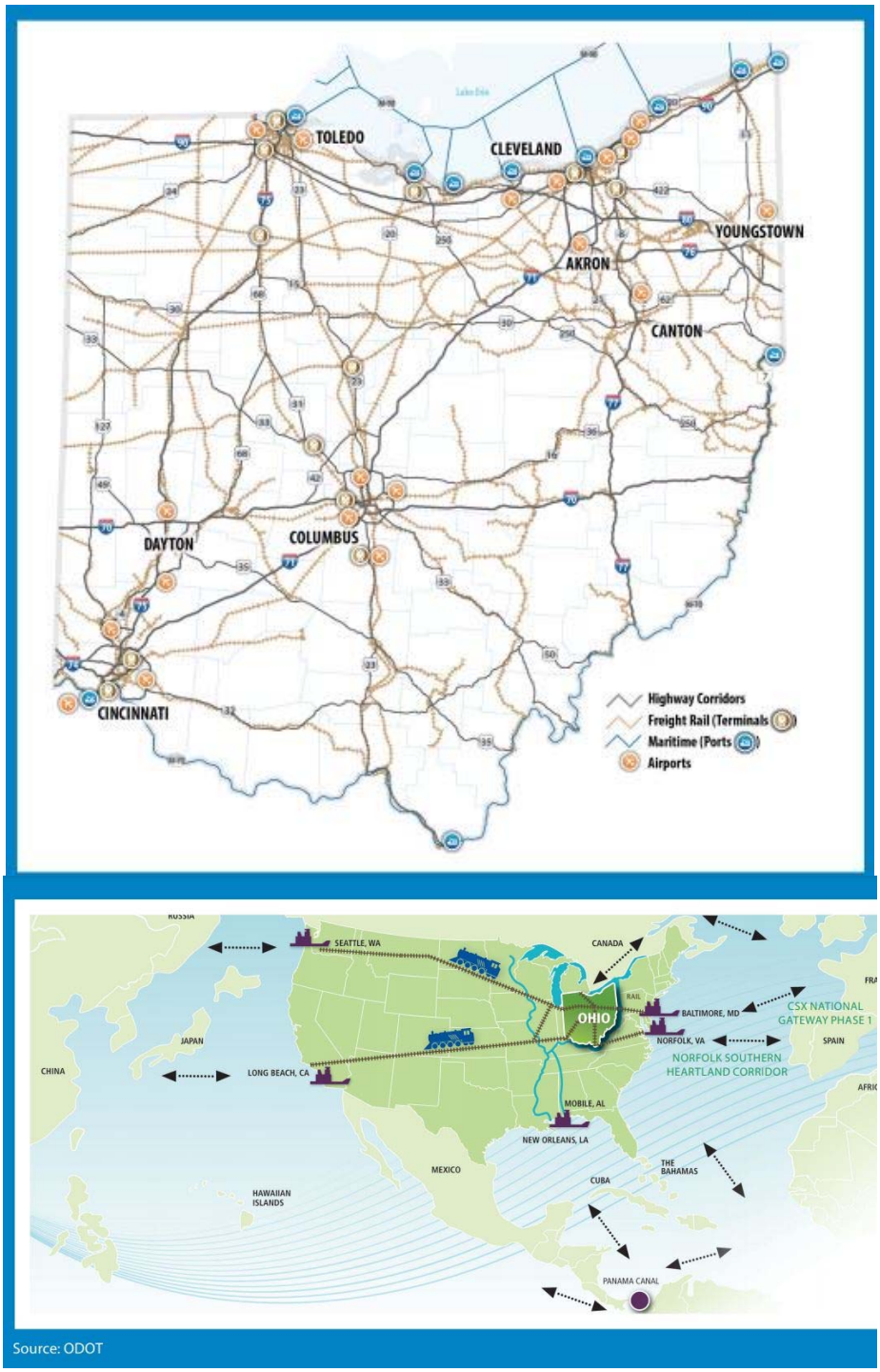


Figure 5-6.1: Ohio's Freight Network[6]

[6] Access Ohio 2040

Rail Freight: All active rail lines in the region are owned by Norfolk Southern Corporation (NS)[7] and provide service to major employers in the MPO including the ports of Vermilion and Huron. Multiple lines provide support for Amtrak passenger rail service. According to the Freight Study, 61.7 of the 87.2 rail-line miles provide double-stacked clearance in the planning area. On average, there are 60 trains per day on the NS rail lines through the study region.

At-grade Rail Crossing: Within Erie County there are 71 public at-grade rail crossings. Rail crossings can be a significant source of traffic delay depending on the number of trains that operate per day across a particular intersection.

LOCATION	MAINTAINING AGENCEY	ANNUAL AVERAGE DAILY TRAFFIC (AADT)
SUNNYSIDE RD	VERMILION	725
SR99-1.21 (SKADDEN RD)	BELLEVUE	3090
CAMPBELL ST	SANDUSKY	5548
MILLS ST	SANDUSKY	907
OLDS ST	SANDUSKY	921
EDGEWATER AVE	SANDUSKY	3054
WILIAMS ST	HURON	1597
MAIN ST	HURON	7529
WILLIAMS ST	HURON	1497
RYE BEACH RD	HURON	4582
CAMP RD	HURON	1927
PERKINS AVE	SANDUSKY	4867
REMINGTON AVE	SANDUSKY	3269
PIPE ST	SANDUSKY	1814
HAHN RD	VERMILION	281
SR61 (CEYLON RD)	SHINROCK	2220
BERLIN RD	HURON	2904
VERMILION RD	VERMILION	2441
MAIN ST	VERMILION	4190
GRAND ST	VERMILION	1381
ADAMS ST	VERMILION	1003
COEN RD	VERMILION	1427
JOPPA RD	VERMILION	200
FRAILEY RD	VERMILION	232
RISDEN RD	VERMILION	461
POORMAN RD	VERMILION	236

Table 5-62: Highest Train Traffic at Public At-Grade Rail[8]

[7] TIMS, PUCO
[8] TIMS, PUCO

Highway-Rail Grade Crossing Safety Summary: The Public Utilities Commission (PUCO) is responsible for the Rail Grade Crossing Safety Program and allocating the federal funds for rail crossing improvements in Ohio. The level of safety for an individual railroad/roadway crossing is calculated using a Hazard Index. The Hazard index uses data such as at-grade rail accident information, vehicle traffic at the crossing, and number of trains crossing daily and crossing sight distance. Crossings are compared against each other based on the index and assessed for accident risk by PUCO to determine the need for additional rail grade crossing protection.[9]

Airports: ERPC is home to several small airfields. There are three small public airfields Hinde, Ortner and Kelleys Island are all listed as public.[10] The largest airport, Erie-Ottawa International Airport, is located in the City of Port Clinton, which is just west of the ERPC planning area (see **Figure 5-6.3)**.

[9] TIMS, PUCO
[10] TIMS, ODOT Department of Aviation, 2017

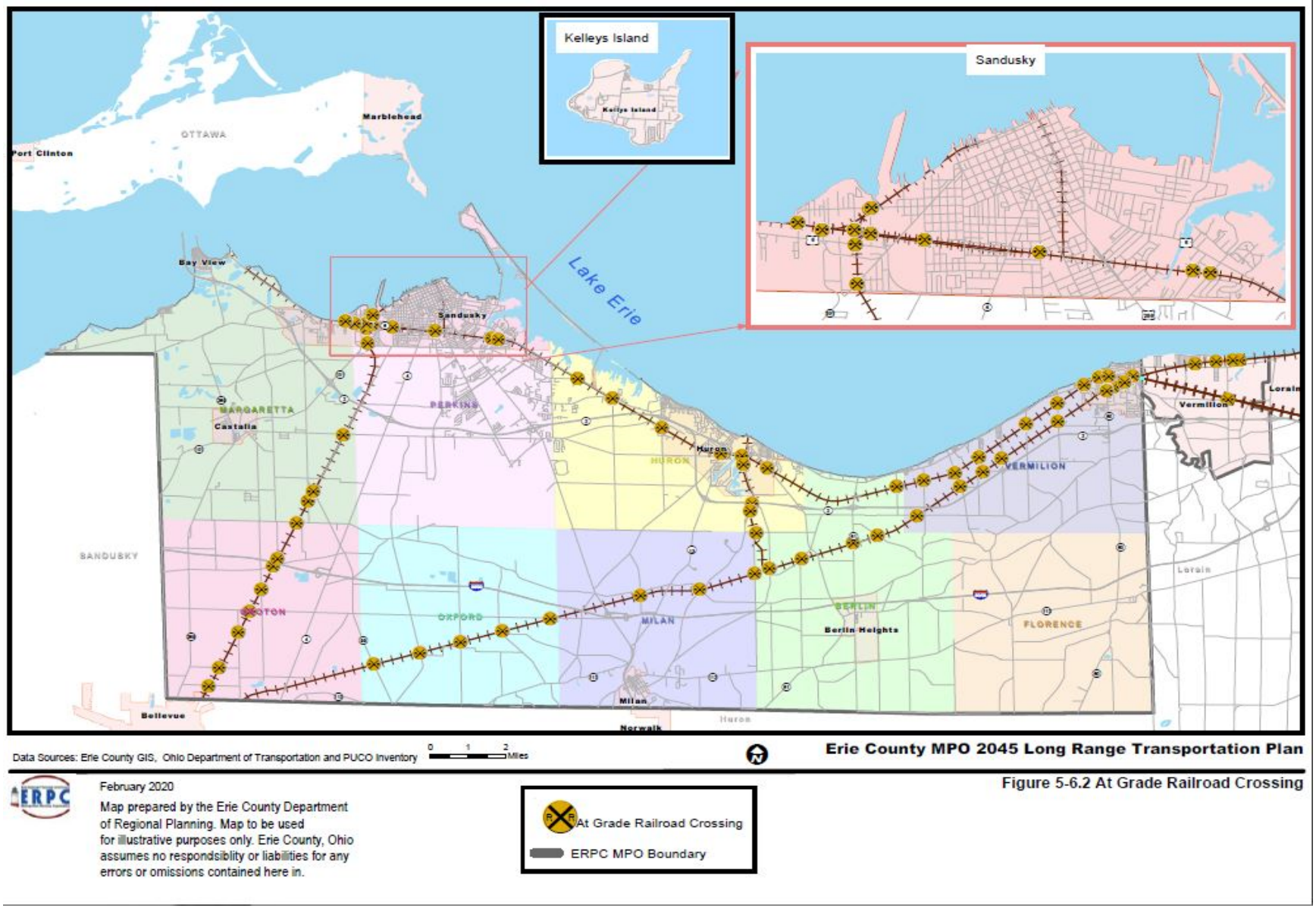


Figure 5-6.2: At Grade Crossings

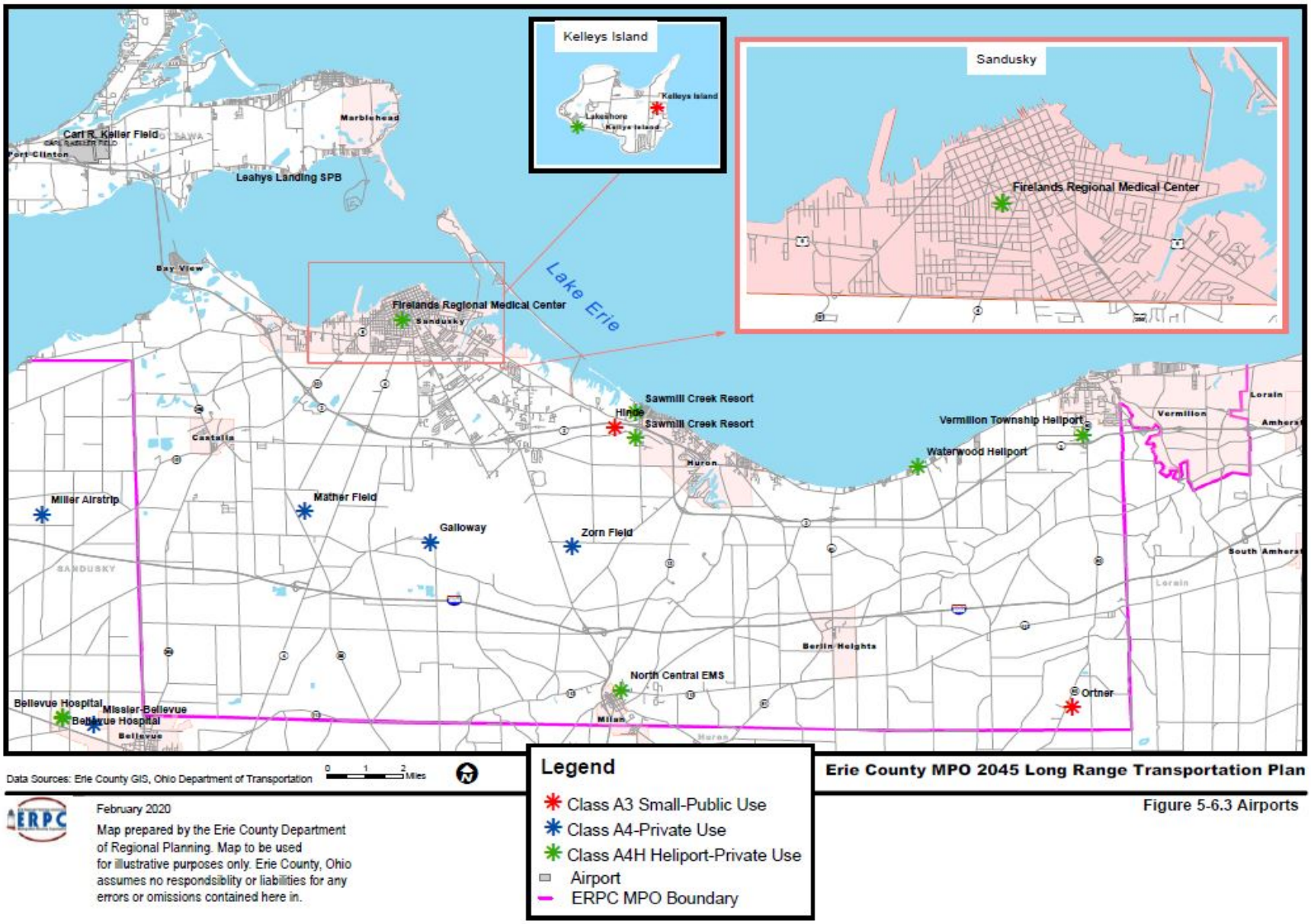


Figure 5-6.3: Airports

Accident History and Prediction: Accident prediction is based on the findings from the Accident Prediction Report for Public at-grade highway rail crossings as provided by the Federal Railroad Administration (FRA) Office of Safety Analysis. The accident prediction formula is based on two independent factors: (1. the crossing's physical and operating characteristics and (2. five years of accident history at the crossing. The prediction report highlights potential hazards and indicates conditions that might be dangerous. The results of the accident prediction formula are not extensive enough to use it as a standalone measure of whether a crossing needs additional equipment. Other data are needed for a full evaluation on the safety of a crossing include sight distance, traffic operations, and topography and passenger exposure levels. The top 10 at grade predicted rail accident locations in the ERPC MPO region are listed below according to their rank based on accident prediction values across the state.

Regional Passenger: The regional passenger transportation system consists of Greyhound and Amtrak rail services.

Passenger Rail: AMTRAK provides daily passenger rail service to the MPO area. The AMTRAK station is located at the transit hub on Depot Street. This hub also houses STS and Greyhound. AMTRAK station services in Sandusky include access to restrooms and payphones during station hours.

Table 5-6.3: Top Ten Predicted Rail Accidents Locations[11]

Top Ten Predicted Rail Accident Locations 12/2018	
Vermilion Road	Vermilion
Patten Tract Road	Monroeville
Rye Beach Road	Huron
Remington Avenue	Sandusky
Berlin Road	Huron
Mills Street	Sandusky
Frailey Road	Shinrock
Bogart Road	Castalia
Main Street	Vermilion
Campbell Street	Sandusky

Table 5-6.4: 2018/2019 Erie County Grade Crossing Crashes[12]

DOT #	RR	CITY	HIGHWAY	DATE	FATALITIES	INJURIES
524-053X	NS	Shinrock	SR 61/Ceylon	3/13/19	1	0
481-665W	NS	Bellevue	CR2/Bogart Road	7/15/18	1	0
524070	NS	Sandusky	LS/Mills Street	2/4/18	0	0

[11] Annual WPABS 2014 Federal Railroad Administration, 2018
[12] PUCO

Table 5-6.5: 2009-2019 Grade Crossing Crashes Railroad Accident History[13]

YEAR	TOTAL CRASHES	FATAL CRASHES	INJURY CRASHES	TOTAL FATALITIES	TOTAL INJURED	CROSSING NUMBER	LOCATION OF FATAL CRASHES
09	1	0	1	0	1	524059n	
10	-	-	-	-	-	-	-
11	-	-	-	-	-	-	-
12	1	0	1	0	1	524061p	-
13	1	0	0	0	0	524062w	-
14	3	0	2	0	2	524037n	
15	4	2	0	2	0	524063d, 524054e, 524059n, and 524051j	CR-132/Berlin Road and TWP. 122/Rye Beach Road
16	-	-	-	-	-	-	-
17	-	-	-	-	-	-	-
18	2	1	0	1	0	524037n	City/River Road
19	1	1		1		524053X	SR 61/Ceylon Road

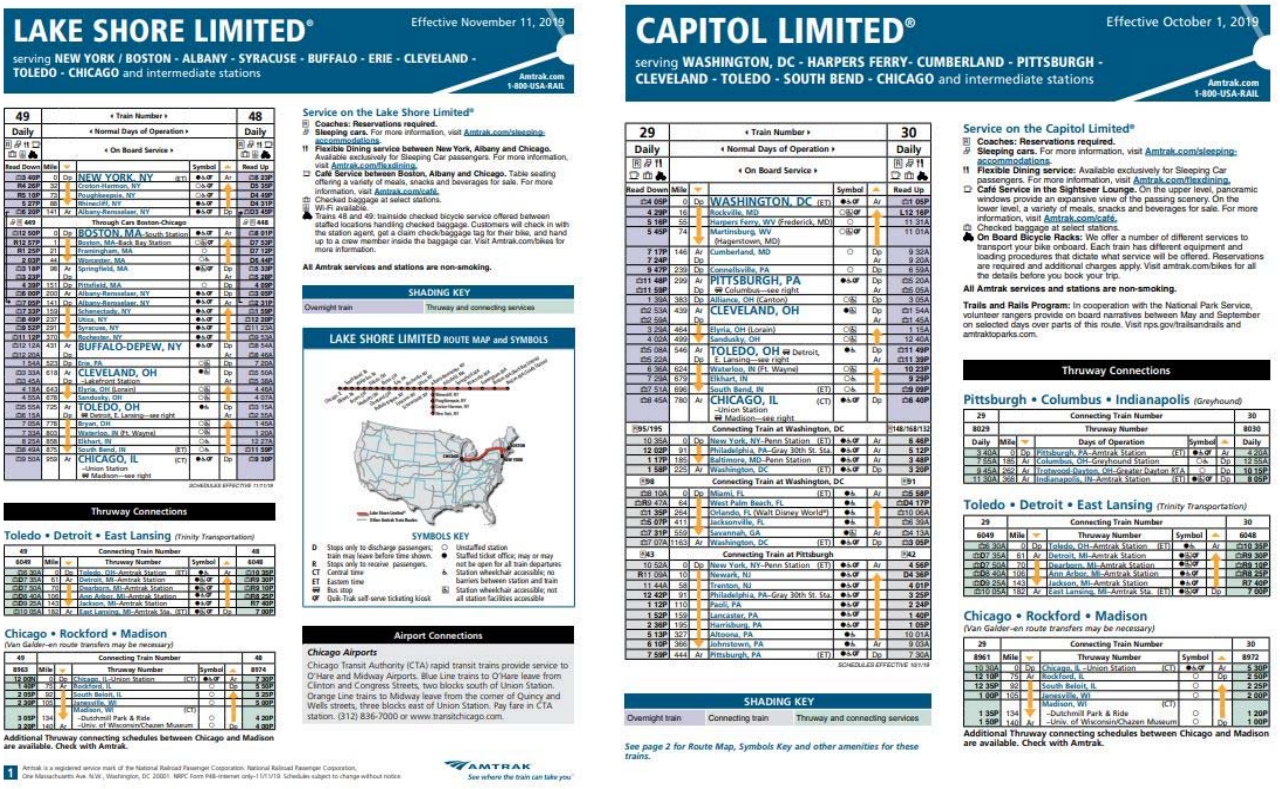


Figure 5-6.1: AMTRAK Routes in the MPO area

[13] PUCO

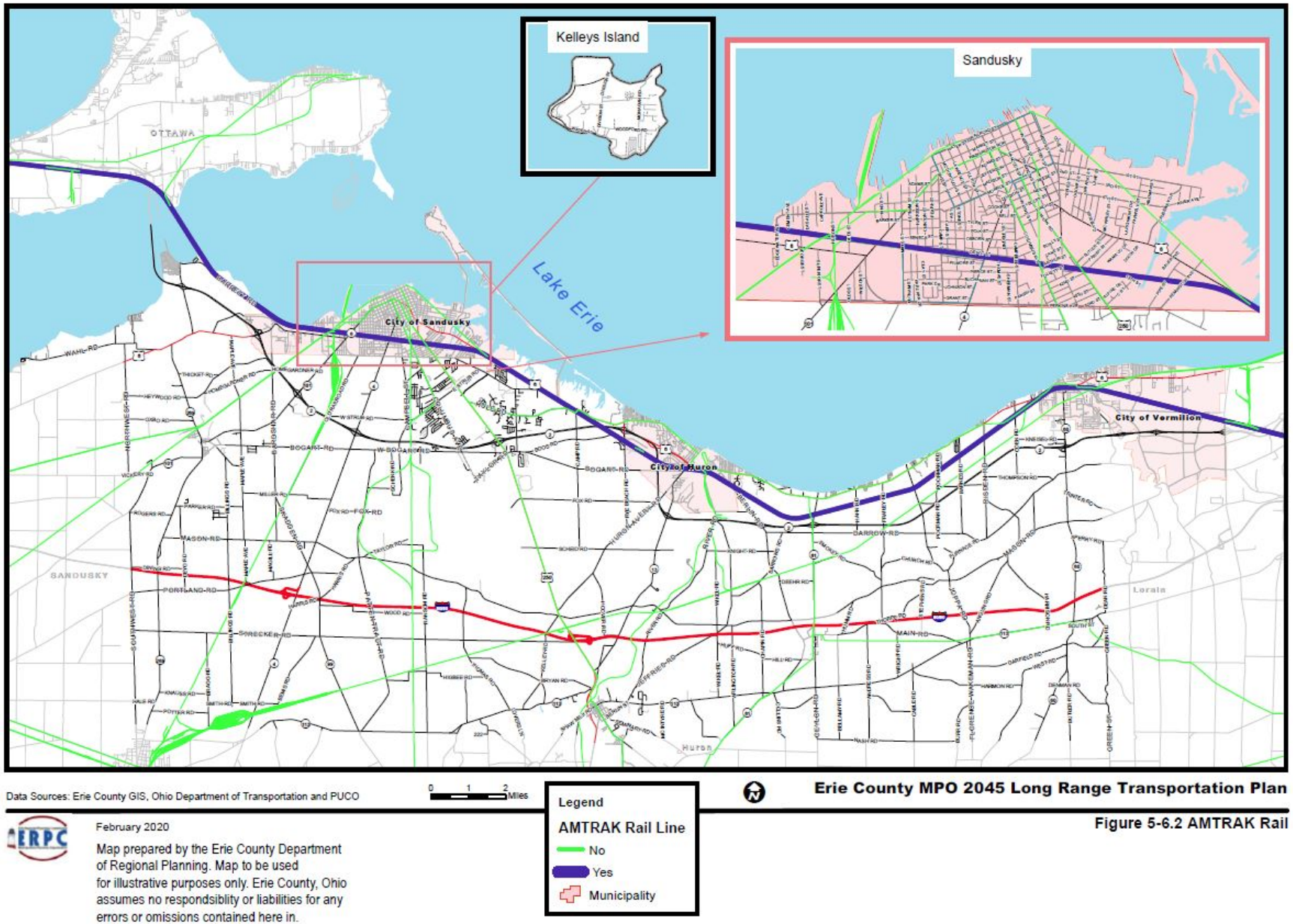
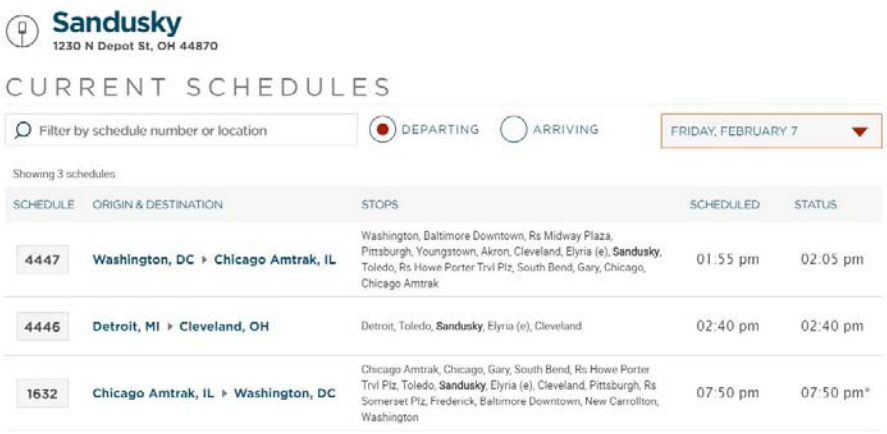


Figure 5-6.2 AMTRAK Rail

Bus Service: The Greyhound Bus Corporation provides regional bus service to the MPO area. The Sandusky Greyhound bus terminal provides full-service ticketing and package express service. Three Greyhound buses come through Sandusky every day. The intercity bus terminal is located at the transit hub on Depot Street with STS and AMTRAK.



Sandusky
1230 N Depot St, OH 44870

CURRENT SCHEDULES

Filter by schedule number or location | DEPARTING | ARRIVING | FRIDAY, FEBRUARY 7

Showing 3 schedules

SCHEDULE	ORIGIN & DESTINATION	STOPS	SCHEDULED	STATUS
4447	Washington, DC ▸ Chicago Amtrak, IL	Washington, Baltimore Downtown, Rs Midway Plaza, Pittsburgh, Youngstown, Akron, Cleveland, Elyria (e), Sandusky, Toledo, Rs Howe Porter Trvl Plz, South Bend, Gary, Chicago, Chicago Amtrak	01:55 pm	02:05 pm
4446	Detroit, MI ▸ Cleveland, OH	Detroit, Toledo, Sandusky, Elyria (e), Cleveland	02:40 pm	02:40 pm
1632	Chicago Amtrak, IL ▸ Washington, DC	Chicago Amtrak, Chicago, Gary, South Bend, Rs Howe Porter Trvl Plz, Toledo, Sandusky, Elyria (e), Cleveland, Pittsburgh, Rs Somerset Plz, Frederick, Baltimore Downtown, New Carrollton, Washington	07:50 pm	07:50 pm*

Figure 5-6.3: Greyhound local bus schedule[14]

Intermodal Facilities and Connectors: The US Department of Transportation permits the designation of intermodal connectors, or roads, leading to intermodal terminal facilities, where freight is transferred between modes. These intermodal connectors are critical components to the National Highway System (NHS), and provide for the efficient mobility of goods and products vital to the national, state, regional and local economies. Erie County has five facilities which are listed below:[15]

FWHA Name	OH13P
Name	Geo. Gradel Salt Dock
Address	931 West Walter St Sandusky, Ohio 44870
Phone	419-691-7123
County	Erie
Facility Type	Port Terminal
Criteria	Current Intermodal
Connector Description	From SR-2, NE to jct with US 6 From SR-101 NE to jct with C9000 McDonough St From US-6 turn left onto McDonough St to facility entrance
Connector Change	0.034 Miles
Connector Length	3.434 Miles

[14] http://bustracker.greyhound.com/stops/250954/Sandusky_OH/departing
[15] Intermodal Facilities Inventory ERPC and TIMS, 2017

FWHA Name	OH14F
Name	Port of Sandusky/Jackson Pier
Address	181 West Shoreline Dr
	Sandusky, Ohio 44870
Phone	419-627-5886
County	Erie
Facility Type	Ferry Terminal
Criteria	Current Intermodal
Connector Description	From SR-2 North on US-250 to jct with CR-506/US-6. CONTINUE STRAIGHT ON CR-506, to JCT with CR-505, bear left onto CR-505. CR-505 intersects CR-503. Make the left onto CR-503. From CR-503 turn right onto CR-575 and follow to facility entrance.
Connector Change	0.586 miles
Connector Length	5.686 Miles

FWHA Name	OH12P
Name	Sandusky Coal Docks, Norfolk Southern
Address	2705 West Monroe Street
	Sandusky, Ohio 44870
Phone	419-626-1214
County	Erie
Facility Type	Port Terminal
Criteria	Current Intermodal
Connector Description	From US-6, West on C500, W Monroe St to Facility Entrance (some mileage on US-6 is listed on OH13P)
Connector Change	0.029 Miles
Connector Length	0.529 Miles

FWHA Name	OH15P
Name	Huron Limestone Co.
Address	105 East Cleveland Rd
	Huron, Ohio 44839
Phone	419-433-2141
County	Erie
Facility Type	Port Terminal
Criteria	Current Intermodal
Connector Description	From SR-2, N on SR-13 to jct with US-6, turn right, E onto US-6 to jct with C9001, Tiffin Ave, turn left, N onto C9001 Tiffin Ave to jct with Meeker Ave, turn left continuing on C9001, Meeker Ave to jct with Berlin Rd, turn left continuing on C9001 Berlin Rd to facility entrance
Connector Change	0.016 Miles
Connector Length	2.716 Miles

Figures 5-6.4: Intermodal Facilities

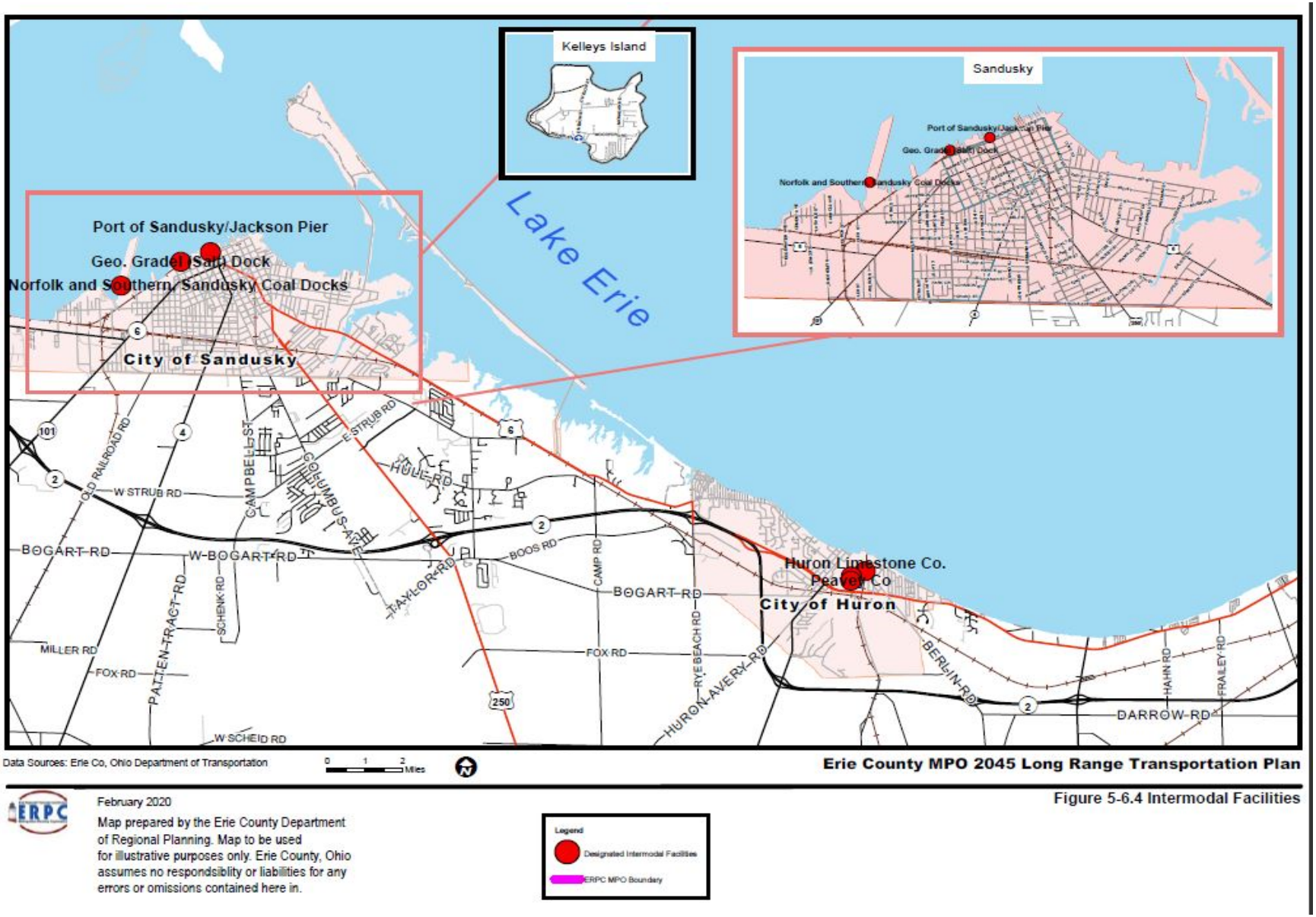


Figure 5-6.4 Intermodal Facilities

5.7 Land Use

Land Use Changes: Existing and future land uses of each community within Erie County MPO are an important consideration in determining transportation needs. Transportation systems and land use patterns have a well-documented reciprocal relationship. As communities have grown, the demands for transportation system improvements have also grown. However, these transportation improvements have also provided more convenient access to land farther out, thus spurring further growth. More than any other transportation system, it has been the road network and the prevalence of the automobile that has impacted land use patterns over the past half-century. For example, the transportation demands of US 250 have changed tremendously since 1958. The corridor has undergone a dramatic change from a rural route to an urban hub as seen in the photos below. This has occurred in many different portions of the planning area (see **Figure 5-7.1**).

US 250 in 1958 and 2019[16]

US 6 in Perkins and Huron Townships 2001 and 2019[17]

[16] Erie County Soil and Water and Erie County Auditor's Office
[17] Erie County Auditor's Office

SR 101 in Margaretta and Perkins Township in 2001 and 2019[18]

US 6 and SR 2 interchange in Huron Township and the City of Huron 2001 and 2019[19]

Figure 5-7.1: Land Use Changes Over Time

5.8 Port Facilities

Local Ports: There are three main Great Lakes Ports located in ERPC's region located at: Kelley's Island, the Cities of Huron and Sandusky.

- The **Port of Kelley's Island** freight handling has diminished over recent years with the idling of the LaFarge operated Kellstone Quarry. Significant limestone was mined on the island in the past and represents the majority of freight originating in the port. In 2010, some limestone was still shipped albeit at levels much below that of previous years.

The other ports, **Huron and Sandusky**, are two of the state's nine commercial ports are located along Lake Erie's shore. The US Army Corps of Engineers maintains these harbors to a depth of 28 feet. Bulk cargoes such as **coal**, iron ore and stone make up more than 90% of Ohio's Lake Erie port traffic.

- The **Port of Huron** is a deep draft commercial harbor that generates over $13 million in revenue annually. The main commodity handled is limestone. According to waterborne commerce statistics for 2017, all volume handled at the Port of Huron was in the form of receivables (no shipments originated here). The port primarily receives domestic freight.

[18] Erie County Auditor's Office
[19] Erie County Auditor's Office

- The **Sandusky Port** is one of Ohio's key ports for movement of Appalachian coal and minerals. The Sandusky Dock is owned and operated by the Norfolk Southern Corporation. The port handles large volumes of bulk commodities. Sandusky's major commodity is coal, representing over 97% of the volume handled at the port. In 2015, Norfolk Southern scaled back its operations in the City of Ashtabula and consolidated them with Sandusky's. The domestic-international split, by volume, for 2018 was 53% domestic and 47% international. The port primarily serves as an exporting port; in that approximately 95% of the volumes of goods handled are exported .[20] The facility has an average loading capacity of 2,600 tons per hour and accommodates vessels with a maximum length of 1,000 feet. The channel depths range from 21to 26 feet. The facility is in operation April through December, 24 hours a day, seven days a week. Annual tonnage in 2015 was 1.6 million[21] and the USACE waterborne commerce statistics center reports 2018 annual tonnage as 2.2 million.[22]

As previously mentioned, a freight study was completed for the MPO region by GPD Consultants during 2013. Recommendations from the study that pertain to ports include:

- Support dredging activities and advocate for continued funding

- Advocate for funding to improve regional port infrastructure that supports economic activities and industries that utilize regular shipping activities

- Examine further the modal connections to the water ports to improve connectivity and mode transfer

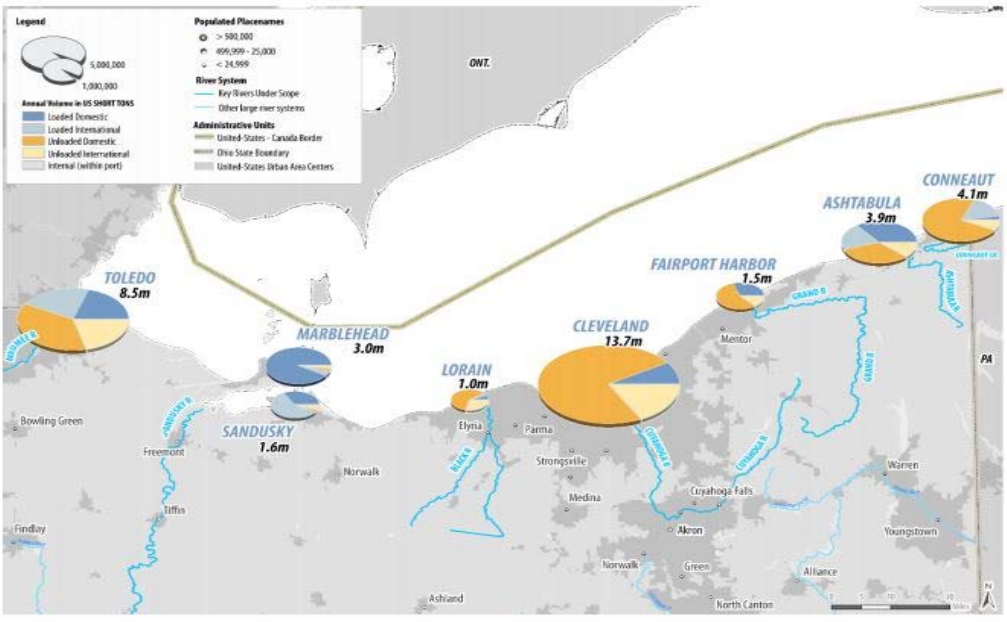


Figure 5-8.1: Port tonnages (2015)[23]

[20] USACE Waterborne Commerce Statistics Center: Tonnage for selected U.S. ports in 2018
[21] Ohio's Maritime Transportation System Report
[22] USACE Waterborne Commerce Statistics Center: Tonnage for selected U.S. ports in 2018
[23] Ohio's Maritime Transportation System Report

5.9 Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems: As thriving tourist areas, the cities of Sandusky, Huron and Vermilion see an abundance of visitors that may be unfamiliar with the layout of the cities. For example, the largest numbers of visitors are trying to find their way to the Cedar Point amusement park on the north end of the city but revitalization efforts in the downtown region is starting to create the need for an overall system to help provide visitors with accurate directions and information about events taking place within the city. Addressing these needs can be accomplished through careful planning and placement of Intelligent Transportation System (ITS) technology throughout the region's transportation infrastructure.

The region is currently in its initial stages of deploying ITS technology. This provides a great opportunity to ensure that all future deployments fall under an overall system plan. Through planning, each piece of hardware or software can be utilized to its fullest potential because careful thought was put into the purpose and placement of the technology. The needs of traveler information and way-finding directions to drivers while en-route suggests the use of permanently mounted Variable Message Signs (VMS) as the main piece of ITS technology deployed. For example, in the past, the City of Sandusky had completed a study investigating the overall signage used to direct visitors throughout the Sandusky area. The study examined the signage that existed and also investigated what deficiencies existed in the current system. The three types of signs highlighted by this report (gateway, directional, and seasonal festive banners) can be replaced or supplemented by VMS at strategic locations.

The gateway signs are signs that welcome people into the region. The current system only uses the typical green highway signs that define jurisdictional boundaries. Larger gateway signs that make the entrance to an area could supplement these signs. These structures should be distinguished from other types of signs through material and color or could contain a VMS made of a matrix of LED lights. The signs can display messages as simple as "welcome" to more seasonally appropriate messages about current events or festivals. This would provide additional information to visitors the moment they reach the jurisdictional boundaries. As recommended from the US 250 Corridor Study completed by Mannik and Smith consultants on behalf of the Ohio Department of Transportation (2005), a gateway feature was designed and constructed for the US 250 and SR 2 interchange. The project was funded by the local visitors and convention bureau, Lake Erie Shores and Islands.

Figure 5-9.1 US 250 at SR 2 Gateway Sign

Directional signs help travelers get to a particular destination. Static, retro-reflective signs can easily blend into the background of all other street and business signs along the roadside. Instead, mounting smaller VMS on light poles or traffic lights would stand out much more while performing multiple functions.

These signs could display words and arrow directions to assist drivers towards multiple destinations. The same sign could be used to show the direction of the amusement park and the downtown district by simply alternating between the messages displayed. Visitors would recognize these directions more easily than small static signs. A select number of VMS could be added at strategic locations to inform visitors to the amusement park of additional destinations within the region. At stoplights or other key locations, the messages could be alternated to provide more information than could be displayed on a static banner.

In addition to their main purpose, all these VMS signs can be used to provide additional traveler information beyond the route guidance function. These signs can be used to announce closures or delays due to incidents, detours because of construction, or Amber Alerts to the community. Controlling these signs does not require a significant investment in technology. Advances in technology over the last few months now allow signs to be controlled via a webpage. All that is required to update the messages displayed on the sign is the username and password to a secure webpage. The convenience and multiple uses of VMS make them a great ITS technology to begin building an overall traffic management system.

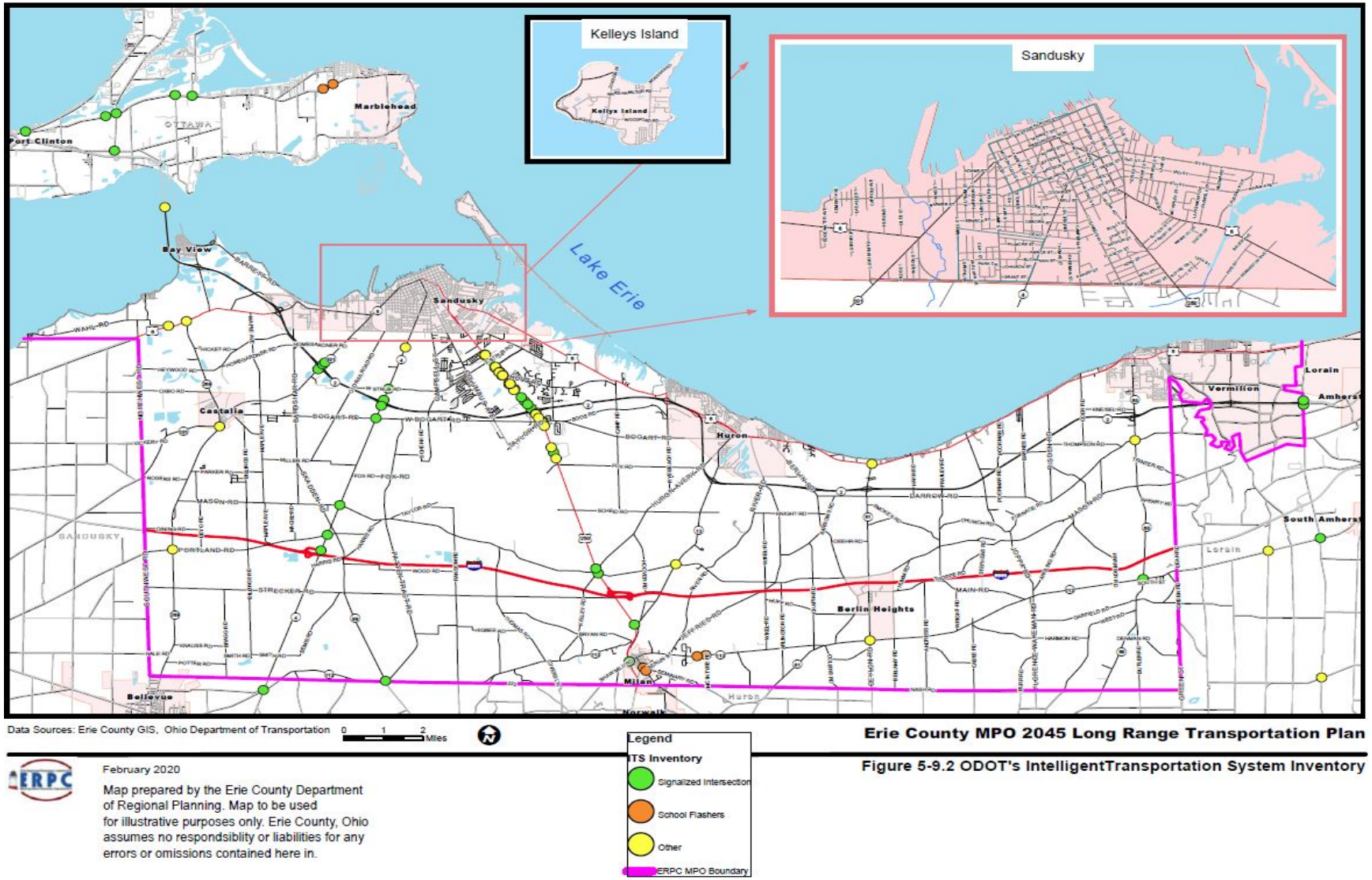


Figure 5-9.2 ODOT Intelligent Transportation System Inventory[24]

[24]Ohio Department of Transportation, TIMS 2020

Autonomous Vehicles: Although there are currently no autonomous vehicle structures in place yet in the planning region, it is expected that there will be in the future. Some testing has already occurred on the Ohio Turnpike for truck platooning with over $1.46 million already being invested in infrastructure.[25] Platooning involves creating pairs of semi-autonomous commercial trucks. Vehicle-to-vehicle communication allows the vehicles to travel close together, which reduces fuel burn and cuts wind resistance. The trucks communicate on braking and speed.[26] The Ohio Turnpike spans the entire length of Erie County from east to west. Additionally, there has been testing in central Ohio under the *DriveOhio* Program which examines ways to develop statewide technology for the state's smart mobility initiatives. There is also a testing hub that is jointly funded by the Ohio Department of Transportation and the Ohio State University.

The first DSRC of the Connected Marysville project was installed on a traffic signal at the intersection of Fifth and Main Streets in Uptown Marysville in the Summer of 2017.

Figure 5-9.3: Dedicated Short-Range Communicator in Marysville, OH

Electric Vehicle Charging Stations/Volkswagen Emissions Settlement and Alternative Energy: In 2016 the United States sued Volkswagen and associated companies for installing defeat devices on some diesel vehicles (2009-2016). It was estimated that 350 tons of excess nitrogen oxide which was emitted in Ohio as a result. The State of Ohio received $75 million over 15 years to install electric vehicle charging stations and diesel fleet replacements through select counties. Eligible applicants include public and private fleet owners of school and transit buses, medium and heavy-duty trucks, switcher locomotives, tugboats, ferries, and cargo handling equipment in airports and ports. The ERPC planning area was listed as a secondary priority county for funding through the Diesel Mitigation Trust Fund. As of early 2020 several organizations were listed as having received funding though the program. The Erie County's Engineer's Office received funds to replace a diesel truck. The Ohio Turnpike has also received funds to replace truck that run within Erie County as well as the Ottawa County Transit Agency. In 2019 the Ohio EPA also opened up funding for electric charging stations. ODOT staff came and spoke with the ERPC planning area members in 2019 about funding opportunities. As of early 2020 there are currently four EV charging stations in the planning region: Holiday Inn Express and Suites Sandusky, Meijer's Sandusky, Motel 6 Huron and Motel 6 Milan all for Tesla cars.

[25] https://www.govtech.com/fs/infrastructure/Ohio-Turnpike-OKs-Smart-Car-Network-Buildout.html
[26] https://www.govtech.com/fs/Semi-Autonomous-Trucks-to-Hit-Ohio-Turnpike-This-Spring.html

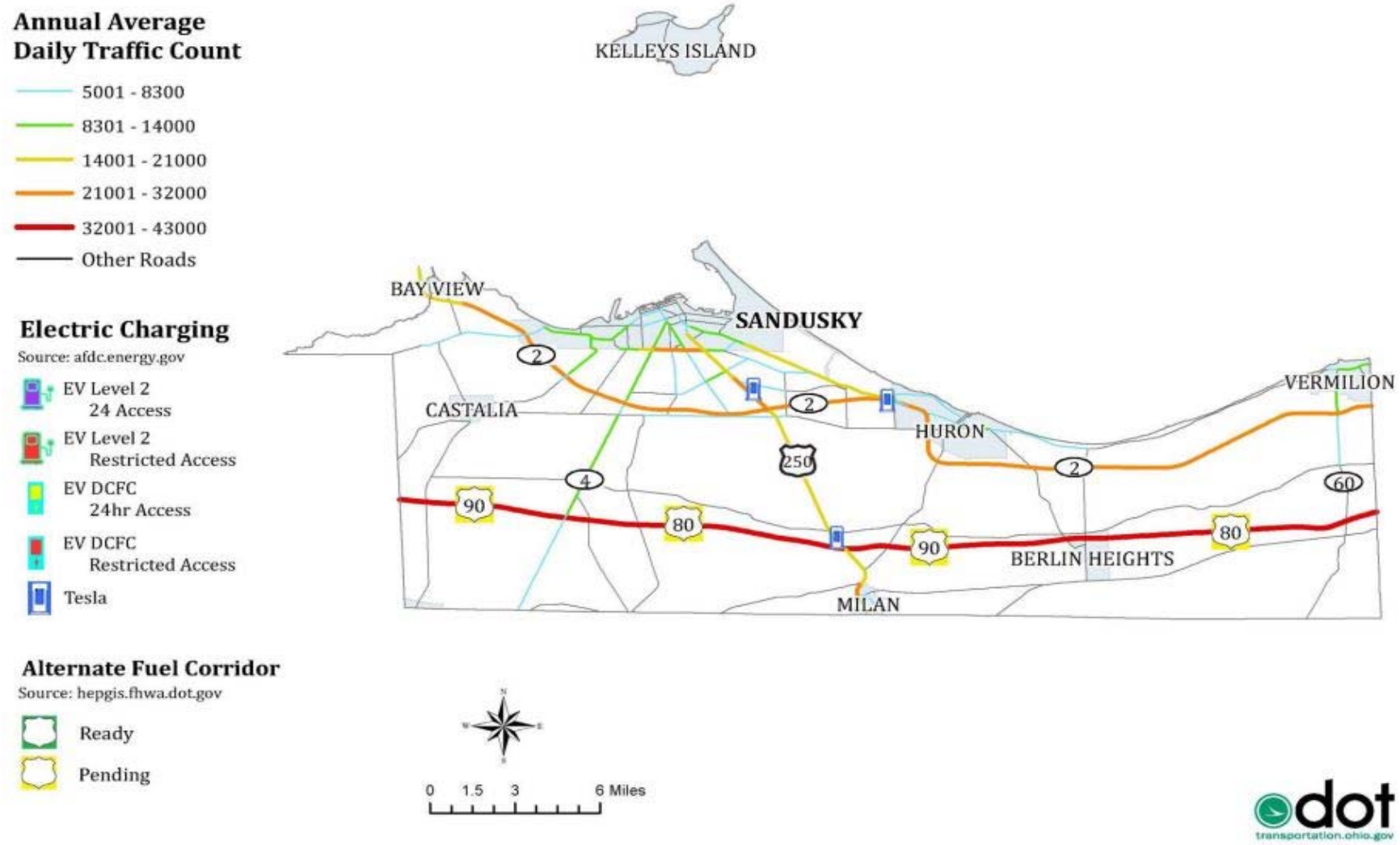


Figure 5-9.4: 2019 ODOT Listed Electrical Charging Stations[27]

[27] https://epa.ohio.gov/Portals/42/documents/VW/DMTF-EV-Charging-Stakeholder-Mtg.pdf accessed 3/6/20

Figure 5-9.5 ODOT Listed Electrical Charging Stations[28]

Alternative Energy Sources: Alternative energy sources such as biofuels, solar and wind power and natural gas have advanced in the market with changes in technology and government regulations. There is increased attention to liquefied natural gas (LNG) and compressed natural gas (CNG) as power sources for freight transportation. This change has been slow because few fueling stations are available around the US. It may be years before a shift to alternative fuels is widespread. However, with more energy efficient vehicles potentially fueled by energy sources other than diesel, less revenue may be collected via the motor fuel tax. This could result in less funding for transportation system infrastructure.[29] As of early 2020 the nearest alternative fuel stations have E85, NPG and Biodiesel stations are located in Huron County in Norwalk, just south of the Village of Milan.[30]

5.10 Environmental

Environmental Impact and Mitigation Practices: Although the ERPC MPO is not directly involved with projects, it does supports pro-environmental practices though the use of its project scoring sheets. Points are awarded favorably towards projects that demonstrate pro-environmental practices. Topics such as environmental justice, preservation and impacts are all considered during this process.

All ERPC MPO funded projects are required to follow the Ohio Department of Transportation's environmental review process. Once a project is funded through the MPO project selection committee, the project sponsors can choose to administer their project themselves or have ODOT administer it. If the

[28] https://epa.ohio.gov/Portals/42/documents/VW/DMTF-EV-Charging-Stakeholder-Mtg.pdf accessed 3/6/20
[29] http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/Documents/ODOT_FreightPlan_Updated%203.7.19.pdf
[30] http://www.altfuelprices.com/station_map.php

project sponsor is conducting administering the project they would hire a pre-approved environmental consultant to complete the various environmental task and prepare a NEPA document for district review and approval. If ODOT is administering the program the district would complete the environmental studies or task them thru OES-Task Order Consultant and then the district would still review and approve the NEPA document. Regardless of who administers the project the same environmental items are required to be considered and reported. The following sections will describe ODOT's general mitigation process and any locally relevant MPO related processes. Due to the technical nature of environmental laws and regulations, it is noted that the specific processes differ depending on a project's scope and location and are not always applicable.

The ODOT environmental program (EP) staff ensures that any transportation project that affects publicly owned parks, recreational areas, wildlife/waterfowl refuges, or public and private sites using federal funds are formally investigated and documented according to the National Environmental Policy Act (NEPA). The EP staff also provides guidance and technical assistance, undertakes site investigations and directly communicates with the USEPA and Ohio EPA.

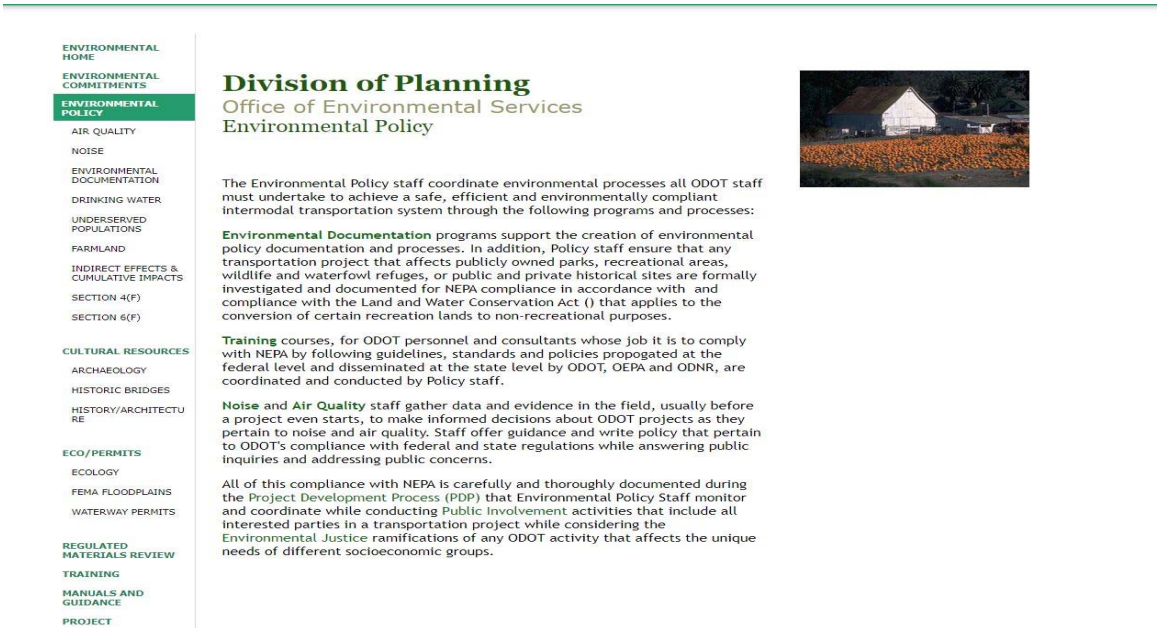


Figure 5-9.6: ODOT's Environmental Program Website[31]

The EP staff also ensures that land liabilities as listed in the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Superfund Amendment and Reauthorization Act (SARA) are considered. If a property is found to be contaminated, the staff works to have those materials removed, properly identified and managed under the Resources Conservations and Recovery Act (RCRA) and the Hazardous and Solid Waste Amendments (HSWA). For sites requiring remediation, the EP staff conducts the necessary coordination with the US Environmental Protection Agency (USEPA), Ohio EPA and/or the Bureau of Underground Storage Tank Regulations (BUSTR) for the project. The EP staff also assists in keeping regulatory compliance of manmade and hazardous waste. The EP staff addresses ODOT's regulatory issues and is the points of contact for federal regulatory agencies.

[31] http://www.dot.state.oh.us/Divisions/Planning/Environment/NEPA_policy_issues/Pages/default.aspx

Local notes: ERPC staff is aware of these requirements.

The EP staff ensures that all projects listed on the STIP and/or TIP contain the correct documentation required to have Mobile Source Air Toxics (MSAT), Particulate Matter (PM2.5) and Ozone (O3) as addressed under NEPA. The EP staff provides guidance that is necessary to ensure that transportation projects are in compliance with the Clean Air Act, Transportation Conformity, and NEPA relative to air quality issues. They also are responsible for coordinating air quality analyses with the FHWA, OEPA, and USEPA, as necessary and to advise local transportation project sponsors of the air quality analysis requirements of their projects. Local project sponsors are then required to conduct the required air quality analyses prior to NEPA approval.

Local Notes: Locally, the ERPC MPO is not within an Ohio EPA non-attainment area and, therefore, is not required to have any air quality testing done. The planning region does share a border with NOACA, which is within an Ohio EPA non-attainment area, so any work done in overlapping jurisdictions does require an assessment. Typically, NOACA's MPO sends over their conformity analysis for ERPC to consider and approve.

The ERPC staff is responsible for reviewing and providing oversight for projects with impacts to drinking water resources. Drinking water resources refer to ground water and surface water, drinking water source protection areas and sole source aquifers.

Local Notes: The ERPC planning area does not have any sole source aquifers in the region. The region does have Lake Erie, which is designated as an exceptional warm water habitat, superior high-quality water, public water supply, agricultural water supply, industrial water supply and bathing waters, as its northern border.

Staff works towards ensuring environmental justice and Title VI initiatives through the department's public involvement process. The process typically includes those that are potentially affected public in developing transportation projects. The goals are to have transportation projects fit harmoniously within their local communities without sacrificing safety or mobility of others.

Local Notes: ERPC conducts an annually environmental justice report that examined how local projects impact traditionally underserved groups. ERPC also has a Title VI Plan and sends an environmental questionnaire (in coordination with the work plan) annually to ODOT. The Title VI and Public Involvement Plans were both updated in 2019.

Several laws and rules (including NEPA, Endangered Species Act, Fish and Wildlife Coordination Act, and the Clean Water Act) state that some federally funded projects may undergo studies to determine the degree and effect impacts resulting from projects have on the natural environment. For ODOT, these studies focus on the impacts resulting from transportation projects, whether it is new construction projects or maintenance activities.

Permits may also be required for projects involved in stream work, wetlands or significant amounts of new right-of-way. Ecological surveys are performed to inventory water quality, aquatic ecosystems, endangered species, wetlands and terrestrial ecosystem resources in the vicinity of the proposed project. This information is recorded in an Ecological Survey Report (ESR) and this report is coordinated with

staff. Some projects may require separate reports for specific ecological resources such as mussels and endangered species. Special areas that ODOT is directly involved with are areas designated as Section 4 (f) and 6 (f).

Local notes: In Erie and Lorain Counties there are several endangered species and wetlands. There are no wild and scenic rivers listed in Erie and Lorain Counties. Lake Erie does have a coastal management boundary zone and portions are listed in the coastal barrier system which is managed by the Ohio Department of Natural Resources, Office of Coastal Management. Staff will coordinate this office when projects are located within the coastal management boundaries. There are also numerous floodplains within the planning area. ERPC is the floodplain administrator for the unincorporated areas of the county and oversees the county floodplain regulations.

5.11 Security

Security: Since the 9/11 terrorist attacks, the Federal Highway Administration and many other organizations have been looking closely at homeland security and institutional strategies for providing metropolitan level coordination of transportation system operations. "A comprehensive national approach to incident management, applicable at all jurisdictional levels and across functional disciplines, would further improve the effectiveness of emergency response providers and incident management organizations, across a full spectrum of potential incidents and hazard scenarios".[4] Such an approach would also improve coordination and cooperation between public and private entities in a variety of domestic incident management activities.[5] In order to satisfy this planning regulation, ERPC staff coordinated with the Erie County Emergency Management Agency (EMA).

The Erie County Emergency Management Agency is responsible for planning, mitigation, response, and recovery for both natural and man-made disasters in the County. This includes nuclear attack, terrorism, weather phenomena, nuclear power plant accidents, hazardous materials accidents, and any other occurrence deemed a disaster or emergency. With mutual aid agreements, the County's EMA have also responded to situations in surrounding counties when requested.

Figure 5-9.7: Local disasters[32]

[4] Homeland Security Act of 2002, Section 2(6)
[5] Homeland Security – National Incident Management System
[32] https://www.eriecounty.oh.gov/EmergencyPlanning.aspx

911 Call Center: The Agency insures their Emergency Operations Center (EOC) center which is operational 24 hours a day, seven days a week. The center provides emergency communications, radio and telephone, along with other features designed to allow EOC members to help manage any disaster that may befall our country. The County's Emergency Response Vehicle is also outfitted with communications, and other response type equipment, allowing for the capability of a mobile EOC.

Emergency Management is also tasked with maintaining the Erie County 9-1-1 service. The first 9-1-1 systems were called Basic 9-1-1 systems. All 9-1-1 calls were directed to one Public Safety Answering Point (PSAP) per telephone office. 9-1-1 dispatchers only received the caller's telephone and had to ask the caller for name, address and county location. Advances in computer systems and telephone company technology combined to create ENHANCED 9-1- systems. Today, 86 of 88 Ohio counties have Enhanced 9-1-1 systems on line. Enhanced systems allow 9-1-1 calls to be routed to the proper Public Safety Answering Point (PSAP) within each county. Also, each 9-1-1 call displays the caller's telephone number, name, and address, as well as the correct police, fire, and emergency medical response agency for each citizen within the county. In March of 2011, Erie County also completed the installation of Phase II Wireless 9-1-1, which will help locate where cellular 9-1-1 callers are calling from utilizing a mapping system. In 2010, our seven (7) Erie County 9-1-1- In 2013, the Public Safety Answering Points (PSAP's) located throughout the county handled 14,557 regular 9-1-1 calls and 27,018 cellular 9-1-1-calls.

The Agency has responded to 43 requests for assistance in 2019, covering hazardous materials spills, flooding, disposal of household hazardous materials, and mercury recovery/recycling. In 2019, the Chemical Emergency Response and Preparedness Plan was completely updated and reprinted with new hazard analysis of Erie County reporting facilities. Copies were distributed to all Erie County Fire Departments for their in house and mobile data computers. As many of the items in this transportation security field are confidential in nature, Erie County does have Emergency Response Plans in place that provides procedures of incident management as developed by the Erie County Local Emergency Planning Committee (LEPC). From the Chemical Emergency Response and Preparedness Plan, ERPC was able to identify possible areas of vulnerability across the region's transportation network.

Transportation Risks: The main routes for transportation are the Ohio Turnpike, State Routes 13, 4, 6, 113, and 250 all of which are commonly used for transportation to and from Erie County. Also, three rail routes exist in the county. Transportation incidents have the potential for posing the highest risk to both citizens and property within Erie County. In addition, seasonal variations exist that will affect accidental releases and subsequent hazards. During the recreation months, the populations of the county increases and could be impacted. This population increase may have a large effect on response operations.

Pipeline Risks: The County has (2) pipelines traversing, starting, or stopping within its borders. These pipelines carry natural gas on a regular basis.

Navigable Waterway Risks: The County has three navigable waterways upon which hazardous materials may travel. These waterways are Lake Erie, Sandusky Bay and the Huron River.

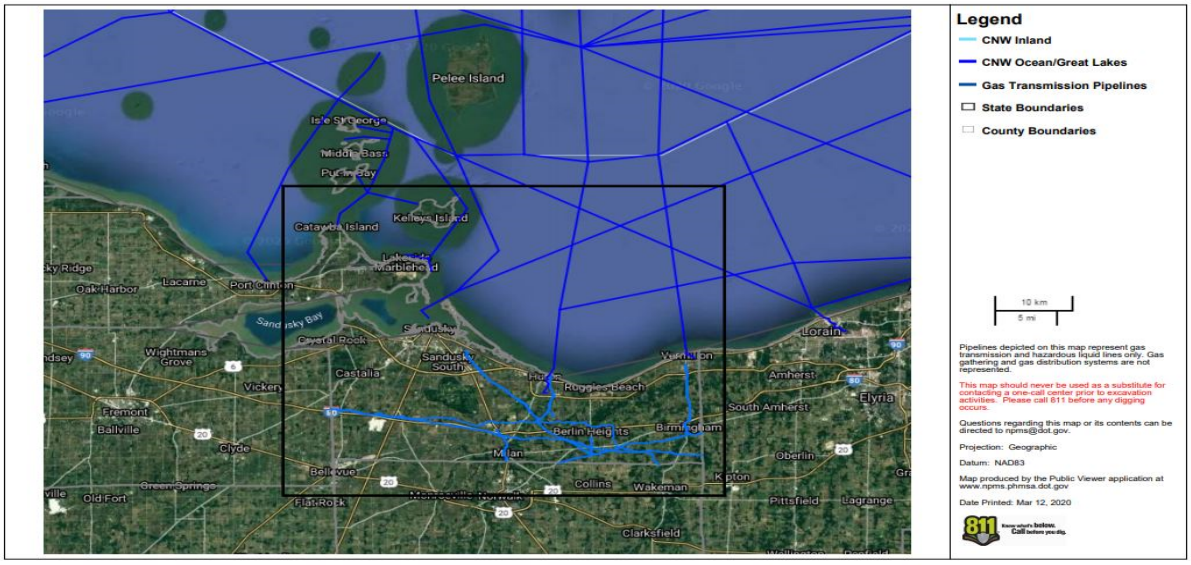


Figure 5-9.8: Local Gas Pipelines and Navigable Waters[33]

Geographic Specific Risks: Specific areas in the region considered vulnerable per the LEPC Hazard Analysis Committee:

City of Sandusky: The City of Sandusky is the County Seat of Erie County and was incorporated in 1824 and is in northwest portion of the County bordering Lake Erie. The city is comprised of 10.0 square miles of land area. As of the Census of 2010, there are 25,793 people, 11,082 households and 6,415 families residing in the city. The population density is 2,579 people per square mile. There are 13,386 housing units at an average density of 1,338.6 units per square mile. The City of Sandusky is the largest municipality in Erie County. The city is unique in that it has a summer time population that more than doubles due to the influx of tourists. Main State Routes include 250, 6, 4, and 101. All of these routes are used to transport hazardous materials. The Norfolk & Southern Railroad operates north and south, as well east and west through the city. It has also had derailments within the city. The east/west line especially hauls hazardous materials. The city also has numerous marinas and has forty-one (41) facilities reporting hazardous materials to the LEPC.

City of Vermilion: The City of Vermilion is located in both Lorain County and Erie County. It is located on the western border of Lorain County and the eastern border of Erie County. The City has a total land area of 10.8 square miles. According to the Census of 2010, the population of the City is 10,594. There are 4,183 households and 3,033 families residing in the city. The population density is 981 people per square mile. There are 4,919 housing units at an average density of 455.5 units per square mile. The City of Vermilion is the second largest municipality in Erie County. The Vermilion River runs through the city, empties into Lake Erie, and is used primarily for recreational boating. Marinas on the river hold over 7,000 boats each summer. There have been numerous fuel spills on the river. State Routes 6, 2, and 60 enter, or run close to the city, and the Norfolk and Southern Railroad runs through downtown Vermilion. All these routes are used to haul hazardous materials. Vermilion has thirteen (13) facilities reporting hazardous materials to the LEPC. The City of Vermilion participates in Lorain County's Hazard Mitigation Plan.

[33] https://pvnpms.phmsa.dot.gov/PublicViewer/

City of Huron: The City of Huron is also located in the north center portion of the county, on the south shore of Lake Erie. The population of the city is 7,000 plus and can double in the summer due to tourists. The city has a total land area of 7.7 square miles. According to the 2010 Census, there are 3,073 households and 1,988 families residing in the City. The population density is 928 people per square mile. There are 3,710 housing units at an average density of 481.8 units per square mile. State Routes 6, 13, and 2 run in or near the city, and the Norfolk and Southern Railroad runs through the city. The Huron River also runs through the city, emptying into Lake Erie, and has numerous marinas. Although the Huron River is used primarily for recreational boating, there have been fuel spills on the river, as well as on the state routes and railroad. Huron has fourteen (14) facilities reporting hazardous materials to the LEPC.

Village of Berlin Heights: The Village of Berlin Heights is 18 miles southeast of Sandusky and comprises a total land area of 1.6 square miles. As of the Census of 2010, there are 714 people, 269 households and 211 families residing in the village. The population density is 446 people per square mile. There are 282 housing units at an average density of 176.3 units per square mile. The village has the Ohio Turnpike, as well as State routes 61 and 113 running through the village; all of which are used to haul hazardous materials. The village also has two nature preserves in close proximity, with creeks draining into them.

Village of Kelleys Island: Kelleys Island, which is the largest freshwater American island, is located in Lake Erie, 11 miles northwest of Sandusky, and has a land area comprising 4.6 square miles. As of the Census of 2010, there are 312 people, 175 households and 99 families residing in the village. The population density is 68 people per square mile. There are 859 housing units at an average density of 186.7 units per square mile. During the summer months the population increases significantly. The island has one facility reporting hazardous materials to the LEPC. There are also numerous marinas and transient dockages available, all of which could produce hazardous materials spill. Of particular concern is the fact that during the winter, the only way on and off the island is by aircraft.

Village of Bay View: The Village of Bay View is in northern part of Margaretta Township, 8 miles west of Sandusky, and comprises 0.3 square miles of land area. As of the Census of 2010, there are 632 people, 279 households and 172 families residing in the village. The population density is 2,107 people per square mile. There are 342 housing units at an average density of 1,140 units per square mile. State Route 269 dead ends in the village, and the Norfolk and Southern Railroad runs east and west through the village. There have been train derailments in the past near the village due to a bridge over Sandusky Bay and high winds associated in that area. There is one marina in the village with numerous private docks. The village has no facilities reporting to the LEPC.

Village of Castalia: The Village of Castalia is in central Margaretta Township, 7.5 miles southwest of Sandusky, and comprised of 1.0 square mile of total land area. As of the Census of 2010, there are 852 people, 352 households, and 239 families residing in the village. The population density is 852 people per square mile. There are 378 housing units at an average density of 378 units per square mile. State Routes 101 and 269 meet in the village. Castalia has one reporting facility within the village. Of particular concern in this area is a State Wildlife Area, and a state managed trout farm within a mile of the village. Cold Creek, runs through the village, empties into Sandusky Bay.

Village of Milan: The Village of Milan is located in the south-central part of the county and straddles both Erie and Huron County. It has a land area of 1.2 square miles. Milan is 13 miles south of Sandusky. According to the Census of 2010, there are 1,367 people, 509 households and 370 families residing in the village. The population density is 1,139 people per square mile. There are 551 housing units at an average density of 459.2 units per square mile. The village has five facilities reporting hazardous materials to the LEPC. Two of these facilities are near a creek that runs into the Huron River. State routes 250, 113, 601 and 13 runs through or near the village and are known to carry hazardous materials. The Huron River also runs through Milan but is too shallow for any kid of boat traffic.

High Traffic Areas: Transportation routes within Erie County that are considered vulnerable to a hazardous material accident include the Ohio Turnpike, State Routes 2, 4, 6, 13, 60, 61, 113 and 250 and the east/west line of the Norfolk and Southern Railroad. These routes transect areas of differing populations, which present a risk for transportation related hazardous materials incidents.

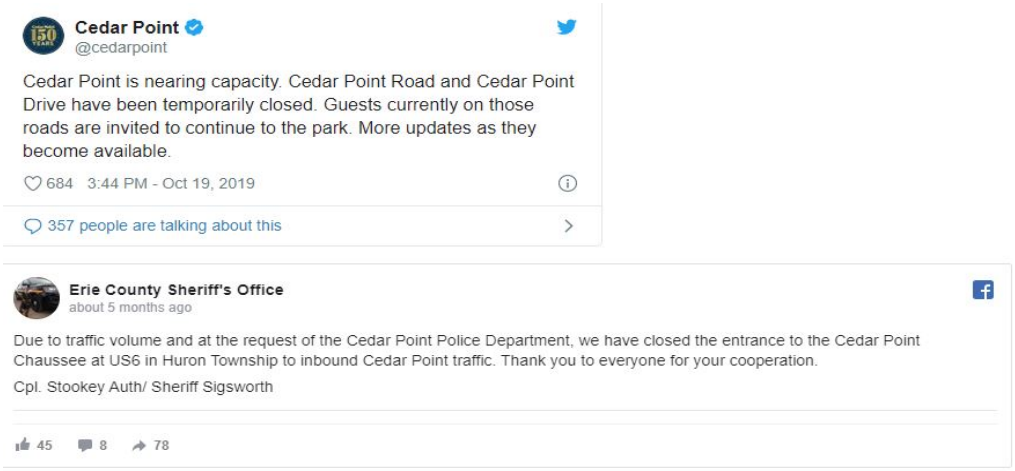


Figure 5-9.9: Social media postings from Cedar Point in 2019

In conclusion, the plan provides for a coordinated response between state/federal agencies and local response forces. The MPO staff has worked with the Erie County EMA to aid in security initiatives through completing various mapping activities and serving on the steering committee for the recent update to the Erie County Hazard Mitigation Plan.

COVID-19 and Transportation: It is anticipated that there will be impacts on the transportation system as a result of the pandemic COVID-19. At the time of writing this plan update a vaccine has not yet been discovered and most of country is telecommuting or unemployed since the early spring. An impact that already is evident is that there is less gas tax being generated. Gas tax is created by the purchase of gas. As less people are traveling due to quarantine and social distancing restrictions less gas is being purchased. Gas prices have dropped substantially. For example, Waukesha, Wisconsin reported that gasoline prices are the lowest they have been in four decades, costing .89 cents a gallon.[34] It is unknown whether these changes in travel will end, but it is anticipated that regular travel patterns could resume after a vaccine is created. Some of the long-term impacts of the virus is yet to be seen. Here are some of factors that should be considered:

[34] https://www.wisn.com/article/gas-prices-lowest-theyve-been-in-four-decades/32147798#

- Currently many employers are having their employees telecommute. It is unknown if these practices will remain after the pandemic is over, reducing personal and mass transit vehicle use.

- As tax revenue for road maintenance has come to halt with a decrease in gas consumption, funding that was anticipated for road work repairs will most likely also be slashed. Local as well as private systems such as the turnpike may face difficulties in maintaining operations as their revenue falls.

- On the commercial front the freight industry (especially trucking) has been deemed essential for moving necessity items to groceries stores, hospitals etc. Additional investments for the maintenance of these industries may be sparked in the future.

- Cargo that has not been deemed "essential" has been stockpiled and production halted. It is unclear how those goods will be transported and how transportation chains related to these goods will be impacted.

- It is unclear that when stay at home orders are lifted if there still may be reluctance to utilize the transit system until a vaccine is available, causing additional revenue losses for already strained transit systems.

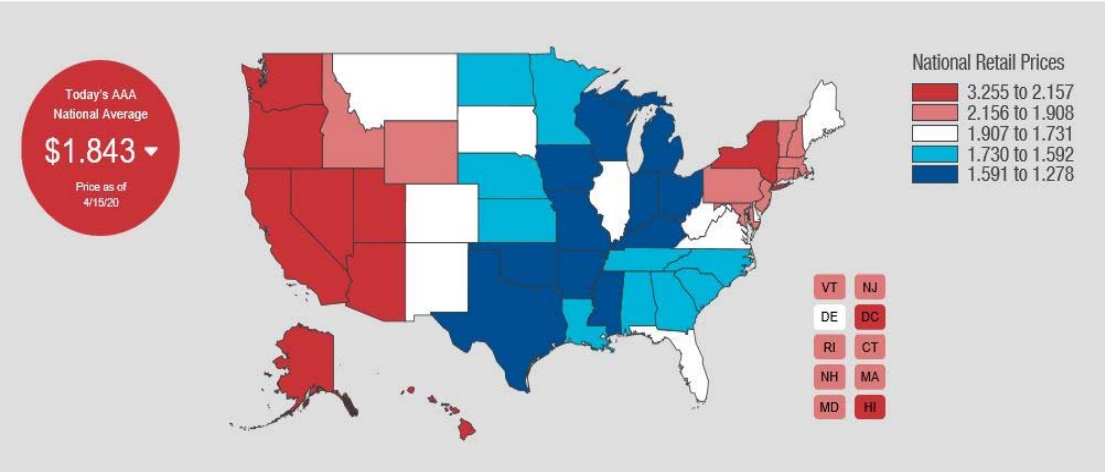


Figure 5-9.10: National Gas Prices[35]

[35] https://gasprices.aaa.com/state-gas-price-averages/ accessed 4/15/20

LAND USE AND TRAVEL DEMAND MODEL FORECASTS

6.1 Land Use Forecasting

As with traffic forecasting, land use forecasts should ideally be based on existing and planned future land developments rather than historical trend lines. However, given the long time period needed for the plan horizon formula-based land use forecasting and allocation to small areas is a necessarily large portion of the forecast needed for this metro transportation plan update.

The forecasting of land use consists of two parts: A county-wide economic and demographic forecast, and then allocation of the county total into small zones for the purpose of forecasting future traffic volumes and travel times. Within the planning area there is a small portion of Lorain County (in and near the city of Vermilion) that is included. This area has forecasts developed that are not based on any countywide totals, but estimated to "mirror" adjacent portions of Erie County.

Traffic forecasts are used for guidance in designing transportation systems. Typically a 20-year forecast is required beyond the date that the project is anticipated to be completed and opened to traffic to complete a prediction. Therefore, the transportation plan horizons that include traffic forecasting should extend at least 30 years, to provide forecasts for projects that may have design work currently in progress, but for which the final year of construction may still be five to ten years into the future. The base year for traffic forecasting for this plan was set to the year 2015 due to data availability. As a result of this, the plan horizon year was established as 2045.

****Since there was very little growth between the year 2010 and 2015 in Erie County, levels of growth forecast for years 2010-2040 from the sources discussed below are applied as levels of growth from 2015-2045 for this transportation plan.****

The Ohio Department of Development has an ongoing program to develop population forecasts statewide broken down by county for 40 years beyond the date of the most recent decennial Census (which in this case was 2010). Details of this program which provides forecasts of population for Erie County at five-year intervals out to Year 2040 by five-year age and gender cohorts can be found online[1]. This detail is valuable for addition forecasting of areas such as school kids and local workforce (via age and gender-specific workforce participation rates from the US Bureau of Labor Statistics). The population totals, historical trend lines, and in persons and vehicles per household allows for the forecast of dwelling units and private vehicle ownership. In turn this information can be used to determine future trip generation and rates of travel.

As shown on the ODOD website, the forecasted 30-year decline in population for Erie County is about 19% (from 77,079 in the 2010 Census to 62,300 for the Year 2040). Given the historical trends in persons per household, it is forecasted that persons per household countywide will continue its downward trend into the future. In the absence of any previously-developed and adopted employment forecasts for the county locally, a variety of forecasts are available. Forecasts available from public-sector employment agencies, however, are typically short-term (eight to ten years) and not sufficient for the needs of transportation planning.

[1] https://development.ohio.gov/reports/reports_pop_proj_map.htm

A nationally based interregional economic model called Impact Analysis for Planning (IMPLAN), is being used for the Ohio statewide traffic forecasting model and was utilized here. While the IMPLAN forecasts are statewide and not county-specific, forecasted growth rates by 20 general industrial categories can be applied to current county-wide employment levels by industry to develop forecasts of employment by industry for the future. These 20 industrial categories were then collapsed down into four categories (retail, two service groups, and industry/warehouse/other) for ease of analysis.

Due to "inter-county" commuting where workers cross county lines to travel to work, there can be and are gaps between the number of jobs in a county and the workforce living within the county, both now and in the future. However, to ensure that this gap is not forecast to grow excessively large in the future, a check of inter-county commuting gaps for other small metro areas in northern Ohio was reviewed to provide a "reasonability check" of the initially generated forecasts of employment versus workforce as a function of local population. According to the 2000 Census, there was a net in-commuting difference of 7,100 persons in Allen County (Lima) and 2,400 in Richland County (Mansfield), compared to less than a thousand for Erie County. Initial forecasts of employment and workforce for Erie County registered a gap of about 10,000 for the plan horizon year, which should be scaled back to levels at least no higher than currently is the case for Allen County. This was done with the following adjustments: 1.) Change the workforce participation rates for individuals aged 60-80 to those initially used for ages 55-75 i.e. postponement of retirement on average five years longer than what has been done in the past, due to general economic, pension, and workforce availability issues; 2.) Eliminate the forecasted growth in employment for K-12 schools due to the forecasted decline in school age children in the ODOD population forecast. These adjustments combined bring the gap between workforce and jobs to around 6,000, within the current levels observed in comparable metro areas.

To allocate county-level population and employment growth (or decline) figures by zone, first priority goes to known land development plans. Land development changes since the last plan update include the development of Cedar Point's Sports Force Park along US 6, Mucci Farms on Rye Beach Road in Huron, and additional commercial/retail along US 250. The remainder of the long-range land use forecast was then allocated by formula to various areas in the county based on accessibility and land use restrictions. The allocation scheme developed is ultimately based on two criteria - the amount of "vacant" land available by land use category, and a zone's relative level of accessibility to other population and employment within the county. The latter criteria is an indirect reflection of both infrastructure availability and access to customers and complementary services needed to sustain a business. This criterion is applied more strongly to employment location than new residential location. Beyond specific known local development plans, no redevelopment of currently-occupied land is assumed due to both the lack of data of local history on this and lack of limits on how such developments could theoretically be done (beyond such considerations as firefighting capability in multi-story buildings).

The countywide digital land parcel file is used to determine (via the Use Code) where "vacant" land is available by general land use code (residential, commercial and industrial) along with agricultural use land that could be converted to residential use or employment centers. Digital files of 100-year floodplain and floodways are also used to discount, where appropriate, the amount of land available due to prohibitions on development or added expense to meet floodplain development requirements.

After employment industrial categories are allocated to either commercial or industrial, needed acreages for development by all three categories (including residential) are calculated, based on trip generation

studies conducted by land use where both employment and acreages were known. Also, given the much larger amounts of land in the agriculture Use Code compared to vacant, there's a need to pre-specify what percentage of acreage for residential and employment development goes into land currently designated for agriculture. Based on general historical growth patterns which have remained the same if not scaled slightly back from the last plan update, 20% of new acreage for residential development is allocated to parcels with Agriculture use codes, and a more minimal 5% figure is used for employment. Agricultural land is then allocated to either residential, commercial or industrial based on probabilities tied to the type and jurisdiction of the adjacent roadway (federal, state or local). Probabilities were then calculated based on the use of currently developed parcels and their adjacent roadways. This leads to the table below summarizing, by land use category, acreage needed, acreage available and formulas by which development by acreage is allocated by zone. The maps below this table show, by zone, the weighted average travel time in minutes to all the current population in the county (average time to current commercial and industrial employment countywide has also been calculated and mapped) and estimated amounts of acreage to be developed within the planning period.

Table 6-1.1 – Vacant land available and needed to serve 30-year development forecasts

	Use acres available	acres needed:	Percent of each zone's vacant acres developed:
Residential	3,712	1,663.1	1.16 / (ln (weighted avg travel time - 5))
Commercial	1,229	682.8	5.1 / (weighted avg travel time - 4)
Industrial	421	98.1	1.67 / (weighted avg travel time - 4)
Residential from ag	49,638	415.8	0.032 / (ln (weighted avg travel time - 5))
Commercial from ag	10,056	35.9	0.18 / (weighted avg travel time - 4)
Industrial from ag	9,105	5.2	0.066 / (weighted avg travel time - 4)

Finally, translating these figures to employment by category by zone (as well as population, school kids, vehicles, workers as well as housing units) then using these acreage figures with existing distributions of population and employment within these zones, with adjustments as necessary to ensure that overall county-level forecasts are achieved. What is manually added in as the last step in the land forecasting process are the specific land developments for which dwelling unit or employment forecasts were made separately.

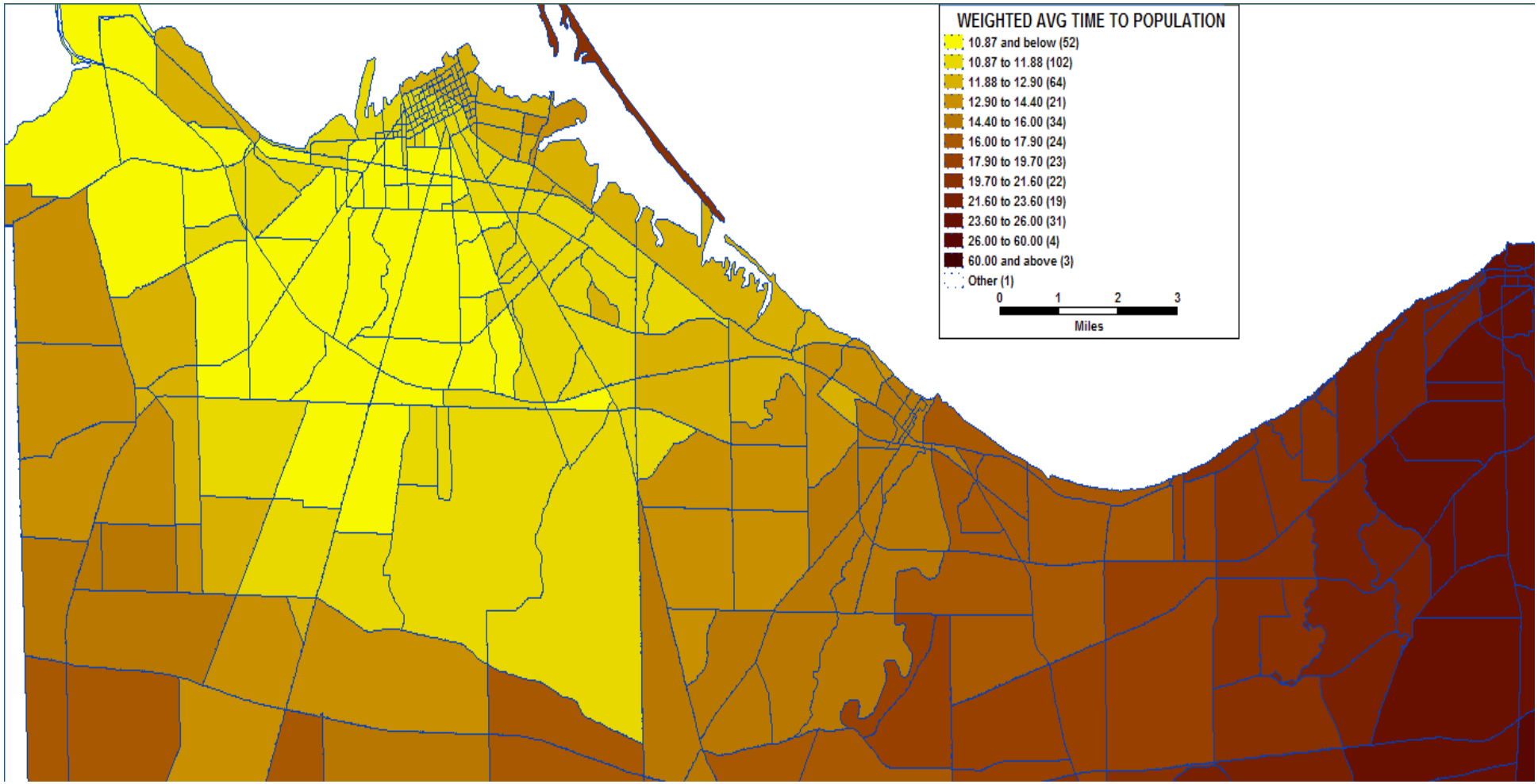


Figure 6-1.1: Weighted average travel time to population countywide

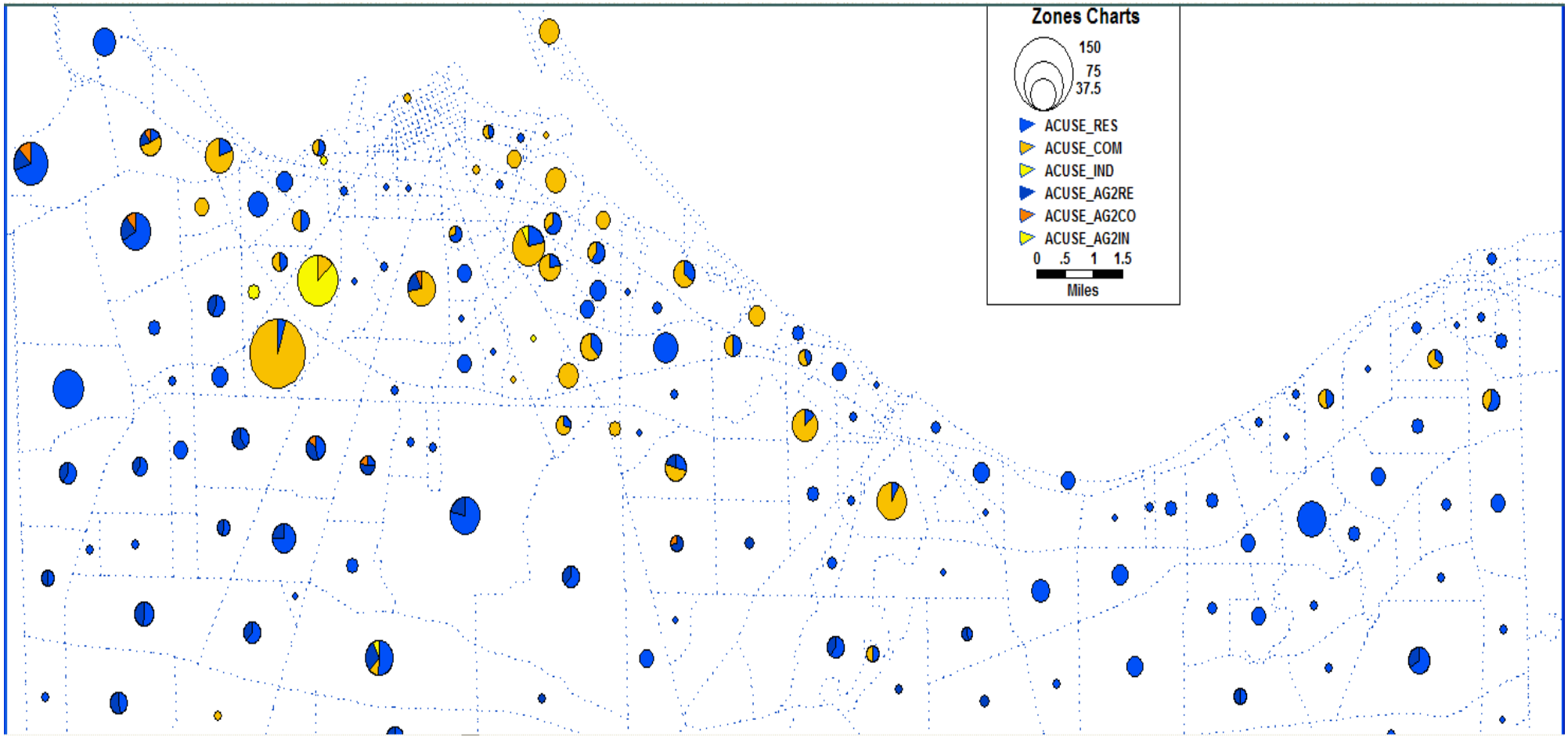


Figure 6-1.2: Estimated acreage of new development in the 30-year plan horizon by type of use

6.2 Travel Demand Model (TDM)

The traffic flow (and congestion) forecasting process consists of taking land use data in the form of population and employment figures by location, breaking it down into different categories, estimating vehicle trip generation rates for each category by different vehicle types (cars versus trucks) and purpose of travel (such as work-related vs. non-work), and then aggregating this trip-end data into zones for the purpose of "assigning" traffic to and from all origins and destinations onto a roadway network suitable for simulating travel patterns. A digital road network was developed from the Location Based Response System (LBRS) road centerline file that Erie County developed in collaboration with the state of Ohio (with data added to it from other local state and federal sources, including Roadway Inventory files from the Ohio Department of Transportation (ODOT)). The traffic forecasting process for any given year (present to future) and time period (spring weekday to summer weekend) is then conducted as shown in the flowchart (see **Figure 6-2.1**).

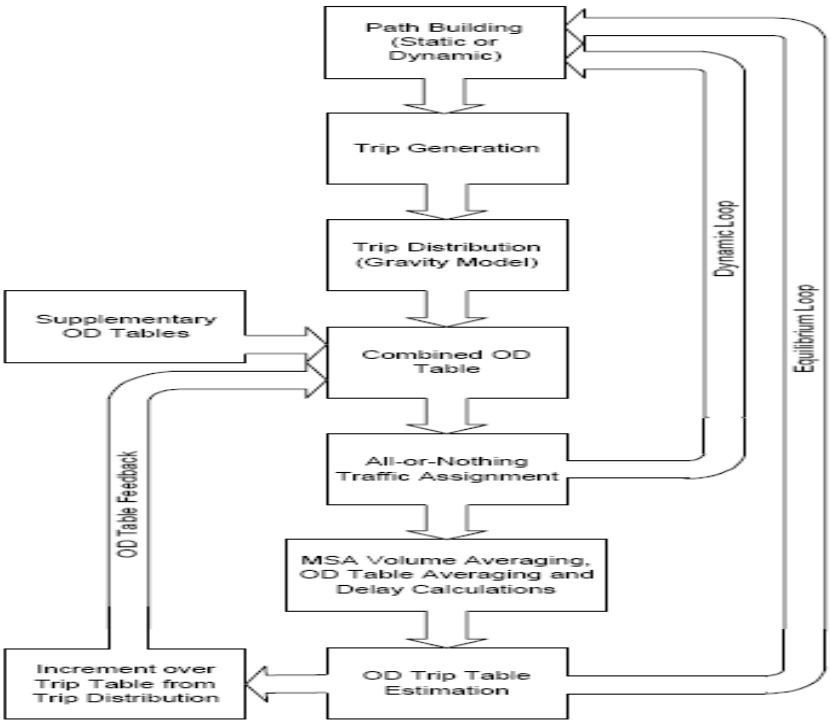


Figure 6-2.1: Traffic model flow chart

Several items in **Figure 6-2.1** (the traffic model flow chart) require some elaboration: OD means origin/destination, or zone-to-zone trip tables, MSA means Method of Successive Averages (where the results of the latest iteration of a traffic assignment to the road network are averaged with past iterations in a way that provides equal weight to each iteration) and the "dynamic loop" refers to traffic being broken into and assigned in one hour intervals to the road network (to better estimate times of day as well as locations of forecasted traffic volumes and congestion). Finally, "path building" refers to estimating the shortest-time travel path thru the road network for every zone-to-zone travel combination, which after the first time through the flow chart process than incorporates the congestion effects and intersection delays that were estimated after the previous iteration of traffic assignment.

The boxes on the lower left summarize how trip tables for truck traffic are developed and difficult-to-locate employment (such as construction, utilities, and temp services) can get re-allocated to different zone locations, using an "OD table re-estimation" method that is done before the main model process is finalized. This method uses the traffic count figures to track and adjust the zone-to-zone traffic movements thru each of these count stations. The resulting trip table for trucks along with other thru trips made in cars on such major routes as the Ohio Turnpike (I-80/90) and State Route 2 represents the "supplemental OD tables" in the chart on the left, which is retained for later modeling steps while the two boxes on the bottom row of the chart are then discontinued and traffic assignment - after looping "dynamically" thru each hour of the day - then goes straight to the "equilibrium loop" several times. Such multiple iterations are needed due to the feedback needed between selection of an individual's travel path to a destination and the modeled travel time - which depends in part on the choices that other travelers are making.

The rationale for this type of process, rather than the more traditional use of historical trendlines in traffic along a particular road, is that the latter cannot be used for new or extended segments of roads, and often not adequate in areas where buildup of congestion tempts motorists to change their travel path to save time. The output of the forecasting process is a database that can be used to derive congested roadways, total vehicle miles traveled (VMT), and vehicle hours traveled (VHT).

To consider a comprehensive range of congestion relief strategies during development of the LRTP alternatives, three roadway improvement time scenarios were analyzed using the statewide travel demand model. After examination of project interdependencies and the costs of the various transportation improvement projects were assessed, projects were grouped by short term, mid term, mid-long term, and long-term implementation timeframes based on the outcome of the modeling process as well as the results of other measures of effectiveness.

Three roadway scenarios were analyzed using the travel demand model to identify projected traffic volumes and congestion levels. The travel demand model runs included the Base Year Network, the Existing Network plus Committed Projects Network and the Planned and Future Projects Network. From this list of projects, recommended priority improvements were identified. The following summarizes each of the scenarios.

6.3 Calibrated Model Base Year

For a base year (2015), extensive testing of the modeling process is done to ensure that it produces traffic flows reasonably in accord with traffic counts conducted by both local agencies and ODOT. As shown in **Figures 6-3.1 and 6-3.2**, the overall pattern is found to be quite close to such counts (given the expected level of sampling error inherent in such counts) for the spring and summer weekday conditions, and summer weekend condition.

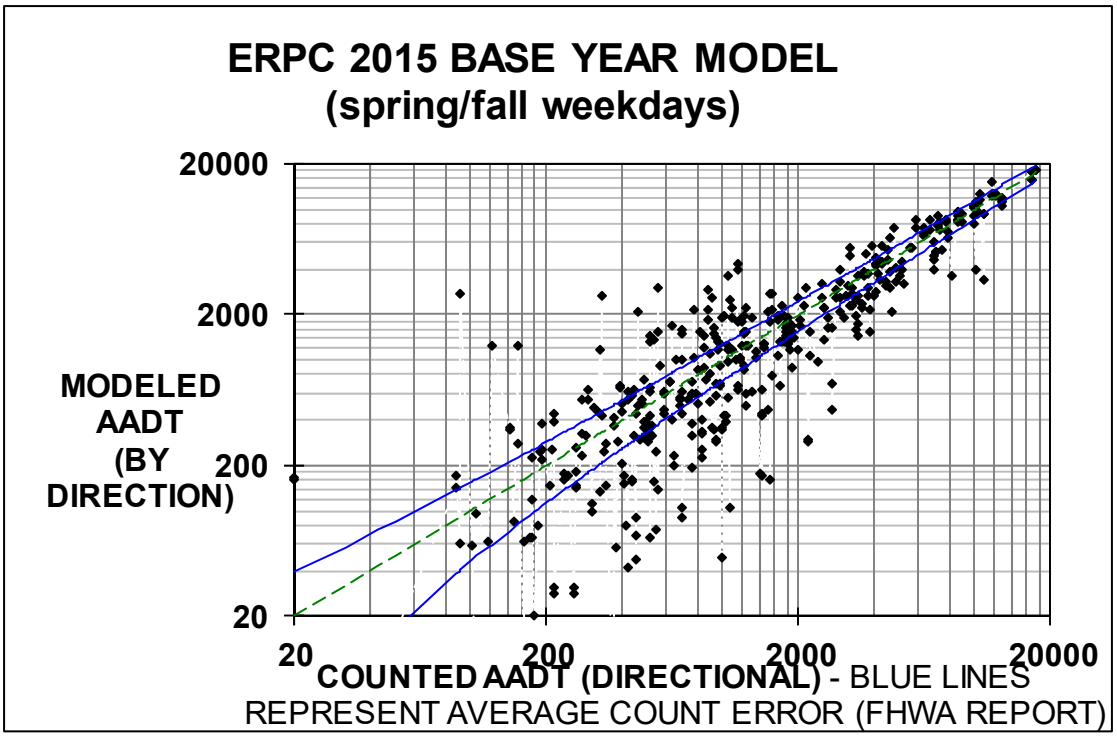


Figure 6-3.1: ERPC 2015 Base Year Model, Spring/Fall

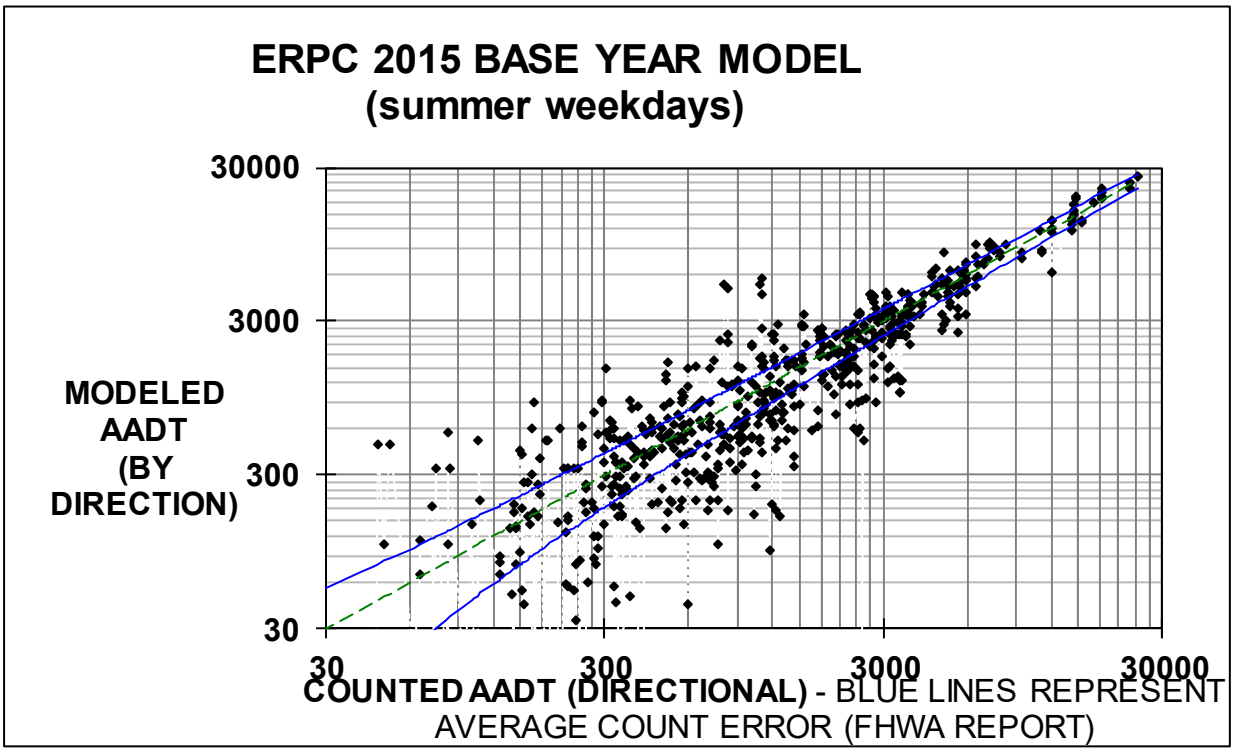


Figure 6-3.2: ERPC 2015 Base Year Model, Summer

(The dashed line indicates where modeled daily traffic volume (by direction) is exactly equal to counted traffic; with the blue lines indicating expected sampling error for a one-day count.)

There are nearly 400 traffic analysis zones (TAZ) within the MPO including the zones for the City of Vermilion in Lorain County, TAZs represent the origin and destination for trips assigned to the network. The network coded for base year conditions contains all the major streets and roads that make up the MPO's transportation system.

As previously shown above, ODOT calibrated the base year TDM to meet state standards and was found to provide reasonable forecasts of travel within the ERPC MPO. The TDM also considered recreational travel patterns for the MPO region. The tourism forecast is an important component of forecasting travel demand in the Sandusky area, and is high variable depending on time of year/day. Likely future improvements could include implementing a travel survey to capture additional information on tourist travel behavior. Tourism forecast assumptions, including daily visitation levels and parking needs for individual sites, could be used as input into the travel demand model structure in the future.

6.4 Existing Plus Committed Work

Existing and committed projects were identified through the MPO's Transportation Improvement Program list. The person trips generated through the trip generation module were run through similar trip distribution and assignment modules as the 2015 base condition. The resulting assignments from the equilibrium assignment were adjusted based on assignment-to-count deviation observed in the 2015 base year to be used as a measure against future improvements.

SUMMER WEEKDAY:	AVERAGE TRAVEL SPEED (MPH) (INCLD. INTERSECTION DELAY)	
ROUTE:	MODEL	INRIX
SR 2	65	65
SR 4	39	38
US 6	40	40
SR 60	45	39
SR 61	49	47
I - 80/90	70	70
SR 113	49	47
US 250	41	40

Figure 6-4.1: Existing Plus committed Work Projects

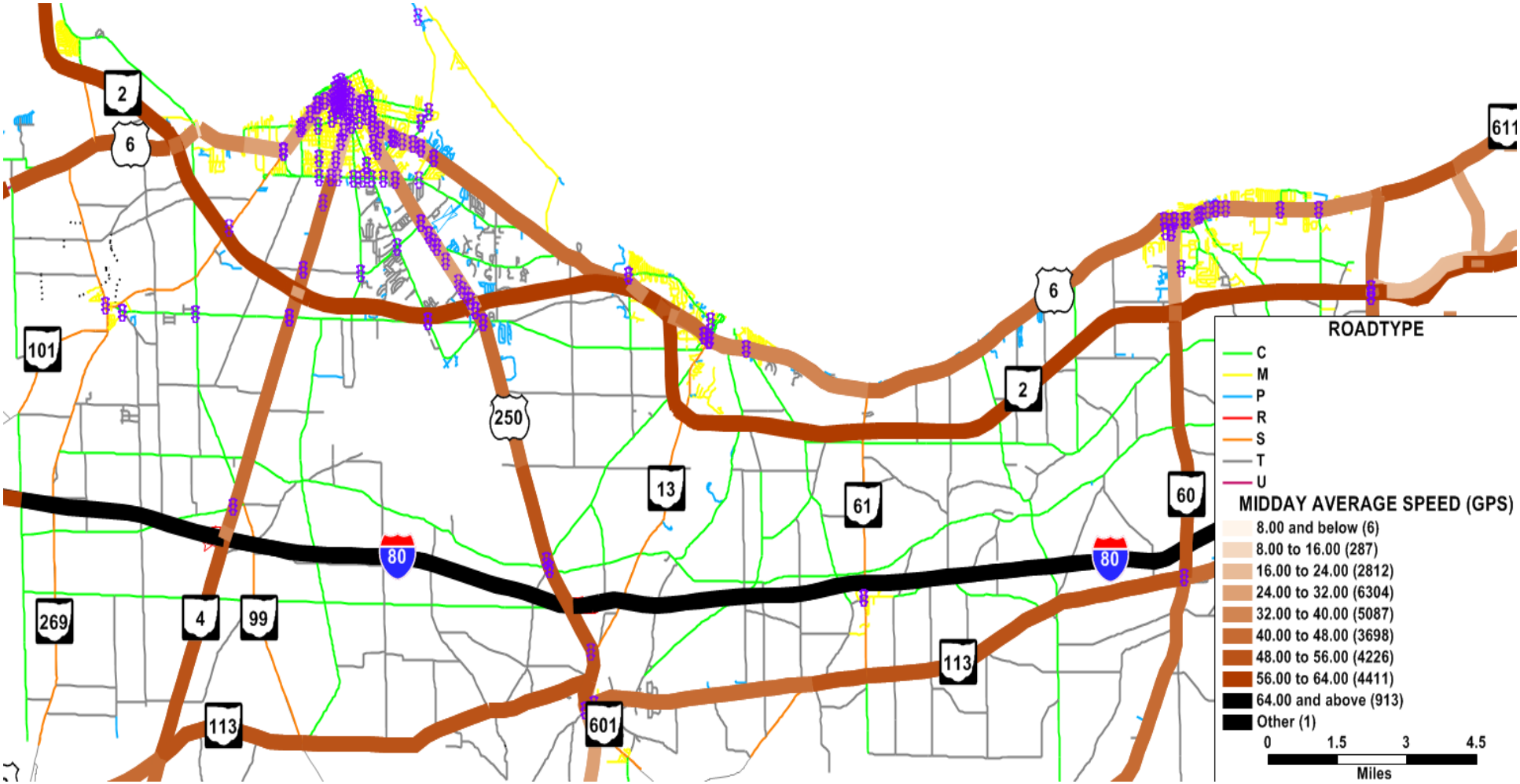


Figure 6-4.2 – Summer Weekday Midday Average Travel Speeds on Major Route

6.5 Existing Plus, Committed Plus Planned

The planned and future projects represent studies and improvements that should be undertaken to help satisfy the long-term arterial street system needs in the County. Many of these projects are new projects related to the continued growth of Erie County and to the county's related transportation needs. Planned/ future projects are intended to span a period of approximately 30 years and are based upon current deficiencies and the best estimates of anticipated needs, past trends, projections, input and comments received over the last several years from elected officials, business representatives and individuals.

All of the above modeling information was compiled by ERPC staff and Sam Granato, Ohio DOT, Office of Statewide Planning and Research

FUTURE TRANSPORTATION SYSTEM

7.1 Overview

This chapter summarizes the analysis of the year 2045 conditions and identifies future year issues within the MPO.

7.2 Changes in Vehicle Travel (2015-2045)

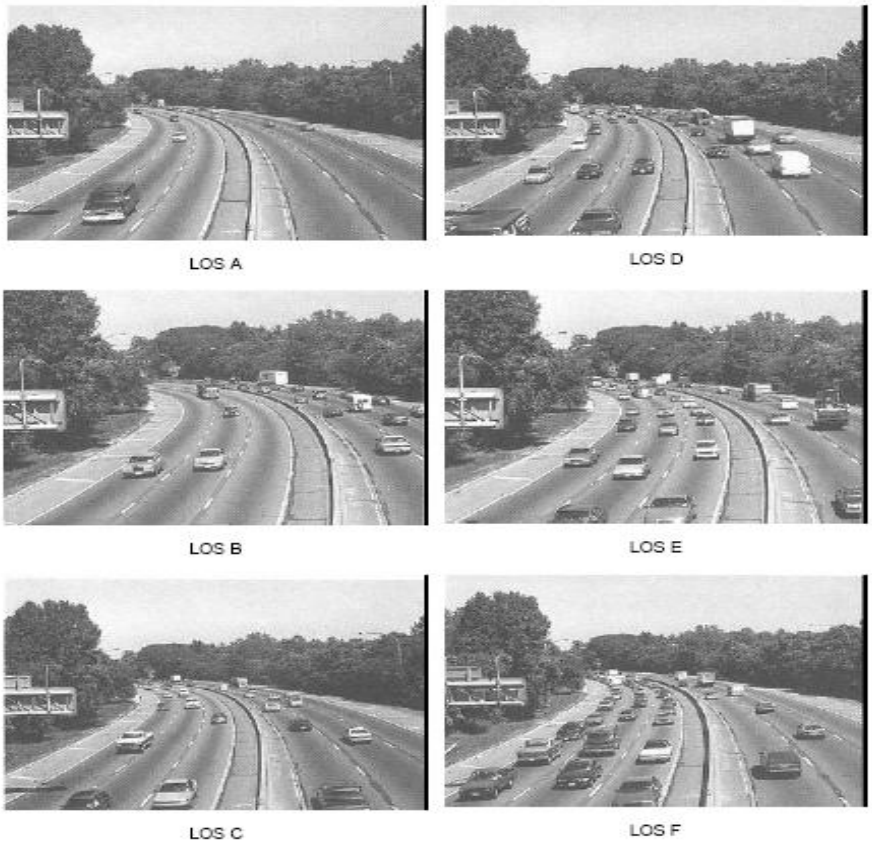
The traffic flow relationships developed in the travel demand model using base year (2015) data are applied with forecasted future land uses and additional roadway projects identified in this Plan to estimate future levels of traffic volume and congestion for identifying locations of concern for the planning process. The process incorporates vehicle saturation flow rates for roadways and their "free-flow" operating speeds (as a function of roadway classification, lanes, width, and posted speed limits), intersection delays based on traffic control using the methods of the national Highway Capacity Manual (HCM), roadway curvature that reduces travel speed, and at-grade rail crossings, so that projects that have an impact on any of these features can be gauged for their impact on traffic flows and delays.

Congestion can be measured in two quantitatively different ways. The first, as briefly described in Chapter Five, is in terms of the absolute amount of delay, speed or vehicle density, which are then assigned Level of Service (LOS) grades (A thru F) as outlined in the HCM and illustrated on the next page. (Roadway design guides typically suggest a target LOS threshold depending on the type of roadway and surrounding area.) The second way of measuring congestion is in relative terms- how much is it forecast to increase or decrease from what it is at the present time? The series of figures located in the "LOS and Traffic Volume Maps" appendix, indicate forecasted levels of traffic volumes and congestion by location, based on the growth in population and employment discussed in the previous chapter and the impact of the projects proposed in this Plan.

Roadway capacity is the maximum number of vehicles that can pass a given point during a specified period under prevailing roadway, traffic and control conditions. The congestion can be defined as the delay experienced due to slow moving or stopped vehicles on the roadway. The congestion can be quantitatively estimated using the Level of Service (LOS) concept. Level of Service takes into consideration speed, density, travel time, and the ratio of traffic volume to roadway capacity. There are six levels of service ranging from A to F. LOS on a freeway is shown in the Figure on the next page. Each level is associated with a specific traffic flow condition. LOS A represents free flow conditions with low volumes and high speeds. LOS F on the other hand characterizes stop and go conditions with high volumes, low speeds and very little maneuverability. LOS C is generally accepted because at this level acceptable operating speeds can be achieved, and reasonable freedom of maneuverability exists. LOS E often characterizes conditions at capacity and extended delays are inevitable. LOS D, E, and F are associated with congested conditions. Congestion can be categorized as recurring or non-recurring. Recurring congestion will occur on the facilities that handle near capacity or over capacity traffic volumes repeatedly. Non-recurring congestion can be unpredictable and can occur due to an obstruction to the normal traffic flow. A traffic accident, a disabled vehicle or roadway maintenance can cause non-recurring congestion. Potential future recurring congestion spots can be identified by analysis using typical or "design hour" traffic conditions. Traffic control devices (e.g. signals) can contribute to congestion. The dividing line between LOS C and D has been set in the HCM as 35 seconds at

signalized intersections, 25 seconds for unsignalized (stop control) intersections, 50% of free-flow speed for urban arterial streets, and roughly 70% of carrying capacity for freeways and rural multi-lane highways.

ILLUSTRATIVE LEVEL OF SERVICE (LOS) BASED ON FREEWAYS



Source: Transportation Research Board. Highway Capacity Manual, 2000 edition.

Figure 7-2.1: Level of Service

Most travel time represents a cost. The cost of travel is higher when travel is congested or unreliable. Changes in Vehicle Miles and Hours Traveled are frequently used as a measure of benefit or time cost savings due to a transportation improvement. Primary results from the alternative analysis are net changes in vehicle-miles of travel and vehicle-hours of travel. **Table 7-2.1** summarizes the vehicle miles traveled as related to the LRTP recommended roadway improvements for the year 2045.Car and truck trip growth grates for the year 2045 were derived from the model trip matrices based on growth between the base year and 2045 population and employment.

Table 7-2.1: Daily Vehicle Miles Traveled

Roadway Classification	No Build 2045	Improve 2045
Freeway	3,950,774	3,905,326
Arterial	1,066,436	1,072,675
Collector	651,340	686,620
Local	375,986	377,005

7.3 Forecasted 2045 Average Daily Traffic On The Existing Plus Committed Network

The TDM is used to forecast traffic volumes on roads within the MPO region. Year 2045 congestion levels were determined using the year 2045 projected traffic volumes with no roadway improvements assumed. Estimates of future delays were compared to standards from roadway design guides and the Highway Capacity Manual to identify potential areas of congestion. The projected Average Daily Traffic and Level of Service Maps are in the appendix and display the results of the analysis for future conditions within the MPO if no improvements are made to the existing roadway system. Also, note that the level of service maps generated from the travel demand model may not totally reflect site specific field conditions, as such, forecasts of future congestion patterns should typically be followed up with site-specific studies before specific improvements are proposed by the MPO's member jurisdictions.

7.4 Transit

The Sandusky Transit System (STS) is the most developed transit system in the County and serves the urbanized area of Erie County. Over the years the Sandusky Transit System has grown. There are now five routes that cover the City of Sandusky and portions of Perkins and Huron Townships. In the Sandusky Strategic Vision Plan, several short-to mid-term strategies are identified for transit. These include:

- Regionalizing Public Transportation
- Develop a regional taskforce to explore the feasibility of a regional transit system that improves service and financial sustainability
- Explore Seasonal Transit Opportunities
- Hub Creation and Fixed Bus Routes out of Downtown Sandusky (implemented)

Future growth in the city and the increase in destination points in the Downtown and Bayfront areas will support the expansion of these services.

Ability Works Inc. has also expressed an interest in obtaining additional vehicles for their US 250 Corridor route. Currently their route spans from Kalahari to New London, Ohio.

Additionally, recommendations from the 2018 Erie County Coordinated Public Transit-Human Services Transportation should continue to be implemented.

7.5 Bicycle/ Pedestrian Facilities

In future years, Erie County and its political subdivisions will continue to face the challenge of providing a comprehensive and thorough bicycling and pedestrian network, for both recreation and as an alternative means of transportation. Although the County has made progress in this endeavor, a deficiency of the current trail system is there are segments that have not been linked into the existing system and do not provide continuity. This compromises the effectiveness of the system. The Erie County Bicycle and

Pedestrian Plan (2020) was recently updated and contains recommendations for future, current and to be constructed infrastructure projects in the MPO planning area. The routes from this plan are depicted on the following pages **(Fig. 7-1.1 through Fig. 7-1.12)**.

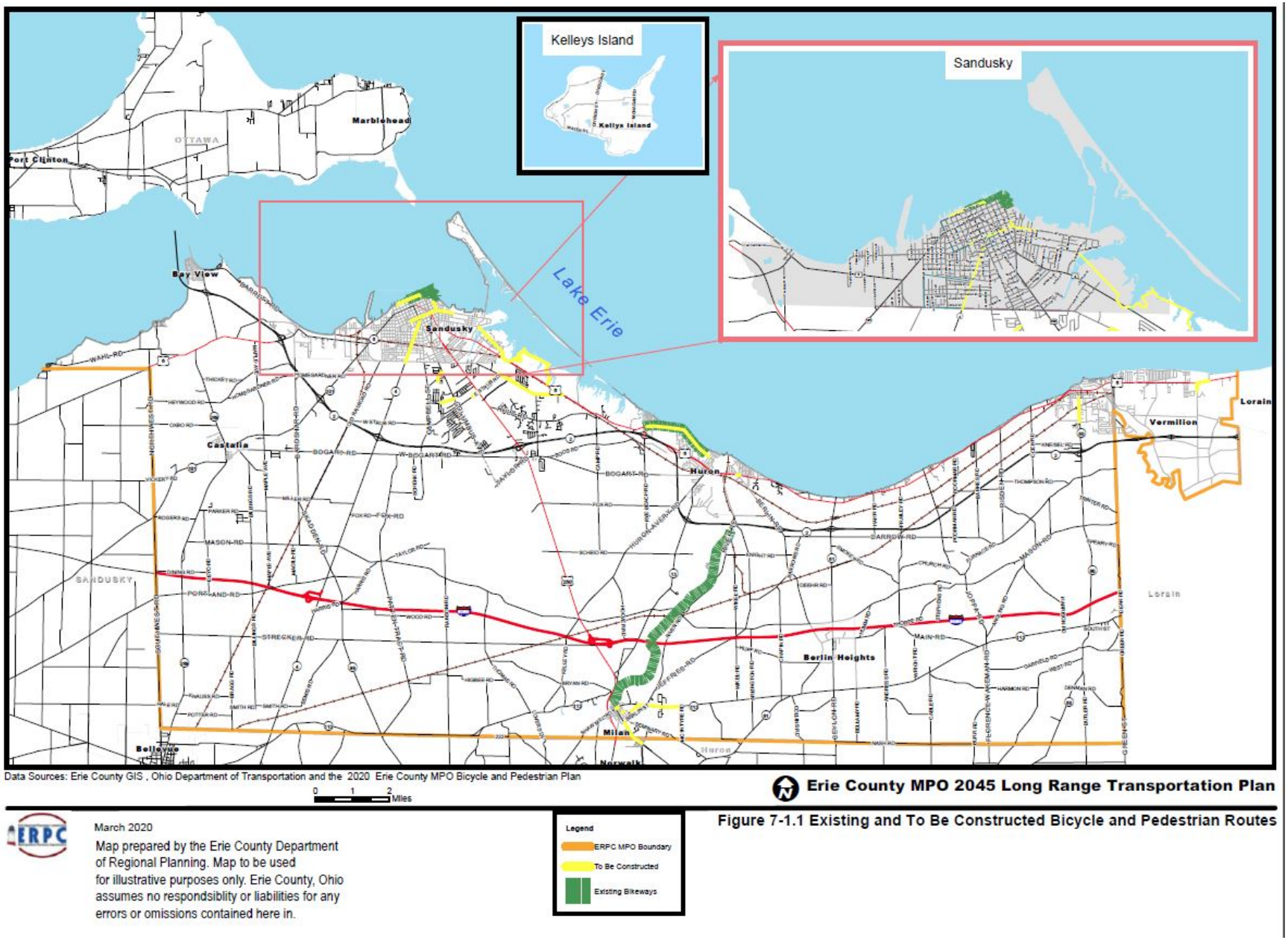


Figure 7-1.1: Existing and To Be Constructed Bicycle and Pedestrian Facilities Map

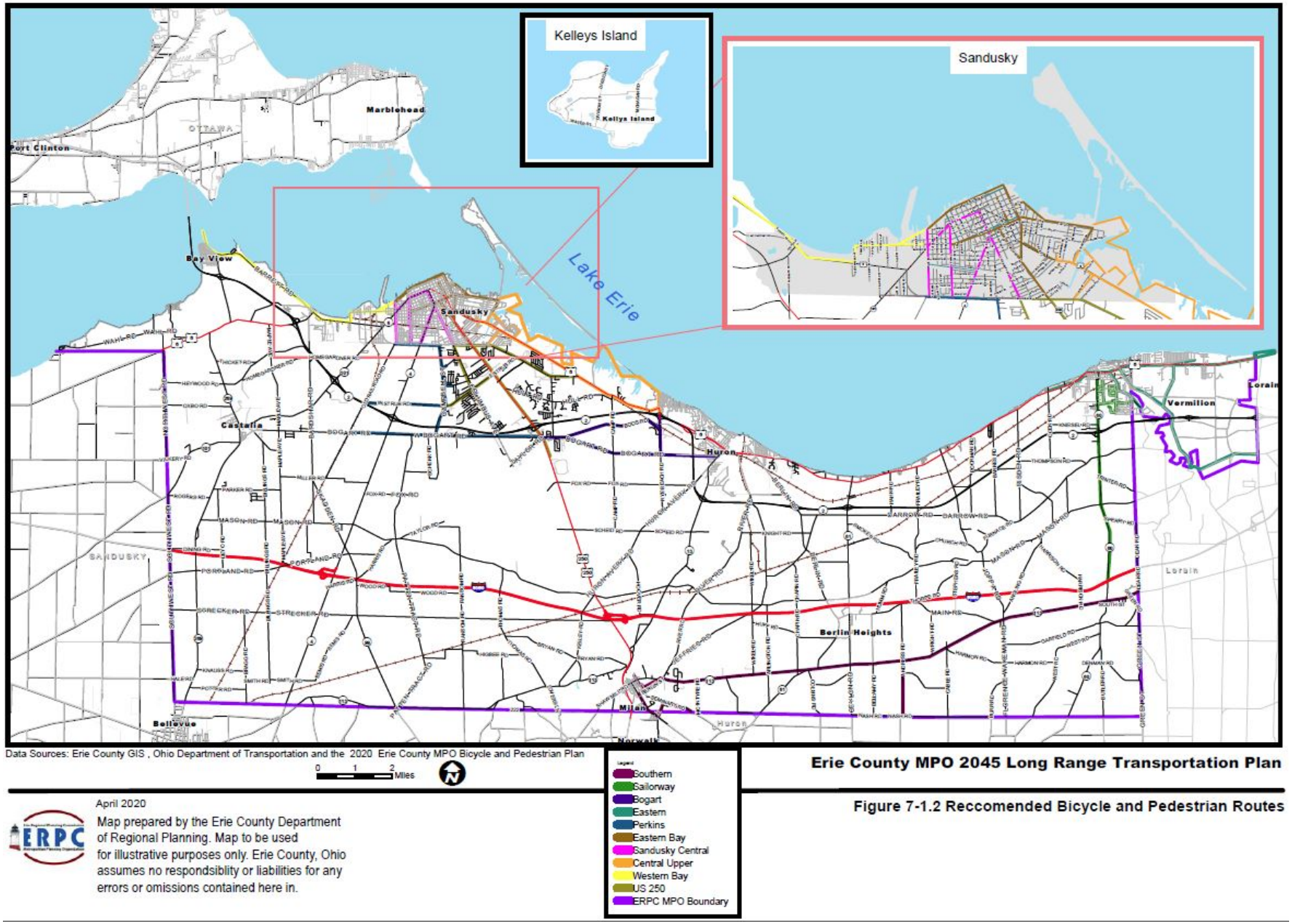


Figure 7-1.2: Top Ten Proposed Bicycle and Pedestrian Plan Facilities

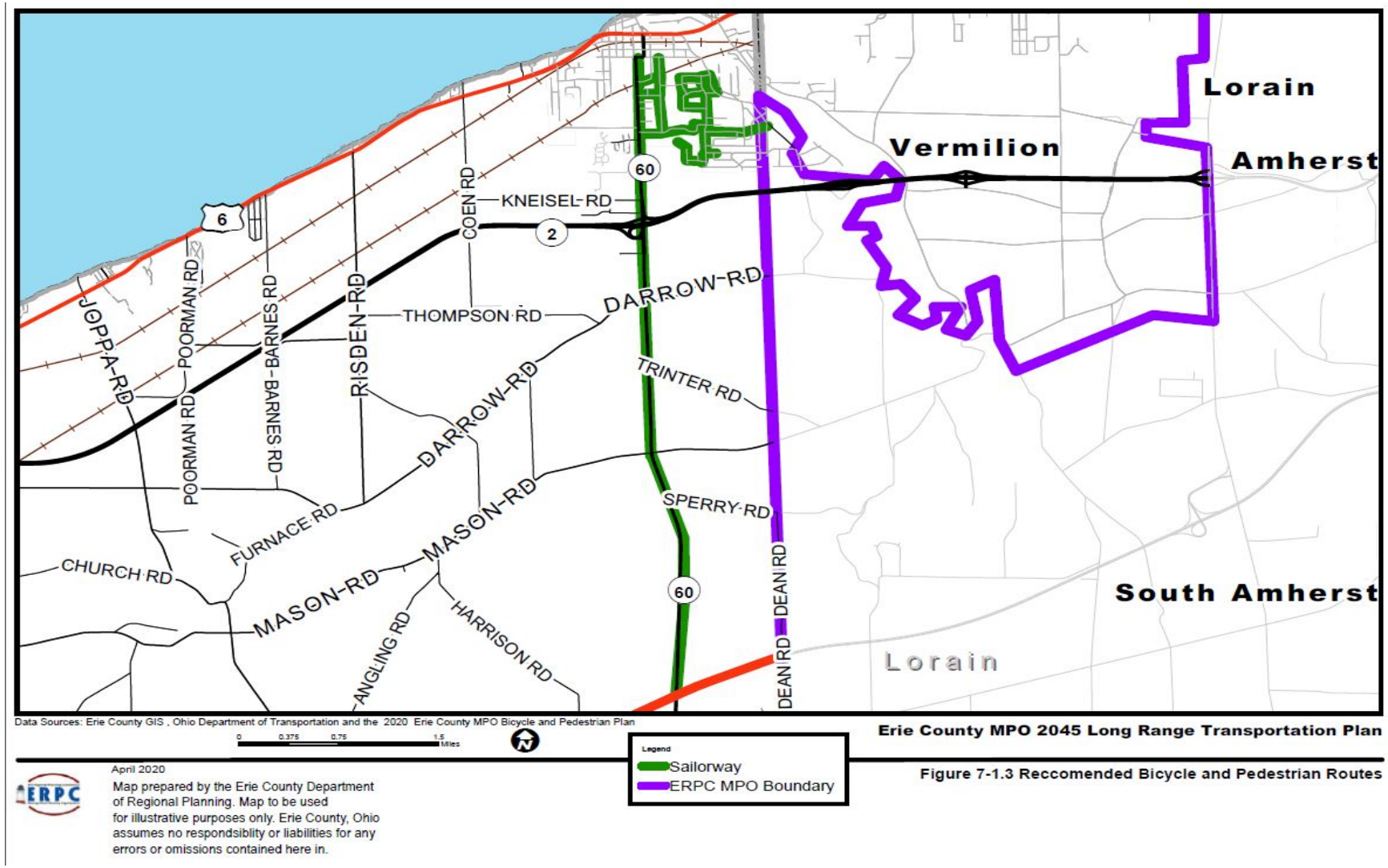


Figure 7-1.3: Sailorway Route

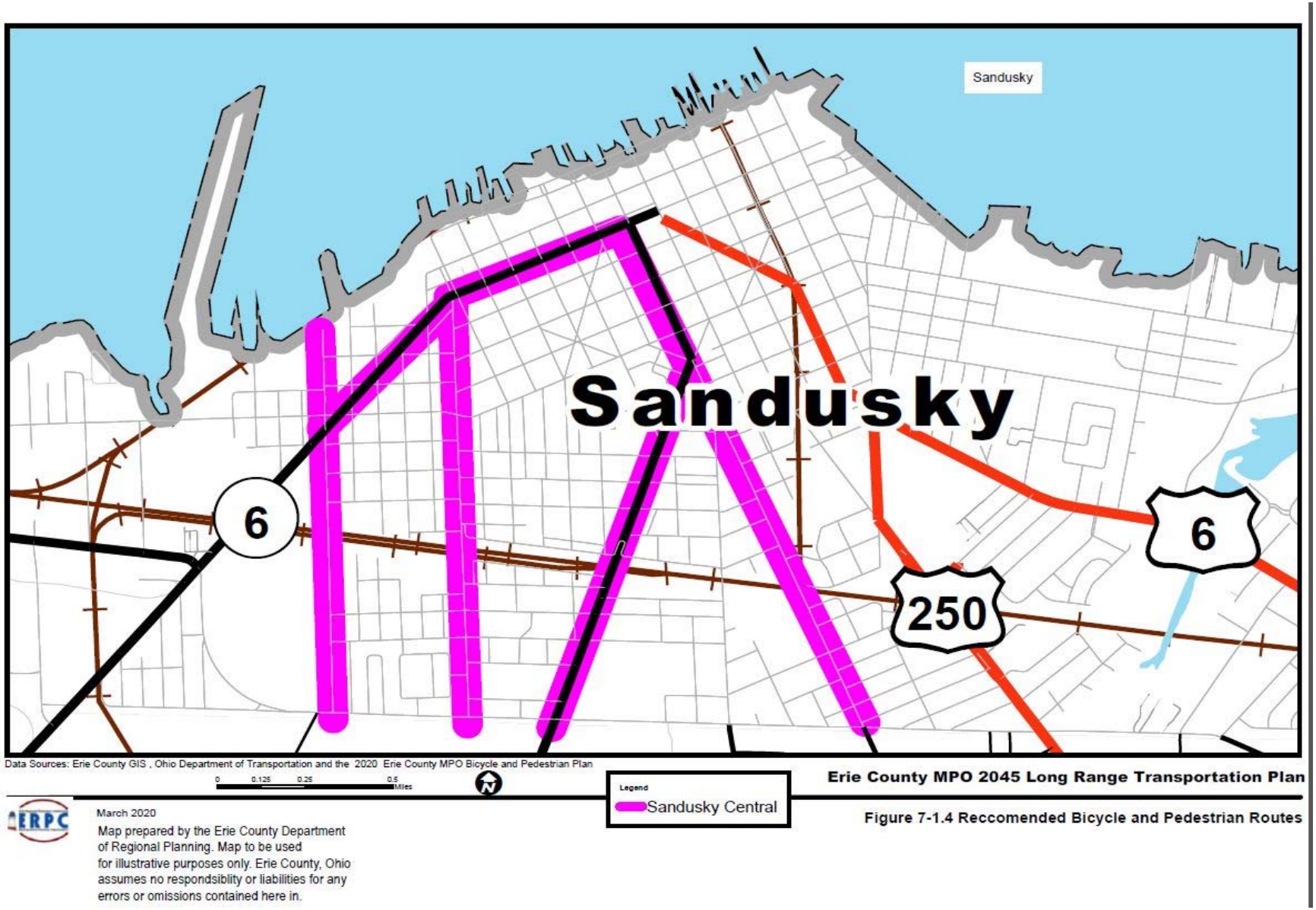


Figure 7-1.4: Sandusky Central Route

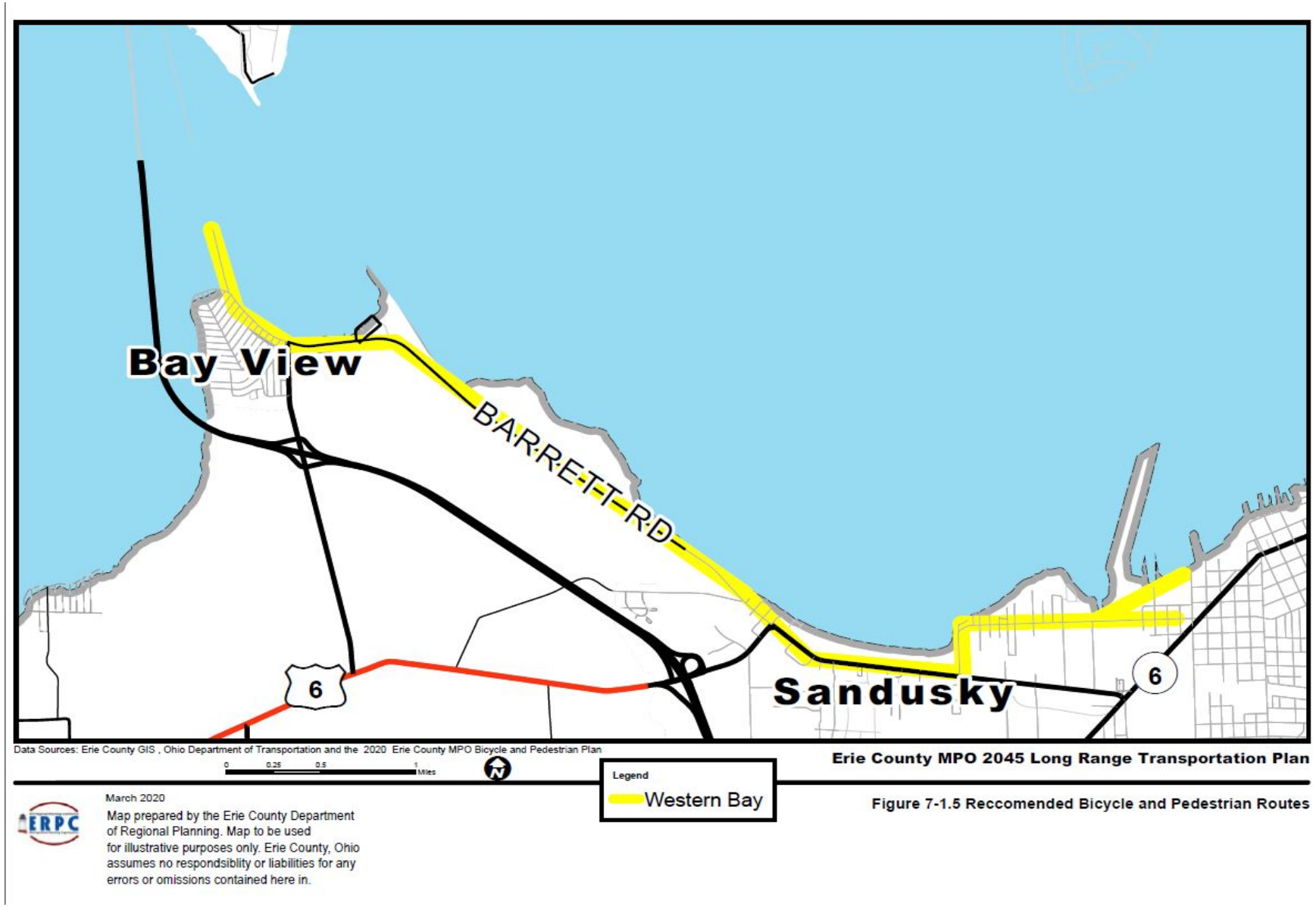


Figure 7-1.5: Sandusky Central Route

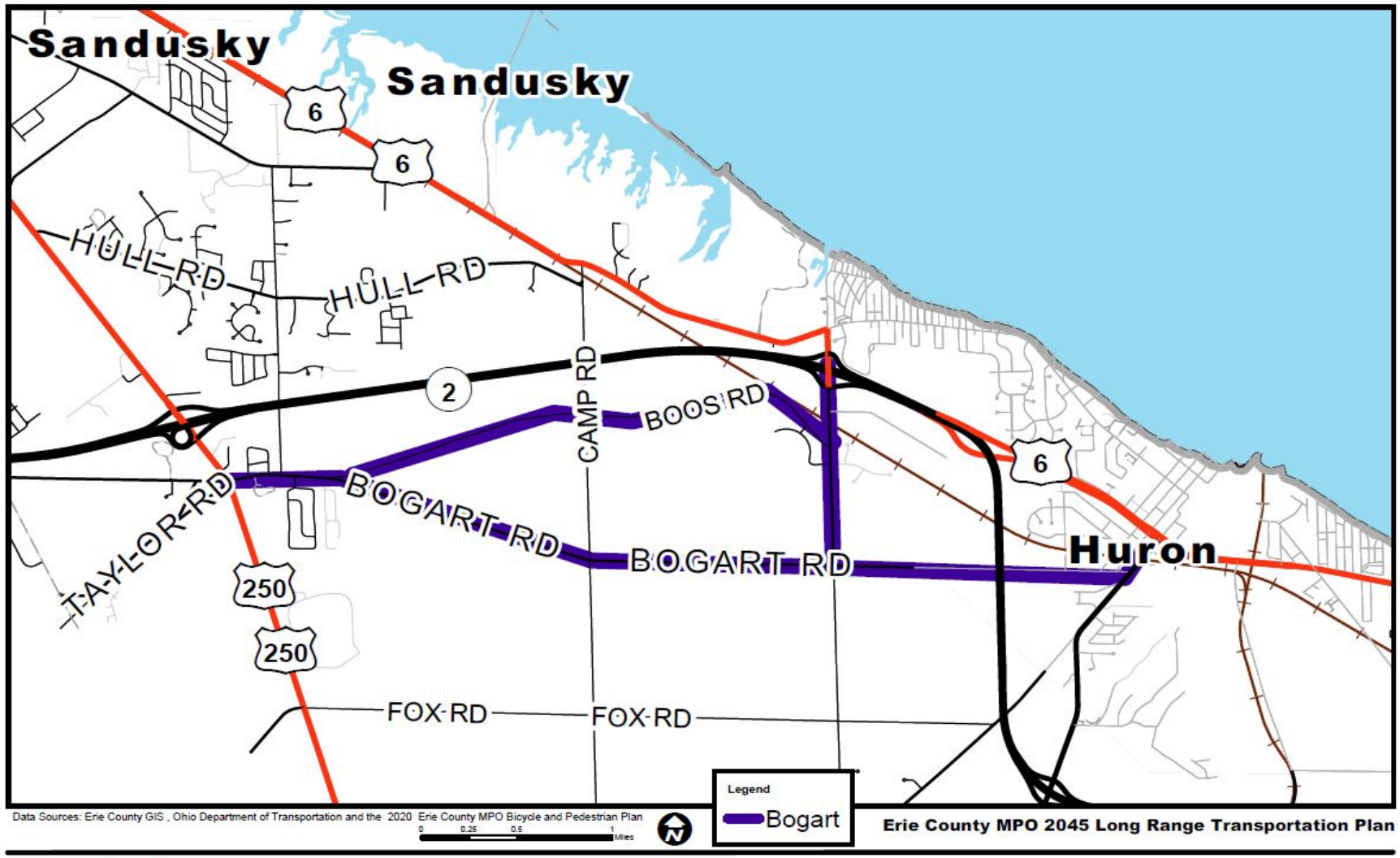


Figure 7-1.6: Bogart Route

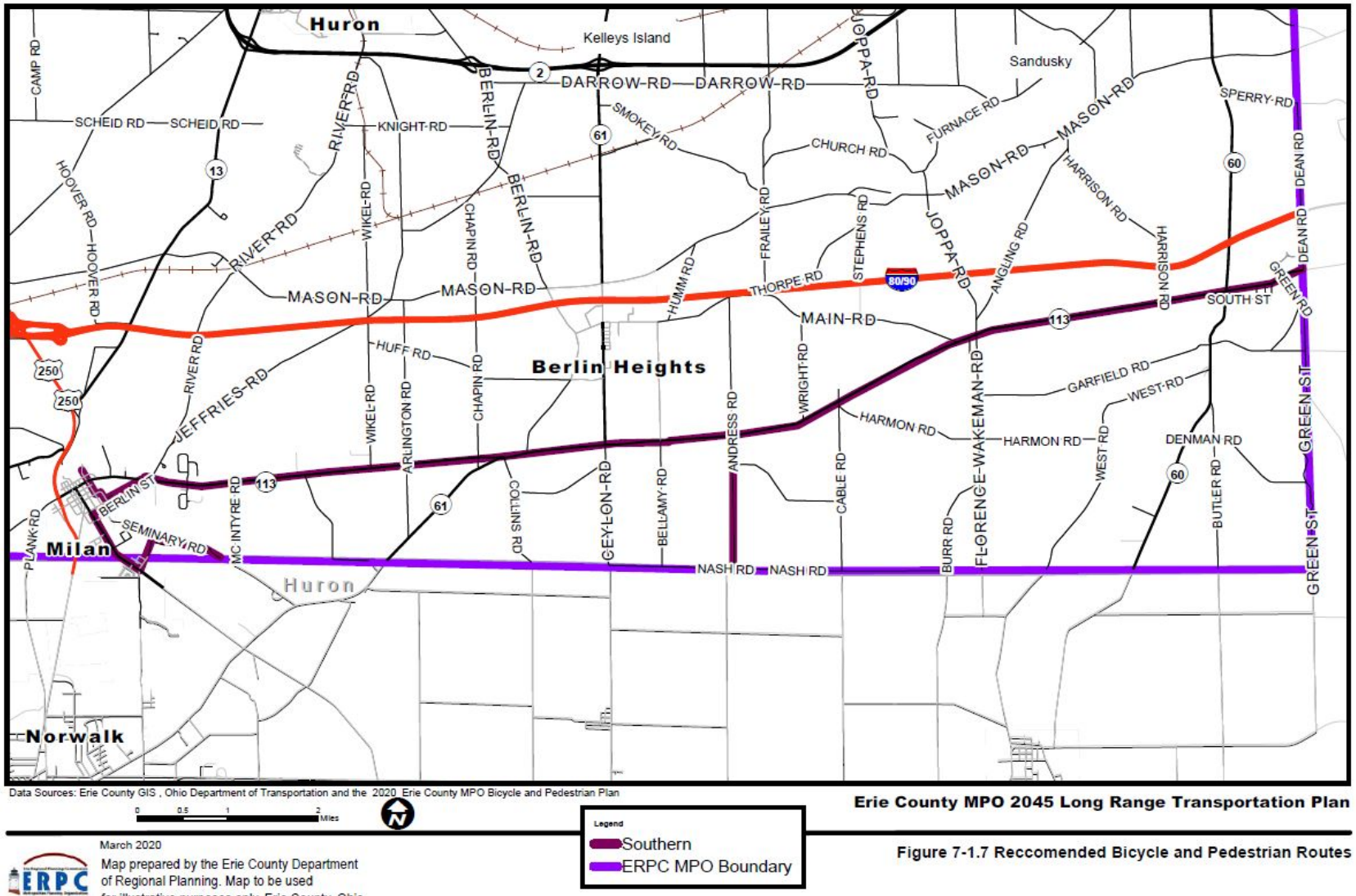


Figure 7-1.7: Southern Route

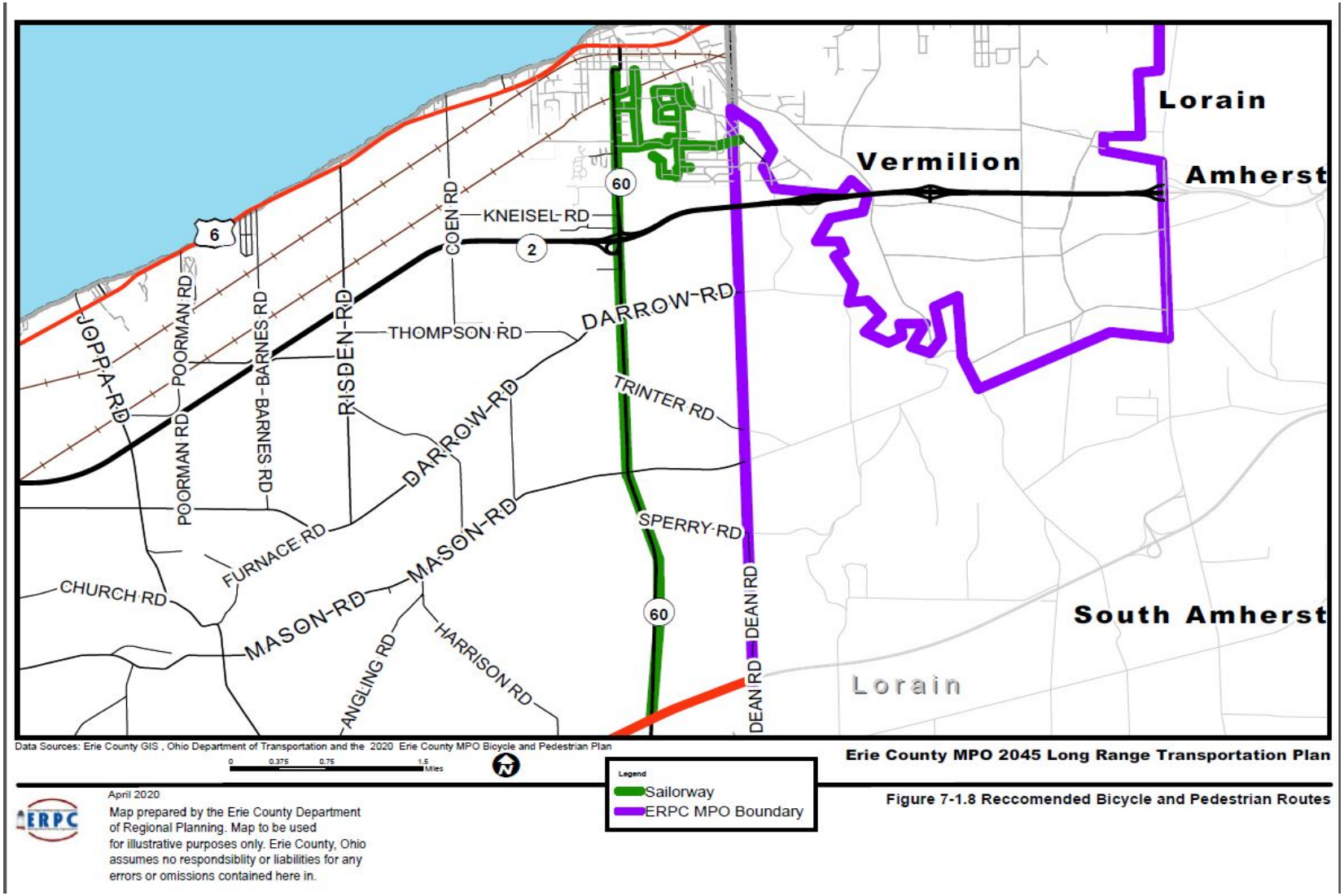


Figure 7-1.8: Sailorway Route

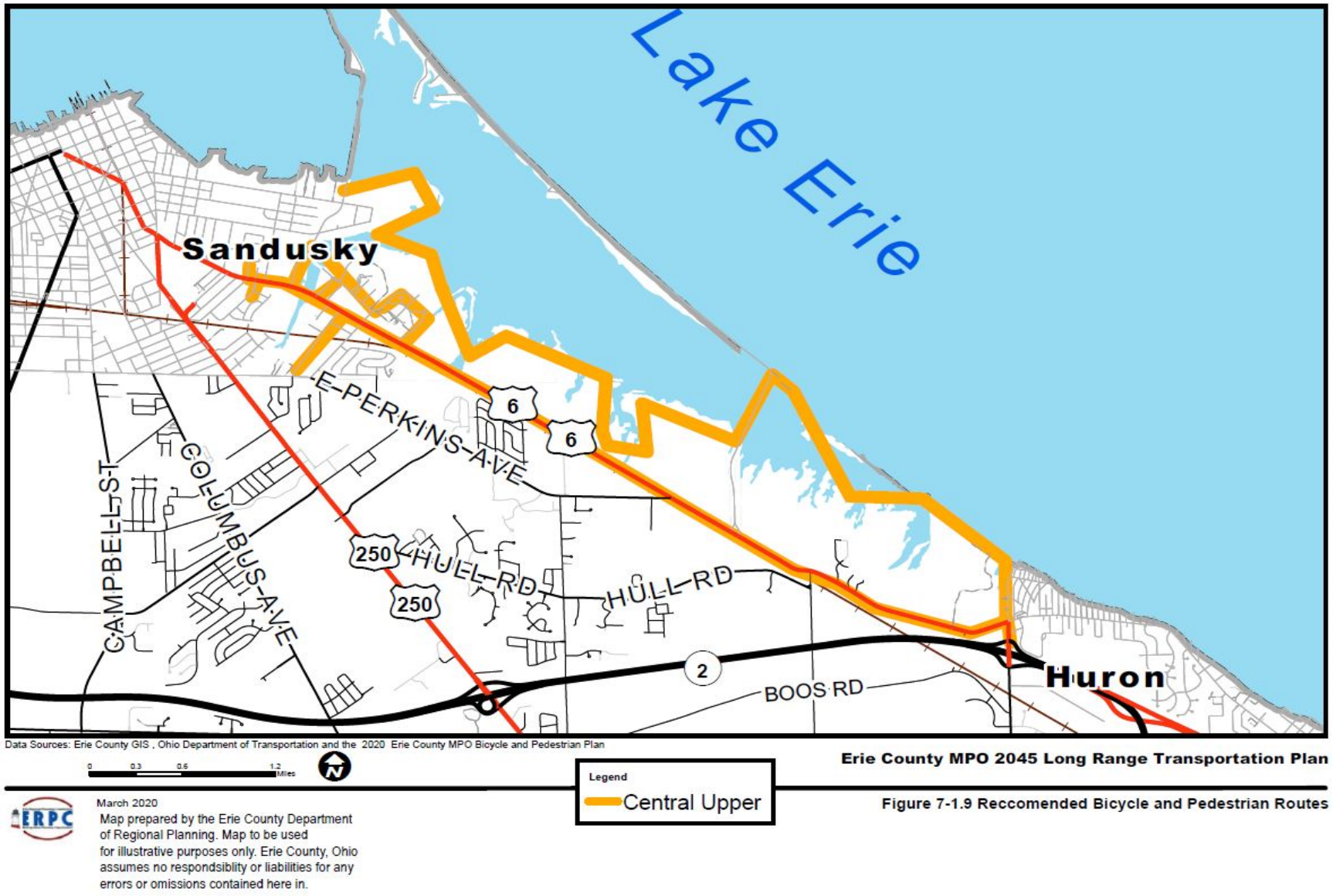


Figure 7-1.9: Central Upper Route

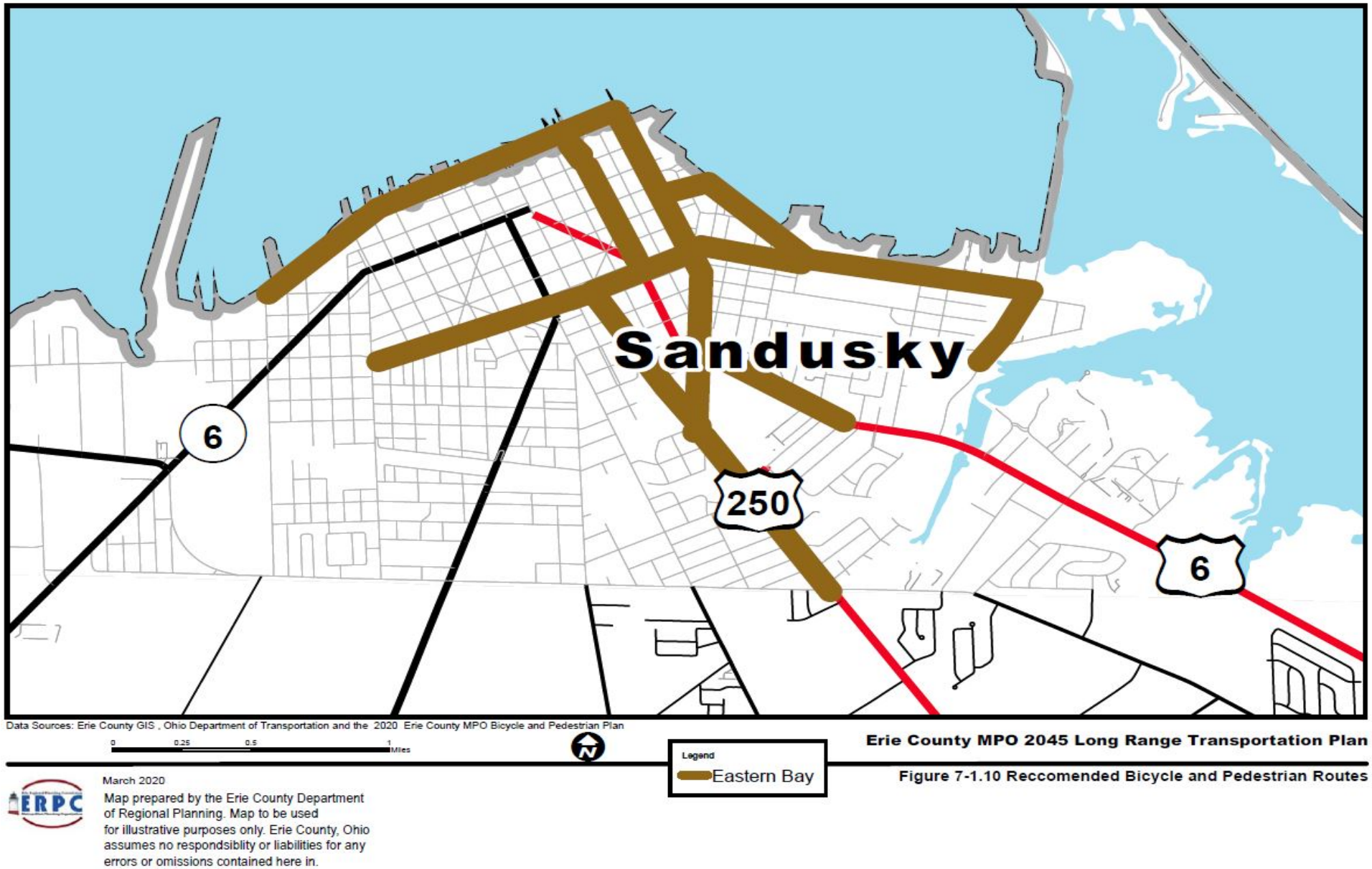


Figure 7-1.10: Eastern Bay Route

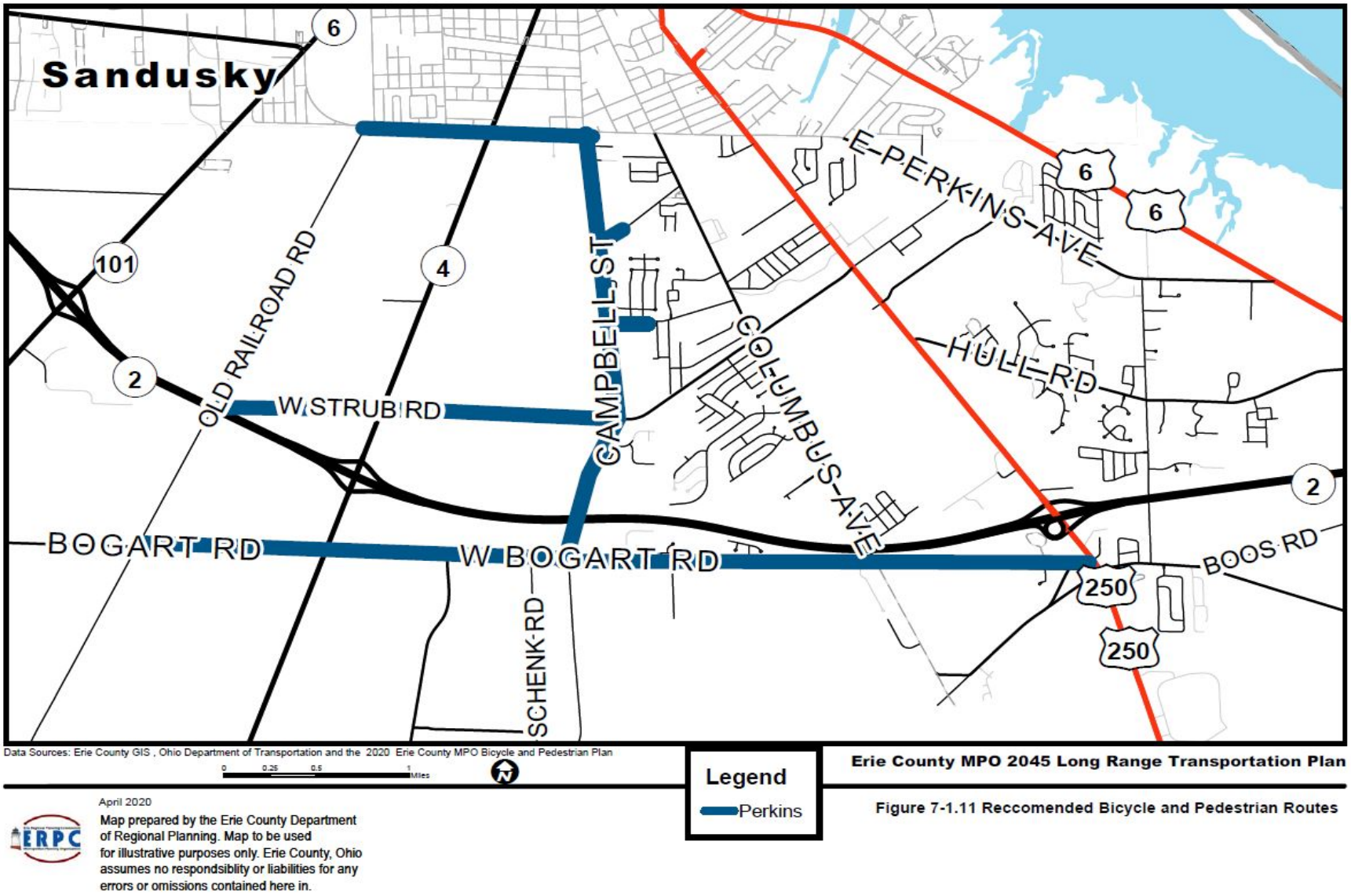


Figure 7-1.11: Perkins Route

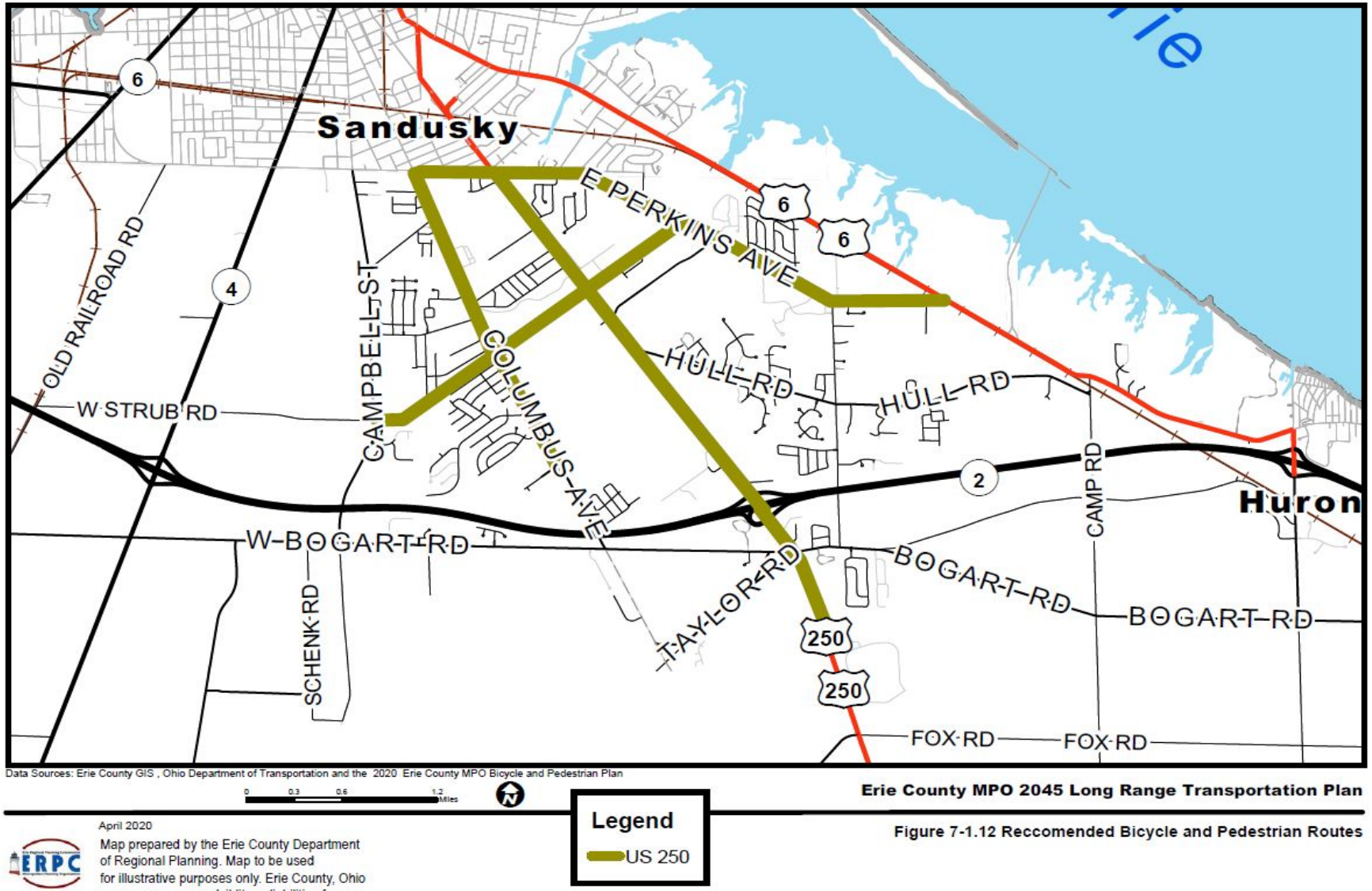


Figure 7-1.12: US 250 Route

The key to accommodating any new bicycle and pedestrian facilities, especially those that interface with other modes of transportation, is safety. This includes managing the number of conflict points for bicyclists, such as driveways and intersections, and accommodating a consistent typical section throughout the connecting bicycle facilities. All new bicycle and pedestrian facilities should follow the recommendations offered in the US DOT Policy Statement on Bicycle and Pedestrians.

7.6 Regional Passenger Services

Aviation: Griffing Sandusky Airport in Sandusky has relocated since the last long-range plan update was completed in August of 2010. The outfit relocated to the Erie Ottawa International Airport that is in Port Clinton, which is in neighboring Ottawa County. The flying service provides charter flight services to anywhere in the United States but in particular to the Lake Erie Islands, including Pelee Island which is in Canadian waters.

Also important to note are efforts that Erie County has put forth to secure funding for engineering and construction of an intermodal loading dock that would include a 9,000-foot runway and associated infrastructure improvements. The project location is at the National Aeronautics and Space Administration's (NASA) Plum Brook Station in Erie County, Ohio. Erie County sees this project as a catalyst for change; a chance for Ohio to draw upon its roots in manufacturing to transition to leadership in aerospace, alternative energy, and other growth sectors of 21st century economy. The existing 6,400-acre site is strategically located adjacent to US 250. An Ohio Turnpike interchange is a few miles south. SR 2, a limited access highway is a few miles north. SR 4 is a few miles to the west. Major rail lines crisscross the region including the largest rail distribution center in Ohio. Not only is the site strategically located to transportation facilities but also to Ohio's greatest natural resource, Lake Erie.

Essentially, this proposed runway would act as an intermodal loading dock for equipment. The proposed infrastructure improvements will complement the movement of materials throughout the facility. Those improvements will include an enhanced roadway network and the resurrection of existing rail at the site. Locating this runway at Plum Brook would complete the existing logistics infrastructure and enable the expansion of the aerospace industry and research in alternative energies in these one-of-a-kind facilities.

Railroads: Norfolk Southern Corporation has had several expansion and improvement projects in Ohio in recent years; however, no projects are proposed for the Sandusky area at this time. The Bellevue Yard Expansion is the closest project to the MPO area, located south of the region in Huron County. The project was designed to transform the facility into one of North America's largest rail-car classification and switching yards. The $160 million expansion doubled the yard's size to accommodate more traffic, and add about 38.5 miles of track and 145 miles of underground cable for communications and signaling systems.[1] With the improvements, the classification yard has been able to double their current traffic and transit times of commodities to customers will improve by one to nearly 2 days. It should be noted that in the past there has been various derailments on the west end rail network in Sandusky. Since the 2035 LRTP a grade separation project has occurred on the west end of Sandusky.

In 2008, Triple Crown Services a division of Norfolk Southern railroad announced an environmental initiative to promote and improve fuel conservation and emissions reduction. The company's initiatives focus on the environmental advantages of its hybrid RoadRailer® trailer technology. With the

[1] http://www.progressiverailroading.com/norfolk_southern/article/Construction-advances-on-NS-Ohio-yard-expansion-project--40115

RoadRailer® system, each trailer is a unique combination of an on-the-road trailer and an over-the-rail car. Truckload freight is picked up from shippers and driven to Triple Crown terminals where the trailers are set on railroad wheels, called bogies. The assembled trains then travel to destination terminals where the trailers are reconnected to tractors and delivered. Unfortunately, Triple Crown announced in 2015 it was scaling back and would only be operating one line to carry automotive parts from Kansas City to Detroit. As a result, operations at the Sandusky Triple Crown facility were idled. However, Norfolk Southern was able to leverage the facility and in 2016 worked with Watco Transloading LLC to begin origin and destination transload operations of commodities such as chemical, plastic, steel, and agricultural products.

AMRTAK ridership numbers in Ohio have increased from 108,000 passengers in 2007 to 160,000 in 2013. Two Amtrak routes service the ERPC MPO area. The Capitol Limited runs daily between Washington DC and Chicago and the Lake Shore Limited travels daily between Chicago and New York City. No additional service is planned to include the Sandusky Station. The Sandusky station, which is City owned, saw a 64% increase in ridership over the past five years. Almost 61% of passengers traveling to or from the Sandusky station are completing trips that are within 200 to 300 miles. The top city pair by ridership in 2008 was Sandusky – Chicago, Illinois followed by Sandusky – New York, NY.

The Sandusky rail station was built in 1892 and was renovated in 1996 by the City. AMTRAK completed an ADA compliance report that showed $956,000 worth of ADA compliance and state of good repairs were needed at the station. Detailed planning has yet to occur for the improvements. The City of Sandusky has identified a project involving the Amtrak station in its comprehensive plan. The city wishes to develop a multimodal transit facility using the existing Amtrak station. Although there are no funds dedicated at this time, the City has identified this as a short-term goal.

In 2014, the ERPC MPO, Toledo Metropolitan Area Council of Governments (TMACOG), and the Northeast Ohio Areawide Coordinating Agency (NOACA) entered into a Memorandum of Understanding to create the Northern Ohio Rail Alliance (NORA). The Alliance aggregates Ohio's four busiest passenger AMTRAK rail stations (Toledo, Sandusky, Elyria, and Cleveland) into a single rail corridor, the Toledo-Cleveland Rail Corridor. The alliance creates a unity of purpose and shared responsibility in the visioning of a transportation mode and job generator in Northern Ohio. The group has identified that improvements along the line and its stations are needed to ensure better trip times and ADA compliance for passengers.

Ferry: In summer 2005, a new ferry service began in Sandusky, since the Island Rocket ferry closed in 2004, and the City has had numerous requests for an additional ferry service from Sandusky to Cedar Point, Erie Lake islands, or both. The Jet express ferry makes seven daily round trips between Sandusky, South Bass Island, and Kelleys Island with additional round trips on Fridays, Saturdays and holidays through Labor Day. Boats will leave Sandusky every two hours. Currently, there are no plans for the ferry to stop at Cedar Point; however, Jet Express is prepared to increase operations as demand rises.

Also there is passenger ferry service to and from Downtown Sandusky to Pelee Island, Ontario, Canada. The ferry service is operated by the Canadian company; Owen Sound Transportation Company. The Sandusky dock is located at the foot of Jackson Street. The ferry, MV Jiimaan, can transport 400 passengers and 40 vehicles. There has also been discussion about ferry service out of Vermilion to the Islands. The ferry would be docked at the City owned dock behind the Vermilion Waterworks plant.

7.7 Freight

Ohio's business and industry depend on effective freight transportation to reach state, regional, national and global markets. Trucks carry 68% by weight of Ohio freight. According to the *Access Ohio 2040 (November 2013),* Erie County generates about 1.26 to 2.94 trucks per acre and has one of the busiest through routes (I-80/I-90) in the State of Ohio for truck travel.

7.8 Land Use

Overall, residential development is the greatest growth segment in the County, However, according to the Erie County Farmland Preservation Plan (2001), a relatively small amount of farmland will be consumed on an annual basis. This is due to current levels of population growth, vacancy rates, and a generous residential development density of two units per acre.

Although there is not a large degree of land consumption expected from residential uses, there are larger implications of the existing development patterns. As development in Cleveland and Toledo increases, suburban and exurban growth will enter Erie County, and sporadic or leapfrog residential and commercial development may surround large agricultural areas. There may be additional issues associated with the urban/rural interface.

Specific areas of growth in Erie County include Route 250 near the Turnpike, and the Route 4 corridor. Limited retail development may occur and existing commercial structures may be replaced or retrofitted near the Turnpike. The Route 4 corridor may experience increased highway-oriented development over the long-term if the market demands change and infrastructure is put in place to support new development.

Goals of the Sandusky Comprehensive Plan are focused around the revitalization of the downtown and Bayfront areas, as well as encouraging and managing new growth in the western part of the city. The city wishes to strengthen commercial, residential, and recreational uses in the downtown area, including adding destination points to the downtown and Bayfront areas. The western growth is to include new residential and industrial uses. These plans will increase the demand for transportation services.

7.9 Port Facilities

The Vermilion City and Huron-Joint Port Authorities has no major future improvement or expansion projects planned at this time.

7.10 Environmental

In order to complete the environmental analysis, ERPC prepared a series of maps of the region with environmental layers, these maps are located in the Environmental Maps Appendix. Five categories environmental categories were looked at:

- Streams and Wetlands (includes wetlands and 11 Digit Hydrologic Unit Code Number (HUC) maps)

- Threatened and Endangered Species (includes threatened/endangered species map)
- Mitigation (includes conversation/park areas map, deciduous forest map, and national register sites map)
- Cultural Resources (includes conservation/park areas map, deciduous forest map, and national register sites map)
- Other Mitigation (includes superfund, however no sites currently exist in ERPC region)

The universe of alternatives includes a total of 88 projects in this transportation plan. From the compiled maps, as outlined above, an analysis was completed to identify the projects that could have potential impacts on the environmental issue locations. This part of the analysis was completed to illustrate how often a project may have environmental implications and the need for assessment and mitigation measures to be employed as projects move from the LRTP to the Transportation Improvement Program (TIP).

To complete the summary of the number of recommended projects near the environmental issue location, maps were created for each environmental issue layer. If projects were located in or near (within ½ mile) of an identified environmental area it was counted as a project with potential impacts specific to that environmental issue. A summary is provided below showing the total number of projects near each environmental issue location.

Environmental Issue	Number of Projects Near Environmental Issue Location
Potential Wetland	17
Conservation Areas	19
Archeological Inventory Sites	19
Deciduous Forest	70
Threatened or Endangered Species	25

This analysis provides a beginning step in ensuring projects in this plan are environmentally responsible. All projects are required to minimize, avoid and/or mitigate environmental impacts as outlined in the existing conditions section of this plan. This plan also supports energy conservation initiative with special emphasis on those being taken in the MPO region related to wind energy, biofuels, and other alternative fuels.

7.11 Security

In the event of an incident, Evacuation Policies and Procedures provide a mechanism for assessing the problem and determining resources available to address those problems. The Chemical and Emergency Response Preparedness plan has outlined such policies and procedures. Activities associated with the evacuation focus not only on residential areas but provides procedures for evacuation of those facilities that may require special consideration (schools, nursing homes, day care centers, shopping and manufacturing centers). Additionally, procedures are outlined for those special population sub-groups

that may require special consideration in evacuation planning. Those individuals who are elderly have a tendency to resist evacuation, and it will be important to stress that degree of perceived risk to this group. Individuals who are physically handicapped, as well as those individuals who are blind, may require additional assistance during evacuation. Individuals who are deaf or non-English speaking may require interpreters or other arrangements for the delivery of warning messages. General procedures for evacuation as follows:

1. The incident Commander determines if, and when, an evacuation will take place.

2. Law enforcement will have the responsibility of executing the evacuation.

3. The Erie County Emergency Management Agency (EMA) and the Firelands Chapter of the American Red Cross will assist with special evacuation needs.

4. The Firelands Chapter of the American Red Cross will provide shelter for evacuees.

5. The Erie County Health Department will work with the Ohio Environmental Protection Agency and with the Incident Commander to determine when the evacuees will be permitted to return.[2]

Guidance is also provided on the process for dissemination of warning information from response agencies to the general public in the event of an incident. "Public notification is accomplished by either the Emergency Alert System, cable television break in, regular media broadcasts, and/or door-to-door notification. The information will be disseminated in a timely manner, dependent upon the circumstance and size of the incident.

a. Personal Notification – In the event of an incident that requires an evacuation, a means of notification is to go door-to-door with a personal message. The law enforcement will not be utilized if they must work in a plum and/or hot zone.

b. Cable Television Break-In – The Erie County EMA or Erie County Sheriff is capable of activating this system.

c. Emergency Alert System (EAS) – The Erie County EMA or Erie County Sheriff is capable of activating the EAS. The EAS can be activated to broadcast warnings over local radio and cable stations.

d. Media Broadcast – The Public Information Office on scene will follow Annex D procedures."[3]

In conclusion, efforts regarding security are sensitive in nature. However, this plan supports efforts that coordinate local efforts with those at regional and state levels. Additionally, the MPO will continue its support of training initiatives to insure efficient emergency response by the transportation interests. Lastly, the MPO will continue to network with emergency management authorities and transportation agencies in developing security implementation initiatives for the transportation system.

[2] 2002 Chemical Emergency Response and Preparedness Plan, p. O-24
[3] 2002 Chemical Emergency Response and Preparedness Plan, p. O-14

TRANSPORTATION ALTERNATIVES

8.1 Overview

A universal set of alternatives was drafted based on the results of the following:

- Public Involvement Process
- Public Meetings
- Stakeholder interviews
- Special Meetings
- Review of existing and future transportation and land use conditions throughout Erie County and Vermillion.
- Ability to meet Goals and Objectives of the plan
- Ability of the county, state and federal governments to fund the transportation improvement projects.

The universe of alternatives is shown in **Figures 8-1.1, 8-1.2, 8-3 and 8-1.4.** In order to measure the effectiveness of any alternative drafted for the LRTP, it is important to evaluate each alternative against a set of criteria to ensure it meets the goals and objectives of the study. As shown in **Table 8-1.1** performance measures were established reflecting the overall Goals and Objectives of the LRTP. The evaluation table has nine category headings based on the goals and objectives developed for the Long-Range Transportation Plan. The transportation options were evaluated based on a five-point system as follows:

- Very Good = 5 points
- Good = 4 points
- Fair = 3 points
- Poor = 2 points
- Very Poor = 1 point

Each category has five potential weights- representing how well the alternative meets that goal/objective- ranging from ‘very good’, ‘good’, ‘fair’, ‘poor’, and ‘very poor’. To get a weighted sum, each ranking was given a numerical value ranging from one through five. The difficulty in using a weighted system of alternatives is that the connectivity between different projects is not highlighted. Each project is ranked based on its own merits. These rankings were used to help with the decision-making process of where to place projects into the timeline for implementation, along with other factors including project dependencies and costs. The costs of the various transportation improvement projects were assessed relative to the ability to fund them within the 25-year planning horizon and the level of relief of an identified transportation issue. This methodology balances the potential for improvement of the transportation system. The system plan included as the Recommended Plan was the concept that established the most reasonable balance between cost and system effectiveness.

Table 8-1.1: Criteria and Performance Measures

Goal	Goal Statement	Objectives	Performance Measures
Freight Movement & Economic Vitality	Improve the local freight network & support the economic vitality of the MPO area.	• Develop a transportation network that supports movement of worldwide freight markets • Increase access to employment areas & sites, especially those that utilize or are related to freight • Use transportation project selection criteria to accentuate projects that give priority to transportation projects that support freight movement & support economic vitality • Encourage public/private partnerships to leverage funding from federal, state, & other sources • Give priority to transportation projects that improve and provide access to area tourist destinations & amenities	• Minimize congestion on major corridors when feasible • Support projects that increase levels of private sector investment in transportation improvements • Aid mobility by showing an increase in freight traffic volumes • Encourage partnerships with the freight community stakeholders • Increased availability & use of intermodal facilities including maritime, rail & air facilities • Support more efficient movement of freight based on time & costs • Strive for project selection that measures freight traffic volume
Safety	In the ERPC's transportation network achieve a reduction in fatalities & serous roadway injuries	• Encourage clear signage on roadways throughout the MPO area • Improve hazardous intersections • Support projects that increase safety • Use transportation project selection criteria to accentuate projects that encourage safety	• Reduce the number of fatalities & serious injuries in the ERPC area • Reduce the number of fatalities & serious injury per VMT in the ERPC area • Expand availability & participation of community members in the citizen/safety committee meetings

Goal	Goal Statement	Objectives	Performance Measures
Congestion Reduction	Reduce congestion in the MPO area	• Use transportation project selection criteria to promote alternative transportation & other congestion relief methods • Enhance transit services to promote service to major employment centers, educational facilities, medical offices, commercial developments & tourist destinations • Maximize bicycle & pedestrian connections to roadways, transit services & area amenities such as the waterfront & regional parks • Encourage communities to incorporate bicycle & pedestrian facilities within major new residential & commercial developments	• Demonstrate an increase in transit ridership • Increase the percentage of persons using alternate modes, especially during peak hours • Support projects that show a decrease in travel time between regional/major activity centers • Incorporate multi-modal components in project planning when feasible • Encourage an increase in miles for bicycle & pedestrian facilities • Reduce travel time on major corridors • Decrease congestion on major corridors • Support access management techniques

Goal	Goal Statement	Objectives	Performance Measures
Environmental Sustainability	Protect the environment in the MPO system & enhance the transportation system's performance simultaneously	• Use transportation project selection criteria to promote alternative transportation methods &/or projects that protect & enhance the environment • Maintain a planning process that integrates & coordinates transportation planning with land use, water & natural resource conservation • Minimize, avoid &/or mitigate environmental impacts of transportation improvements • Provide equitable & environmentally friendly just transportation facilities & services • Promote consistency between transportation improvements, local planned growth & economic development patterns • Support energy conservation initiatives with special emphasis on those being undertaken in the MPO region related to wind energy, biofuels, & other alternative fuels	• Show the preservation of neighborhoods and cultural/historic resources & or sites • Document mitigation steps when (if) adversely impacting the environment • Improve interagency communication • Maintain a relative distribution of positive & negative impacts by socio-economic groups with consideration of existing communities • Improve efforts supporting energy conservation initiatives • Minimize impacts to established neighborhoods

Goal	Goal Statement	Objectives	Performance Measures
Infrastructure Condition (Preservation)	Maintain the existing transportation infrastructure assets in a state of good repair	• Use transportation project selection criteria to accentuate system preservation projects • Support efforts for the proper maintenance of the existing transportation system & the use of the non-motorized methods of transportation to reduce stress on the current system	• Improve the conditions of roads/bridges by functional classification • Support MPO sponsored projects that encourage maintenance or preservation aspects • Promote efficient land use patterns when feasible
Modal Connectivity	Enhance the integration and connectivity of the transportation system across and between modes, people, and freight.	• Promote the efficient movement of people and goods by linking the various modes of transportation. • Provide multi-modal options (bicycle, pedestrian, transit) consistent with local government comprehensive plan. • Facilitate connections between transportation modes. • Encourage alternative modes for transport for persons and goods.	• Greater choice in modes for system users • More efficient movement of freight based on time and cost. • Quality of Life Improvement • Greater access to transportation system by traditionally underserved or disadvantaged populations.
Funding	Develop efficient funding strategies for implementing transportation improvements and manage resources to ensure the maintenance of the transportation system	• Give priority to funding those transportation needs identified in state, regional, and local transportation system plans. • Maintain a financial plan to meet long-term maintenance and operational needs.	• Cost savings relative to: congestion relief, reduction in crashes, travel time, vehicle miles of travel and vehicle trips. • Identify local, state and federal funding programs available for alternative transportation programs.

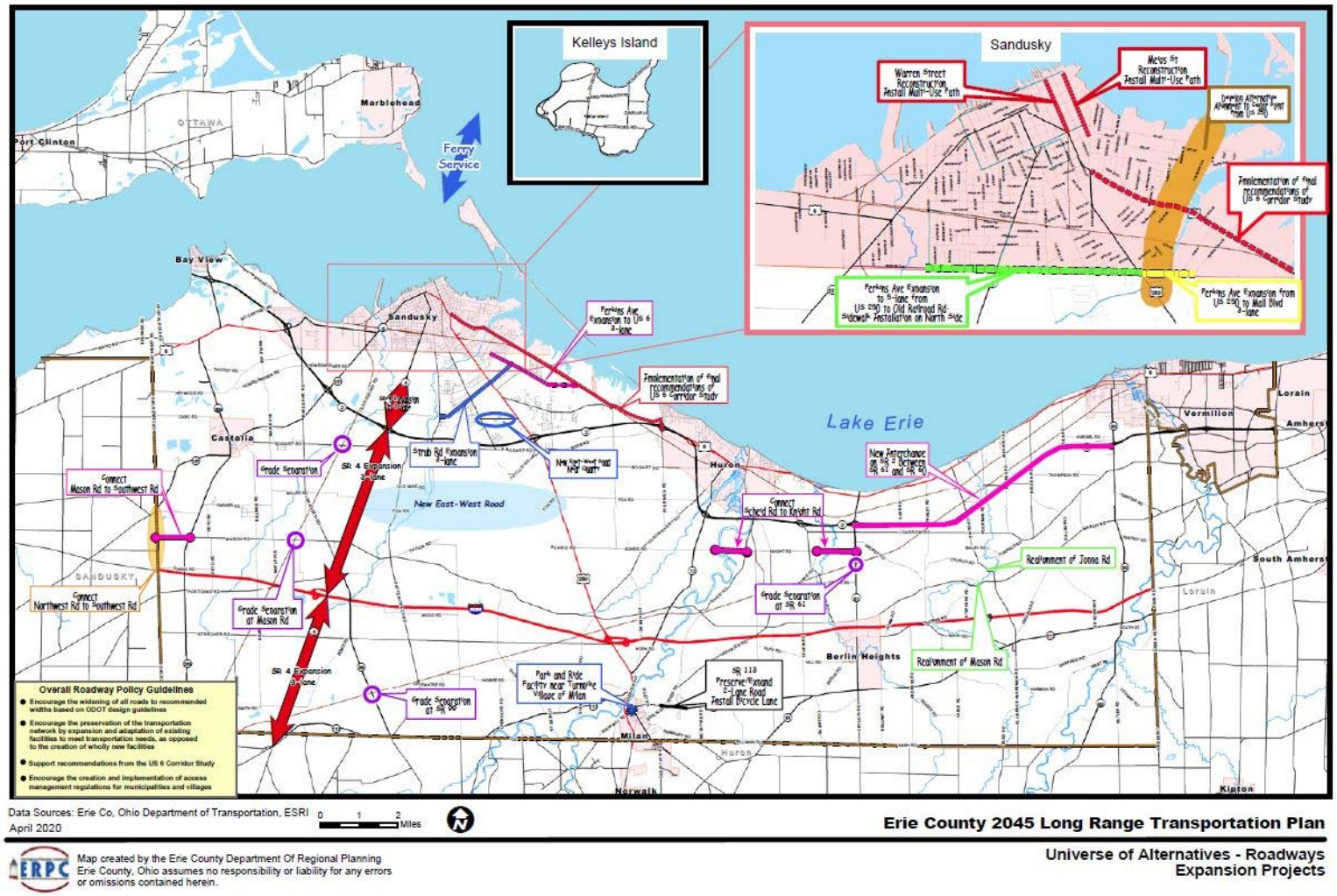
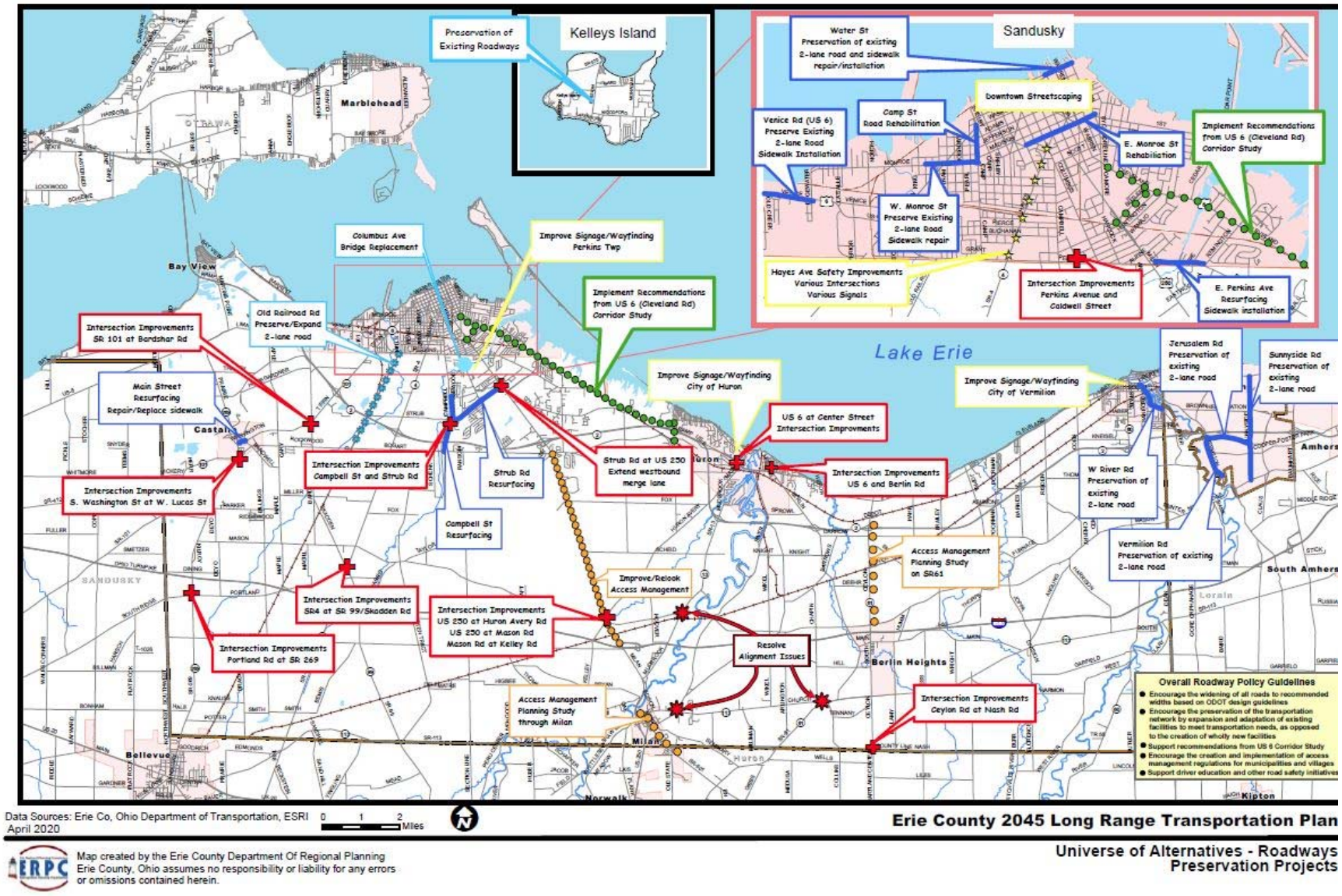
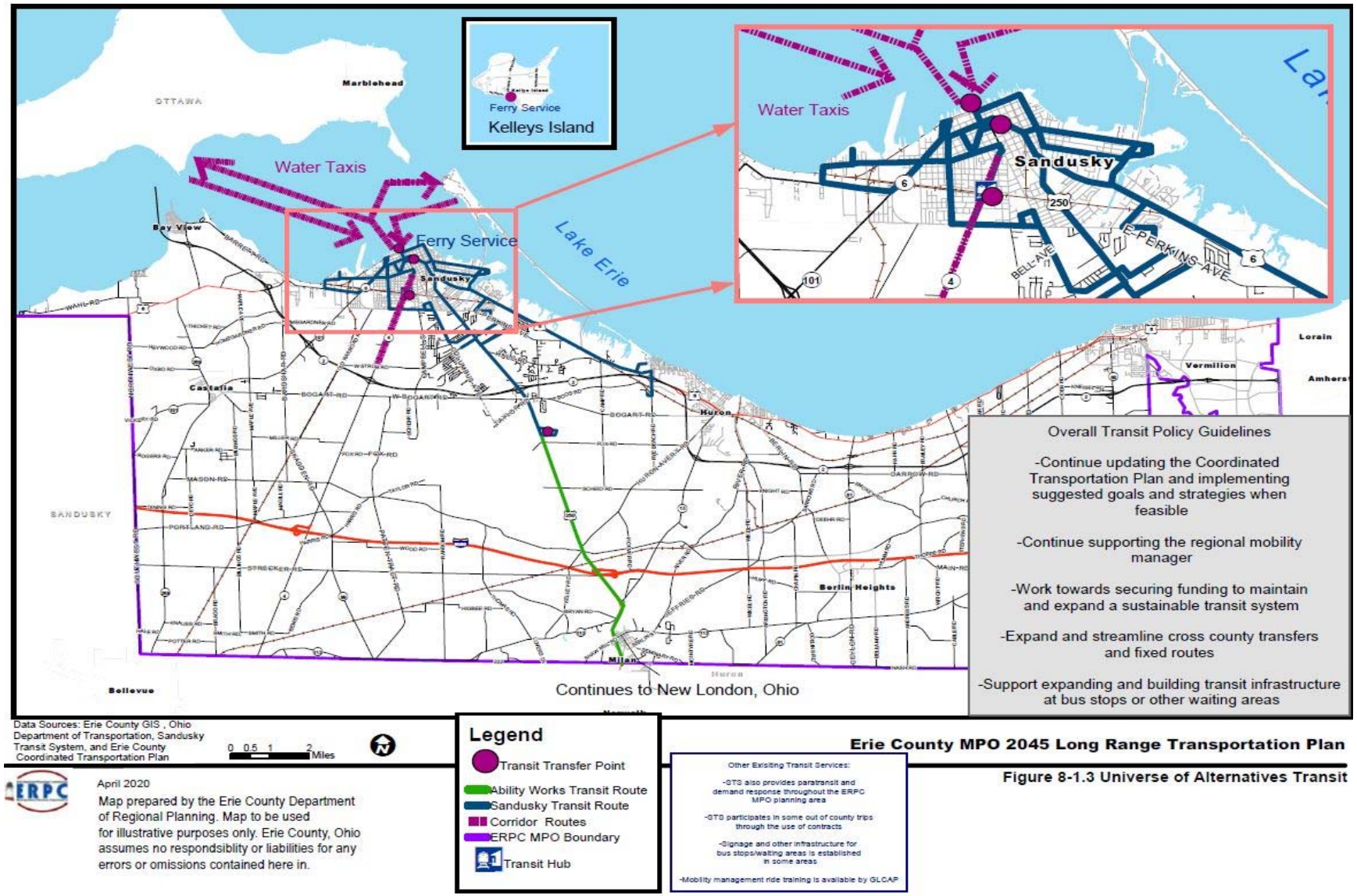


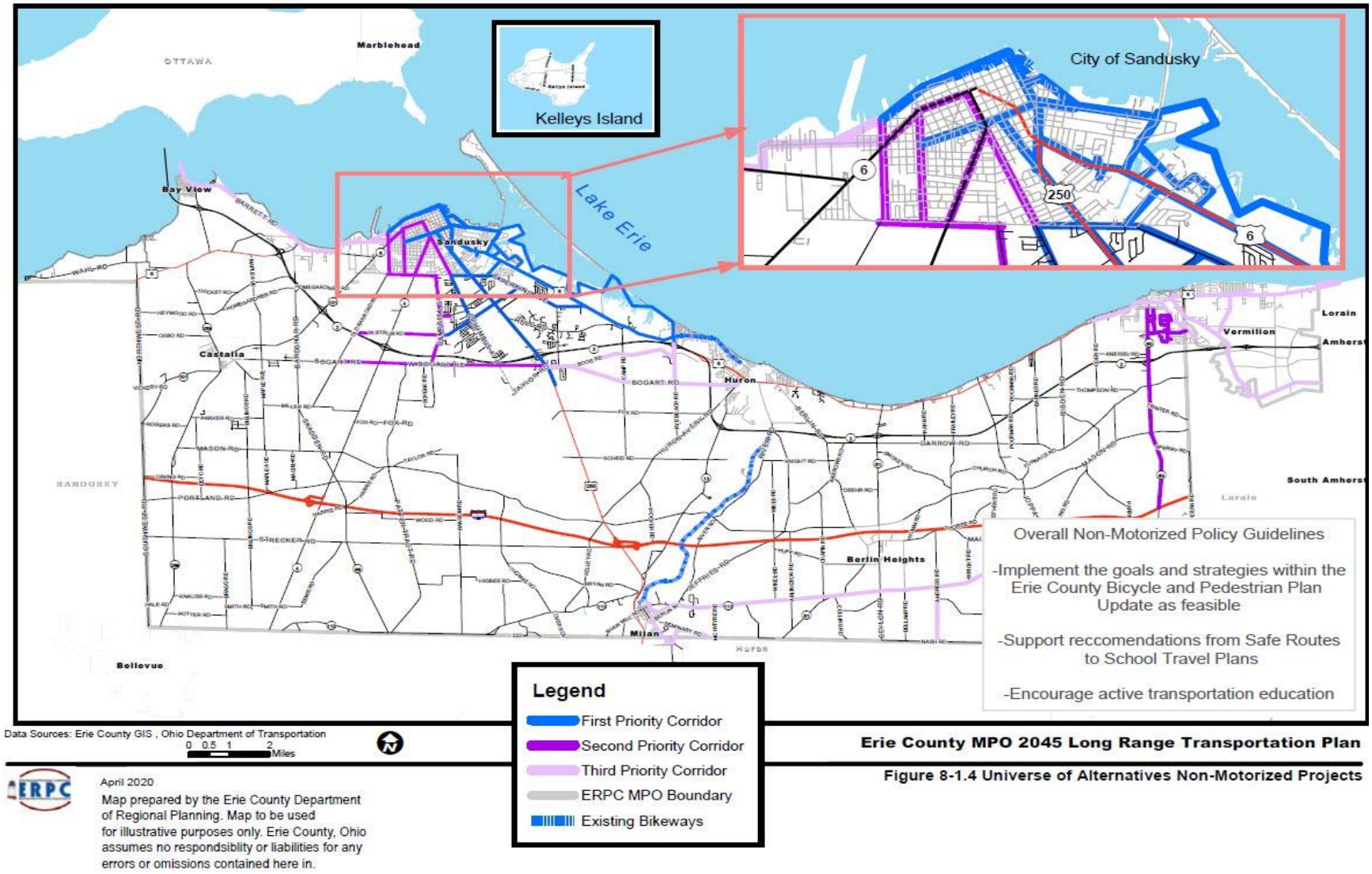
Figure 8-1.1: Universe of Alternatives Expansion Projects



Figures 8-1.2: Universe of Alternatives Preservation Projects



Figures 8-1.3: Universe of Alternatives Transit Projects



Figures 8-1.4: Universe of Alternatives Non-Motorized Project[1]

[1] The prioritization process for routes is described in Chapter Nine

CHAPTER NINE: RECOMMENDED TRANSPORTATION PLAN

This chapter summarizes the LRTP recommended transportation plan. The LRTP addresses all modes of transportation and is fiscally constrained. For the purpose of the LRTP analysis, projects were grouped into one of the following four categories:

Table 9-1.1: Project Length

Project Categories	Length Of Construction Period	Time Period
1) Short-Term Projects	Within 10 years	Between 2015 & 2025
2) Mid-Term Projects	10-15 Years	Between 2025 & 2030
3) Mid-Long Term Projects	15-20 Years	Between 2030 & 2035
4) Long-Term Projects	20 Years or Greater	2035 & Beyond

It should be noted that the categories were used merely for analyzing the various transportation improvements and does not guarantee that a specific roadway improvement will be constructed or that it will be constructed during the identified timeframe. It should be further noted the design, engineering, and construction of the specific roadway improvements identified in this LRTP depend heavily on the availability of transportation funds. The improvements and policies are described in the following sections and strive to meet the plan's stated goals and objectives (Chapter 2). This plan's goals and objectives were aligned with ODOT's long-range plan priorities as identified in the Access Ohio 2045 planning document to ensure that ERPC's regional future potential projects and policies are compatible with those of the state.

9.1 Roadway Improvements

The **overall roadway policy guidelines** consist of the following:

- Encourage the widening of all roads to recommended widths based on ODOT design guidelines.
- Encourage the preservation of the transportation network by expansion and adaptation of existing facilities to meet transportation needs, as opposed to the creation of wholly new facilities
- Support the recommendations from the US 6 Corridor Improvement Study
- Encourage the creation and implementation of access management regulations for municipalities and villages.

Improvements to Roadways include preservation and expansion projects. Typical expansion projects include the addition of a center lane. **Figure 9-1** and **Figure 9-2** depict the recommended roadway preservation and expansion projects.

9.2 Operational/Congestion Management Strategies

The **overall operation congestion management strategies** consist of the following:

- Encourage the widening of all roads to recommended widths based on ODOT design guidelines
- Encourage the preservation of the transportation network by expansion and adaptation of existing facilities to meet transportation needs, as opposed to the creation of wholly new facilities
- Support the recommendations from the US 6 Corridor Improvement Study

- Encourage the implementation of access management regulations for municipalities and villages
- Deployment of ITS technology and implementation of access management techniques along major corridors in the MPO, including US 250, US 6, and SR 4
- Promoting transit use to tourist attractions and offering employee incentives to use transit for everyday travel

Also, important to note is that project sponsors are responsible for obtaining any environmental type permits as required for proposed projects. For example, an USACE permit according to Section 401 of the Clean Water Act if applicable to the project (as outlined in Section 5.10 of this document).

9.3 Transit Improvements

Public transportation provides mobility to older adults, disabled persons, and disadvantaged persons as well as basic access to employment opportunities, health care facilities, shopping activities, and community services for the population as a whole.

Overall transit policy guidelines consist of the following:

- Work with local transportation/transit stakeholders to secure funding for transit services
- Support the Sandusky Transit System's initiatives to update, collaborate, improve, and expand services
- Participate in the update of the Coordinated Public Transit-Human Services Transportation Plan every three years or as requested by ODOT
- Support maintaining the transit mobility manager and communication between transit providers

Key transit projects under the expansion of service include the following project improvements:

Service Expansion: Service expansion involves the curb-to-curb service as it currently exists in the City of Sandusky and portions of Perkins Township, the City of Huron, and the City of Vermilion as provided by the **Sandusky Transit System (STS).** As a means of focusing on the overall transit policy guidelines, it is assumed that as new services are implemented; the level of service associated with these newer services will be improved as funding permits. This would include expanding the hours of service that transit is available and also improving the flexibility of scheduling demand response trips. It would also allow a minimum level of service to more areas of the entire County while continually striving to improve the existing services. Additionally, transit waiting area improvements should be made as funding permits.

Intermodal Connections: A key to facilitating transportation in the region is the development of intermodal transfer points in and around the Village of Milan and the City of Vermilion. A possible location for a facility would be in **Downtown Milan** is at Church Street and Main Street. In Vermilion, a possible transfer point could be at the **South Shore Plaza** along Liberty Avenue. These intermodal facilities could also serve as a stop for the **MegaBus** service and could include other amenities such as a **park-and-ride lot** that could serve commuters traveling to regional destinations like Toledo, Akron, or Cleveland via carpools or vanpools. They could also serve as transfer points for

coordinated human service agency transportation. Additionally, if a MegaBus stop were to locate in the county this could help facilitate a link between Erie County and the existing MegaBus stops in Cleveland and Toledo.

Since the last plan update, the Sandusky Transit System has built a **transit hub** that is housed with **AMTRAK** and **Greyhound**. These intermodal connections have expanded transit options in the area. Additionally, Sandusky Transit System has expressed an interest in expanding its services to **water taxis**. This service would be located downtown along the waterfront. This service would assist in facilitating travel between areas such as Port Clinton, Catawba Island, Kelleys Island, and Put-In-Bay.

Fixed Route Corridors: The Sandusky Transit System (STS) has been operating **multiple** (currently six interloping) **fixed routes** since the 2040 Long Range Plan Update. Lines are now color-coded and have designated pick up schedules. These routes offer transportation to work as well as a shopping and medical circulator service for those in the Sandusky and Perkins areas. In addition to the current fixed route in place, the 2045 LRTP Update calls for the development of a corridor fixed-route transit service along **SR 4 creating a medical corridor** from Firelands Hospital to NOMS.

Transportation Coordination: In 2018 Erie County was notified that they were assigned a **mobility manager** from the **Great Lakes Community Action Partnership**. A mobility manager had been supported and recommended in the 2040 Long Range Plan Update. Continued support of the mobility manager is important in the region as they provide travel training, updates from ODOT transit, and assists in coordination efforts.

It is also recommended that the **Erie County Coordinated Transportation Plan** to be maintained. The plan is important for local organizations to be eligible for certain FTA funding programs (5310). In 2018, ODOT created a standardized template for the Coordinated Transportation Plan and implemented new requirements for participants. Prior to the standardized template each organization created their own which created a lot of variability. Along with the format changes ODOT also requested the reboot of the transit advisory committee so that further transit collaboration and coordination could occur. Another requirement is that the plan is reviewed annually and updated every three years with committee members' involvement. The mobility manager has assisted ERPC staff with these efforts.

In 2020 **Ability Works Inc**. began operating a fixed service line from Kalahari Resorts to New London, Ohio. The Sandusky Transit System has a stop at Kalahari connecting the two services. Continued support of these intermodal points will continue to grow transit access for Erie County residents. STS has also been successful in partnering with numerous organizations to consolidate services via contracts.

Seasonal Transit (Tourism) Support: It is important to continue seasonal transit service to Cedar Point from downtown Sandusky and the fixed-route transit service to add more vehicles to the route for improved service frequency. Tourism is very important to the Erie County economy. The continued support of this service provides a key connection between hotels and Cedar Point for tourists, but also as a means of getting seasonal Cedar Point employees to work from outlying areas of Erie County. The Sandusky Transit Systems has added various fixed-line services that travel to the **major tourist destinations** on major corridors including **US 250, Perkins Avenue, downtown Sandusky** and **SR 6**.

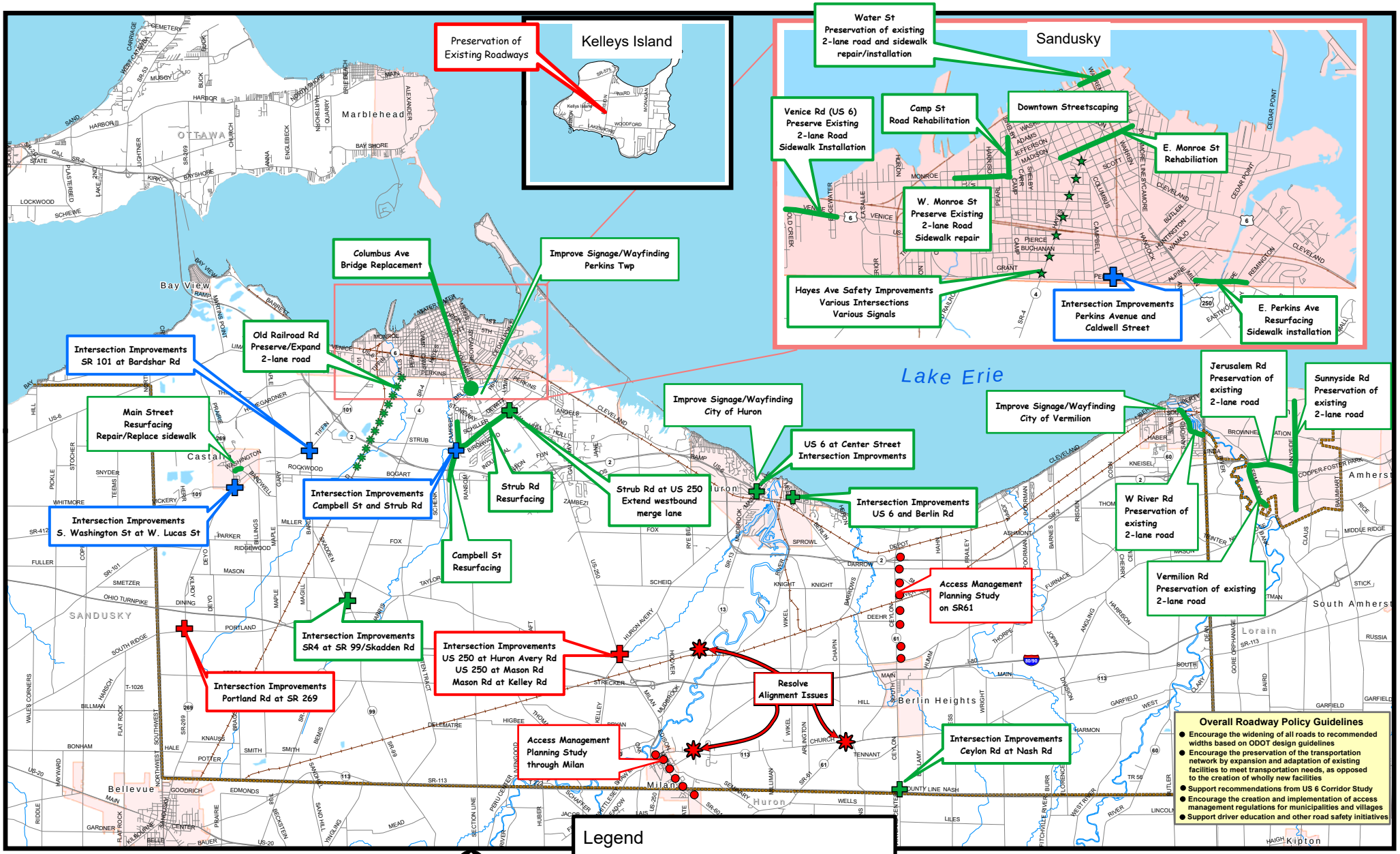
Additionally, they have been actively partnering with local tourist organizations to provide ride passes for their employees or provide discounted rates.

9.4 Pedestrian and Bicycle Improvements

Existing bicycle travel within the MPO consists of primarily on on-road bikeway, but also consists of some off-road bikeway. The recommended plan for pedestrian and bicycle (non-motorized) improvements are shown in **Figure 9-4.1.** The MPO's recommended plans for a non-motorized comes from the **2020 Erie County Bicycle and Pedestrian Plan Update**. Some alternative routes were also listed within the plan by veteran bicyclist. These routes were not listed in the cost estimates chart.

Overall Non-Motorized Policy Guidelines:

- Build off the existing bicycle/pedestrian facility system as rated in the **2020 Bicycle and Pedestrian Plan Update** and update it as needed
- Continue **public outreach education** efforts through Active Transportation Month and like events, through the ERPC website and other social media efforts as feasible
- Continue meeting and working with the **Bicycle and Pedestrian Advisory Committee** (established in 2015)
- Continue **working with local jurisdictions and agencies** to support bicycle and pedestrian improvement efforts
- Support complete streets efforts



Erie County 2045 Long Range Transportation Plan

Map created by the Erie County Department Of Regional Planning
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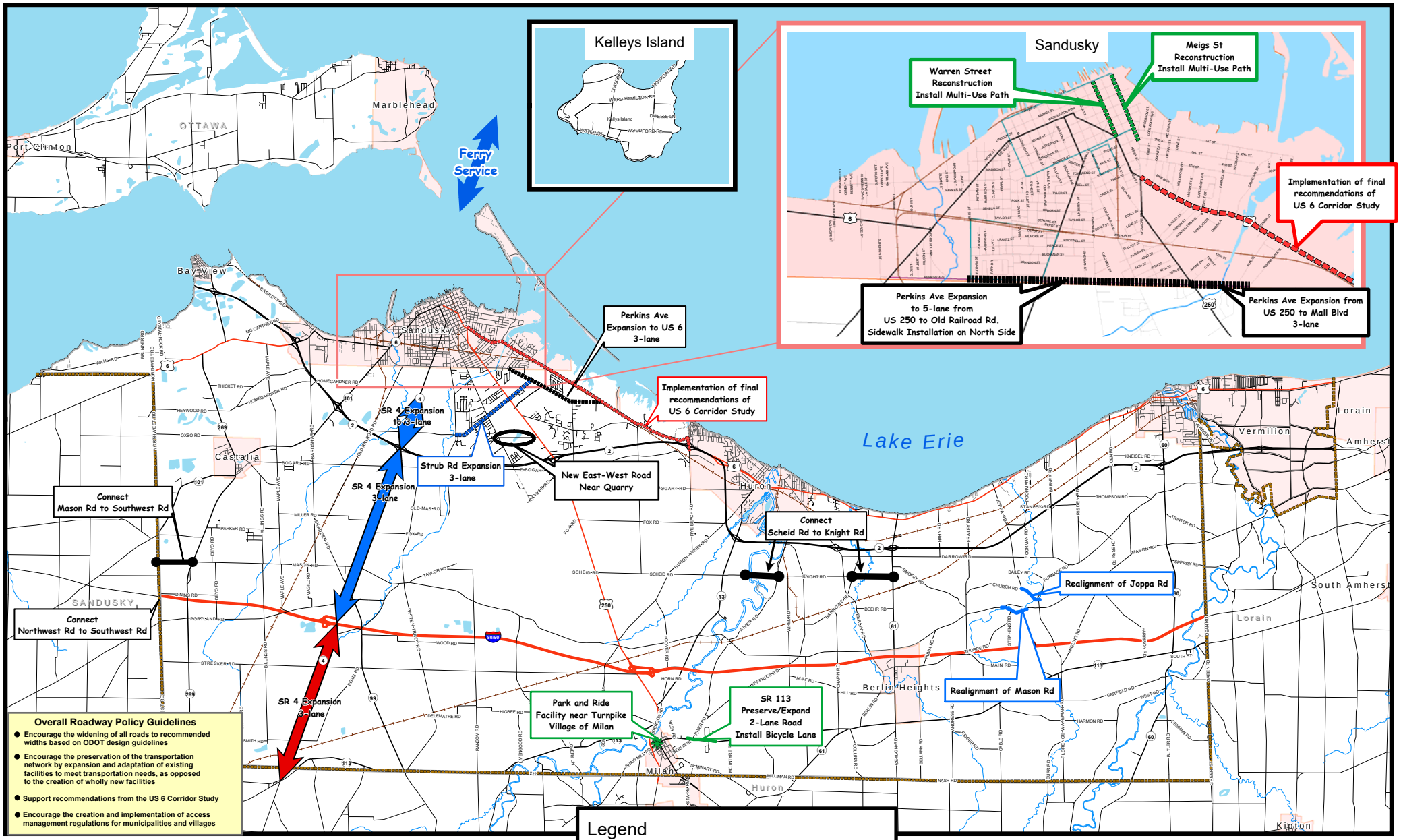
Recommended Roadway Preservation Projects Implementation Schedule
Figure 9-4.1



Data Sources: Erie Co, Ohio Department of Transportation, ESRI
June 2020

0 1 2 Miles

Map created by the Erie County Department Of Regional Planning
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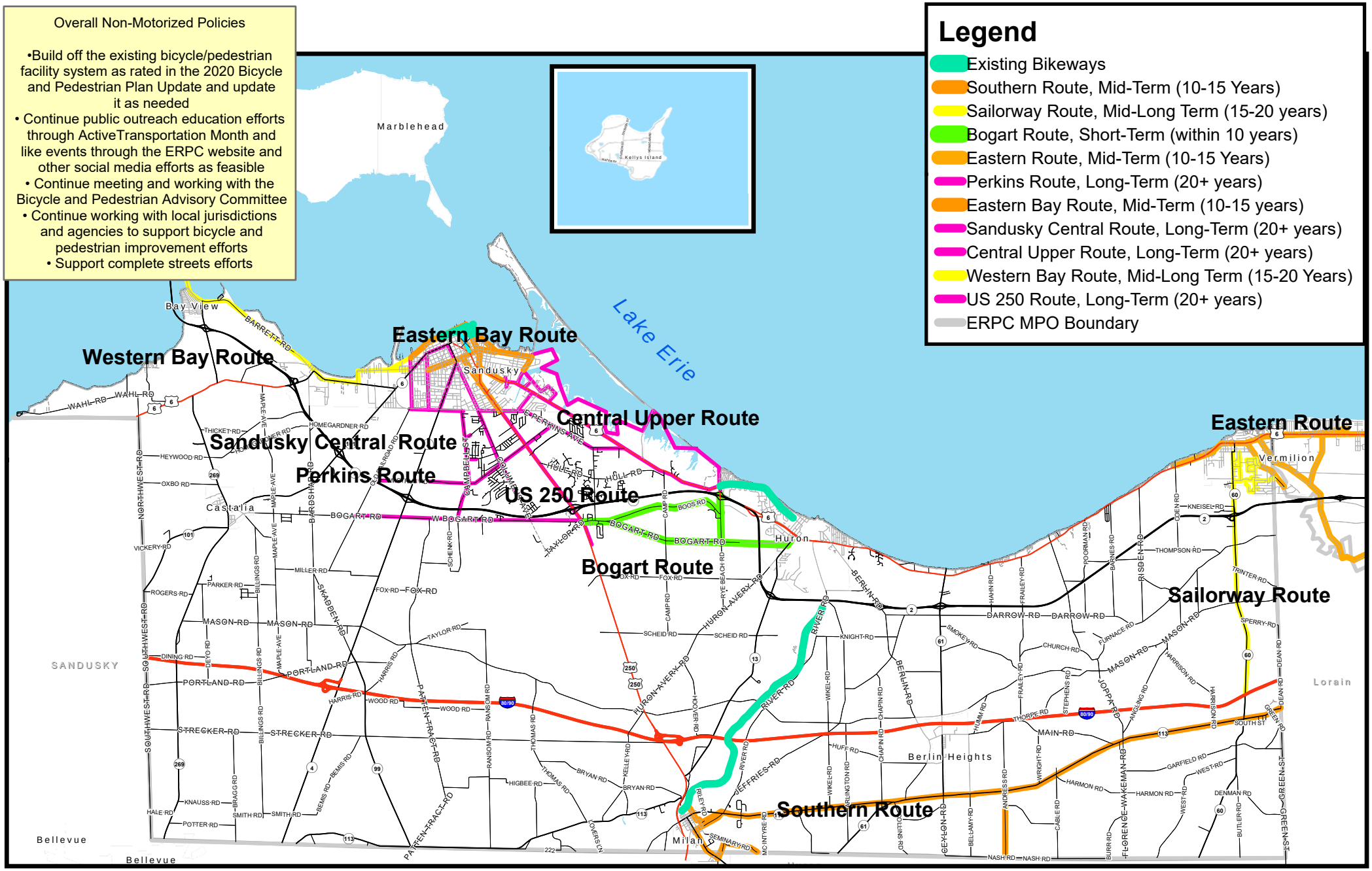
Erie County 2045 Long Range Transportation Plan

Recommended Roadway Expansion Projects
Implementation Schedule
Figure 9-4.2

Overall Non-Motorized Policies

•Build off the existing bicycle/pedestrian facility system as rated in the 2020 Bicycle and Pedestrian Plan Update and update it as needed
• Continue public outreach education efforts through ActiveTransportation Month and like events through the ERPC website and other social media efforts as feasible
• Continue meeting and working with the Bicycle and Pedestrian Advisory Committee
• Continue working with local jurisdictions and agencies to support bicycle and pedestrian improvement efforts
• Support complete streets efforts



Data Sources: Erie County GIS , Ohio Department of Transportation

April 2020

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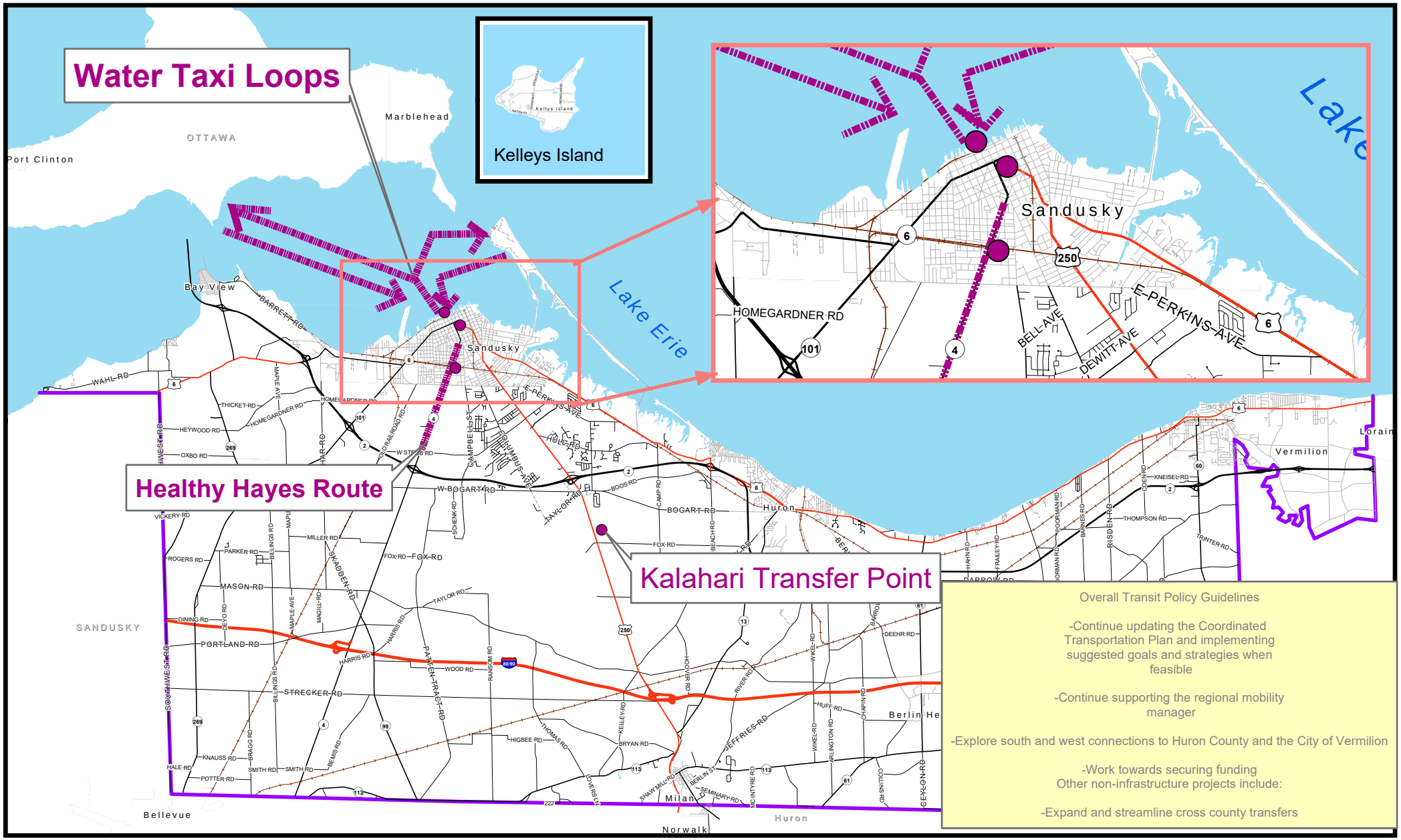
Figure 9-4.3 Reccomended Non-Motorized Projects Implemetation Schedule



Data Sources: Erie County GIS , Ohio Department of Transportation

0 0.5 1 2 Miles

Legend

- Transit Transfer Point Short-Term (within 10 years)
- New Transit Routes Short-Term (within 10 years)
- ERPC MPO Boundary

April 2020

Map prepared by the Erie County Department of Regional Planning. Map to be used for illustrative purposes only. Erie County, Ohio assumes no respondsiblity or liabilities for any errors or omissions contained here in.

Figure 9-4.4 Reccomended Transit Projects Implemetation Schedule

9.5 Freight & Regional Transportation Modes

Continued investment in the rail and airport facilities is necessary to maintain and enhance the region's position as a hub for freight and passengers. Intermodal facilities benefit the MPO area by supporting economic development throughout the MPO area across all modes of transportation.

Overall policies include:

- Develop a relationship with the freight community
- Support the advancement of Intermodal facilities to foster the growth of a multimodal transportation system
- Support rail line projects that include a hub in Vermilion and Sandusky

The railroads that serve the MPO are owned and operated by private freight entities; therefore, no designated funding is available for government or improvement of these facilities, beyond adopting policies to ensure the safety and maintenance of the network, especially the smaller class lines. In addition, these facilities and their operations are typically regulated through the Federal Railroad Administration.

Railroad freight services are directly correlated with the economic vitality of the businesses and the communities that they serve. Therefore, ODOT has implemented the following statewide objectives for its management of the railroad network in the Statewide Long-Range Transportation Plan: ODOT will coordinate with the major carriers, such as Norfolk Southern on all track abandonment to preserve the right-of-way for future work and to minimize any adverse impacts on the communities affected by abandonment. ODOT will work with the small railroad companies to support their efforts to maintain appropriate conditions of their infrastructure, including enhancement of their access to the major carrier lines. ODOT will continue its railroad grade-crossing improvement program to minimize the conflicts between railroad operations and people and property and ensure a safe and efficient railroad system.

Because of the expense of roadway freight shipping, private companies continue to seek new ways to haul more raw goods and materials via rail service. This expansion of rail service does not necessarily equate to infrastructure expansion but improving the operations by either "double-stacking" the cargo containers or other efficiencies. While there are some significant projects taking place statewide, no railroad infrastructure expansions in the operations are expected in the ERPC MPO region in the near future.

9.6 Funding and Costs

This section summarizes the financial analysis of potential transportation investments. Estimated revenue from existing and proposed funding sources is compared with estimated project costs of constructing and maintains the transportation system to the year 2045. Prior to ISTEA and TEA-21, LRTP's often contained "wish lists" of projects that had very little chance of being constructed. The planning regulations of ISTEA and TEA-21 brought about a change that required MPOs to consider the financial implications of their planning efforts. To this end, the federal planning regulations put in place the requirement for financial constraint of these documents. In 23 CFR 322 (b)(11), it is stated that

transportation plans shall: *"Include a financial plan that demonstrates the consistence of proposed transportation investments with already available and projected sources of revenue The financial plan shall compare the estimated revenue from existing and proposed funding sources that can reasonably be expected to be available for transportation uses, and the estimated costs of constructing, maintaining and operating the total (existing plus planned) transportation system over the period of the plan. The estimated revenue by existing revenue source (local, State Federal, or private) available for transportation projects shall be determined and any shortfalls identified. Proposed new revenues and/or revenue sources to cover shortfalls shall be identified, including strategies for ensuring their availability for proposed investments. Existing and proposed revenues shall cover all forecasted capital, operating, and maintenance costs. All cost and revenue projections shall be based on the data reflecting the existing situation and historical trends."*

Funding for the Erie County MPO area's transportation maintenance and improvement projects comes from a variety of Federal, State, local and private sources. The federal government is the primary source of funding for transportation systems in the United States. These funds come from federally assessed user fees, fuel taxes, and landing fees. They are apportioned back to the states on a formula basis. The primary source of revenue at the Federal and State levels includes motor fuel taxes, vehicle registration fees, special motor carrier fees, parking fees and toll fees. Finance at the county and municipal levels are primarily based on property taxes, sales taxes, and special assessments. The private sector, such as developers and business associations, often support transportation projects through impact fees, right-of-way donations, and cost sharing.

Federal, State, local agencies and private developers have invested hundreds of millions of dollars in the region's transportation system over the past several decades. In the late 1990's, programs such as TEA-21 significantly increased Federal and State funding authorizations above previous levels. However, the cost of maintaining the existing transportation infrastructure is continually increasing as the facilities age. The challenge that the MPO faces in the future is to balance the maintenance of the existing transportation infrastructure while at the same time identifying adequate funding for the construction of new transportation facilities.

Roadway improvement costs were identified using the current Transportation Improvement Plan (TIP) (**Fiscal Year 2021 to Fiscal Year 2024**) and programmed project funding. For those projects not included in the TIP, general planning level construction costs were developed using general cost estimates provided by local and state agencies. It is important to consider the following when reviewing the project cost estimates. First, because it is difficult to identify a specific year that each project might be constructed, all estimated costs are presented in 2020 dollars. Second, since specific details regarding design, engineering, and construction are often not available, the estimated costs represent a very general planning level cost estimate. As projects proceed to the detailed planning and engineering phases, resulting in more accurate estimates, the project cost estimates contained in this LRTP should be updated. Based on the identified projects and estimated costs, it is projected that the roadway improvement projects would total approximately **$141.1 million in year 2020 dollars**.

Projected Revenues: The projected funding levels provide a general comparison between the estimated roadway improvement costs and estimated funding levels. It should be noted that the estimated maintenance costs and funding sourced are **tabulated in year 2020 dollars** to provide a consistent

comparison to the estimated roadway improvements, which are also presented in year 2020 dollars. A significant percentage of funding over the next twenty-five years will be dedicated to the preservation of the existing transportation infrastructure. This includes the routine maintenance and repair of bridges, pavement, traffic signals and traffic signs. Based upon the assumptions, the estimated preservation costs for the next twenty-five years total approximately **$30.5 million in year 2020** dollars as shown in **Table 9-6.1**. The estimated funding sources over the next twenty-five years are approximately **$157,246,152 million in year 2020** dollars. Under this funding scenario, there would be approximately **$126.7 million** available for the implementation/construction of the roadway improvement projects identified in **Table 9-6.2,** which total just under **$116.6 million**.

Federal Funding Sources: While the percent of federal funding for a project varies by category, the Federal government typically provides 80 percent of the funding, with 20 percent of the funding matched by ODOT or a local agency. Of the federal funding programs identified in MAP 21, the MPO has direct access to two. Although congress assigns Surface Transportation Program (STP) funding to each MPO, ODOT sub-allocates a portion of the STP and TA funding assigned to Ohio. Funding for all other categories is determined by ODOT (through a statewide ranking process), by the Federal government, or is not applicable to the MPO. The categories that the ERPC MPO has direct input and/or selection responsibility include the following.

Surface Transportation Program (STP): This category is for transportation needs with urbanized areas with populations less than 200,000 and greater than 50,000. Funding is 80 percent Federal and 20 percent State and Local. Census population allocates funds and projects are selected by the MPO and ODOT.

Transportation Alternative (TA) Program: Ten percent of STP funding is available for this category. Enhancements include bike and pedestrian facilities, preservation of historic site, scenic beautification and other transportation related projects. The MPO must submit a letter stating their support of the project, identifying funding, and attesting that the project is consistent with long-range transportation plans.

Additional Funding: Additional funding is available through the Federal Highway Administration's (FHWA) discretionary funding categories where FHWA solicits for applicants and selects projects based on a set of selection criteria.

State Funding Sources: State funding is administered by ODOT. Among the most common forms of funding are the following:

- **Motor Vehicle and Gas Tax (MVGT):** This tax is collected on each gallon of gas that is purchased. The State of Ohio levies a tax of 38.5 cents per gallon of gasoline. The tax is included in the selling price, so the user of the motor fuel ultimately pays the tax. The tax is collected by the Department of Taxation and distributed to local governments. To qualify for funding, municipalities must be incorporated. Municipalities receive their funding based on population. Counties receive their allotment based on total license fees in the county.

- **Surface Transportation Program (STP):** The STP is administered by the State of Ohio for the MPO. STP money is sub-allotted to each MPO for use on many transportation projects. Ten percent of all STP funds must be used for safety projects. These funds can be used for rail crossing improvements, signals, and other accident-reducing methods of transportation improvement.

- **Economic Development Funds:** Economic Development funds may be used for transportation projects if the new or improved facility will attract or create jobs. This program can be used for industrial, commercial and recreational projects if the project is necessary.

- **Highway Bridge Replacement and Rehabilitation Program (HBRRP)**: HBRRP Funds are provided to replace or rehabilitate structurally deficient bridges on or off the system for the safe and expeditious transportation of the general public. The funds are allotted to districts based on a formula involving square footage of eligible bridges. Ohio distributes BR funds through the Municipal Bridge, Major Bridge, County Bridge, and Ohio Bridge Partnership programs.

Local Funding Sources: The basis of local funding of transportation projects in the local municipalities and Erie County is primarily through Federal and State allocations and block grants. Additional revenues come from property taxes, sales taxes, special assessments, and special tax districts. General funds for the roadway maintenance may be obligated from the general property tax proceeds for transportation purposes. While this represents a funding source, the trend in local government is to use general fund property tax proceeds for operation and maintenance of general government. Additional funding includes:

- **Bonds:** Transportation projects may be financed utilizing bonded indebtedness. This method allows a unit of government to raise capital through the sale of public bonds to be repaid with interest by either general property tax receipts, motor fuel tax, or revenue from the project upon completion.

- **Tax Increment Financing (TIF):** The TIF technique captures all increases in property tax resulting from improvements to a property until such time as allowable project expenses have been paid. Proposed improvements and planned expenditures are defined in a plan and must meet eligibility requirements under the enabling legislation. City government defines district and program in consultation with unites of local government impacted by the proposed district.

- **Capital Improvement Program (CIP):** Funding for near-term (one to five years) transportation projects are identified in the State's multi-year program also known as Issue 2, municipalities' Capital Improvement Program (CIP) and Erie County's CIP. Estimates of near-term transportation funding are based on appropriated levels of federal funding, cash flows of state funding sources, and city and county bonding programs and general revenue sources.

Private Sector Funding Sources: As a community grows, vacant land or farmland is often converted to urban uses. As part of that growth, land developers may pay the cost of infrastructure development including streets. Particularly as it relates to commercial development and industrial development, developers may potentially pay a large share of arterial and collector street widening, enhancement, or rehabilitation. The continued enforcement and management of growth through subdivision code administration minimizes the cost to the community. When developing major roadways, units of local government may negotiate with private interests to share in the development costs of arterial or collector streets that provide direct benefit to private interests. The amount of money available using this technique is limited only by the degree of commitment from the private sector and the willingness of the private sector to share in those costs. Impact or entertainment fees are costs assigned to new development of the maintenance of existing facilities. Developers pay these fees with costs generally passed on to the eventual owners of the property.

Funding/Implementation: As part of metropolitan planning organization regulations, the recommended long-range transportation plan must be financially constrained. The capital cost estimate in dollars for each transportation improvement and the schedule for implementation of those projects are summarized in **Tables 9-6.1** through **9-6.4.**Overall, the amount of dollars that will be available to fund the planning, design, and construction of the recommended transportation plan projects can be divided into two types of funds: Roadway/Non-Motorized project improvement funds and Transit project improvement funds.

Roadway/Non-Motorized project Improvement Funding: Several types of funding are available including:

- **MPO funds**: Surface Transportation Planning (STP) and Transportation Alternative (TA) are available
- **Other Funds:** Transportation Review Advisory Council (TRAC), ODOT District 3, County STP, County Bridge, City Bridge, and Safety

Based on the available information for existing and future funding of transportation projects the following dollars will be available:

- In the **Year 2021, $5,583,735** is potentially available for roadway/non-motorized improvements
- In the **Year 2045, $6,754,253** is potentially available for roadway/non-motorized improvements

Transit Project Improvement Funding: Funding for transit project improvements are available through the Federal Transit Agency and are distributed by the Ohio Department of Transportation (operating costs excluded):

- **Currently, $350,000** is available for transit improvements
- In the **Year 2045**, the current amount is forecasted to increase by 2% per year to **$562,953**

10. PLAN IMPLEMENTATION AND CONCLUSIONS

10.1 Overview

Congestion and Safety concerns along key north south and corridors within the MPO, as well as east-west connectivity issues, prompted the analysis of number of roadway improvement alternatives and four-time scenarios. After a comprehensive analysis, the following improvements were identified as the most effective elements to address the MPO's transportation deficiencies, while operating within existing and future funding constraints.

The following types of system improvements categorize the roadway alternatives:

- **Expansion**: This category of improvement includes the construction of new corridors, the addition of through-traffic lanes to existing facilities, and addition of a new interchange or bridge.

- **Preservation:** This category includes resurfacing minor widenings, spot intersection improvements, signal/intersection traffic control modifications and the use of Intelligent Transportation System (ITS) technology.

Traditionally, Erie County has focused on roadway expansion and preservation projects to improve travel conditions for residents in the county, with less attention paid to improving pedestrians, bicyclists, and transit mobility. As the MPO continues to attract tourism, businesses and residents, it becomes essential to plan for a more comprehensive transportation system that serves the needs of travelers using all modes of transportation. An aging population and growing tourist industry intensify the need for expanding current transit services.

It should be noted on March 15, 2010, the USDOT announced a policy statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations to reflect the Department's support for the development of fully integrated active transportation networks. The policy statement indicates that the establishment of well-connected walking and bicycling networks is an important component for livable communities and their design should be part of Federal-aid project developments. In support of this commitment, transportation agencies and local communities should go beyond minimum design standards and requirements to create safe, attractive, sustainable, accessible and convenient bicycling and walking networks.

The following types of system improvements categorize the transit alternatives:

- **Operations Improvement:** This category of improvement includes taking action on the strategies and goals listed in the Coordinated Transportation Plan Update. Examples include supporting coordination between transit providers and local entities as well as encouraging improvements to the current system when feasible.

- **Route Expansion:** This category includes expanding service countywide and offering demand response service; as well as developing a corridor level fixed-route transit service along the Hayes Avenue corridor in Sandusky.

As the demand for safe recreational opportunities increases, a larger investment in connecting existing parks and bikeways and adopting policies to provide for non-motorized travel along roadways becomes more important. The following types of system improvements categorize the non-motorized alternatives:

- **Trail Expansion:** This category of improvement includes connecting existing trails within the county as well as to adjacent counties.

- **Roadway Design:** This category includes developing a bicycle/pedestrian system along existing and proposed local/collector roadways and encouraging the "Complete Streets" concepts where feasible.

10.2 Recommended Transportation System Improvements

The purpose of the long-range transportation planning process is to identify a system-wide strategy for addressing regional needs that:

- Meet the local transportation goals and objectives.
- Support the mobility desires of the region.
- Can be funded over the 25-year planning period

Documented in the following sections are summaries of how each of these elements was addressed through the planning process.

1. Meeting the Transportation Plan's Goals and Objectives

Assessment of the consequences of alternative transportation system options is needed to efficiently administer funding appropriately. At the same time the alternatives must reflect the goals and objectives that have been established for the long-range transportation plan. These goals and objectives are used to develop performance measures that were used to evaluate projects to be included in the plan.

2. Support Local Mobility Need

Parallel with the alternatives review and system plan development, travel patterns within the study area were assessed using the statewide travel demand model results and an examination of existing transportation conditions. If an improvement concept does not support current and forecasted travel needs/desires in the region, it should not be included in the recommended plan. All *recommended* plan elements meet the criteria of complementing existing or future travel patterns.

3. Financial Feasibility

Federal legislation (23 CFR 450.324) requires that MPOs are responsible for preparing a fiscally constraint long-range transportation plan.

"…a financial plan that demonstrates how the long-range transportation plan can be implemented, indicates the resources from public and private sources that are reasonably expected to be made available to carry out the plan, and recommends additional financing strategies for needed projects and programs. The financial plan may include, for illustrative purposes, additional projects that would be included in the

adopted long-range transportation plan if reasonable additional resources beyond those identified in the financial plan were to become available. For the purpose of developing the long-range transportation plan, the MPO, the State, and public transit operators shall cooperatively develop estimates of funds that will be available to support plan implementation."

Roadway, transit and non-motorized improvements were slated for implementation in one of four categories (short-term, mid-term, mid/long-term, and long-term) and assessed for financial constraint.

There are 40 roadway preservation projects that are projected to have a total cost that equals $30,538,248. These are broken out into the following time periods:

- Short-term (within 10 years) = $22,238,248
- Mid-term (10 to 15 years) = $4,800,000
- Mid/Long-term (15 to 20 years) = $3,500,000

There are twenty-one expansion projects with an estimated total cost that equals $110,585,830.

- Short-term (within 10 years) = $7,160,000
- Mid-term (10 to 15 years) = $28,925,830
- Mid/Long-term (15 to 20 years) = $33,000,000
- Long-term (20 – 25 years) = $41,500,000

Several types of funding are available for the roadway improvement elements of the plan including:

- MPO Funds
- Surface Transportation Planning (STP)
- Congestion Mitigation Air Quality (CMAQ) not available since Erie County is an air quality attainment area
- Transportation Alternative (TA)
- Other funds
- Transportation Review Advisory Council (TRAC), ODOT District 3, County STP, County Bridge, City Bridge, and Safety

The total amount of forecasted potential funds is $168,456,757 for the next 25 years (or about $6.7 million that could be available for this 25-year plan.

Funding of the 10 non-motorized projects available through roadway improvement monies, and also projects can compete for various ODNR funds (not figured into available funding in this plan).

The total cost equals $23,364,207.60 and are broken out into the following time periods:

- Mid-term (10-15 years) = $8,944,299
- Mid/Long-term (1 -20 years) = $3,915,505.60
- Long-term (20-25years) = $10,353,923

Approximately $11.2 million is available for funding of transit projects, including the following:
Transit Demand Response Expansion

- Build upon the expanded transit service availability across all of Erie County, within next ten years ($160,000).

Intermodal Transfer Facilities (2 project)

- Develop Inter-County Transfer points with Ability Works expanding the Kalahari to New London, Ohio routs ($50,000).
- Explore other inter-county transfer points ($50,000)

Fixed Route Service Projects (1 project)

- Develop a corridor level fixed-route transit service along Hayes Avenue (workforce healthcare line - $200,000).
- Develop water taxi fleet program ($800,000).

Mobility Coordination (2 items)

- Work with local transportation/transit stakeholders to secure funding for a transit mobility manager. This would assist in finding ways to improve transit coverage and also to improve duplication of services that will reduce transportation costs.
- Participate in 3-year updates of the Coordinated Transportation Plan.

Expenditures for *recommended* roadway, transit and non-motorized projects satisfy financial constraints as shown in **Table 10-1**.

4. Adoption of the Recommended Long-Range Plan

The ERPC Policy Committee adopted the Recommended Long-Range Plan in July 2020; the implementation of the LRTP is set in motion through a series of three-year Transportation Improvement Program (TIP). The TIP lists the actual projects to be implemented and how they will be financed. The projects that are programmed in the TIP are the result of the objectives and policies identified in the Long-Range Transportation Plan. The ERPC MPO Long-Range Transportation Plan is required to be updated every five years.

Table-10-2 displays the action items that will take place in the implementation of the Erie County MPO Long-Range Transportation Plan. Each action item has a priority in order to insure a logical and reasonable implementation schedule for the transportation plan. These action items will be reviewed annually to ensure that plan goals and objectives are being realized and maintained. Further, the recommended transportation improvement projects listed in Chapter 9 will be moved forward through the planning, design and construction stages as the ERPC MPO implements this adopted Long-Range Transportation Plan.

Table 10-1 Recommended Project Funding Summary

Implementation Schedule and Estimated Costs	Project Type		
	Roadway Preservation and Roadway Expansion	Non-Motorized	Total
Short-Term (within 10 years)			
Forecasted Available Funding			$ 59,669,756
Project Cost	$ 29,398,248	$ 1,260,000	$ 30,658,248
Difference			$ 29,011,508
Mid-Term (10-15 years)			
Forecasted Available Funding			$ 35,078,744
Previous Period Carry Over			$ 29,011,508
Project Cost	$ 33,725,830	$ 8,944,299	$ 42,670,129
Difference			$ 21,420,123
Mid/Long-Term (15-20 years)			
Forecasted Available Funding			$ 36,222,647
Previous Period Carry Over			$ 21,420,123
Project Cost	$ 36,500,000	$ 3,915,505	$ 40,415,505
Difference			$ 17,227,266
Long-Term (20 - 25 years)			
Forecasted Available Funding			$ 37,485,609
Previous Period Carry Over			$ 17,227,266
Project Cost	$ 41,500,000	$ 10,353,923	$ 51,853,923
Difference			$ 2,858,952

Table 10-2: Implementation Program for the Erie County Long Range Transportation Plan

Priority	Action	Lead and Coordinating Agencies
1	Plan Adoption: ERPC will formally adopt the Erie County MPO 2045 Long Range Transportation Plan as its guiding document for development and improvement of its transportation system.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Ohio Department of Transportation (ODOT)
1	Land Use Plan: Implement the past, current, and future land use plan recommendations and coordinate land use and transportation decisions within zoning code to include: 1.) Compact mixed and contiguous land use patterns. 2.) New neighborhoods designed with grid pattern with sidewalks and street trees. 3.) Promote infill and reinvestment in underutilized areas. 4.) Activity centers should provide for bicycle, pedestrian and transit access.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Erie County, Erie County Engineer's Office
1	Access Management: Continue to support implementation of access management plans for principal and minor arterial corridors.	ERPC MPO, Erie County Planning, Cities and Villages within Townships within Erie County, Public Works Department, ODOT, Erie County Engineer's Office
1	Two-Lane to Three-Lane roads and Four-Lane to Five-Lane roads: ERPC MPO should consider converting two-lane undivided roadways to three-lane configurations with one through lane in each direction and a two-way left turning lane or dedicated left turn lanes at intersections. Likewise, the ERPC MPO should consider converting four-lane undivided roadways to a five-lane configuration. The appropriate roads to consider for these lane configurations are detailed in the recommended transportation plan.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, ODOT, Erie County Engineer's Office
1	Intersection Improvements: Implement intersection safety and engineering improvements listed in Chapter 9 under Recommended Transportation Improvements.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, ODOT, Erie County Engineer's Office
1	Parkways and trail system: Adopt and develop a trail system and a parkway guideline	ERPC MPO, Erie County Planning, Erie County Metroparks, Cities, Villages, and Townships within Erie County, Erie County, Erie County Engineer's Office
1	Local Street Design: New local streets should provide for traffic movement while ensuring a safe, attractive, and pedestrian and bicycle friendly neighborhood environments.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Erie County, Erie County Engineer's Office
1	Sidewalks: Require sidewalks or other pedestrian corridors in all new developments. Require pedestrian connections to greenway trails and other significant open space. Sidewalk connections and crosswalks at major intersections should be completed in coordination with new development. Sidewalks should have a minimum width of five feet in residential areas and wider (e.g. six to 12 feet) in commercial areas.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Erie County, Erie County Engineer's Office, ODOT

Priority	Action	Lead and Coordinating Agencies
1	Sidewalk System Inventory: Maintain database that and prioritizes sidewalk and pedestrian needs (e.g. pedestrian ramps, crosswalks, etc.).	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Erie County Engineer's Office, ODOT
1	Erie County Transit Route Restructuring Assessment and Long-Range Service Plan: participate in three-year updates of existing Coordinated Transit Plan to coordinate the provision of future transit services with the Erie County MPO Long Range Transportation Plan recommendations.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Federal Transit Administration, ODOT, STS
1	Non-Motorized Plan Implementation: Implement the Erie County MPO Long-Range Transportation Plan non-motorized system recommendations.	ERPC MPO, Erie County Planning, Erie County Metroparks, Cities, Villages, and Townships within Erie County, ODOT
1	Parking Management Plan: Develop and implement a parking management plan within Erie County in cities, villages, and townships where parking is an issue and where parking issues worsen congestion on roadways especially in downtown areas.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County
1	Traffic Calming: Utilize appropriate traffic calming strategies on local streets and other streets where deemed appropriate and institute a citizen-initiated traffic calming program.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Erie County Engineer's Office, ODOT
1	Walkway Maintenance and Snow Removal: Pedestrian walkways need to be maintained for year-round use. The county should develop and enforce sidewalk snow removal and maintenance ordinances and budget for the maintenance and snow removal of sidewalks under their jurisdiction.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Erie County Engineer's Office
1	Off Road and On Road Bicycle Facilities: Include appropriate bike facilities as part of major roadway reconstruction. Bike racks and enclosed lockers should be encourages at schools, major employment areas and commercial destinations.	ERPC MPO, Erie County Planning, Erie County Metroparks, Cities, Villages, and Townships within Erie County, ODOT
2	Waterfront property and ferry system: Support Erie County port and ferry initiatives to relocate or reconfigure operations of companies located on the waterfront that are no longer active users of dock facilities as identified in the land use and economic development plans.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County
2	Intelligent Transportation System (ITS): In conjunction with Erie County, ODOT and the various cities, villages, and townships within Erie County continue to develop and implement an ITS plan.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Erie County Engineer's Office

Priority	Action	Lead and Coordinating Agencies
3	Maintain Passenger Rail Corridor: Ensure that the rail corridor right-of-way that provides access in Erie County remains intact.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, AMTRAK
3	Intermodal Facilities: Work with trucking, rail, and port interests to investigate opportunities to enhance intermodal freight transportation.	ERPC MPO, Erie County Economic Development Corporation, Erie County Planning, Cities, Villages, and Townships within Erie County, Trucking, Rail, and Port companies
3	Corridor Preservation: Support initiatives to preserve corridors within Erie County for future transportation expansion plans.	ERPC MPO, Erie County Planning, Cities, Villages, and Townships within Erie County, Erie County Engineer's Office, ODOT