



Erie East Side Active Transportation Connections

DRAFT REPORT - JULY 2023

Prepared For:



Agreement E04805 – Work Order 6

Prepared By:



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Front Street existing conditions looking west near Parade Street

CHAPTER ONE

Project Overview

This chapter provides an overview of the feasibility study including a map of the study area and project purpose and goals. The chapter also includes brief summaries of previous plans, ongoing projects, and the evaluation process.

CONTENTS

- Project Background
- Relevant Plans and Studies
- Ongoing Projects
- Study Purpose/Goals
- Feasibility Evaluation Process

PROJECT BACKGROUND

Introduction

The City of Erie’s East Side community sits along the bayfront of Lake Erie. Its land use is characterized by residential communities, current and former industrial and institutional uses, as well as historical, cultural, and recreational landmarks and destinations. There are several barriers to access and circulation in the East Side community, especially for bicyclists and pedestrians. This project builds on several previous planning efforts and projects to identify and evaluate the feasibility of new bicycle and pedestrian connections through the area, with an emphasis on linking the residential neighborhoods to the Bayfront’s resources and connecting those resources to one another and to the existing regional bicycle and pedestrian network. The project was initiated by PennDOT’s Multimodal Deputate in partnership with the Erie Western PA Port Authority (Port of Erie). A steering committee with representatives from the East Side community provided guidance and input throughout the planning process. This study presents the technical feasibility evaluation, which can be used by project partners to identify funding and advance design and construction of potential bicycle and pedestrian improvements.



Active Transportation

This study focuses on “active transportation,” which refers to human-powered modes of transportation, such as walking and biking. Planning for active transportation can provide numerous community benefits, such as:

- Increasing safety
- Improving public health
- Reducing congestion
- Improving air quality
- Providing access and mobility for those unable to drive
- Supporting the local economy

Residents and visitors in the study area include people of all ages, differing physical abilities, differing levels of experience and confidence riding a bike, differing cultural and ethnic backgrounds, and varying travel needs. People walk and bike for a variety of purposes, including trips to work, school, shopping, and for recreation. People walk and bike to key destinations, either because they do not have another transportation option or because they prefer it. People also walk and bike for recreation, health benefits, or to enjoy the nearby natural and scenic environments. Some people may be traveling alone and looking for the quickest, most direct route as possible to work. Others may be traveling leisurely with family members (including pets) and are seeking to use the route that provides the most calm and comfortable environment. This feasibility study considered the diverse needs, abilities, and interests of bicyclists and pedestrians in the Erie East Side community

Study Area

As indicated on the map, the study area is within Erie’s East Side community and oriented along the Bayfront. As highlighted on the map, the Port of Erie and City of Erie own several properties within the study area and are key partners for the planning and evaluation process.



GRAPHIC LEGEND

EXISTING TRAIL

SIDEWALK

CITY OWNED PROPERTY

PORT OWNED PROPERTY

RELEVANT PLANS AND STUDIES

There are a number of previous plans, studies, and ongoing efforts that have looked at this study area from the perspective of bicycle and pedestrian access, recreation, tourism, and development. Summarized below are the plans, studies, and projects that are most recent and relevant to this study.

Port of Erie

Master Development and Facilities Plan (2018)

This plan takes a comprehensive look at the Port of Erie and makes recommendations to spur development at the port that is balanced between uses, honors and features historically significant sites, and is served by a multimodal transportation system. The plan notes several challenges that limit or prevent connectivity and access throughout the Bayfront. These include:

- Elevation changes due to bluffs;
- A minimal number of available access paths; and
- The automobile-centered nature of Bayfront Parkway

Among the plan’s recommendations, it proposes a bayfront walk or trail that would ideally wind through all of the Bayfront’s attractions while connecting to and expanding on the current Bayfront Bikeway / Bayfront Connector Trail. The trail is proposed to include, among other things, historical and cultural elements such as interpretive signage.

Other connectivity recommendations relevant to the study area include completing the Bayfront bicycle and pedestrian path from State Street to Holland Street and building a new switchback ramp near Parade Street to provide a walkway across the railroad tracks and Bayfront Parkway.

Finally, the plan proposes improved access and site improvements to the Erie Land Lighthouse. The historic structure is currently accessible only by driving narrow residential streets. The plan recommends a new pedestrian and/or vehicular connection from the parking lot at the end of East Avenue to the lighthouse that are the basis of this traffic analysis.

Master Development and Facilities Plan

The Erie-Western Pennsylvania Port Authority



City of Erie

Active Erie (2021)

Active Erie is a city-wide active transportation plan. The plan aims to create a network of low-stress bikeways and recommends several east-west and north-south streets that could be used. In the study area, East 6th Street is proposed as an east-west bikeway. The plan notes, however, that this segment would require some widening to accommodate low-stress two-way bicycle traffic, potentially including bike lanes.. It also proposes East Avenue as a north-south bikeway in the study area with a combination of bike lanes and sharrows as potential facilities.

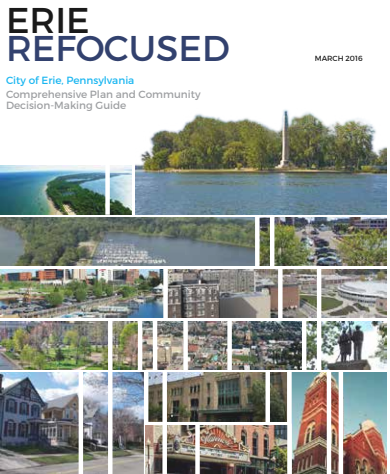


East Bayfront Neighborhood Plan (2020)

This plan was developed to further the recommendations of Erie Refocused, the city’s Comprehensive Plan. It focuses on the revitalization of the East Bayfront neighborhood, which overlaps with portions of this plan’s study area. Many of the recommendations center on public safety and blight removal. The plan proposes developing a park and trail network to connect the parks in the north and south ends of the neighborhood through targeted demolition of highly distressed buildings, simultaneously providing greenspace and addressing neighborhood blight. The plan also calls for enhancements to a portion of the Parade Street business corridor that is adjacent to this plan’s study area. This proposal includes the creation of a Cultural Trail to highlight the corridor’s historical importance.

Erie Refocused (2016)

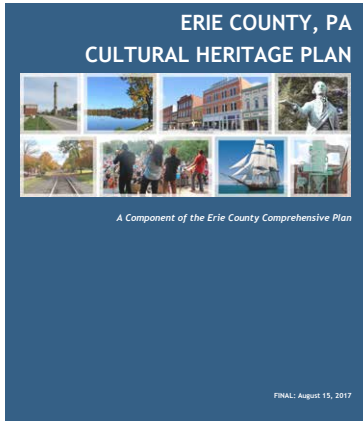
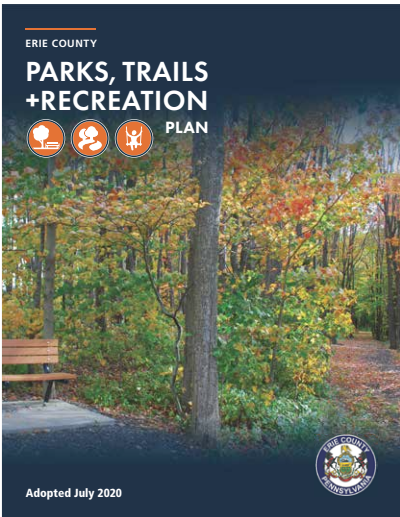
Erie Refocused is the City’s Comprehensive Plan and Community Decision-Making Guide. The plan emphasizes the city’s persistent blight conditions. It notes that in the East Bayfront area, which has notable overlap with this plan’s study area, at least two-thirds of properties showed moderate-to-severe disinvestment. In response, the plan calls for strategic demolition and park development in East Bayfront. Additionally, the plan recommends a Complete Street treatment for State Street and a waterfront development plan that prioritizes pedestrian comfort and mixed-use vitality. Finally, the plan calls for creating an iconic gateway connection between the Bayfront and downtown.



Erie County

Parks and Recreation Plan (2020)

This plan sets out to create a establish a better process for promoting existing parks, trails, and recreational assets and for prioritizing and implementing new ones. The plan proposes the creation of an Erie County Parks Commission/ Authority with dedicated staff and increased funding capacity to bring about the plan’s vision and to assist county municipalities. It also recommends establishing a trail connection between the City of Erie and the City of Corry, with the long-term goal of having a continuous trail from the City of Erie’s Bayfront to Point State Park in Pittsburgh.



Cultural Heritage Plan (2017)

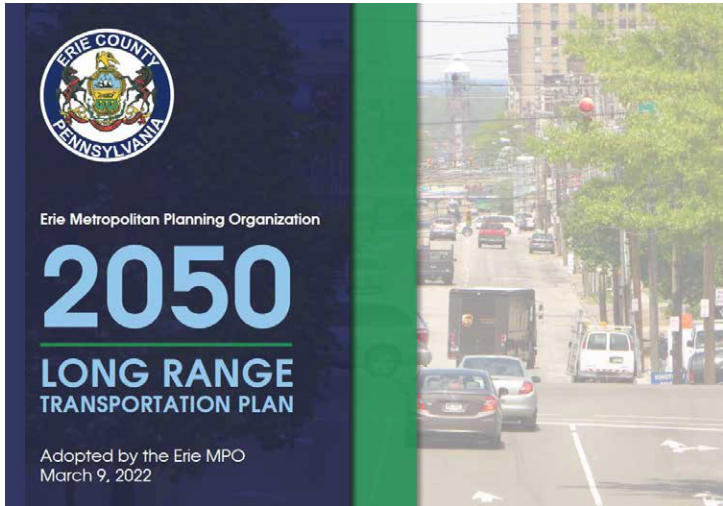
This plan is an element of the Erie County Comprehensive Plan. Its purpose is to establish a strategy to guide historic and cultural preservation efforts across the county. The plan notes several historic assets in or near the study area, including the Land Lighthouse. It also makes recommendations for directional and interpretative signage for historic assets and for pedestrian-scaled art projects.

Erie Metropolitan Planning Organization (MPO)

2050 Long Range Transportation Plan (LRTP) (2022)

This regional plan cites and prioritizes several projects in and around the study area. The plan recommends the installation of a protected bike lane on French Street and the improvements associated with the proposed Downing Avenue Bikeway from East 28th Street to East Lake Road. The LRTP also recommends to study directing the Erie to Corry trail through the study area to reach the Mile Zero marker at Dobbin’s landing.

Aspirational projects in the Bayfront study area include the Sassafra Pedestrian Bridge connecting city downtown to the waterfront and the 6th Street Bikeway. The LRTP also makes policy recommendations and endorses the East Bayfront Greenway system as proposed in the East Bayfront Neighborhood Plan, which calls for assembling blighted properties and converting them to a park and trail network.



By Other Agencies

Great Lakes Seaway Trail – Corridor Management Plan (CMP) (2005)

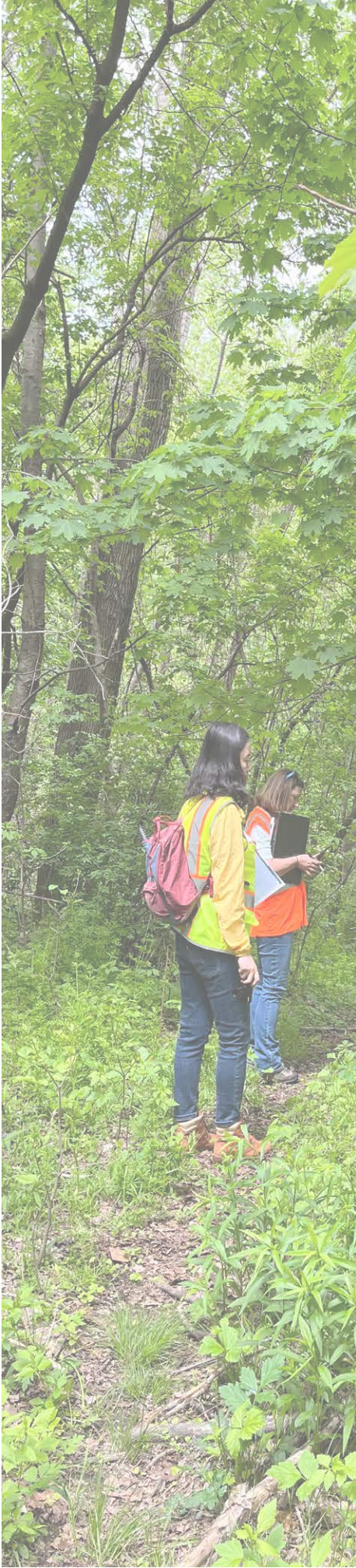
The Great Lakes Seaway Trail is a National Scenic Byway that stretches 518 miles and parallels the shoreline along Lake Erie, the Niagara River, Lake Ontario, and the Saint Lawrence River. In the City of Erie, the trail broadly uses PA Route 5 and segments of the Bayfront Bikeway and runs concurrently with PA Bicycle Route Z in a mostly on-road alignment. This plan makes recommendations for interpretive educations, marketing, and corridor management.

Three Forts Master Plan

This plan builds on local efforts to cluster and brand three heritage sites on the Bayfront, those being the historic French and British forts at Wallace Street Park and the American fort on Garrison Hill. The expansive site would be known as the Three Forts of Presque Isle and Interpretive Center or the Three Forts Campus. The plan makes several recommendations for improving vehicular and pedestrian access to the proposed Three Forts Campus, including directional and entrance signage as well as streetscaping improvements such as traffic calming, sidewalk widening, and installation of buffers. Additionally, the plan proposes overlooks and wayside exhibits for the stretch of Front Street between Holland Street and the proposed Three Forts Campus. Finally, the plan also endorses the idea put forth in the Port Authority Master Plan to enhance the Erie Land Lighthouse as an historic attraction by building a pedestrian connection and making improvements to the lighthouse site and also establishing a bicycle and pedestrian trail that would then connect the Land Lighthouse area to Gridley Circle.

Industrial Heartland Trails Coalition

This regional group is making efforts to develop a network of trails connecting communities in western Pennsylvania, northern West Virginia, eastern Ohio and the southwestern corner of New York. In the study area, the coalition identifies the Great Lakes Seaway Trail / PA Bicycle Route Z as part of a network that will eventually connect Erie to Pittsburgh and Cleveland amongst other destinations in the proposed network.



ONGOING PROJECTS

Bayfront Parkway Project

PennDOT’s Bayfront Parkway Project is aiming to improve pedestrian, bicycle, transit, and passenger vehicle connections between the Erie Central Business District, adjacent neighborhoods, and the waterfront. The improvements to the parkway are being implemented in a phased approach. In May 2022, PennDOT completed the Soldiers’ and Sailors Access Improvements, which included a new bridge over the CSX railroad tracks to provide a grade separated crossing and connect the Soldiers’ and Sailors’ to the Veterans Cemetery and Anthony Wayne Blockhouse. The project also includes a new pedestrian bridge crossing the Bayfront Parkway at Holland Street and a roundabout at the intersection of the Bayfront Parkway and Holland Street. These improvements are in design and preliminary designs are illustrated on the maps that are included in this feasibility study.

East Bayfront Parkway (SR 4034) Safety Improvements

PennDOT is designing improvements to the East Bayfront Parkway between the intersection with Bay Drive / Port Access Road (to the north) and 12th Street / PA Route 5 (to the south). Most notable within the study area is improvements at the intersection of Bayfront Parkway / 6th Street. The designs include a median, sidewalk connections, and ADA curb ramps at the intersection to improve safety for the pedestrian crossing.

6th Street / Lake Road Bikeway

The City of Erie is designing a bikeway for the 6th Street / Lake Road between Washington Avenue and the eastern city limit. This builds upon recommendations in the city’s active transportation plan and the designation of a portion of the corridor as the Seaway Trail / PA Bicycle Route Z. The design includes bike lanes or shared lane markings along the corridor, depending upon feasibility.



STUDY PURPOSE/GOALS

The purpose of this study is to identify and assess potential bicycle and pedestrian improvements in Erie’s East Side community. In developing these improvement options, the project team was guided by the following goals.

- Connect residents to the Bayfront and its key destinations by means of walking and biking
 - Key destinations and landmarks include Wallace Street Park, Anthony Wayne Blockhouse, Soldiers’ and Sailors’ Home, and the Erie Land Lighthouse
- Connect the East Bayfront’s cultural, historic, and scenic resources to one another by means of walking and biking
 - The study envisions a continuous corridor for pedestrians and cyclists to be able to visit these attractions, though the improvement projects needed to achieve this goal will likely need to be phased over time as funding and resources become available. The use of on-road connections may be necessary as an interim or substitute connection in some instances.
- Create new connections to the existing regional trail and on-road bikeway network
 - Recommended improvements will look to leverage the existing pedestrian and bicycle network and expand its reach
- Support economic development
 - Successful implementation of the proposed improvements will make the East Bayfront a destination for visitors and residents alike. Connecting the area’s attractions to one another and branding them cohesively through signage and wayfinding will combine and enhance the interest that each individual destination generates.

FEASIBILITY EVALUATION PROCESS

In developing alternatives for completing bicycle and pedestrian connections between key destinations through the study area, the p evaluation process included the following key steps:

- Reviewing previous plans.
- Coordinating with project partners regarding ongoing projects.
- Conducting a field visit in May 2022.
- Gathering data and developing basemaps to illustrate existing conditions.
- Synthesizing key issues.
- Reviewing current design criteria, design requirements, and other best practices related to bicycle and pedestrian infrastructure.
- Developing an active transportation toolbox that describes potential bicycle and pedestrian infrastructure.
- Developing and evaluating options for off-road and on-road bicycle and pedestrian facilities to connect key destinations.
- Completing traffic analysis for options involving potential improvements at the key intersection of Bayfront Parkway / Bay Drive / Port Access Road.
- Identifying selected improvements based on the feasibility evaluation and input from stakeholders and project partners.
- Developing conceptual design exhibits and order of magnitude cost estimates for selected improvements.
- Developing a strategy for potential implementation of selected improvements.

Project Partners and Stakeholders

Input from stakeholders and project partners was an instrumental part of the evaluation process. The steering committee included representatives from the following organizations:

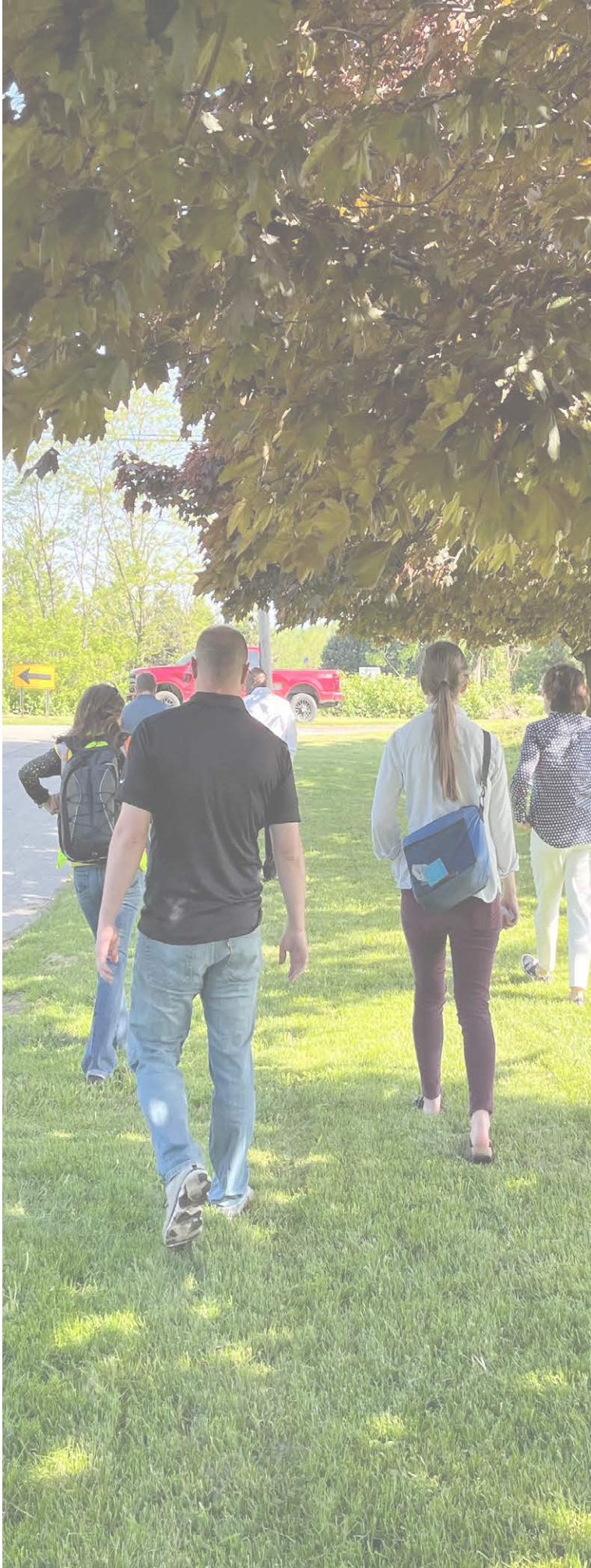
- Erie Port
- City of Erie
- Erie County Redevelopment Authority
- Erie Metropolitan Planning Organization
- PennDOT District 1
- Local organizations: Bayfront Eastside Taskforce, East Side Renaissance, Parade Street Redevelopment, SONS Lake Erie, Presque Isle Light Station (Land Light House)
- Janitor Supply

The steering committee met virtually three times and held one in-person field walk. Summaries of the three meetings are included in **Appendix A**.

- April 25, 2022
- May 25, 2022 – Field Walk
- September 28, 2022
- February 1, 2023

In addition to the steering committee, separate technical coordination meetings were held with the following organizations to gather input for the selection of improvements:

- CSX Railroad: July 29, 2022 (Informal phone conversation with CSX representative)
- PennDOT District 1: November 8, 2022
- City of Erie: December 1, 2022
- Presque Isle Light Station (Land Light House): January 11, 2023
- Port of Erie: January 19, 2023
- Soldiers’ and Sailors Home / Department of Military and Veterans Affairs (DMVA): January 30, 2023





Erie Bayfront and No Pedestrian Crossing Signs at the intersection of Bayfront Parkway / Bay Drive / Port Access Road

CHAPTER TWO

Existing Conditions Analysis

This chapter provides an overview of existing conditions within the study area and highlights key issues and constraints that were factors in the evaluation of potential bicycle and pedestrian connections.

CONTENTS

- Existing Conditions
- Roadways and Traffic
- Safety Review
- Bicycle and Pedestrian Infrastructure
- Public Transportation
- Land Use, Landmarks, and Environmental Resources
- Key Issues and Considerations

EXISTING CONDITIONS

This summary of existing conditions and key issues was developed based on background research, field observations, available Geographic Information Systems (GIS) data, aerial photography, and other readily available data. The following descriptions and **Existing Conditions Maps** highlight existing conditions that are relevant to this feasibility evaluation. For the purpose of presenting existing conditions, the study area was divided into three sections that are shown on the overview map.



ERIE EAST SIDE ACTIVE TRANSPORTATION CONNECTIONS | Existing Conditions Map #1

Front Street (Holland Street to Parade Street)

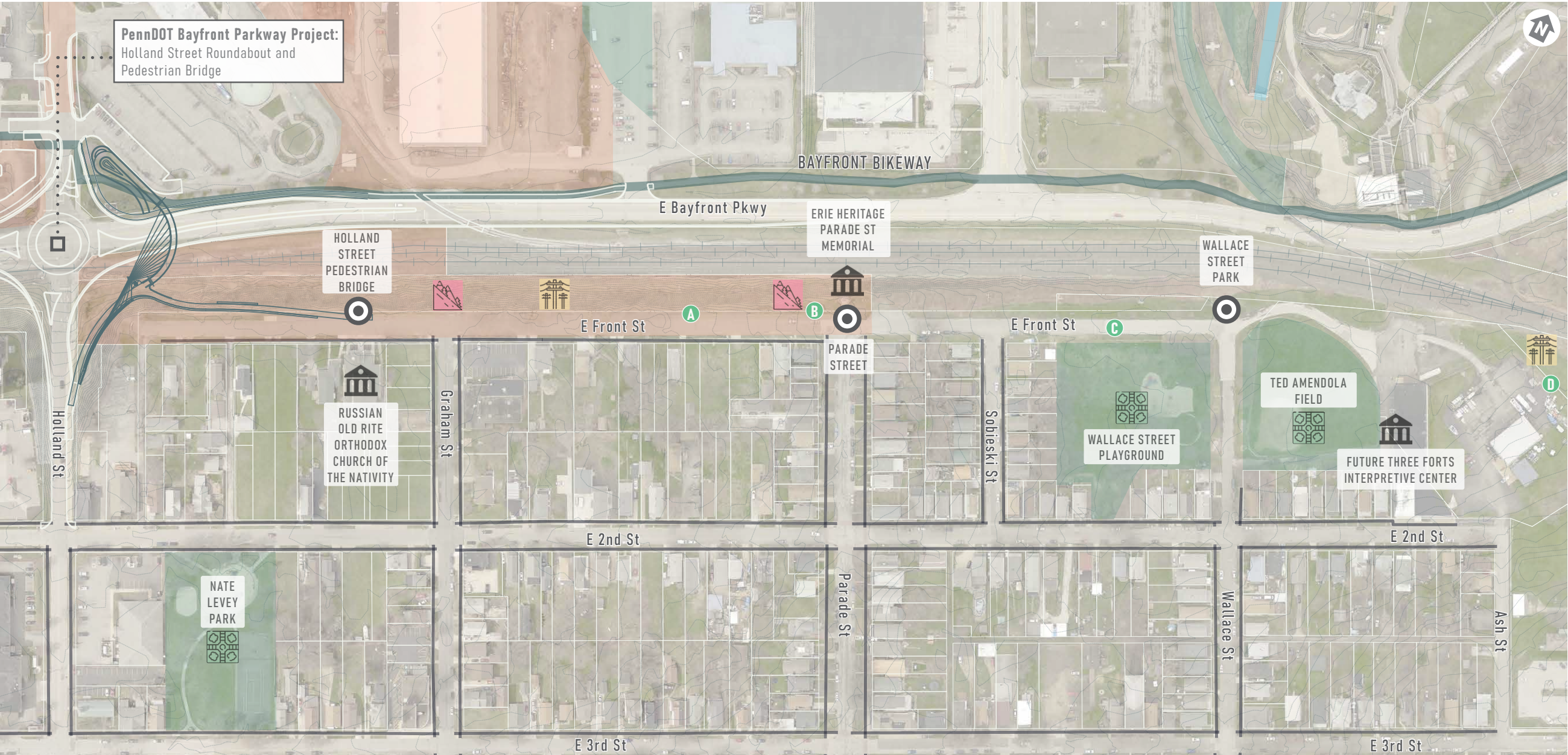
- Owned by the Port
- Two-way travel with parking permitted on both sides
- Cartway width: 28'
- Path (10' wide) on north side and sidewalk (5' wide) on south side

- Land use: Residential and institutional
- Other features: Views of Lake Erie and the Bayfront; Mature trees (northside); Birdhouses (northside); Overlook areas (northside)

Front Street (Parade Street to Wallace Street)

- Two-way travel with parking permitted on both sides
- Cartway width: 28'
- No existing path or sidewalks

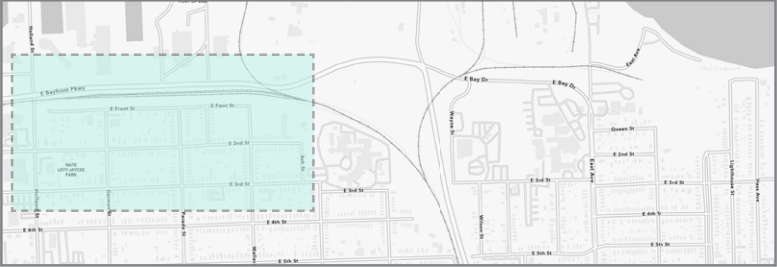
- Land use: Residential and institutional
- Other features: Angled on-street parking area near Parade Street













SITE PHOTOS



KEY MAP



GRAPHIC LEGEND

 KEY DESTINATION	 LANDMARK	 WET SOILS	 EXISTING TRAIL	 PORT OWNED PROPERTY
 PUBLIC PARK	 STEEP SLOPE	 MAJOR UTILITIES	 SIDEWALK	 CITY OWNED PROPERTY

ERIE EAST SIDE ACTIVE TRANSPORTATION CONNECTIONS | Existing Conditions Map #2

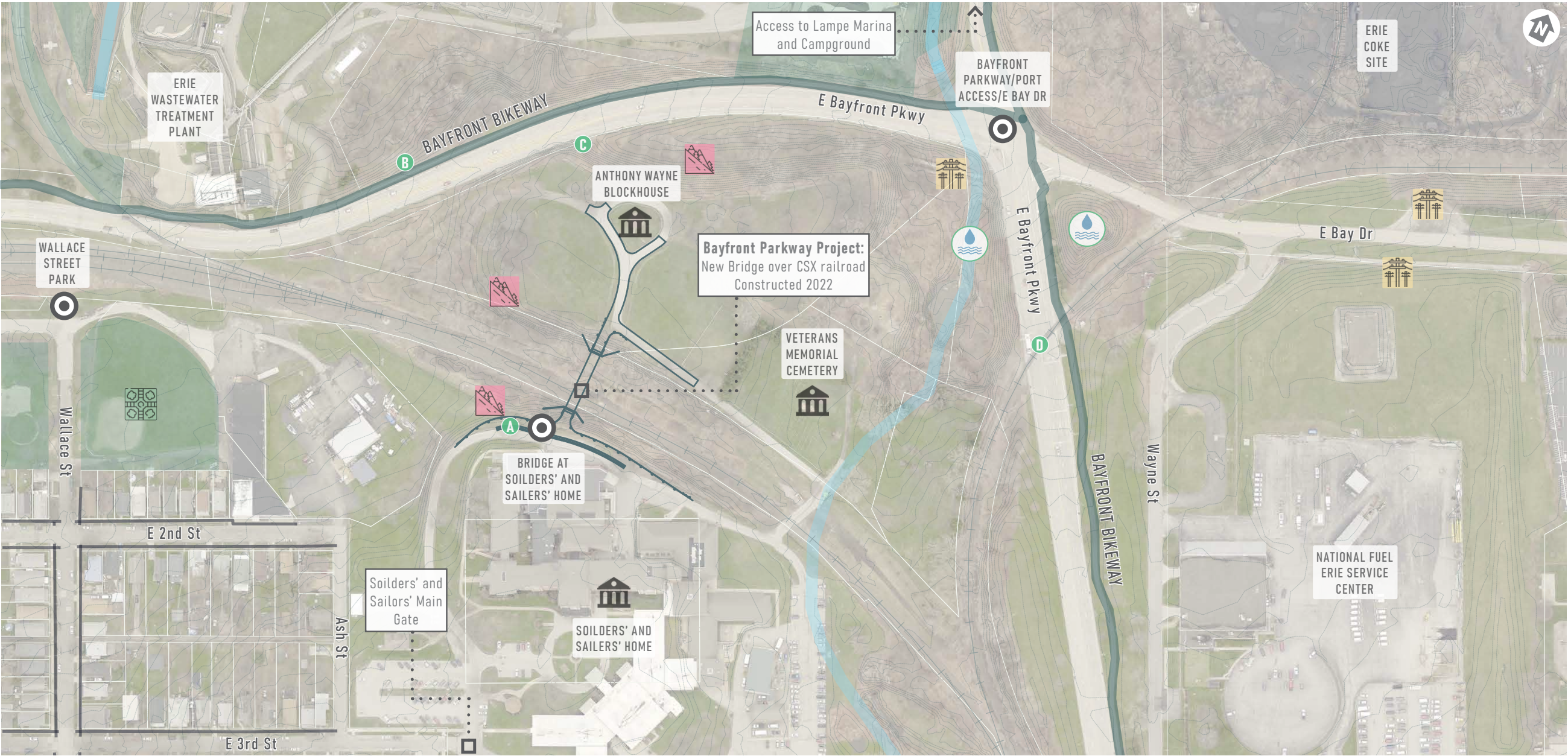
Bayfront Parkway (One Dock Road to East Bay Drive/Port Access)

- Two lanes in each direction near East Bay Drive; Transitions to three-lane cross section near Erie Wastewater Treatment Plant
- Cartway width: 24' - 28'

- Path (8' - 10' wide) on northside
- Land use: Industrial and railroad

East Bay Drive (Bayfront Parkway/Port Access to East Avenue)

- Two-lane roadway
- Cartway width: 24' - 28'
- No existing paths or sidewalks
- Land use: Industrial and institutional













SITE PHOTOS



KEY MAP



GRAPHIC LEGEND

	KEY DESTINATION		LANDMARK		WET SOILS		EXISTING TRAIL		PORT OWNED PROPERTY
	PUBLIC PARK		STEEP SLOPE		MAJOR UTILITIES		SIDEWALK		CITY OWNED PROPERTY

ERIE EAST SIDE ACTIVE TRANSPORTATION CONNECTIONS | Existing Conditions Map #3

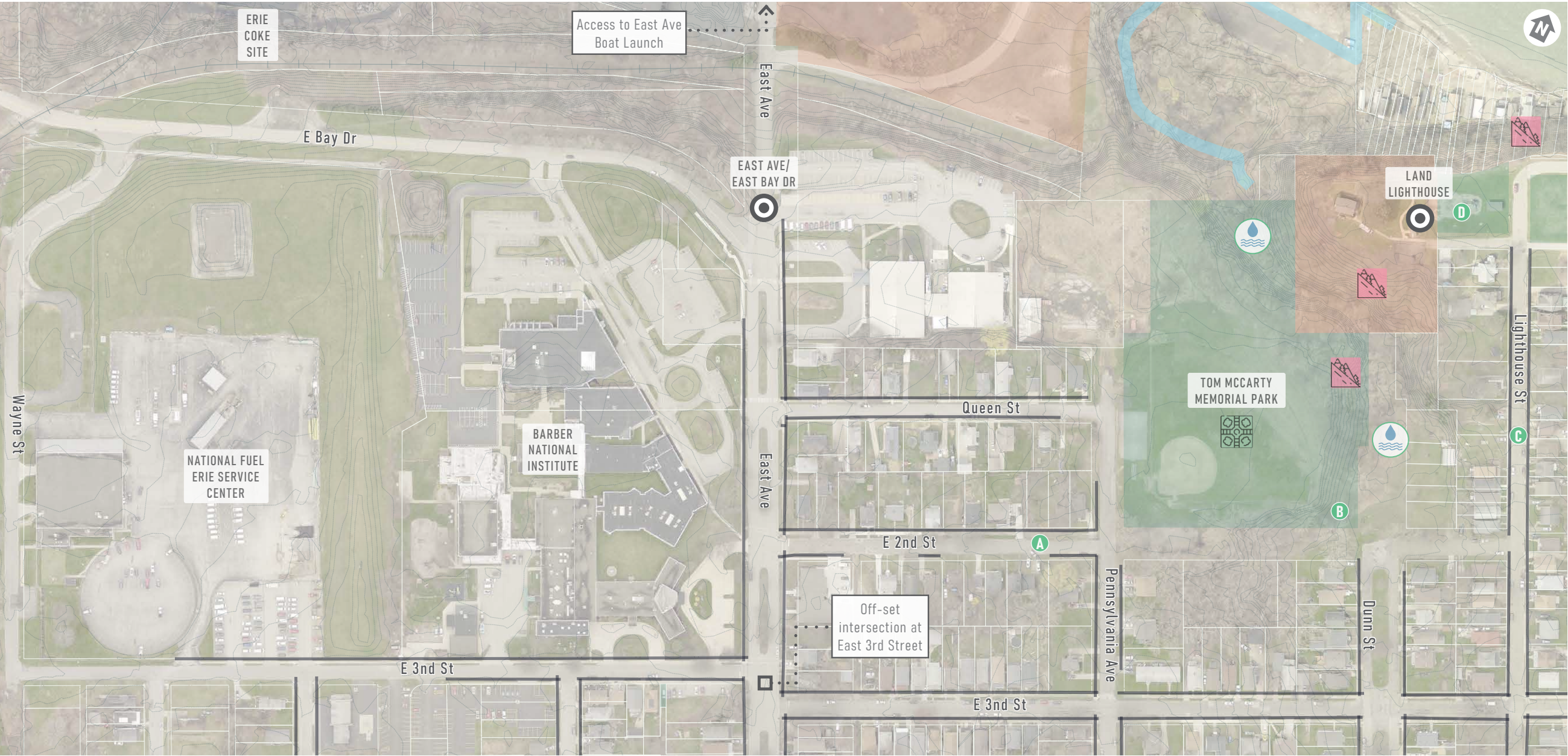
East Avenue (East Bay Drive to East Lake Road / 6th Street)

- Two-lane roadway with center median and on-street parking on both sides
- Cartway width: 20' in each direction with 16' median
- Sidewalks on both sides

- Land use: Residential and institutional
- Features: Grass center median includes mature trees; Sharrows recommended in Active Erie Transportation Plan

Queen Street, East 2nd Street, East 3rd Street, Lighthouse Street

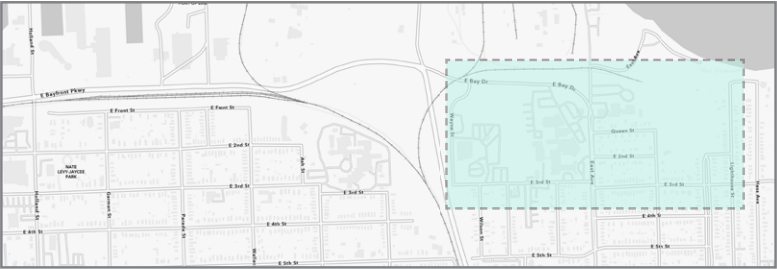
- Two-lane roadways with on-street parking
- Cartway width: 26' - 30'
- Sidewalks generally provided on both sides, but often narrow, in need of maintenance, and with some gaps (particularly on East 2nd Street)
- Land use: Residential













SITE PHOTOS



KEY MAP



GRAPHIC LEGEND

 KEY DESTINATION	 LANDMARK	 WET SOILS	 EXISTING TRAIL	 PORT OWNED PROPERTY
 PUBLIC PARK	 STEEP SLOPE	 MAJOR UTILITIES	 SIDEWALK	 CITY OWNED PROPERTY

ROADWAYS AND TRAFFIC

The Table of Key Roadways and Traffic Data presents the ownership, functional classification, traffic volumes, and speed limits for roadway segments within the study area. As highlighted in the table, the Bayfront Parkway is a principal arterial that is owned by PennDOT. Due to the volume and speed of traffic, as well as topography in the area, the Bayfront Parkway somewhat acts as a barrier for bicycle and pedestrian access and circulation. Traffic counts were collected at the intersection of Bayfront Parkway / Bay Drive / Port Access Road and are summarized in **Appendix B - Traffic Memo**.

KEY ROADWAYS AND TRAFFIC DATA

ROADWAY	OWNERSHIP	FUNCTIONAL CLASSIFICATION	ANNUAL AVERAGE DAILY TRAFFIC (AADT) (VEHICLES PER DAY)	SPEED LIMIT (MPH)
Bayfront Parkway (SR 4034)	PennDOT	Principal Arterial	16,000	45
6th Street / Lake Road (east of Bayfront Parkway)	City of Erie	Principal Arterial	6,600	25
6th Street (west of Bayfront Parkway)	City of Erie	Minor Arterial	4,400	25
Bay Drive; East Avenue	City of Erie	City of Erie	3,600	25
2nd Street; 3rd Street; Parade Street; Wallace Street; Lighthouse Street; Queen Street	City of Erie	Local	<500	25
Front Street; Port Access Road	Port of Erie/City of Erie	Local	<500	25

SAFETY REVIEW

Based on the study area characteristics and focus of the feasibility evaluation, a crash analysis was conducted for the intersection of Bayfront Parkway/Bay Drive/Port Access Road. Reportable crashes which occurred at or within 200 feet of the intersection between January 1, 2017 and December 31, 2021 (the most recent 5-year period for which data is available) were reviewed. Within the analysis period, there were 15 reportable crashes. The majority of these crashes (13) resulted in no injuries, while the two incidents involving injuries resulted in suspected minor injuries or injuries of unknown severity. The majority of the crashes (8) involved vehicle collisions with fixed objects and approximately a third of the incidents occurred in icy/snowy conditions. None of the crashes involved pedestrians or bicyclists

BICYCLE AND PEDESTRIAN INFRASTRUCTURE

The study area has an extensive network of existing sidewalks and includes several regional bicycle and pedestrian paths.

- **Bayfront Bikeway:** The Bayfront Bikeway, also known as the Bayfront Connector Trail, is approximately 9 miles long and runs from Frontier Park to Penn State Behrend’s campus. Within the study area, the trail parallels the Bayfront Parkway and is generally an 8’ – 10’ wide asphalt shared use path.
- **Great Lakes Seaway Trail / PA Bicycle Route Z:** Within the study area, a portion of the Bikeway is part of the Great Lakes Seaway Trail, which is a National Scenic Byway along Lake Erie and Lake Ontario through Pennsylvania and New York. Within Pennsylvania, it is also known as PA Bicycle Route Z and follows portions of Lake Road, 6th Street, and the Bayfront Parkway within the study area. There is bicycle route/wayfinding signs for PA Bicycle Route Z.
- **Lampe Pedestrian Bicycle Path:** This pathway is located on the east side of Port Access Road and provides bicycle/pedestrian access to the Lampe campgrounds, marina, and south pier. It connects to the Bayfront Bikeway at the intersection of Bayfront Parkway / Bay Drive / Port Access Road.
- **6th Street / Lake Road Bikeway:** As noted above, a portion of Lake Road and 6th Street east of the Bayfront Parkway are part of PA Bicycle Route Z. There are existing striped shoulders and share the road signs on Lake Road between Pat Black Drive and East Avenue. The City of Erie is designing improvements to the entire 6th Street / Lake Road bikeway to include bike lanes and shared lane markings between the Bayfront Parkway to the west and the eastern city limit near Euclid Avenue.
- **Front Street Promenade:** The Port of Erie owns a stretch of Front Street generally between Holland Street and Parade Street. There is an existing 10’ path along the north side of Front Street and atop the bluffs with views of the bayfront.
- **Sidewalks and Crosswalks:** Sidewalks are common on both sides of roadways in most locations in the study area. However, some of the sidewalks are narrow (less than four feet wide) and some are in poor condition. Additionally, there are some gaps in the sidewalks. Curb ramps are provided at most intersections. While some ramps have been upgraded to be ADA compliant, others do not meet current ADA standards. Crosswalks are marked at major intersections, but are generally unmarked within residential neighborhood areas.



PUBLIC TRANSPORTATION

The Erie Metropolitan Transit Authority operates several fixed route bus services within the study area, focused primarily on the 6th Street / Lake Road corridor. Most stops are marked simply with a sign, but there are some stops with bus shelters or other amenities. Planning and design of bicycle and pedestrian infrastructure should consider the needs of public transit riders because most will access services by walking.

Route 21 – Lawrence Park: Within the study area, Route 21 operates along the 6th Street / Lake Road corridor on weekdays and Saturdays. Weekday service runs approximately every 40 minutes during peak periods.

Route 11 – Harborcreek: Route 11 also operates along 6th Street / Lake Road with service only on Fridays.

Route 23 – Belle Valley: Route 23 operates along segments of 2nd Street, 3rd Street, and Parade Street within the study area. It has weekday service only in the morning and afternoon peak periods.

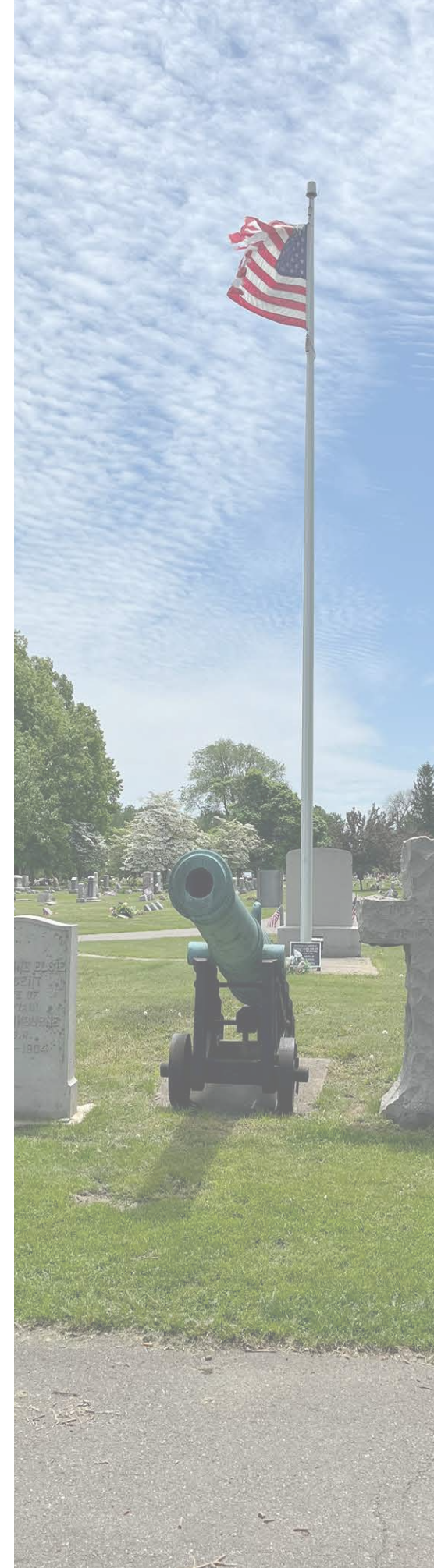
LAND USE, LANDMARKS, AND ENVIRONMENTAL RESOURCES

The Erie East Side Community is predominately a residential neighborhood with single family or multi-family dwellings. Within the residential areas, there are a couple significant institutions, including the Soldiers’ and Sailors’ Home and Barber National Institute. To the north of the study area is the bayfront, which has a mix of commercial, industrial, and recreational uses.

As shown on the Existing Conditions Maps, there are several landmarks along the Bayfront and in the Erie East Side Community that are existing or future historic and cultural sites. These landmarks are unique community assets and potential destinations for walking and biking trips. Some additional information regarding these landmarks, other community resources, and natural resources in the study area is provided in **Appendix C – Environmental Constraints Memo**.

- **Russian Old Rite Orthodox Church of the Nativity:** The church, with distinctive Russian architecture, was established on Front Street in the early 1900s by Russian immigrants who moved to Erie to work on the docks. In 1986, there was a devastating fire at the church. The church was rebuilt and remains a landmark as well as Russian Orthodox Church on the Bayfront.
- **Erie Heritage Parade Street Memorial:** This site is located at the intersection of Front Street and Parade Street. It includes flags, historical markers, and interpretive signs about the early settlement and history of Erie.
- **Future Three Forts Interpretative Center:** There is a local initiative to develop a Three Forts Interpretive Center and interpretative memorial site in the area of the existing Wallace Street Park and Janitors Supply property. A Master Plan was completed in 2021 and supporters are in the process of determining potential next steps for bringing the plan to fruition.
- **Soldiers’ and Sailors’ Home:** The Soldiers’ and Sailors’ Home was opened in 1886 and continues to serve as a home for veterans and their spouses. There are just over 200 beds at the facility and they offer different levels of nursing care to residents. It is the oldest of six veterans homes in Pennsylvania that are managed by the Department of Military and Veterans Affairs (DMVA).

- **Anthony Wayne Blockhouse:** The Anthony Wayne Blockhouse is located on the property of the Soldiers’ and Sailors’ Home and at the top of Garrison Hill. It is located at the original burial spot of Revolutionary War General Anthony Wayne and the site of a late eighteenth-century fort. The replica fort blockhouse was built in 1880 by the state of Pennsylvania on the site of the re-discovered grave of General Anthony Wayne.
- **PA Soldier’s and Sailors’ Cemetery (Veterans Memorial Cemetery):** The cemetery with more than 1,300 gravesites is located at the Soldiers’ and Sailors’ Home and was established in 1886. It includes graves from the Civil War. It is maintained by the DMVA and is the only state cemetery. DMVA has plans to expand the cemetery and add a columbarium.
- **Erie Land Lighthouse:** The Erie Land Lighthouse is located at the northern terminus of Lighthouse Street. It was the first lighthouse built by the federal government on the Great Lakes and was in operation from 1818 to 1880. The existing structure was built in 1867. It is owned by the Port of Erie, but leased and operated by Presque Isle Light Station, a non-profit organization. The lighthouse was listed on the National Register of Historic Places in 1978.
- **Gridley Circle:** Gridley Circle is located at the northern edge of Lakeside Cemetery and just beyond the focus area for this feasibility study. The circle is named for Captain Charles V. Gridley, who was a famous commander during the Spanish-American War and is buried nearby. The cemetery driveway circles a memorial that includes a flag, tombstones, and cannons. In addition to the historic significance, this area of Lakeside Cemetery offers unobstructed views of Lake Erie. Gridley Circle was identified by stakeholders as a potential destination along the east side of the bayfront.
- **Parks:** There are three parks owned by the City of Erie within the study area.
 - **Wallace Street Park:** Wallace Street Park is located on both sides of Wallace Street, just south of Front Street. The park facilities include a playground and Ted Amendola Memorial Ballfield. There is limited space for parking at the park and there are no connecting sidewalks or paths that provide access to the park.
 - **McCarty Park:** The Tom McCarty Memorial Park is located east of Pennsylvania Avenue generally between 2nd Street and Queen Street. The park facilities include a outdoor basketball court, ballfield, and a small gravel area used for parking in the area of 2nd Street extended.
 - **Nate Levy-Jaycee Park:** The Nate Levy Park fronts both 2nd Street and 3rd Street between Holland Street and German Street. It includes tennis courts, playground, and open grass area.



KEY ISSUES AND CONSIDERATIONS

Based on the analysis of existing conditions, summarized below are key issues and considerations that influence the development and evaluation of potential bicycle and pedestrian connections.



Bayfront

- Destination and activity center for both residents and visitors, including special events
- Redevelopment potential



Recreational, Cultural, and Historic Destinations

- Numerous existing recreational, cultural, and historic destinations close to the Bayfront in the East Erie community
- Some destinations are not easy to access, especially by walking or biking
- Planning for the Three Forts Interpretative Center is underway and this will be a new destination and attraction in the area of Wallace Street Park



Soldiers' and Sailors' Home

- Oldest veterans' home in Pennsylvania
- Property is fenced with one public entrance that requires sign-in and screening
- Property includes Major General Anthony Wayne Blockhouse and Veterans Memorial Cemetery



Port of Erie

- Significant landowner
- Supports a wide range of activities along the bayfront, including commercial port operations, recreation, and redevelopment
- Access and circulation by all modes is critical to sustaining the broad range of port activities



Bayfront Parkway

- Existing Bayfront Bikeway supports walking and biking for both transportation and recreation
- PennDOT's Bayfront Parkway improvement project is underway and includes a recently completed bridge over the railroad tracks at Soldiers' and Sailors' Home and a new bicycle/pedestrian bridge in design near Holland Street
- Intersection of Bayfront Parkway/Bay Drive/Port Access Road is a key crossing and connection for the Bayfront Bikeway



CSX Railroad

- Active railroad located between the bayfront and east Erie community
- Barrier to access and circulation, including for bicyclists and pedestrians
- CSX is opposed to any at-grade crossing of their tracks in this area
- CSX does not permit bike/ped facilities on their property
- CSX objects to publicly accessible pathways and trails within 50' of existing tracks



Existing Streets and Sidewalks

- The street grid is well-established within the project area and supports access to residential, industrial, recreational, and institutional land uses
- Many of the existing streets are relatively narrow and support on-street parking
- The sidewalk network is well connected, but there are some gaps and many sidewalks are narrow, have obstructions, need repairs, and do not meet current ADA requirement
- There are no existing on-road bicycle facilities, but the City of Erie is designing bicycle facilities for the 6th Street corridor



Topography

- Front Street located on bluff above CSX railroad and Bayfront Parkway
- Bunkhouse located on Garrison Hill
- Ravine west of the Land Lighthouse
- Steep slopes adjacent to sections of Bayfront Parkway and East Bay Drive, particularly at the Bayfront Parkway/Port Access/East Bay Drive intersection



Utilities

- There are significant underground and above ground utilities within the project area, including water and sewer pipes, gas mains and overhead electric lines



Residents and Visitors with Different Needs and Interests

- Improvements must consider the needs and interests of a range of potential users





Soldiers' and Sailors' Pedestrian Bridge

CHAPTER THREE

Evaluation Criteria and Approach

This chapter presents the overall approach, assumptions and parameters, design criteria, and finally the development and evaluation process for potential bicycle and pedestrian connections within the study area. The chapter also includes an active transportation toolbox that defines various bicycle and pedestrian facilities and supportive amenities.

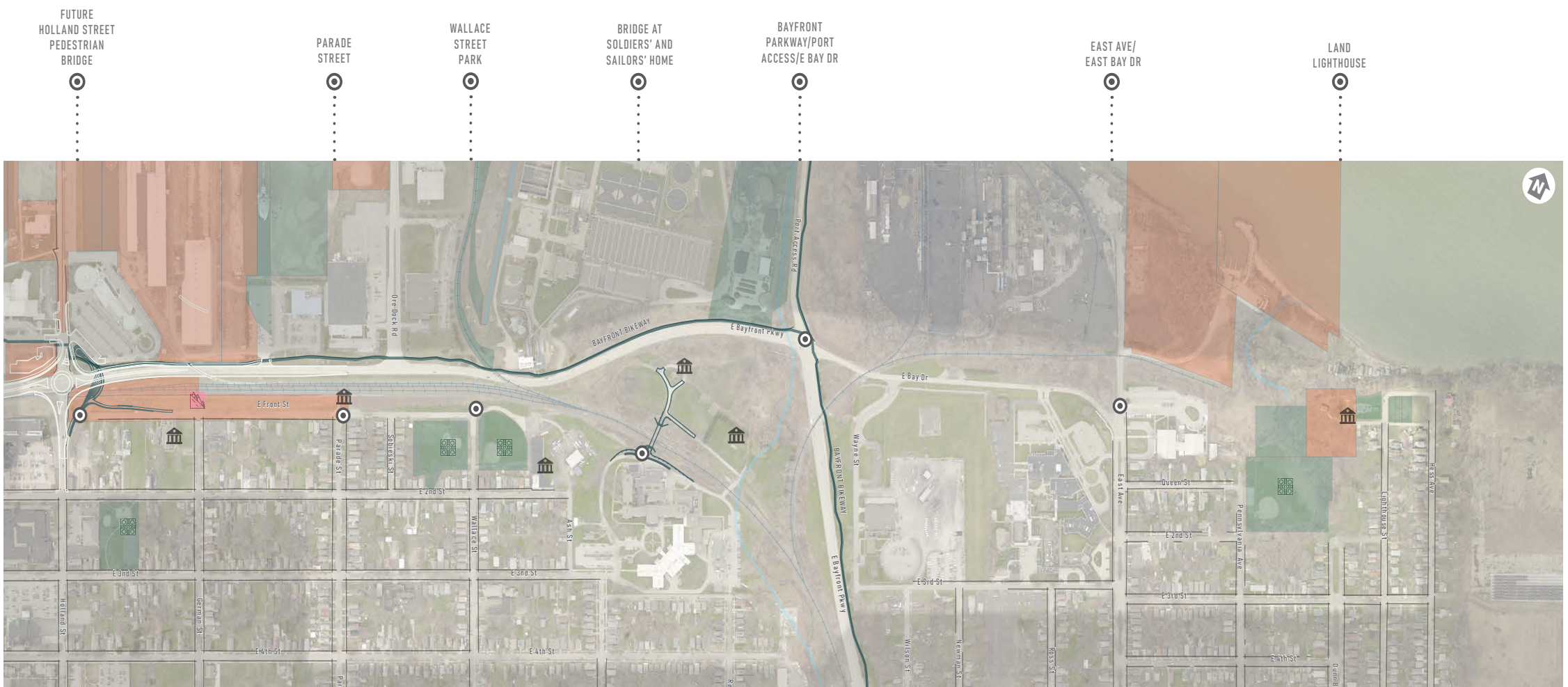
CONTENTS








- Overall Evaluation Approach
- Assumptions and Parameters for Improvement Options
- Active Transportation Toolbox
- Concept Development Process

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Given the size and characteristics of the study area, bicycle and pedestrian connections will likely be implemented in a phased approach over time. The overall approach for the feasibility evaluation involved dividing the study area into smaller independent segments based on key destinations or nodes and defining links between sequential nodes. Linking adjacent key destinations will provide bicycle and pedestrian connections that are logical, meaningful, and beneficial. While each segment is independent, they each relate and connect to the adjacent segments and support the development of a more connected bicycle and pedestrian network.

Based on stakeholder input and the field view, the following eight key destinations or nodes were identified. Each key destination offers access to various landmarks and other local resources. **Options** for providing bicycle and pedestrian connections were identified and evaluated for the **segments** between each of the key **destinations**.



- | | | | | | | |
|---|--|---|--|--|---|---|
|  Holland Street Pedestrian Bridge (future) |  Erie Heritage Parade Street Memorial |  Wallace Street Park |  Soldiers' and Sailors' Home Bridge |  Bayfront Parkway / Port Access / East Bay Drive Intersection |  East Avenue / East Bay Drive Intersection |  Land Lighthouse |
| <ul style="list-style-type: none">• Erie Bayfront• Bayfront Bikeway | <ul style="list-style-type: none">• Parade Street Redevelopment | | <ul style="list-style-type: none">• Anthony Wayne Blockhouse• Veterans Memorial Cemetery | <ul style="list-style-type: none">• Bayfront Bikeway• Lampe Campground• Lampe Marina | <ul style="list-style-type: none">• National Barber Institute• East Avenue Boat Launch / Public Beach | |

ASSUMPTIONS AND PARAMETERS FOR IMPROVEMENT OPTIONS

In addition to evaluating options within segments that link key destinations, the following assumptions and parameters influenced the development and evaluation of bicycle and pedestrian connections.

- Focus on options that are consistent with current PennDOT and City of Erie standards and maintenance preferences.
- Focus on options that provide off-road and dedicated facilities for both bicyclists and pedestrians (such as a shared use path), when feasible.
- Focus on options that connect to the existing regional bicycle and pedestrian network, including the Bayfront Bikeway, future Holland Street Pedestrian Bridge, and 6th Street Bikeway.
- Focus on options that are consistent with the on-going and future planning efforts of PennDOT, the City of Erie, and the Port Authority.
- Focus on options that serve the needs of residents in the Erie East Side community, while considering the needs of visitors to the area.
- Focus on design treatments and features that create a safe and comfortable walking environment.
- Focus on options that do not require bridges or structures with high capital costs and costs for ongoing maintenance.
- Consider consistency and support for community revitalization initiatives, particularly along Parade Street and East Avenue.
- Consider environmental constraints and resources.
 - Example: at the intersection of Bayfront Parkway / Bay Drive / Port Access Road, avoid impacts at the southwest corner where there is a cluster of environmental resources, major utilities, and steep slopes.
- Strive to identify options that minimize impacts to existing parks and recreational facilities. Consider options that enhance access to existing parks.
- Strive to identify options that minimize potential impacts to residents, staff, and visitors to the Soldiers' and Sailors' Home, which has a fenced campus. Any options on the property will require close coordination and approval from the Department of Military and Veterans Affairs.
- Do not consider new crossings of CSX railroad tracks in the area between Holland Street and the Soldiers' and Sailors' Home.
 - CSX will not permit an at-grade crossing (or any bicycle and pedestrian facilities) on their property.
 - Constructing an additional bridge or tunnel to cross the tracks is not a viable option due to high construction and maintenance costs.
 - The future pedestrian bridge at Holland Street and the existing bridge at the Soldiers' and Sailors' Home are the only two viable options for crossing the tracks in this area.

DESIGN CRITERIA

The potential connections will be used by bicyclists and pedestrians for both recreation and transportation purposes. The following design guidelines and publications were used as references for the evaluation and conceptual design of improvements for bicyclists and pedestrians:

- A Policy on Geometric Design of Highways and Streets (Green Book), Sixth Edition (2011), American Association of State Highway and Transportation Officials (AASHTO).
- Roadside Design Guide, Fourth Edition (2011) American Association of State Highway and Transportation Officials (AASHTO).
- Guide for the Development of Bicycle Facilities, Fourth Edition (2012), American Association of State Highway and Transportation Officials (AASHTO).
- Guide for the Planning, Design and Operation of Pedestrian Facilities, Second Edition (2021), American Association of State Highway and Transportation Officials (AASHTO).
- Manual of Uniform Traffic Control Devices (MUTCD) (2009), Federal Highway Administration (FHWA).
- Bikeway Selection Guide (2019), Federal Highway Administration (FHWA).
- Small Town and Rural Multimodal Networks (2016), Federal Highway Administration (FHWA).
- Urban Bikeway Design (2011), National Association of City Transportation Officials (NACTO).
- Design Manual, Part 2 (DM-2): Contextual Roadway Design, Publication 13 (January 2023, Change No. 2), PennDOT.
- Design Manual, Part 2 (DM-2): Highway Design, Publication 13M (February 2023, Change 9), PennDOT.
- Traffic Engineering Manual, Publication 46 (August 2009, Change 1 - March 2014), PennDOT.
- Pennsylvania's Traffic Calming Handbook, Publication 383 (July 2012), PennDOT.
- Access Management: Model Ordinances for Pennsylvania Municipalities Handbook, Publication 574 (April 2005, Updated February 2006), PennDOT.
- Pennsylvania Trail Design and Development Principles: Guidelines for Sustainable Non-motorized Trails (2013), Pennsylvania Department of Conservation and Natural Resources (DCNR).

CITY OF ERIE REQUIREMENTS

The City of Erie’s Subdivision and Land Development Ordinance (SALDO) (1989) includes design standards for streets, alleys, and public areas. Below is an excerpt from Section 802 – Streets, which includes minimum street right-of-way widths and cartway widths. Based on these requirements, the minimum curb-to-curb width for a roadway in the city is 26’. Most of the other requirements included in SALDO relate to new roadways constructed as part of a land development project and are not directly applicable to this project. The SALDO references sidewalks, but does not include specific design standards for bicycle/pedestrian facilities.

TYPE OF STREET	CARTWAY (WITH CURBS)	RIGHT-OF-WAY
Cul-de-sac	26’	60’
Minor	26’	60’
Collector	36’	60’
Commercial	30’	60’
Arterial	As prescribed by PennDOT	

RAILROAD RELATED REQUIREMENTS

CSX’s Public Project Manual provides guidance for improvement projects that may involve the railroad. Listed below are key points from the manual related to bicycle/pedestrian paths and trails.

- CSX will not permit bicycle/pedestrian paths parallel to tracks on CSX property.
- CSX will not permit bicycle/pedestrian paths to cross tracks at grade outside of existing highway easements.
- CSX objects to publicly accessible parks, pathways, and trails constructed within 50’ of existing tracks.

In addition to CSX specific requirements, the Pennsylvania Code, Title 52 Chapter 33 requires a minimum 12’ side clearance from the center line of the track to any structure or obstruction above the top of the rail. For example, a fence or safety barrier between the railroad and a bicycle/pedestrian path must be at least 12’ from the center line of the track.

ACTIVE TRANSPORTATION TOOLBOX

There are a variety of infrastructure features that form the building blocks for an active transportation network. This toolbox presents facilities that may be appropriate in the Erie East Side Community to serve the broad transportation needs of residents and visitors. This toolbox also helps to define terminology used in this plan. The toolbox is organized in categories and presents a brief description and illustrative photo for each facility. For some facilities, additional information is provided regarding design guidelines and local examples.



OFF-ROAD PEDESTRIAN AND BICYCLE FACILITIES

Shared Use Path

Description
A combined bikeway and walkway that is designed for shared use by bicyclists and pedestrians of all abilities, as well as other non-motorized modes of transportation. Shared use paths along or adjacent to a roadway are physically separated from vehicular traffic by a verge, fencing, or other barrier.

Target Users
Bicyclists; Pedestrians; Other non-motorized users

Dimensions
10–12 feet wide (8 feet is permissible where there are constraints). When a shared use path is adjacent to a roadway, a 5 foot wide verge is recommended between the edge of the shoulder and the path. If this width is not feasible, a suitable physical barrier is recommended.



Surface Materials
Asphalt; Compacted Stone; Concrete



Pedestrian Path

Description
Walkway for use by pedestrians of all abilities. Walking paths may be adjacent to roadways and serve as an alternative design treatment to sidewalks. Walking paths are also prevalent in parks or within other developed sites to provide pedestrian connections and support active recreation.

Target Users
Pedestrians

Surface Materials
Asphalt; Compacted Stone

Dimensions
< 8 feet wide (6 feet typical)

Sidewalk

Description
Walkway parallel to the road that is intended for use by pedestrians, often with numerous access points to adjacent land uses. The walkway is typically physically separated from the roadway with a curb and/or verge. The verge may contain grass, vegetation, pavers, and sometimes street trees. Sidewalks are typically concrete, but can be constructed with asphalt, bricks, or pavers.

Target Users
Pedestrians

Dimensions
< 5 feet wide (minimum). The verge, when provided, may range in width though 4 feet is a typical minimum.



Surface Materials
Concrete (typically); Brick; Pavers; Asphalt



Boardwalk

Description
Elevated walkway that is constructed as a series of low-height bridges through sensitive areas with seasonably variable water depths or low strength soils, such as wetlands. Boardwalks typically include a curb or handrail along at least one, and often both, edges.

Target Users
Pedestrians; Bicyclists (optional and dependent upon the design)

Dimensions
6 feet – 10 feet wide (typical)

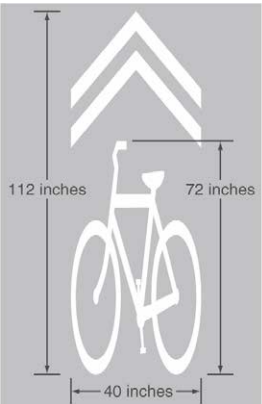
Surface Materials
Wood; Wood Composite; Plastic Composite; Concrete (for decking)

ON-ROAD BICYCLE FACILITIES AND FEATURES

Shared Lane (Sharrow)

Description
A roadway with signage and pavement markings to indicate the use of a travel lane by both bicycles and motor vehicles. Pavement markings may include a “sharrow,” which is a bicycle symbol with two chevron arrows denoting the direction of travel.

- Benefits**
- Alert motorists to the potential presence of bicyclists that may occupy the travel lane
 - Recommend proper lateral position for bicyclists
 - Encourage safe passing of bicyclists by motorists
 - Reduce the incidence of wrong-way bicycling
 - Provide wayfinding



- Design Features**
- Shared lane pavement marking or “sharrow” placed in accordance with MUTCD, Section 9C.07
 - Bicycle May Use Full Lane Sign (R4-11) placed in accordance with MUTCD, Section 9B.06



Dimensions
5 – 7 feet wide (4 feet minimum, exclusive of gutter)

Bike Lane

Description
A portion of the roadway that has been designated by striping, signage, and pavement markings for the preferential or exclusive public use by bicyclists. Bicycle lanes are located directly adjacent to motor vehicle travel lanes and operate in the same direction as motor vehicle traffic.

- Benefits**
- Provides separate space dedicated for cyclists, which can offer added comfort for less experienced riders
 - Allows bicycles to operate on a roadway without impeding motor vehicle traffic
 - Encourages predictable positioning by bicyclists at intersections

OTHER FACILITIES

Marked Crosswalk

Description

Pavement markings designating a location for pedestrians to cross a road, often connecting sidewalks, paths, or multi-use trails. Crosswalks must be a minimum of 6 feet wide. High visibility crosswalks, also known as continental design, are most visible to motorists.



ADA Curb Ramp

Description

A short pedestrian ramp cutting through a curb to form a transition for pedestrians between the sidewalk and roadway elevation. An ADA Curb Ramp (or “curb ramp”) must be constructed in compliance with the Americans with Disabilities Act (ADA) of 1990 to provide access to all persons. Curb ramps warrant particular attention because they typically provide a transition between a facility where a pedestrian is protected (i.e. sidewalk) and a facility where a pedestrian is vulnerable (i.e. crosswalk). Curb ramps inherently have a gradual vertical slope to accommodate people of all mobilities, and have characteristic detectable warning surfaces to be observable by people with a variety of sensory abilities.



Dimensions

4-5 feet wide (minimum), typically matching the connecting sidewalk width

Driveway Apron

Description

Cement concrete section of sidewalk that intersects a driveway to the adjacent roadway. The apron includes the crossing section of sidewalk, as well as a drivable piece of concrete between the sidewalk and curb within the verge. Walkable areas of driveway aprons must be constructed in compliance with ADA, and the algebraic difference between the apron and roadway slope must not exceed 8%. Driveway aprons do not have detectable warning surfaces if they cross residential driveways without traffic control devices.



Dimensions

Crossing sidewalk widths are 4 feet (minimum), but typically match the connecting sidewalk width. Apron widths typically match the verge width between the sidewalk and curb. The length of the apron (measured in the direction of pedestrian travel) depends on the width of the driveway and the path of a vehicle turning into the driveway.



Pedestrian or Trail Bridge

Description

Bridge specifically for use by pedestrians and bicyclists to cross a stream, water body, steep grade, or other existing feature. The design of the bridge should be based on anticipated users, including maintenance or emergency vehicles. Steel, fiberglass, and wood are materials typically used for pedestrian or trail bridges.

ENHANCING USERS' EXPERIENCE

Landscaping and Green Infrastructure

Description

Landscaping and green infrastructure can provide shade for pedestrians, integrated stormwater management, and help to create a sense of place. Trees and vegetation can also have a calming effect on traffic with the increased sense of enclosure. The type and location of landscaping should be chosen based on site conditions. A diverse native plant palette can be used in the design of the landscape zones, including trees, shrubs, and groundcover where appropriate. A mix of flowering species can offer seasonal appeal while providing habitat for birds and other native wildlife. Landscaping and green infrastructure can be placed between a road edge and sidewalk or path.



Streetscape Amenities

Description

Benches, trash receptacles, and bicycle racks create a more comfortable and convenient environment for walking, biking, and enjoying the street. The design of the streetscape furniture or amenities should be consistent to convey the unique character of the community. Amenities should be placed so they do not obstruct pedestrian walkways, building entrances, or fire hydrants.



Seating (Overlooks, Benches, View Areas)

Description

Seating areas can be provided along sidewalk, paths, or trails in downtown settings, park areas, or at scenic vistas. Seating can include benches or seat walls and can incorporate public art or other creative design elements to create a sense of place. Seating can be created with natural materials reflecting the native geology or ecology of the region like boulders and/or logs.



Pedestrian-Scale Lighting

Description

Pedestrian-scale street lights, 10 to 12 feet in height, help provide security along sidewalks, as well as help to provide aesthetic appeal to the streetscape. Lighting adjacent to natural areas should adhere to dark sky lighting recommendations to avoid impacting native habitat.





Public Art

Description

Public art may be incorporated into streetscapes through elements such as: planters and/or benches embellished by local artists, unique bike racks, or other art installations. Public art helps to provide character to streetscapes.

Bike Rack

Description

A frame that is permanently anchored to the ground and is used to secure bikes when not in use. Bicycle racks should be located in visible areas and near major destinations such as employment centers, business and retail districts, parks, and transit.

Placement

Placement of bicycle racks should consider dimensions when occupied and must maintain clear walkways, particularly when placed along sidewalks. Bicycle racks should be set back 2' to 3' from the curb when installed along a street. Bicycle racks can be located under shelters or building overhangs.



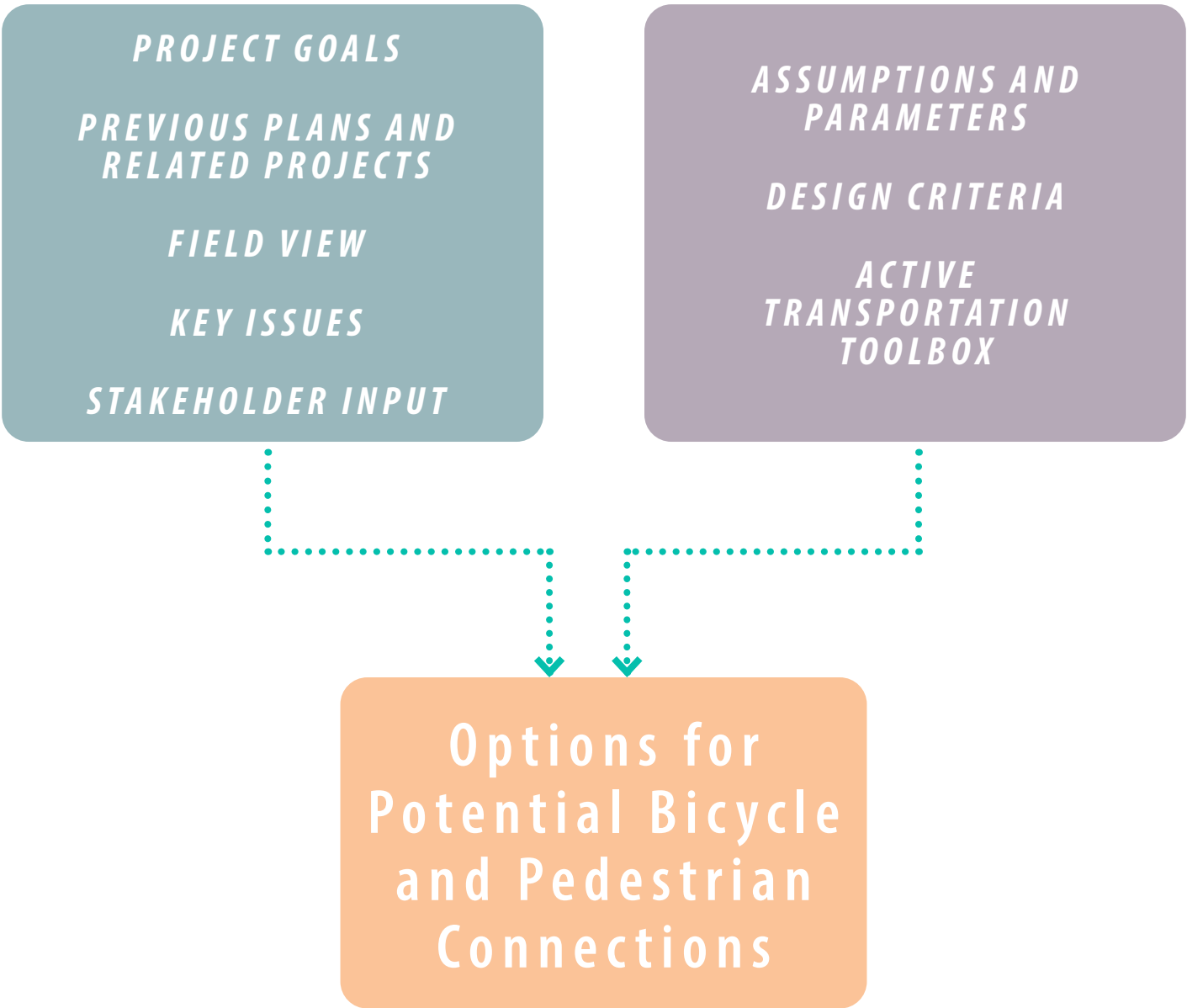
Wayfinding and Interpretative Signs

Description

A range of signs, pavement markings, kiosks or interpretative signs that are used to identify a facility and provide basic information, such as directional arrows, mileage, map, or narrative. Signage can be utilized to interpret local cultural, historical, and ecological themes.

CONCEPT DEVELOPMENT PROCESS

The next chapter presents options for bicycle and pedestrian connections that link key destinations in the study. The options were based on the synthesis of information presented in Chapters 1, 2, and 3.





Anthony Wayne Blockhouse located on the Soldiers' and Sailors' Home property

CHAPTER FOUR

Potential Connections

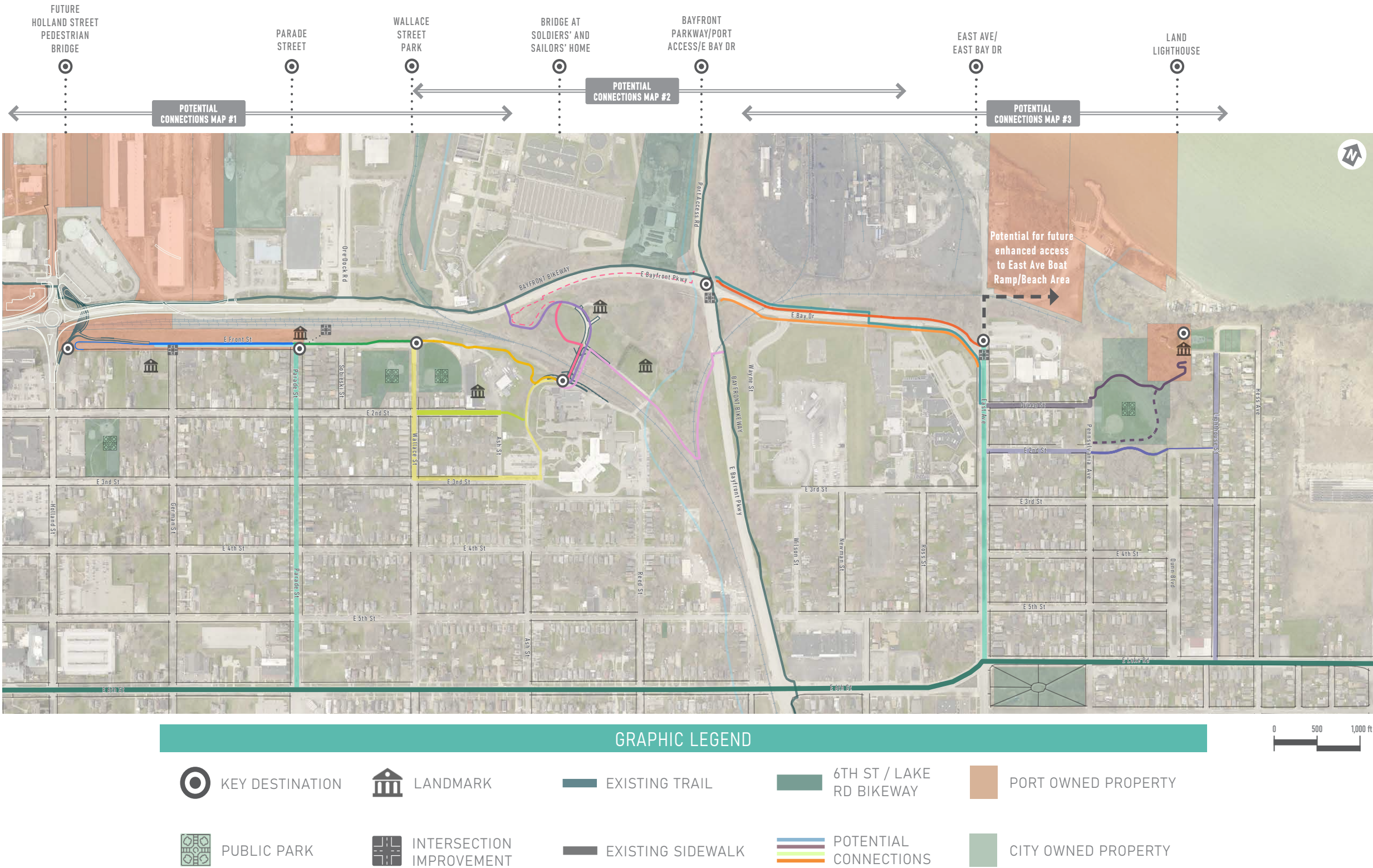
This chapter presents an overview of the potential bicycle and pedestrian connections that were identified to link key destinations and serve the needs of both residents and visitors. It includes maps and more detailed descriptions of potential sidewalks, paths, on-road bicycle facilities, and intersection improvements. It also includes a summary of the evaluation and refinement of the potential connections.

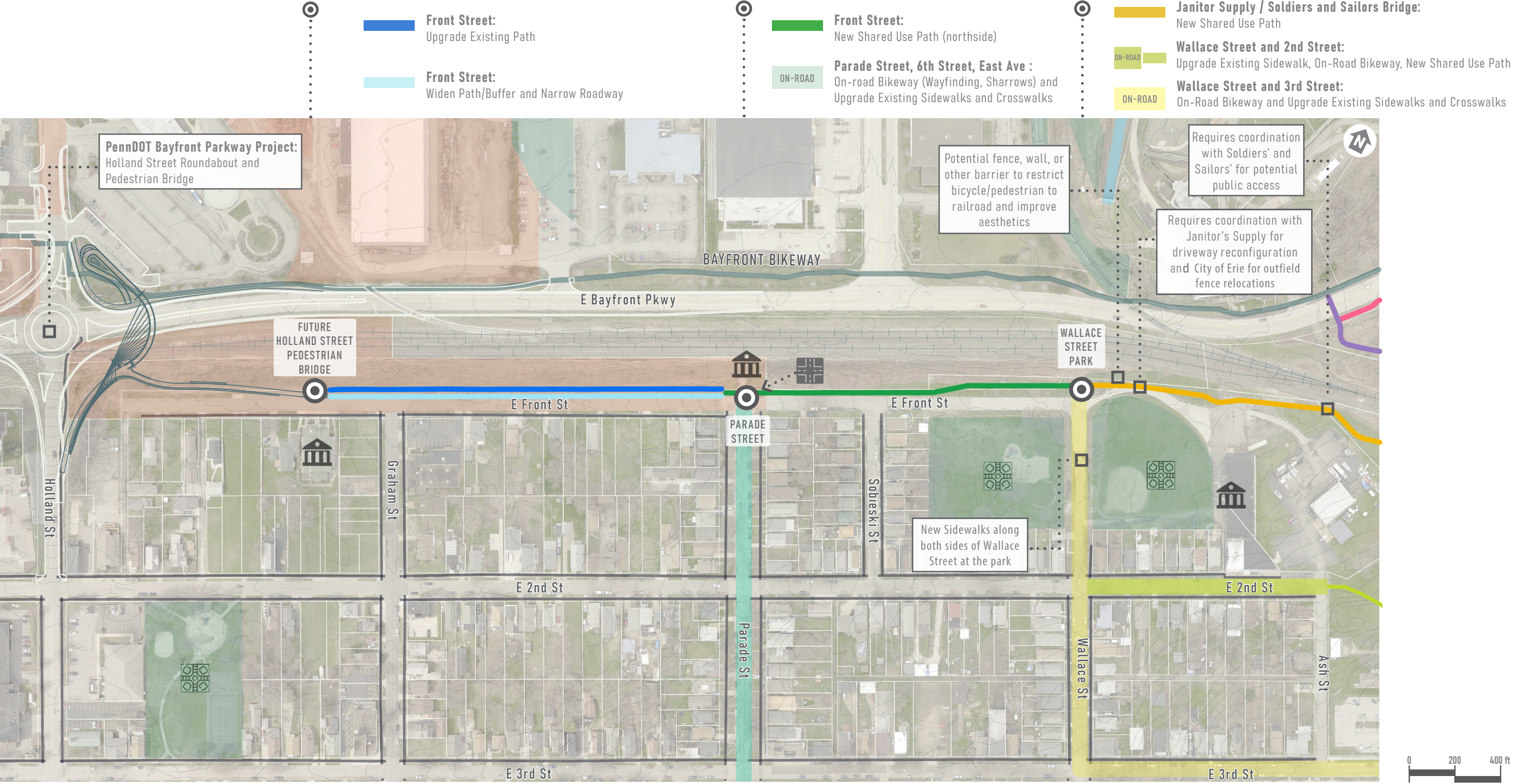
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- Potential Connections
- Connections Profiles
 - Front Street: Holland - Parade Street
 - Parade Street, 6th Street, East Avenue
 - Front Street: Parade Street - Wallace Street
 - Wallace Street - Soldiers' and Sailors' Home Bridge
 - Soldiers' and Sailors' Home Bridge - Anthony Wayne Blockhouse - Bayfront Parkway
 - Bayfront Parkway / Bay Drive / Port Access Intersection
 - Bay Drive: Bayfront Parkway - East Avenue
 - 2nd Street - Lighthouse Street - Land Lighthouse
 - Gridley Circle

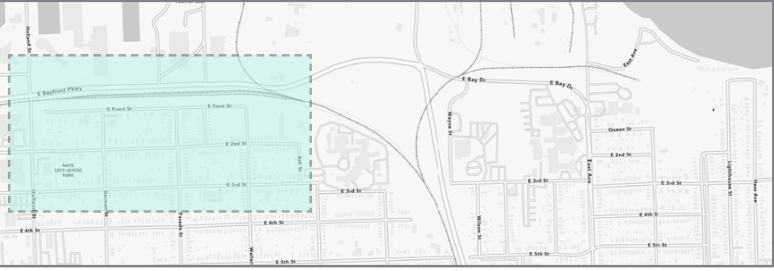
POTENTIAL CONNECTIONS OVERVIEW MAP

Options for providing bicycle and pedestrian connections between key destinations are illustrated on the **Potential Connections Overview Map** and the following **Potential Connections Maps**. Some of the options include different alignments or different types of bicycle and pedestrian facilities. The options are presented by segment. Options provided within each segment can be combined with options provided in other segments to create a better-connected bicycle and pedestrian network in the Erie East Side Community. A summary that shows some of the relationships between options is presented as a flow-chart in **Appendix D**.





KEY MAP



GRAPHIC LEGEND

- | | | | |
|-----------------|--------------------------|----------------|---------------------|
| KEY DESTINATION | LANDMARK | EXISTING TRAIL | PORT OWNED PROPERTY |
| PUBLIC PARK | INTERSECTION IMPROVEMENT | SIDEWALK | CITY OWNED PROPERTY |

POTENTIAL CONNECTIONS PROFILES

FRONT STREET: HOLLAND STREET - PARADE STREET

NOTABLE EXISTING FEATURES

- Existing path, very steep slopes, utilities, and railroad tracks on the north side of Front Street.
- Residential uses and church on the south side of Front Street.
- Parade Street Memorial and other overlook areas offer unobstructed views of the bayfront.
- Front Street dead-ends just east of Holland Street.
- Alleys near western terminus of Front Street provide access to properties.
- Key observations:
 - Very low traffic volumes on Front Street.
 - Limited use of on-street parking on Front Street.
 - Front Street and path have significant cracks and show signs of pavement deterioration.
 - Barrier between path and steep slope is in need of replacement to better protect bicyclists and pedestrians.



Steep slope and CSX railroad tracks north of Front Street



Interpretive Signs at Parade Street Memorial

CONSIDERATIONS FOR ALL OPTIONS

- Potentially eliminate parking on the north side of Front Street to provide more effective space and comfort for bicyclists and pedestrians on the path. (Requires further evaluation and public input.)
- ADA curb ramps and crosswalk enhancements at intersections with side streets to improve access to the path.
- Streetscape enhancements, including pedestrian scale lighting, benches/seating areas, interpretative signs, receptacles.
- Safety barrier or fence between the shared use path and steep slope.

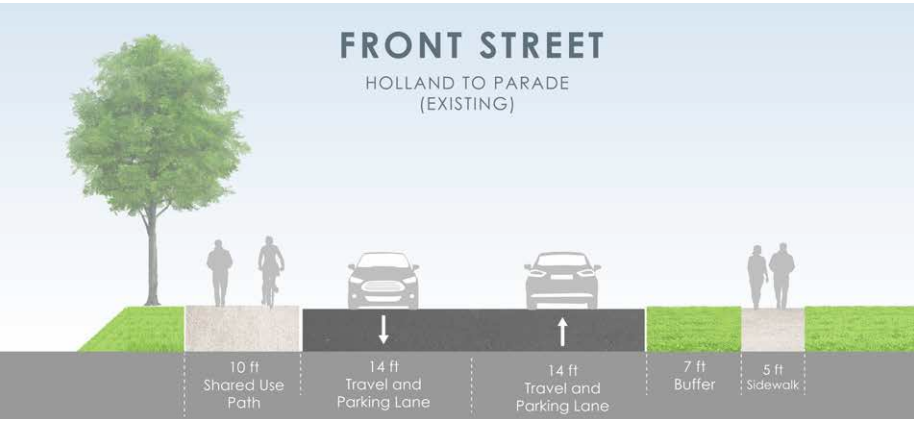
OPTIONS	SYMBOL	DESCRIPTION	ADVANTAGES	DRAWBACKS	OUTCOME
Upgrade Existing Path		<ul style="list-style-type: none">- Upgrade and replace the existing path on the north side of Front Street	<ul style="list-style-type: none">- Lower construction cost	<ul style="list-style-type: none">- Lack of space between path and steep slope- Limited space for other streetscape amenities	Selected for further consideration
Widen Path / Buffer and Narrow Roadway		<ul style="list-style-type: none">- Narrow Front Street by 2' and reconstruct/replace the existing curb and shared use path. Use the additional width to provide a wider path, grass buffer between the curb and path, or wider flat area on the back side of the path.	<ul style="list-style-type: none">- Provides more space for walking, biking, safety barrier, and other streetscape amenities- Opportunity to upgrade/reconstruct a roadway in poor condition.	<ul style="list-style-type: none">- Minimal (2 feet) increase the width of the path/buffer- Higher construction cost, including stormwater management improvements- Narrower street may impact winter maintenance and other vehicular operations, particularly for trucks, and on-street parking	Dismissed

Refinements for selected options

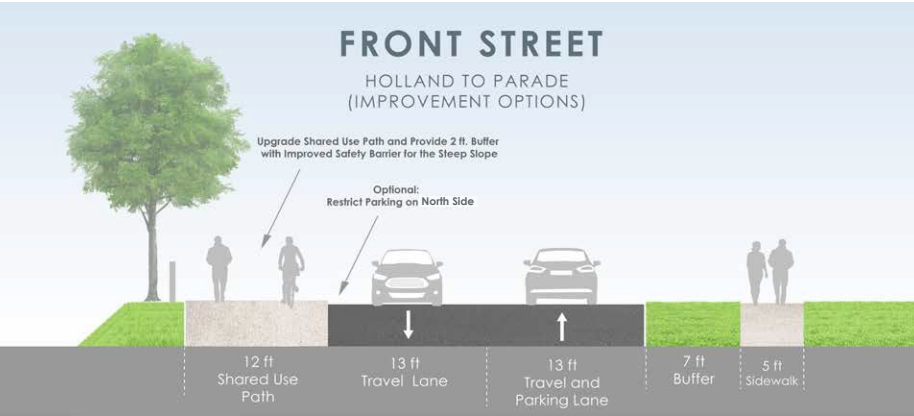
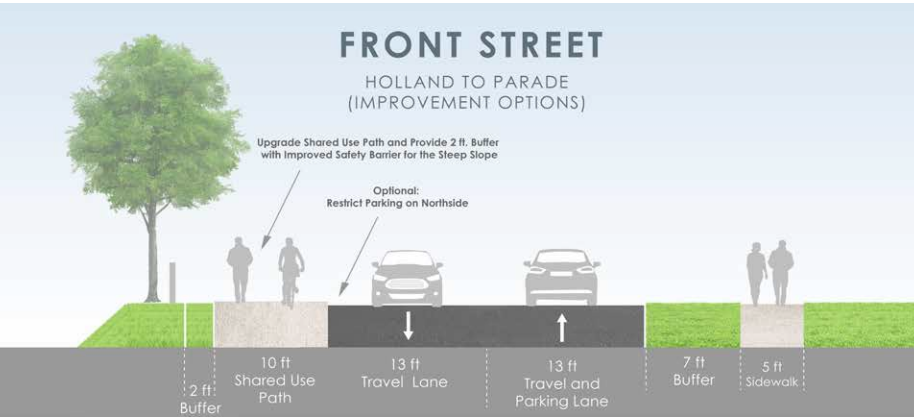
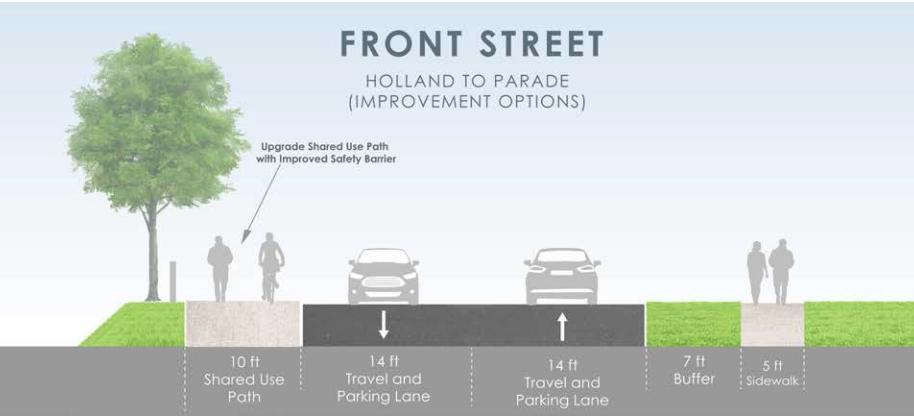
- Added sidewalk connection and overlook area at the western terminus of Front Street

ANALYSIS

EXISTING CONDITIONS



IMPROVEMENT OPTIONS



PARADE STREET, 6TH STREET, EAST AVENUE

NOTABLE EXISTING FEATURES

- Parade Street has existing sidewalks, curb extensions, pedestrian scale lighting, and other streetscape enhancements.
- 6th Street has bus service and will have bike lanes/ shared lanes in the future.
- East Avenue has existing sidewalks, grass center median (with trees), and marked crosswalks.
- East Avenue has offset intersections at 3rd Street and 5th Street.
- Key observations
 - Parade Street and East Avenue are corridors that are attractive and comfortable for walking and biking due to the width and streetscape features.
 - Both Parade Street and East Avenue are targets for revitalization efforts.



Parade Street near Front Street

CONSIDERATIONS FOR ALL OPTIONS

- Consider sidewalk upgrades along with ADA curb ramps and enhanced crossings

OPTIONS	SYMBOL	DESCRIPTION	ADVANTAGES	DRAWBACKS	OUTCOME
On-road Bikeway and Upgrade Existing Sidewalks and Crosswalks	ON-ROAD	<ul style="list-style-type: none">- On-road bikeway (possibly including sharrows) and wayfinding	<ul style="list-style-type: none">- Consistent with the City of Erie's bikeway on 6th Street and other elements of the Active Erie plan- Enhances access to the Bayfront for residents in the neighborhood	<ul style="list-style-type: none">- Off-road facility not provided for biking- Existing sidewalks and crossings may not be ADA compliant for pedestrian access	Selected for further consideration

Refinements for selected options

- Sharrows included for Parade Street and East Avenue

FRONT STREET: PARADE STREET - WALLACE STREET

NOTABLE EXISTING FEATURES

- Grass area on the north side of Front Street is relatively flat and has some street trees.
- No curb (or path) on the north side of Front Street east of Parade Street.
- Overgrown vegetation provides a barrier between Front Street and the railroad tracks (in some areas).
- Key observations:
 - Very low traffic volumes on Front Street and Wallace Street.
 - Limited use of on-street parking on the north side of Front Street, except in the area adjacent to the Parade Street Memorial.
 - Pedestrians observed, particularly in the area around Wallace Street Park.



Parade Street near Front Street



Grass area on the north side of Front Street

CONSIDERATIONS FOR ALL OPTIONS

- Potentially eliminate parking on the north side of Front Street to provide more effective space and comfort for bicyclists and pedestrians on the path. (Requires further evaluation and public input.)
- ADA curb ramps and crosswalk enhancements at intersections with side streets to improve access to the path.
- Streetscape enhancements, including pedestrian scale lighting, benches/seating areas, interpretative signs, receptacles.
- Safety barrier or fence between the shared use path and steep slope.

OPTIONS	SYMBOL	DESCRIPTION	ADVANTAGES	DRAWBACKS	OUTCOME
New Shared Use Path (north side)		<ul style="list-style-type: none">- New shared use path (10' wide) on the north side of Front Street- Meander path alignment to minimize impacts to mature trees	<ul style="list-style-type: none">- Off-road facility for walking and biking	<ul style="list-style-type: none">- Impacts on-street parking area adjacent to the Erie Heritage Parade Street Memorial	Selected for further consideration

Refinements for selected options

- Consider including sidewalks on both sides of Wallace Street in the area of the park

WALLACE STREET – SOLDIERS’ AND SAILORS’ HOME BRIDGE

NOTABLE EXISTING FEATURES

- Relatively flat and open area between Janitors Supply and CSX railroad tracks. This is one area where the railroad tracks are at the same grade as the adjacent property.
- Steep slopes adjacent to the bridge over CSX railroad on Soldiers’ and Sailors’ Home property.
- Soldiers’ and Sailors’ Home property is fenced. Only access to Soldiers’ and Sailors’ Home property for visitors/public is provided via the main gate at 3rd Street. (There are other gates that are not open to visitors/public, but are used for maintenance purposes.)
- Area surrounding Soldiers’ and Sailors’ Home is primarily a well established residential neighborhood, with the exception of Janitors Supply and Frontier Lumber.
- Gaps in the existing sidewalk network, particularly adjacent to Wallace Street Park.
- Key observations:
 - Ash Street, 2nd Street, 3rd Street, and Wallace Street are relatively narrow with high utilization of on-street parking.

CONSIDERATIONS FOR ALL OPTIONS

- Any bicycle or pedestrian infrastructure on Soldiers’ and Sailors’ Home property will require coordination and approvals from the Department of Military and Veterans Affairs.



Grass area and steep slope between Janitors Supply and CSX railroad tracks

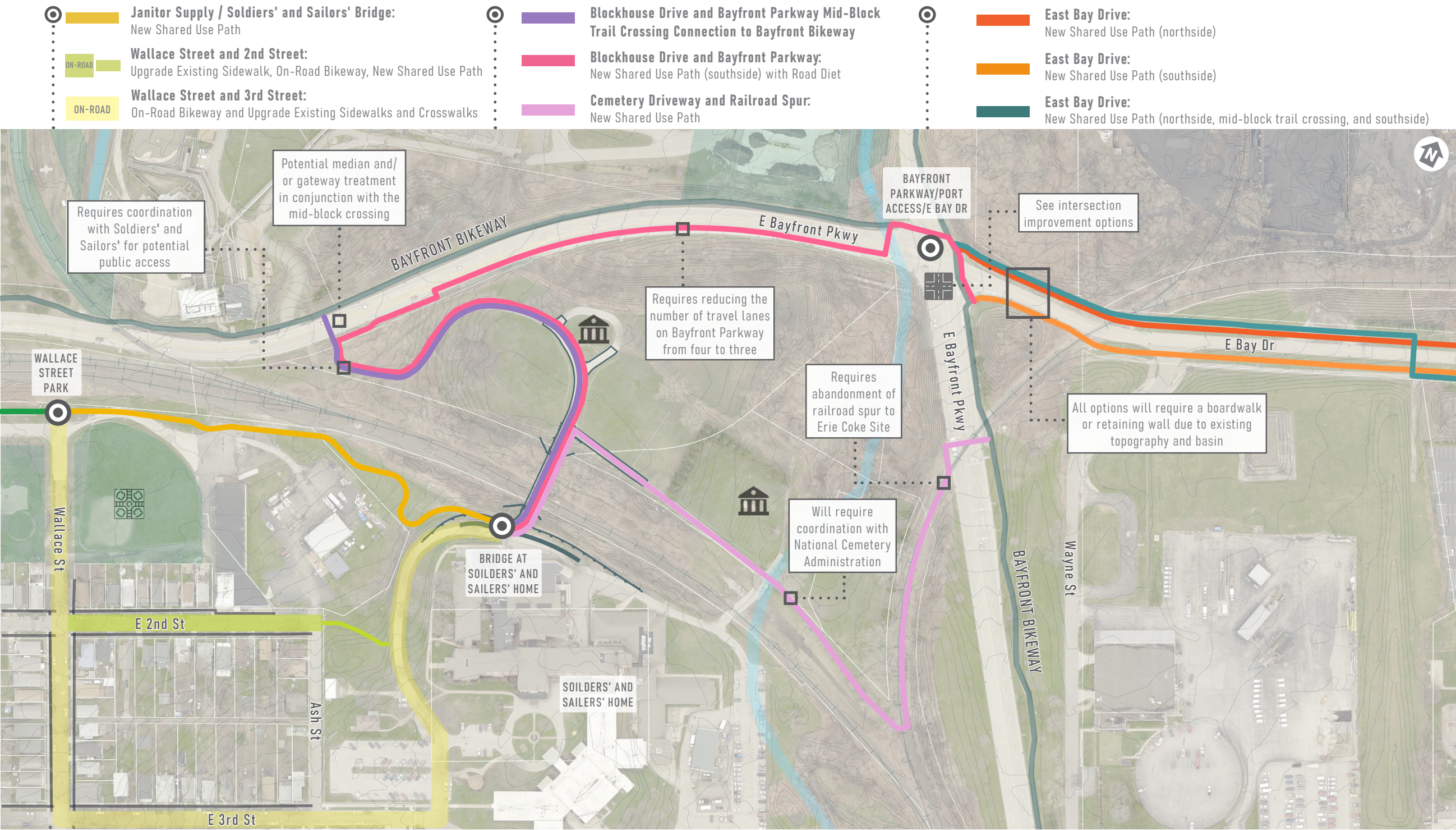


Main Gate for Soldiers’ and Sailors’ Home at 3rd Street

OPTIONS	SYMBOL	DESCRIPTION	ADVANTAGES	DRAWBACKS	OUTCOME
Janitors Supply		<ul style="list-style-type: none">- New shared use path (10’ wide) behind Janitor Supply and connecting to the existing internal roadway and bridge on the Soldiers’ and Sailors’ Home property	<ul style="list-style-type: none">- Off-road facility for walking and biking- Most direct connection to the bridge (and Blockhouse)- Minimizes impacts to areas used by residents and visitors to the Soldiers’ and Sailors’ Home	<ul style="list-style-type: none">- Impacts private property (Janitors Supply) and ballfield- Requires modifications to the driveway for Janitors Supply- Steep slope at bridge approach likely requires switchbacks for path users- Opposed by CSX due to proximity	Selected for further consideration
Wallace Street and 2nd Street		<ul style="list-style-type: none">- Close gaps and upgrade existing sidewalks along segments of Wallace Street and 2nd Street- On-road bikeway (with sharrow pavement markings and signage) along segments of Wallace Street and 2nd Street- New shared use path (10’ wide) from the intersection of 2nd Street and Ash Street to the existing internal roadway on the Soldiers’ and Sailors’ Home property	<ul style="list-style-type: none">- No impacts to Janitors Supply	<ul style="list-style-type: none">- Not supported by Department of Military and Veterans Affairs due to safety and security concerns for residents of the Soldiers’ and Sailors’ home- Greater need for wayfinding	Dismissed
Wallace Street and 3rd Street		<ul style="list-style-type: none">- Close gaps and upgrade existing sidewalks along segments of Wallace Street and 3rd Street- On-road bikeway (with sharrow pavement markings and signage) along segments of Wallace Street and 3rd Street- Access to internal roadway on Soldiers’ and Sailors’ Home property provided at the main gate for the home	<ul style="list-style-type: none">- No impacts to Janitors Supply- Lower cost	<ul style="list-style-type: none">- Not supported by Department of Military and Veterans due to safety and security concerns for residents of the Soldiers’ and Sailors’ home- Greater need for wayfinding	Dismissed

Refinements for selected options

- Public access to the Soldiers’ and Sailors’ Home property will be controlled by the Department of Military and Veterans Affairs and access will be restricted between sunset and sunrise



KEY MAP



GRAPHIC LEGEND



SOLDIERS’ AND SAILORS’ HOME BRIDGE – ANTHONY WAYNE BLOCKHOUSE – BAYFRONT PARKWAY

NOTABLE EXISTING FEATURES

- Anthony Wayne Blockhouse is a key historic resource/destination with limited public access.
- The Blockhouse is located at the top of Garrison Hill with a significant grade difference and steep slopes to the Bayfront Parkway. There is a retaining wall adjacent to the road along a section of the Bayfront Parkway.
- The Soldiers’ and Sailors’ Home has internal roadways/driveways, which are potential opportunities for shared use by bicyclists and/or pedestrians due to very low traffic volumes and speeds.
- Key observations:
 - The bridge over CSX railroad is the only option for crossing the railroad tracks in this area.
 - Bayfront Parkway has high traffic volumes and speeds.

CONSIDERATIONS FOR ALL OPTIONS




- Any bicycle or pedestrian infrastructure on Soldiers’ and Sailors’ Home property will require coordination and approvals from the Department of Military and Veterans Affairs.
- Intersection improvements at Bayfront Parkway / Bay Drive / Port Access Road are critical to providing safe and comfortable bicycle and pedestrian connections in this area.



Retaining structure on the south side of Bayfront Parkway



Four travel lanes on the Bayfront Parkway looking east towards Bay Drive / Port Access Road intersection

OPTIONS	SYMBOL	DESCRIPTION	ADVANTAGES	DRAWBACKS	OUTCOME
Bayfront Parkway Road Diet		<ul style="list-style-type: none">- Utilize existing bridge over CSX and driveway to the blockhouse- Road diet on Bayfront Parkway reducing the number of travel lanes from four to three- New shared use path (10’ wide) with a barrier on the south side of the Bayfront Parkway- Intersection improvements at Bayfront Parkway / Bay Drive / Port Access Road in conjunction with the road diet and to provide a trail crossing and connection	<ul style="list-style-type: none">- Off-road shared use path for both walking and biking- Path provided within existing roadway footprint	<ul style="list-style-type: none">- Requires further evaluation to address concerns related to traffic and maintenance and gather public input- Higher construction cost	Selected for further consideration
Mid-Block Crossing of Bayfront Parkway		<ul style="list-style-type: none">- Utilize existing bridge over CSX and driveway to the Blockhouse- New mid-block trail crossing of Bayfront Parkway (near Erie Wastewater Treatment Facility driveway) and connection to the existing Bayfront Bikeway<ul style="list-style-type: none">• Potential raised/planted median as a pedestrian refuge, gateway treatment, and traffic calming• Consider rectangular rapid flashing beacon (RRFB) with potential for upgrade to full signal for mid-block crossing	<ul style="list-style-type: none">- Lower cost- Most direct connection to existing Bayfront Bikeway- Opportunity for Bayfront Parkway gateway treatments	<ul style="list-style-type: none">- Mid-block crossing of Bayfront Parkway not supported by PennDOT, City of Erie, and other stakeholders due to safety concerns and experiences with other mid-block crossings	Dismissed
Cemetery Driveway and Railroad Spur		<ul style="list-style-type: none">- Utilize existing bridge over CSX railroad and cemetery driveway- New shared use path connection from the end of the cemetery driveway to Bayfront Parkway, generally following the railroad spur alignment- New mid-block trail crossing of Bayfront Parkway (south of Bay Drive / Port Access Road) and connection to the existing Bayfront Bikeway<ul style="list-style-type: none">• Potential raised/planted median as a pedestrian refuge, gateway, and traffic calming• Consider rectangular rapid flashing beacon (RRFB)	<ul style="list-style-type: none">- Avoids areas with steep slopes on Garrison Hill- Minimizes the need for Bayfront Parkway roadway improvements	<ul style="list-style-type: none">- Requires abandonment of CSX railroad spur- Bicycle and pedestrian access may be disruptive for memorial services at the cemetery- Less direct connection to Bayfront Bikeway- Mid-block crossing of Bayfront Parkway not supported by PennDOT, City of Erie, and other stakeholders due to safety concerns and experiences with other mid-block crossings	Dismissed

Refinements for selected options

- Public access to the Soldiers’ and Sailors’ Home property will be controlled by the Department of Military and Veterans Affairs and access will be restricted between sunset and sunrise.
- Modified shared use path alignment near the Blockhouse to minimize potential impacts to space planned for cemetery expansion and also minimize potential disruptions to memorial services at the cemetery.
- Road diet identified as optional, depending upon further evaluation. Key topics for further evaluation of the road diet are additional traffic analysis, roadway and shared use path maintenance (including winter maintenance), and public input.

BAYFRONT PARKWAY / E BAY DRIVE / PORT ACCESS INTERSECTION

NOTABLE EXISTING FEATURES

- There are multiple utilities and natural resources clustered at the southwest corner of the intersection.
- Key observations:
 - The existing trail crossing has long crossing distances for bicyclists and pedestrians.
 - The northbound dual left turn lanes are underutilized.
 - No significant queues observed at the intersection of Bayfront Parkway / Bay Drive / Port Access Road during the field visit in May 2022.

TRAFFIC ANALYSIS

- The development and evaluation options for shared use crossings and improvements at the intersection of Bayfront Parkway / Bay Drive / Port Access Road included preliminary traffic analysis. The purpose of the traffic analysis was to understand how improvement options might impact traffic operations, including delay and level-of-service. None of the options degraded overall level-of-service at the intersection and the analysis for some options resulted in reduced delay compared to existing conditions. The traffic analysis is summarized in **Appendix B**.

CONSIDERATIONS FOR ALL OPTIONS

- Minimize impacts at the southwest corner given various major overhead and underground utilities, steep slopes, stream, and potential wet soils concentrated in this area.

OPTIONS	DESCRIPTION	ADVANTAGES	DRAWBACKS	OUTCOME
Reconfigure northbound Bayfront Parkway	<ul style="list-style-type: none">- Reconfigure northbound Bayfront Parkway to provide two lanes, either:<ul style="list-style-type: none">• Left + thru/right and eliminate split phase signal timing• Left + left/thru/right- Median on southern leg- No changes to western leg required	<ul style="list-style-type: none">- Maintains or reduces vehicular traffic delay for some movements by eliminating split phase- Opportunities for Bayfront Parkway median for traffic calming and gateway treatment	<ul style="list-style-type: none">- Perceived reduction in vehicular capacity- Does not provide path connection on south side of west Bayfront Parkway	Selected for further consideration
Bayfront Parkway Road Diet and Reconfigure northbound Bayfront Parkway	<ul style="list-style-type: none">- Shared use path (southside) with enhanced crossings for three legs of the intersection- Reconfigure northbound Bayfront Parkway to provide left + thru/right and eliminate split phase signal timing- Shift and reconfigure eastbound Bayfront Parkway including elimination of free flow right-turn (and channelization island) and incorporate movement into signal	<ul style="list-style-type: none">- Maintains or reduces vehicular traffic delay for some movements by eliminating split phase- Opportunities for Bayfront Parkway median for traffic calming and gateway treatment	<ul style="list-style-type: none">- Perceived reduction in vehicular capacity- Higher construction cost- Requires Bayfront Parkway road diet	Selected for further consideration
Roundabout	<ul style="list-style-type: none">- Roundabout at the intersection- Bayfront Parkway (west and south legs) road diet- Shared use path with enhanced crossings for three legs	<ul style="list-style-type: none">- Opportunities for traffic calming and gateway treatment- Reduces crossing distances for bicyclists and pedestrians- Reduced maintenance cost and may reduce crash severity	<ul style="list-style-type: none">- Highest construction cost- Requires Bayfront Parkway road diet- Roundabout option was evaluated as part of previous PennDOT project and was dismissed, partially due to lack of public support	Dismissed

Refinements for selected options

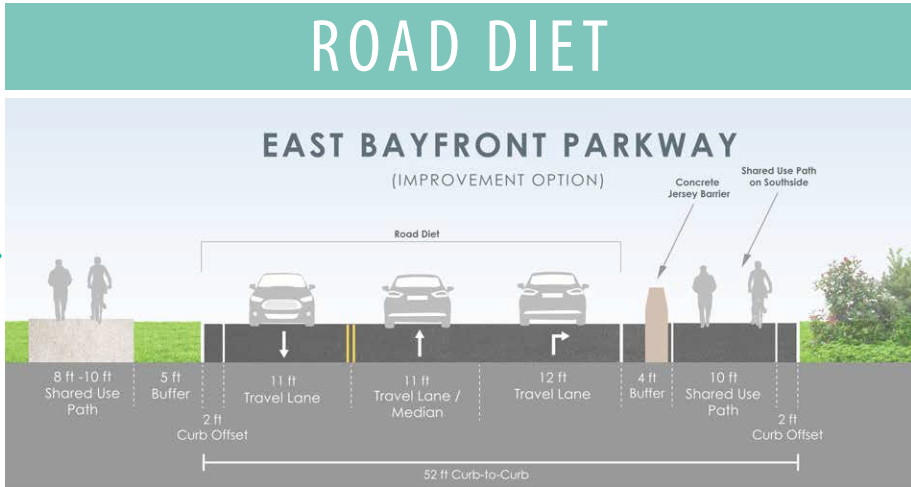
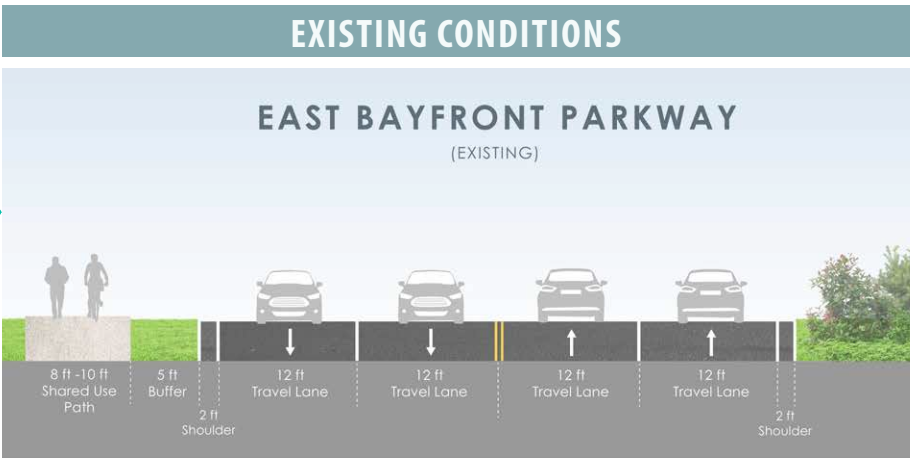
- Consider improvements to Port Access Road curb radii to reduce pedestrian crossing distance.
- Consider the routing and movement of oversized loads (associated with the port commercial facilities) during the design phase.



Pedestrian crossing of Port Access Road at the intersection with Bayfront Parkway / Bay Drive



Erie Bayfront gateway sign and no pedestrian crossing sign at the intersection

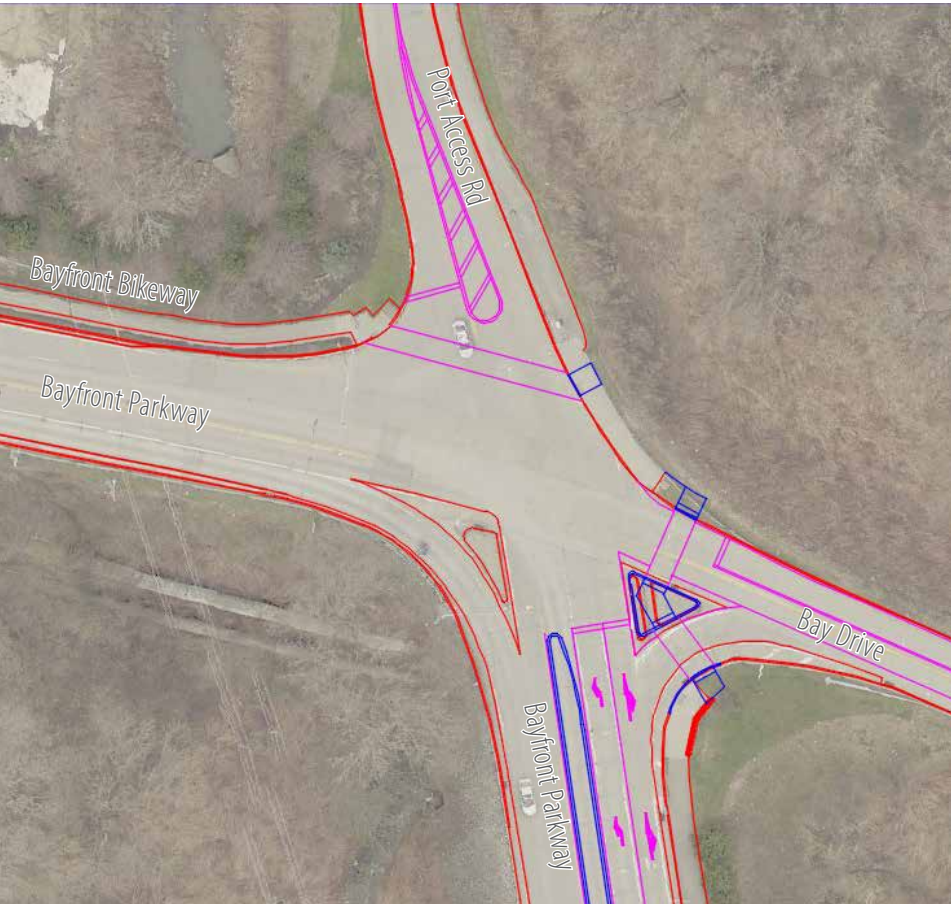


See intersection concept sketches on following page

INTERSECTION ANALYSIS DESIGN SKETCHES

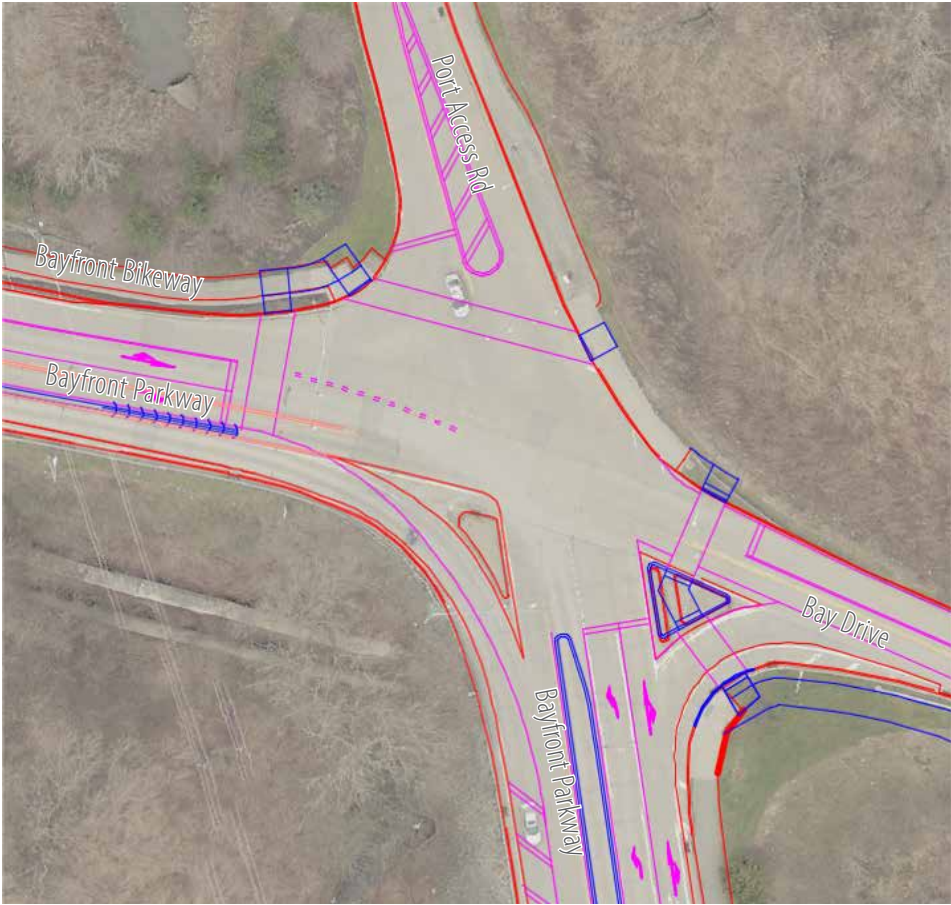
These sketches illustrate three of the preliminary options for maintaining (or improving) the existing traffic capacity and improving bicycle and pedestrian accommodations at the intersection of Bayfront Parkway / Bay Drive / Port Access Road. Stakeholders expressed concern that the current crossing for the Bayfront Bikeway and these options do not create a comfortable for bicyclists or pedestrians due to the traffic volumes, turning movements, and speeds. Stakeholders also agreed that this intersection is critical for improving bicycle and pedestrian connections in the community and additional design solutions may need to be considered.

RECONFIGURE NORTHBOUND BAYFRONT PARKWAY



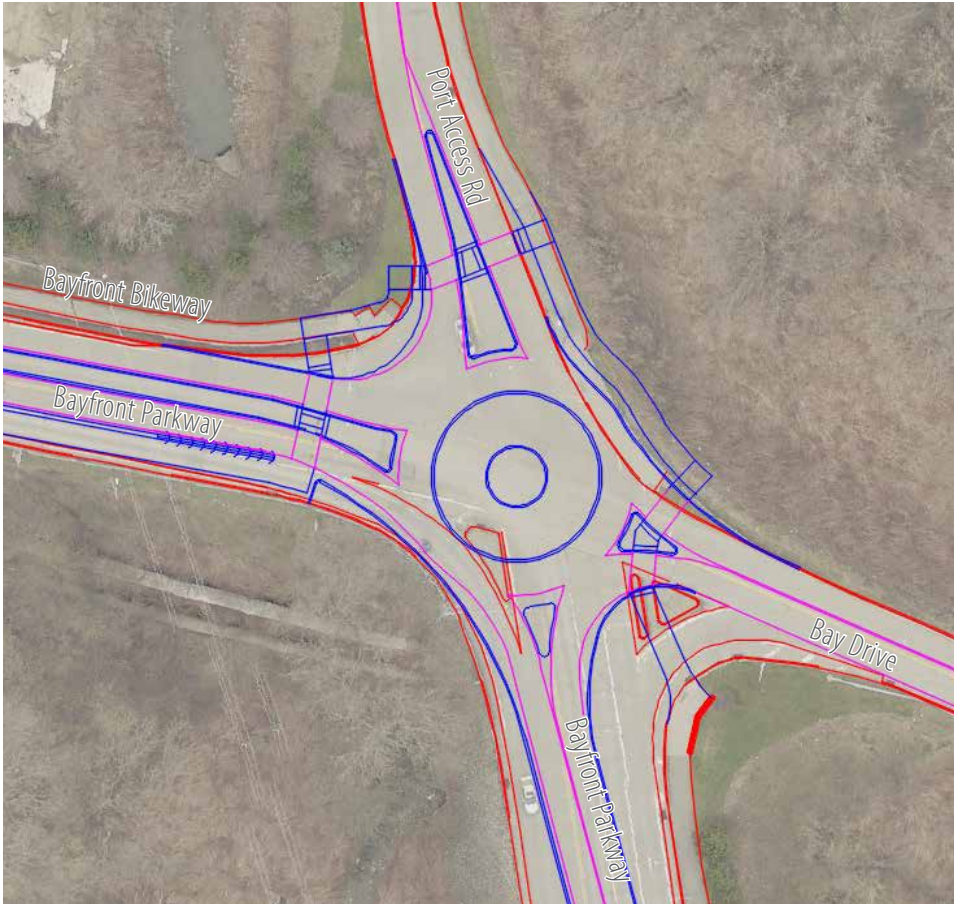
- Reconfigure northbound Bayfront Parkway to provide two lanes
- Retain existing configuration of the western leg of the Bayfront Parkway
- Potentially eliminate split phase signal timing

BAYFRONT PARKWAY ROAD DIET AND RECONFIGURE NORTHBOUND BAYFRONT PARKWAY



- Road diet and reconfiguration of travel and turning lanes for northbound and westbound traffic of the Bayfront Parkway
- Eliminate split phase signal timing
- Shared use path (southside) with enhanced crossing for three legs of the intersection

ROUNDAABOUT



- Existing traffic signal replaced by roundabout
- Shared use path (southside) with enhanced crossing for three legs of the intersection
- Bayfront Parkway (west and south legs) road diet
- May require construction on northeast corner of intersection (steep existing conditions) to support path connection for Bayfront Bikeway

- East Bay Drive:
New Shared Use Path (north side)

East Bay Drive:
New Shared Use Path (south side)

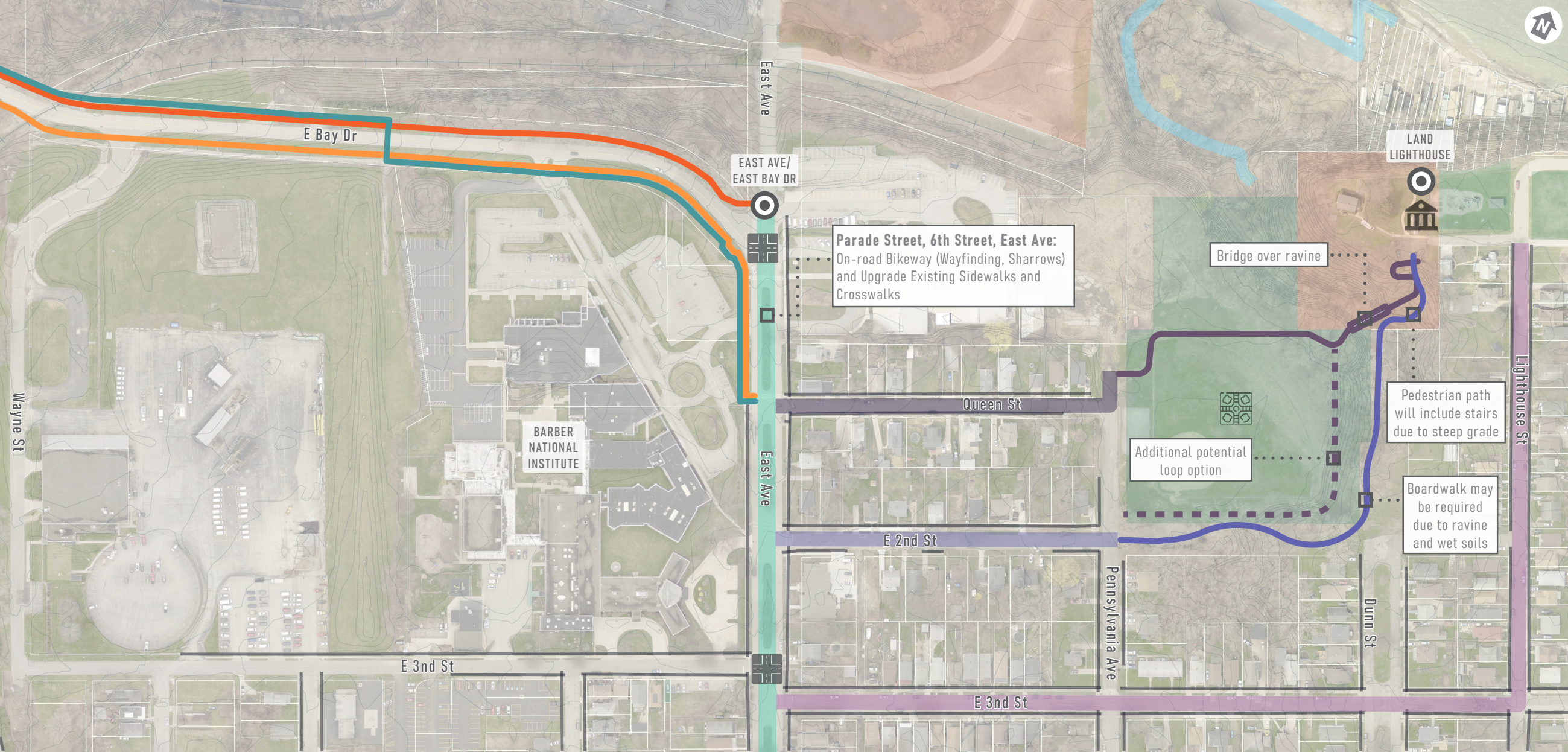
East Bay Drive:
New Shared Use Path (north side, mid-block trail crossing, and south side)
- ON-ROAD

ON-ROAD

ON-ROAD
- Queen Street and City Park:
Upgrade Existing Sidewalks on Queen Street and New Pedestrian Path with Bridge

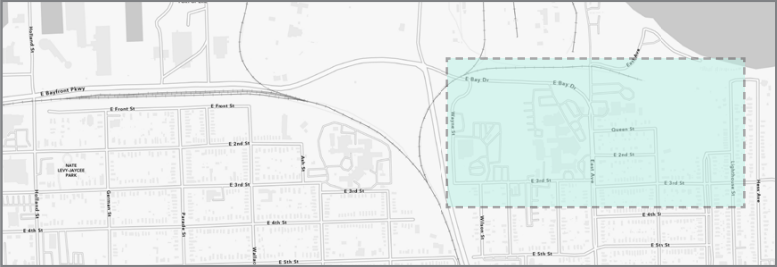
2nd Street Extended:
New Sidewalks and Pedestrian Path (Not ADA Compliant) with Boardwalk and Stairs in Ravine

3rd Street and Lighthouse Street:
On-Road Bikeway (Wayfinding) and Upgrade Existing Sidewalks



KEY MAP

GRAPHIC LEGEND



 KEY DESTINATION

 LANDMARK

 EXISTING TRAIL

 PORT OWNED PROPERTY

 PUBLIC PARK

 INTERSECTION IMPROVEMENT

 SIDEWALK

 CITY OWNED PROPERTY

EAST BAY DRIVE: BAYFRONT PARKWAY – EAST AVENUE

NOTABLE EXISTING FEATURES

- Large parcels with predominant land uses of institutional, utility, and brownfield/vacant and three main property owners.
- Significant overhead utility lines/poles on the south side.
- Sewer-related infrastructure on the north side.
- Railroad spur crosses Bay Drive east of Bayfront Parkway.
- Key observations:
 - Pinch point on Bay Drive just east of Bayfront Parkway intersection due to steep slopes, wet soils, and stormwater basin.
 - Beyond the pinch point, the Bay Drive roadside area is relatively flat and undeveloped, particularly on the south side.



Utility poles on the south side of Bay Drive



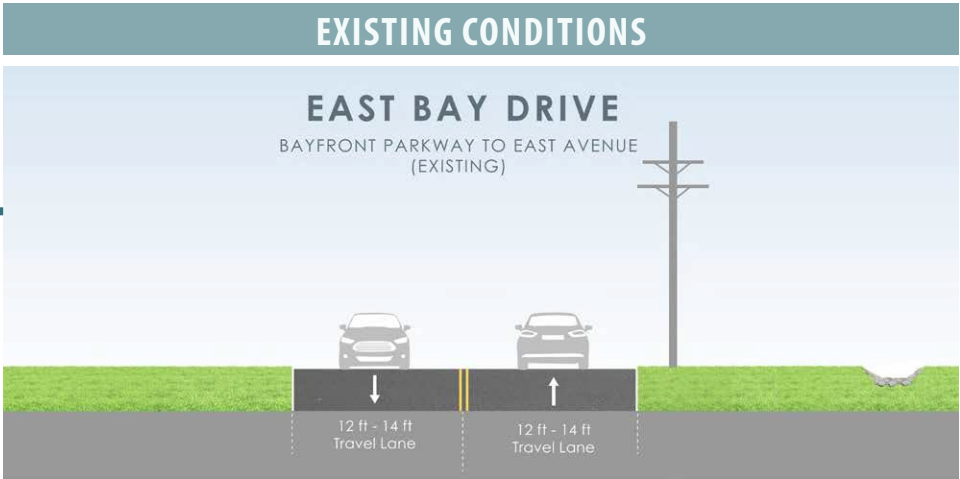
Pinchpoint with stormwater basin on the south side of Bay Drive

CONSIDERATIONS FOR ALL OPTIONS

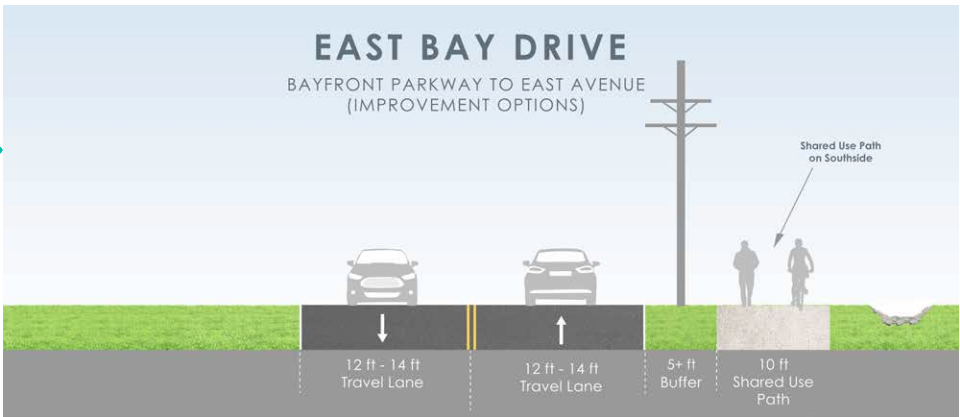
- Connect to the Bayfront Bikeway at the Bayfront Parkway intersection and existing sidewalks at the Barber National Institute.
- Retaining wall or structure will likely be needed to accommodate a shared use path through pinch point area.
- Provide grass buffer (5' minimum width) between the shared use path and the roadway

OPTIONS	SYMBOL	DESCRIPTION	ADVANTAGES	DRAWBACKS	OUTCOME
New Shared Use Path (south side)		<ul style="list-style-type: none">- New shared use path (10' wide) on the south side of Bay Drive	<ul style="list-style-type: none">- Minimizes impacts to the potential wetland area near the northeast corner of the Bayfront Parkway/East Bay Drive/Port Access intersection	<ul style="list-style-type: none">- Potential utility impacts and/or need for retaining wall for the stormwater basin at the intersection of Bayfront Parkway/East Bay Drive/Port Access	Selected for further consideration
New Shared Use Path (north side)		<ul style="list-style-type: none">- New shared use path (10' wide) on the south side of Bay Drive	<ul style="list-style-type: none">- Avoids impact to the stormwater basin at southeast corner of the Bayfront Parkway/East Bay Drive/Port Access intersection	<ul style="list-style-type: none">- Less direct connection to existing sidewalk and Barber National Institute- May impact sewer-related operations- May require more significant crossing improvements at the intersection of East Ave/East Bay Drive	Dismissed
New Shared Use Path (mid-block crossing)		<ul style="list-style-type: none">- New shared use path (10' wide) on the north side of Bay Drive with a mid-block crossing and shared use path on the south side<ul style="list-style-type: none">• Consider rectangular rapid flashing beacon (RRFB) for the mid-block crossing	<ul style="list-style-type: none">- Avoids impact to the stormwater basin at southeast corner of the Bayfront Parkway/East Bay Drive/Port Access intersection	<ul style="list-style-type: none">- Mid-block crossing of East Bay Drive not supported by PennDOT or City of Erie due to safety concerns and experiences with other mid-block crossings	Dismissed

ANALYSIS



IMPROVEMENT OPTIONS



2ND STREET – LIGHTHOUSE STREET – LAND LIGHTHOUSE

NOTABLE EXISTING FEATURES

- Well established residential neighborhood surrounding Tom McCarty Park, Land Lighthouse, and Barber National Institute.
- Large and wooded ravine and vacant area between Tom McCarty Park and the Land Lighthouse with very steep slopes near the Land Lighthouse and relatively flat area near the end of Dunn Boulevard.
- Key observations:
 - Low traffic volumes
 - Utilization of on-street parking varies
 - Network of existing sidewalks with some gaps. Some sidewalks are narrow, uneven, and have encroachments.
 - Dirt path connecting the terminus of Dunn Boulevard and Tom McCarty Park

Wooded area and steep slopes in the ravine



Residential neighborhood and existing sidewalks on Lighthouse Street looking south towards 6th Street

OPTIONS	SYMBOL	DESCRIPTION	ADVANTAGES	DRAWBACKS	OUTCOME
2nd Street Extended		<ul style="list-style-type: none">- Close gaps and upgrade existing sidewalks on 2nd Street between East Avenue and Pennsylvania Avenue- New pedestrian path connection in the area of 2nd Street Extended between Pennsylvania Avenue and Dunn Boulevard- Boardwalk for pedestrian path in areas of wet soils- Stairs for pedestrian path connection to the Land Lighthouse	<ul style="list-style-type: none">- Enhances bicycle and pedestrian access to Tom McCarty Park and the Land Lighthouse for residents in the neighborhood- Utilizes available public property/right-of-way	<ul style="list-style-type: none">- May impact existing parking at Tom McCarty Park- May impact potential wetland area/wet soils in the area of the ravine, requiring a boardwalk- Located in backyard area for several homes- Not ADA compliant due to steep grades	Refined and selected for further consideration
3rd Street and Lighthouse Street		<ul style="list-style-type: none">- Upgrade existing sidewalks on segments of 3rd Street and Lighthouse Street- On-road bikeway with wayfinding on segments of 3rd Street and Lighthouse Street	<ul style="list-style-type: none">- Lower construction cost	<ul style="list-style-type: none">- Less direct connection between East Avenue and the Land Lighthouse- Off-road facility not provided for biking	Dismissed
Queen Street and City Park		<ul style="list-style-type: none">- Close gaps and upgrade existing sidewalks on Queen Street between East Avenue and Pennsylvania Avenue- New shared pedestrian path from the intersection of Queen Street / Pennsylvania Avenue to the Land Lighthouse	<ul style="list-style-type: none">- Most direct connection between East Avenue and the Land Lighthouse	<ul style="list-style-type: none">- Higher construction cost- Higher maintenance cost for bridge over the ravine- Not ADA compliant due to steep grades	Dismissed

Refinements for selected options

- Eliminate connection to the Land Lighthouse through the ravine
- Provide sidewalk connection on the northside of 2nd Street between Dunn Boulevard and Lighthouse Street, which may require eliminating on-street parking on the northside
- Include on-road bikeway (wayfinding) on Lighthouse Street between 6th Street and the Land Lighthouse



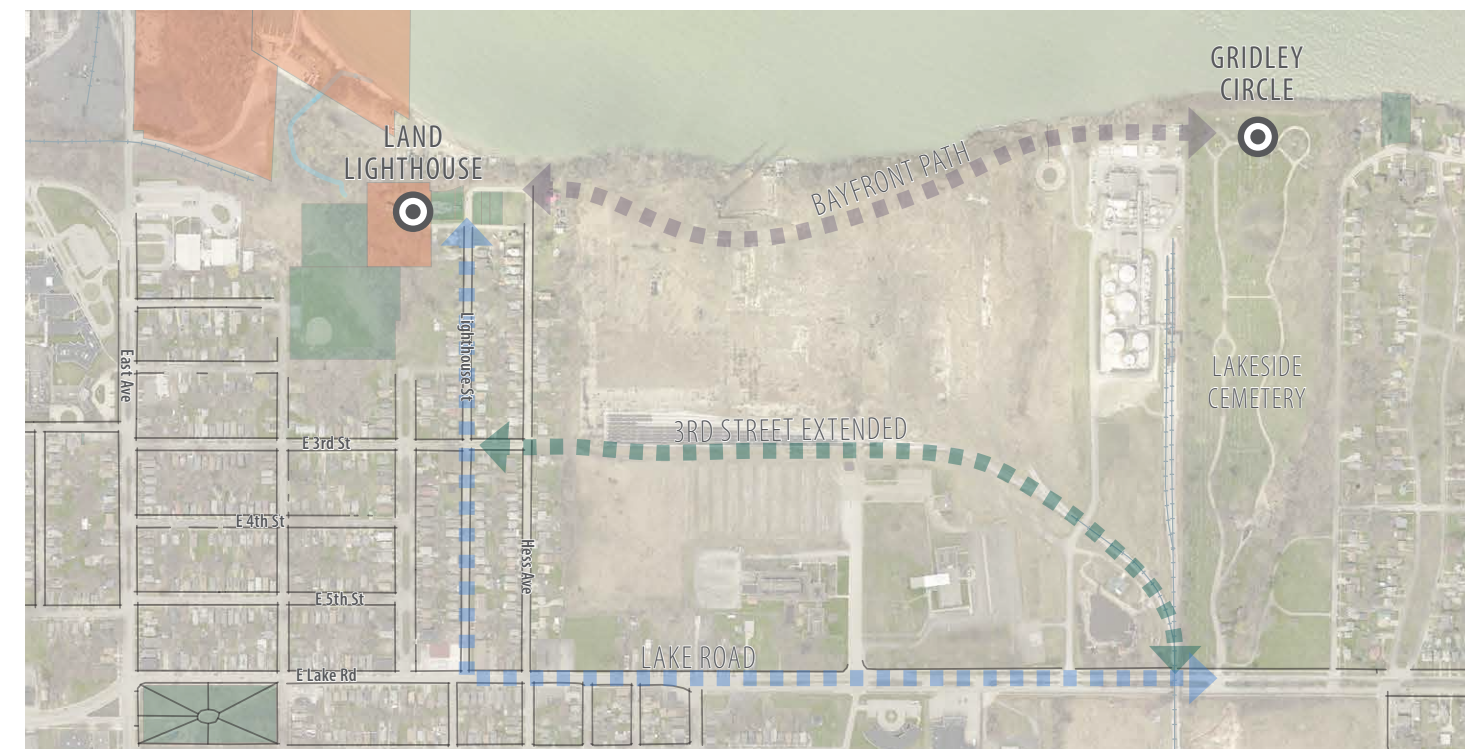
Sidewalk gap on Dunn Boulevard at 2nd Street

GRIDLEY CIRCLE

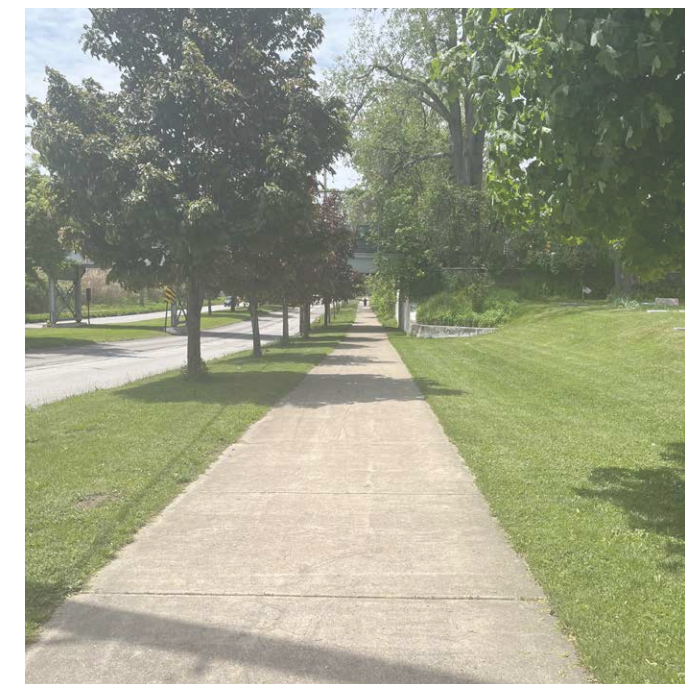
Gridley Circle is located at the northern edge of Lakeside Cemetery, which has a driveway entrance on the north side of Lake Road. The circle is east of the Land Lighthouse and just beyond the focus area for this feasibility study. Gridley Circle was identified by stakeholders as a potential destination along the east side of the bayfront. Options for connecting Gridley Circle to the Land Lighthouse were identified and evaluated at a high level.

- **Bayfront Path:** The shortest and potentially most scenic option is to provide a shared use path generally along the bayfront between Hess Avenue and Gridley Circle. While the Erie County Redevelopment Authority owns one of the former industrial properties, several other properties are privately owned and are being used for residential and commercial/industrial purposes. A shared use path along the bayfront is not a viable option given current land uses. However, if/when properties along the bayfront are redeveloped, a path can be considered as part of the planning and development process.
- **3rd Street Extended:** Another option is to provide a connection in the area of 3rd Street extended or somewhere between the bayfront and 6th Street. Like the bayfront, this option is not viable with current land uses, including railroad tracks in the area. However, if/when properties change uses or are redeveloped, this connection can be considered as part of the planning and development process. Depending upon future redevelopment, the connection could be provided with a shared use path or a combination of sidewalks and on-road bicycle facilities along new roadway within the property.
- **Lake Road:** Providing a connection from the Land Lighthouse and Lakeside Cemetery via Lighthouse Street and Lake Road is the most viable option. There are existing sidewalks and a striped shoulder on Lake Road between Lighthouse Street and Pat Black Drive. There is an 8' wide path on the north side of Lake Road between Pat Black Drive and the Lakeside Cemetery. These existing facilities, along with future bike lanes on 6th Street, can provide a bicycle and pedestrian connection to the other historic and cultural destinations along the east side of the Erie bayfront.

GRIDLEY CIRCLE ACCESS EVALUATION MAP



Existing path on the north side of Lake Road



Memorial at Gridley Circle



Bicyclist using the Bayfront Bikeway on the north side of the Bayfront Parkway

CHAPTER FIVE

Selected Improvement Options

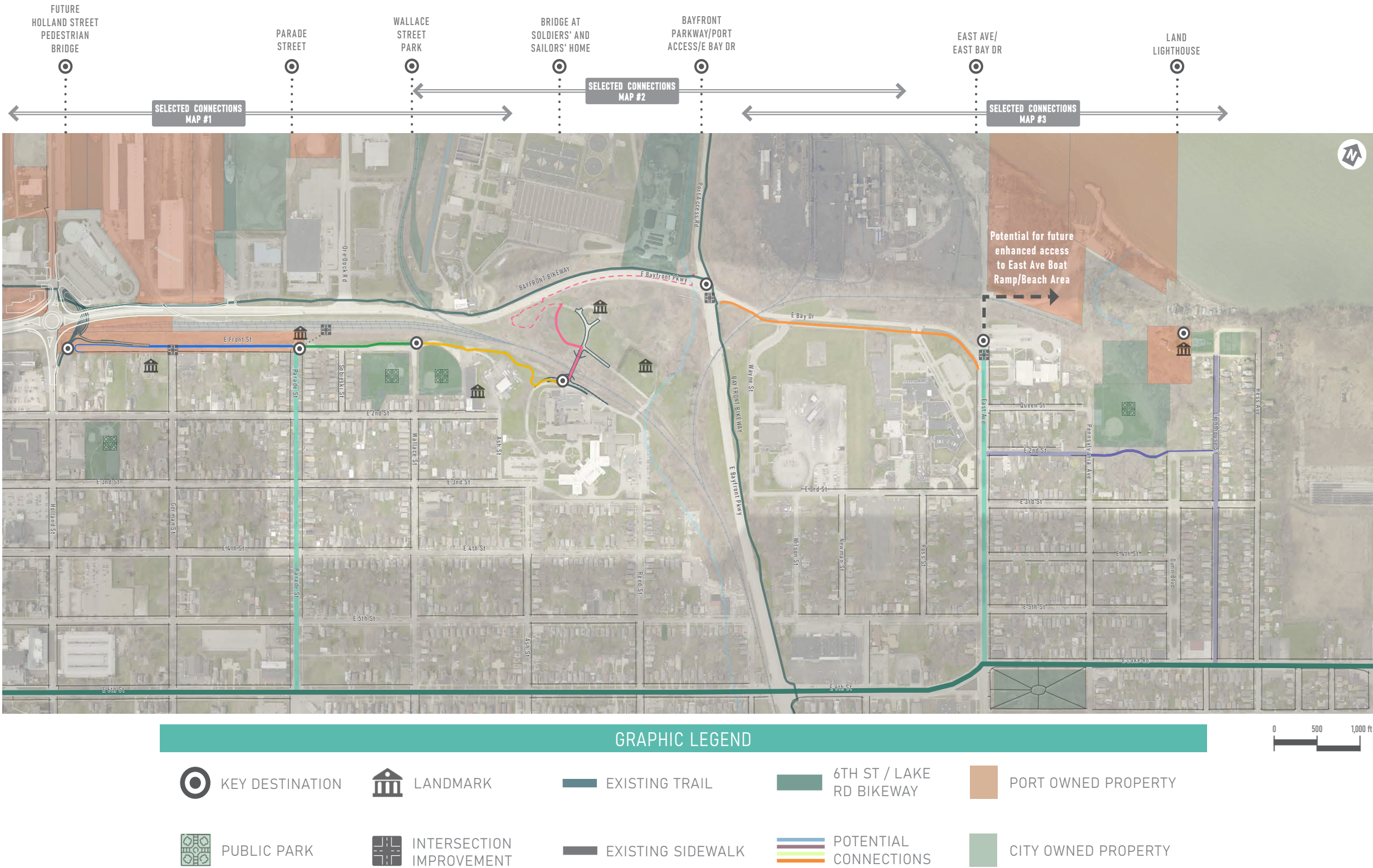
This chapter presents an overview of the selected bicycle and pedestrian connections along with conceptual design exhibits and typical sections that illustrate the potential improvements in more detail.

CONTENTS

- Selected Connections
- Sketches and Typical Sections
- Design Exhibits

SELECTED CONNECTIONS

Based on the feasibility evaluation and feedback from stakeholders and project partners, connections within each segment were selected for further consideration. These options are depicted and described on the **Selected Connections Overview Map** and **Selected Connections Maps**.

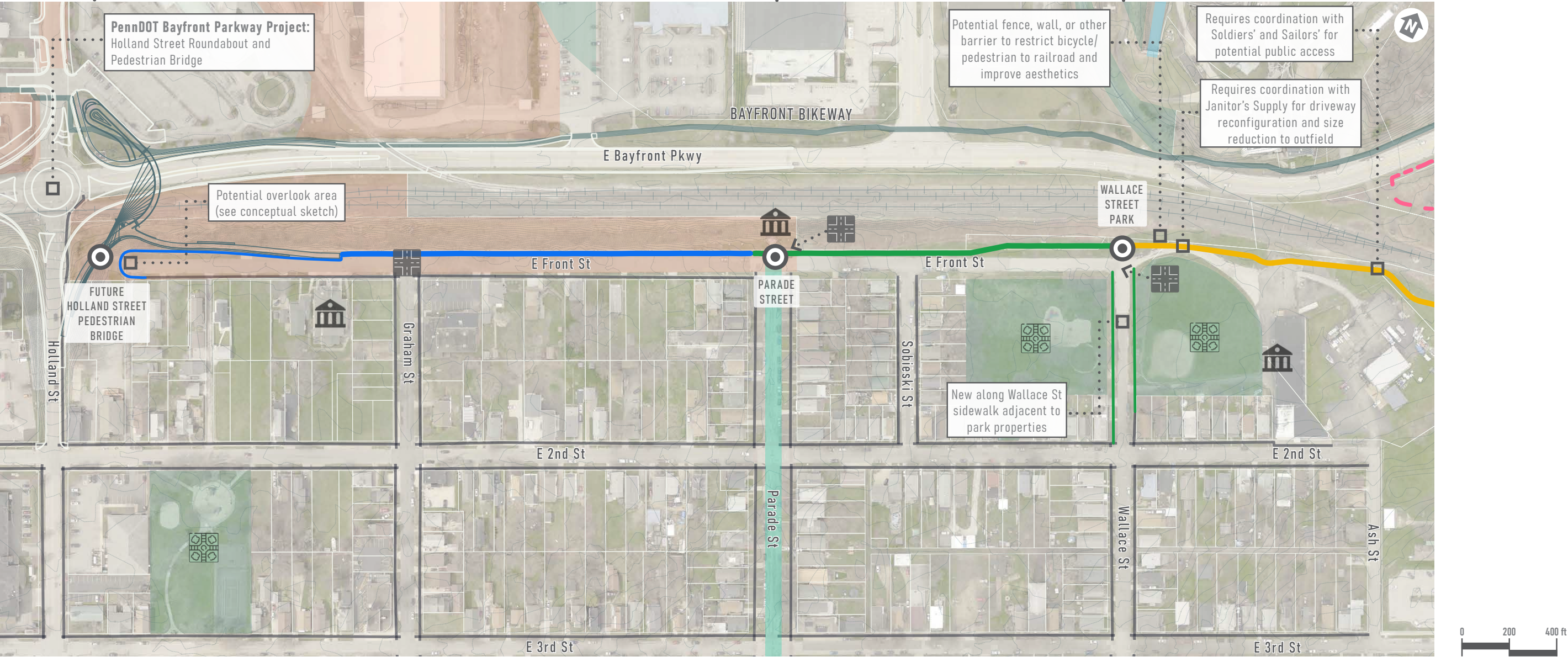


- Front Street: Holland Street- Parade Street**

 - » Upgraded existing shared use path (north side) with new safety barrier for protection from the steep slope
 - » New sidewalk connection from the western terminus of Front Street to future Holland Street Pedestrian Bridge
 - » New marked crosswalks and ADA curb ramps at Front Street/Graham Street and Front Street/Parade Street
 - » Seating and/or signs for overlook areas
 - » Optional:
 - Overlook area with seating and/or interpretative signs at western terminus of Front Street
 - Other streetscape enhancements, such as lighting and receptacles
 - Restrict on-street parking on the north side of Front Street
- Front Street: Parade Street - Wallace Street**

 - » New shared use path (north side)
 - » New marked crosswalks and ADA curb ramps at Front Street/Wallace Street
 - » New sidewalks on both sides of Wallace Street between 2nd Street and Front Street
 - » On-road bikeway with sharrows and wayfinding on Parade Street between Front Street and 6th Street
- Wallace Street - Soldiers' and Sailors' Bridge**

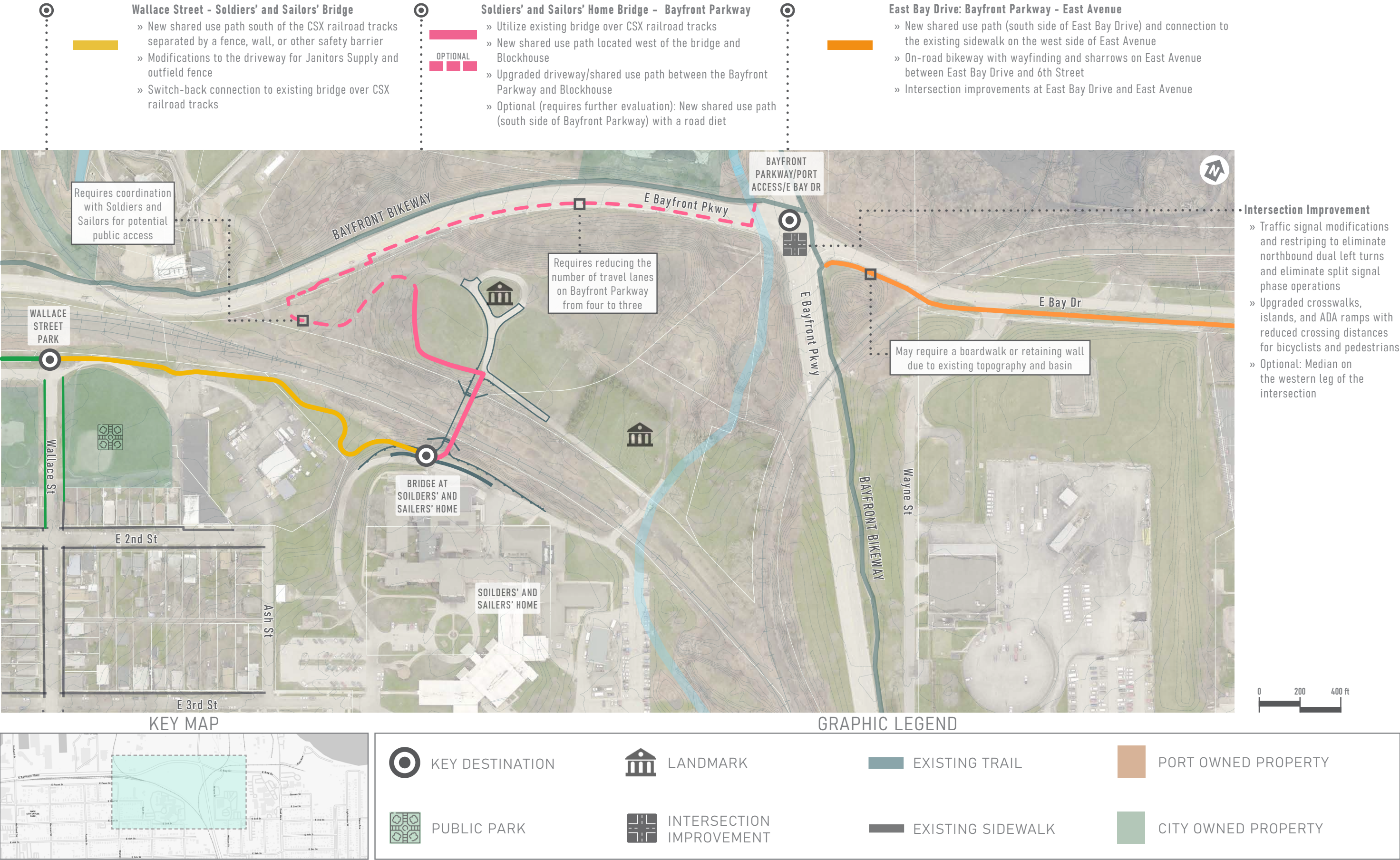
 - » New shared use path south of the CSX railroad tracks separated by a fence, wall, or other safety barrier
 - » Modifications to the driveway for Janitors Supply and outfield fence
 - » Switch-back connection to existing bridge over CSX railroad tracks



KEY MAP

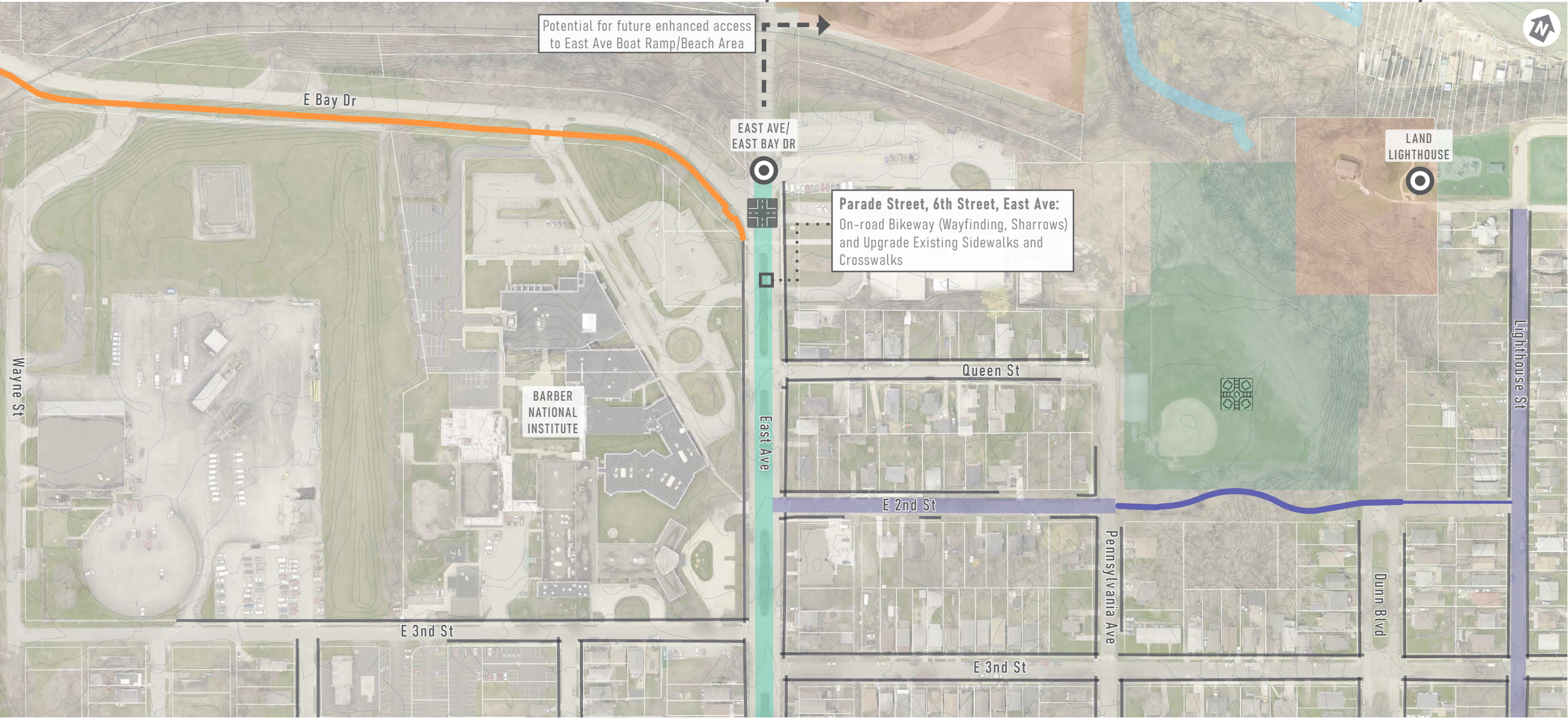
GRAPHIC LEGEND

KEY DESTINATION	LANDMARK	EXISTING TRAIL	PORT OWNED PROPERTY
PUBLIC PARK	INTERSECTION IMPROVEMENT	EXISTING SIDEWALK	CITY OWNED PROPERTY



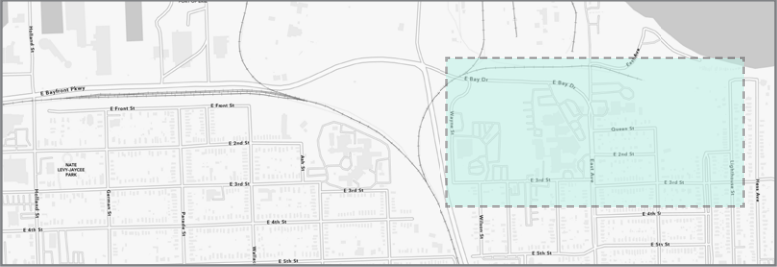
- East Bay Drive: Bayfront Parkway - East Avenue**
- » New shared use path (southside of East Bay Drive) and connection to the existing sidewalk on the west side of East Avenue
 - » On-road bikeway with wayfinding and sharrows on East Avenue between East Bay Drive and 6th Street
 - » Intersection improvements at East Bay Drive and East Avenue

- 2nd Street - Lighthouse Street - Land Lighthouse:**
- » Upgraded sidewalk along 2nd Street (northside) between East Avenue and Pennsylvania Avenue
 - » New shared use path in the area of 2nd Street extended between Pennsylvania Avenue and Dunn Boulevard
 - » New sidewalk along 2nd Street (northside) between Dunn Boulevard and Lighthouse Street
 - » Wayfinding on Lighthouse Street between 6th Street and Land Lighthouse
 - » New marked crosswalk and ADA curb ramps at 2nd Street/Pennsylvania



KEY MAP

GRAPHIC LEGEND

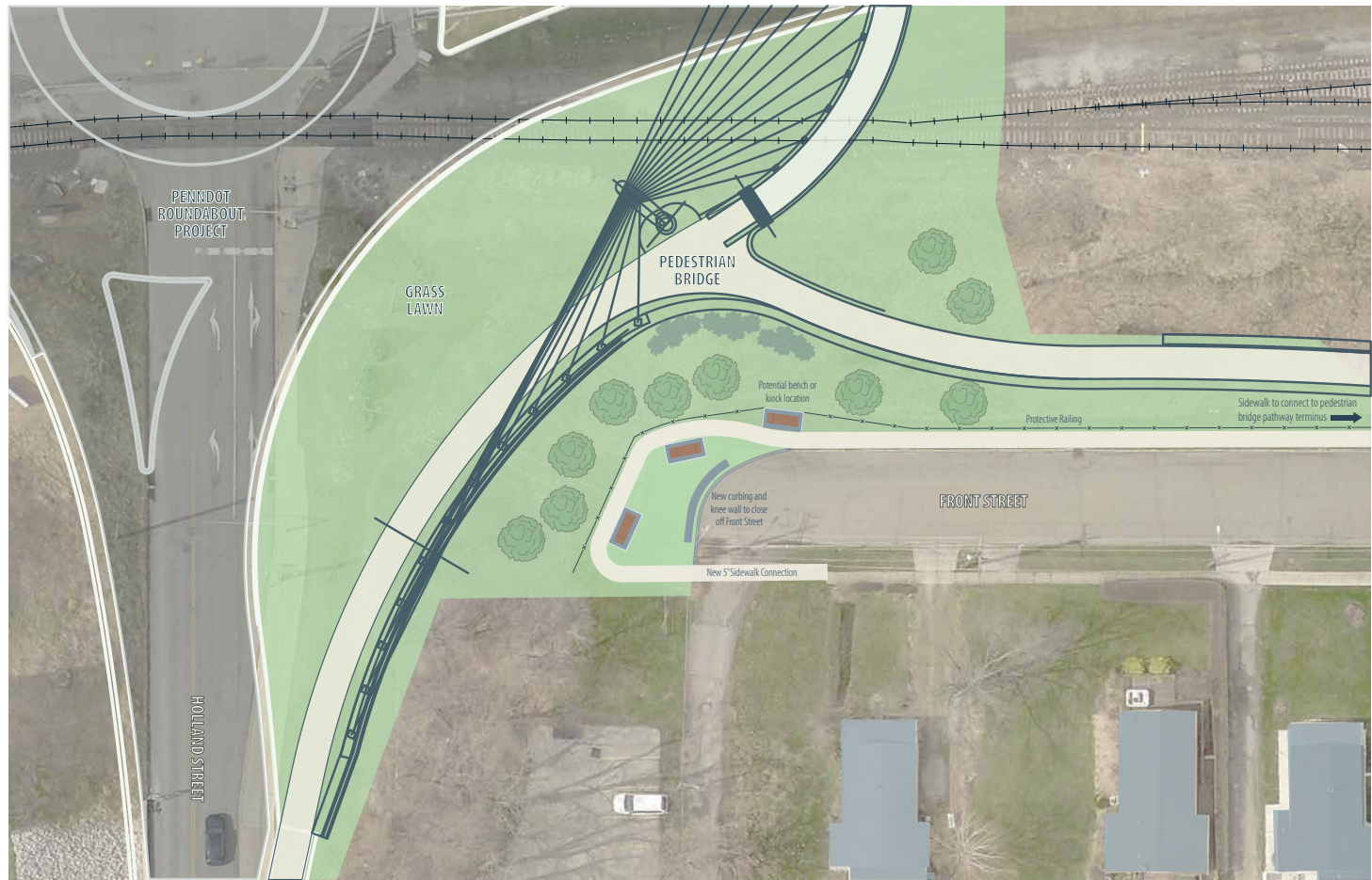


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|-----------------|--------------------------|-------------------|---------------------|
| KEY DESTINATION | LANDMARK | EXISTING TRAIL | PORT OWNED PROPERTY |
| PUBLIC PARK | INTERSECTION IMPROVEMENT | EXISTING SIDEWALK | CITY OWNED PROPERTY |

SKETCHES AND TYPICAL SECTIONS

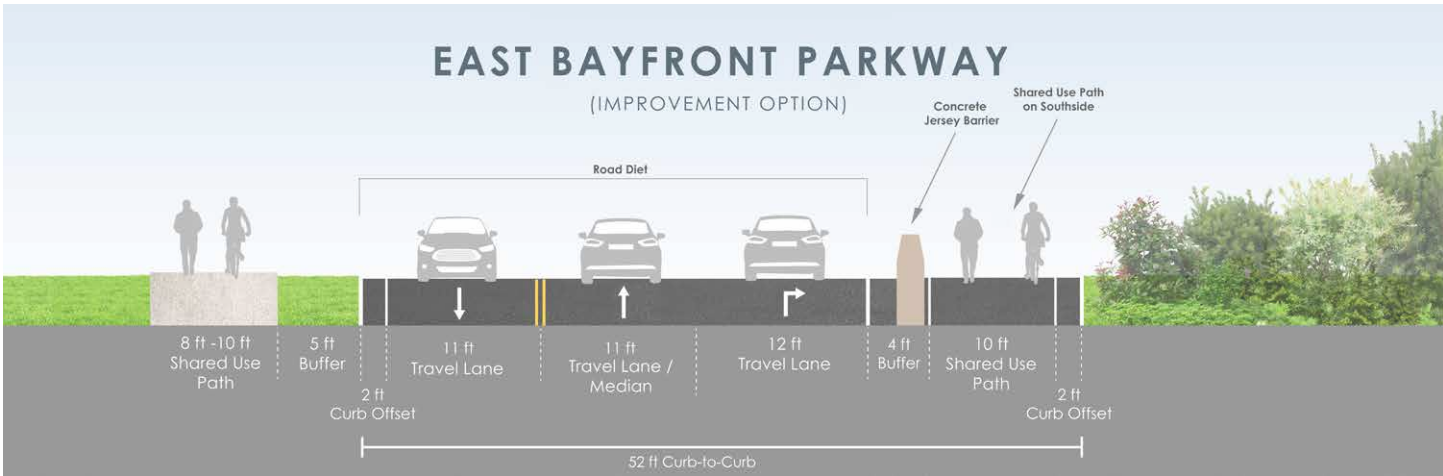
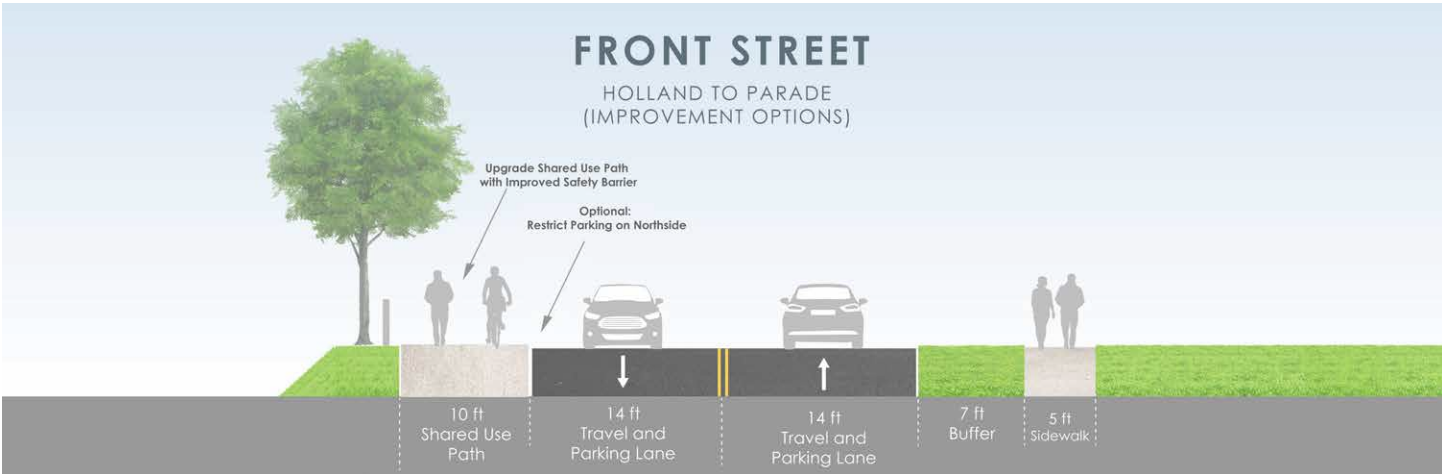
FRONT STREET: OVERLOOK AREA CONCEPTUAL SKETCH

PennDOT’s design for the Holland Street pedestrian bridge includes a path connection to Front Street, just east of the current terminus of Front Street. This sketch below shows the concept of providing sidewalk connections to the new pedestrian bridge and creating an overlook area at the current terminus of Front Street. The overlook area could include a knee wall or other seating, as well as interpretative signs and landscaping. These improvements would improve pedestrian access to the bayfront for residents in the area and provide a public space for enjoying views of Lake Erie.



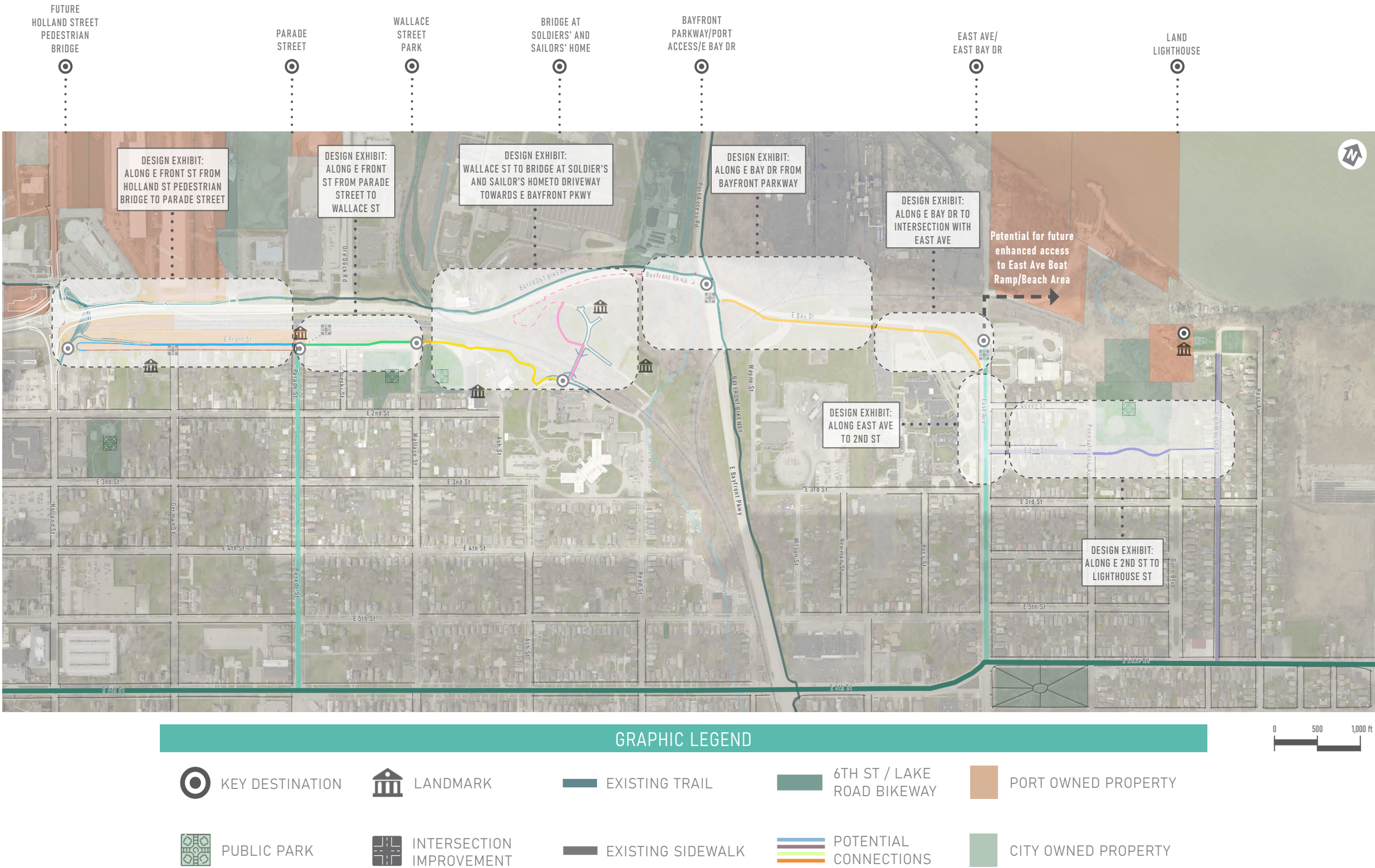
SELECTED TYPICAL SECTIONS

The following typical sections further illustrate the selected connections for the corridors where the proposed bicycled and pedestrian infrastructure is proposed adjacent to the roadway, namely Front Street, Bayfront Parkway, and Bay Drive. (Existing typical sections for these roadways are included in Chapter 4.) The typical sections show travel lanes, buffer areas, bicycle and pedestrian facilities. There may be constraints that limit complete implementation of the typical sections in specific areas. Topographic survey, more detailed engineering, and coordination with property owners would be required to fully advance these concepts. However, the typical sections show how the bicycle and pedestrian infrastructure relates to travel lanes and other corridor-wide design treatments.

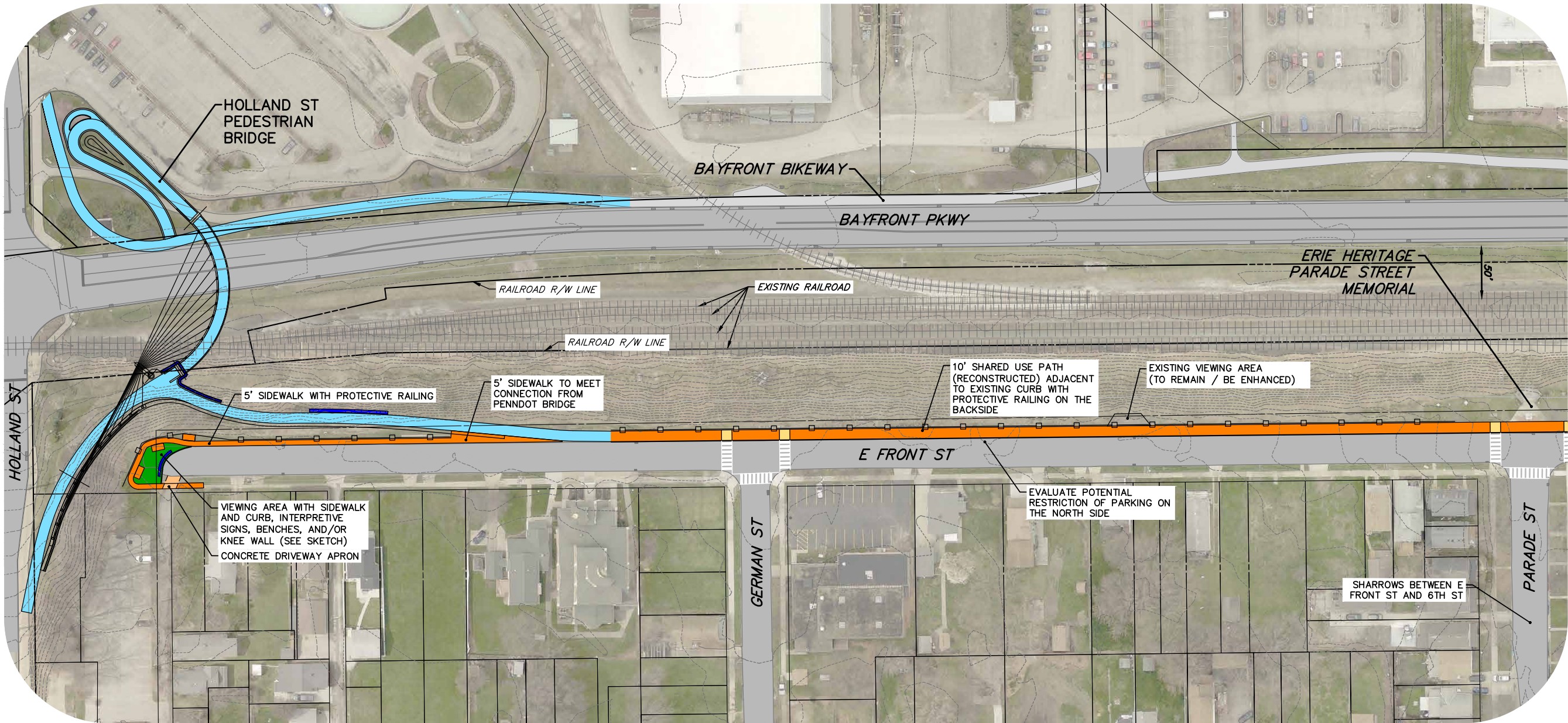


DESIGN EXHIBITS

The following conceptual design exhibits provide additional details regarding the potential design of the selected improvements. They are based on readily available data compiled for this feasibility study and do not reflect topographic survey. Preliminary engineering and final design will be required to evaluate necessary construction activities and prepare construction documents. Additionally, various permits may be required depending on the existing conditions, proposed improvements, and jurisdiction of permitting agencies. The design and permitting processes for these proposed improvements will involve additional coordination with property owners and will result in refinements to the conceptual plans and preparation of more detailed plans.



FRONT STREET: HOLLAND STREET- PARADE STREET



LEGEND

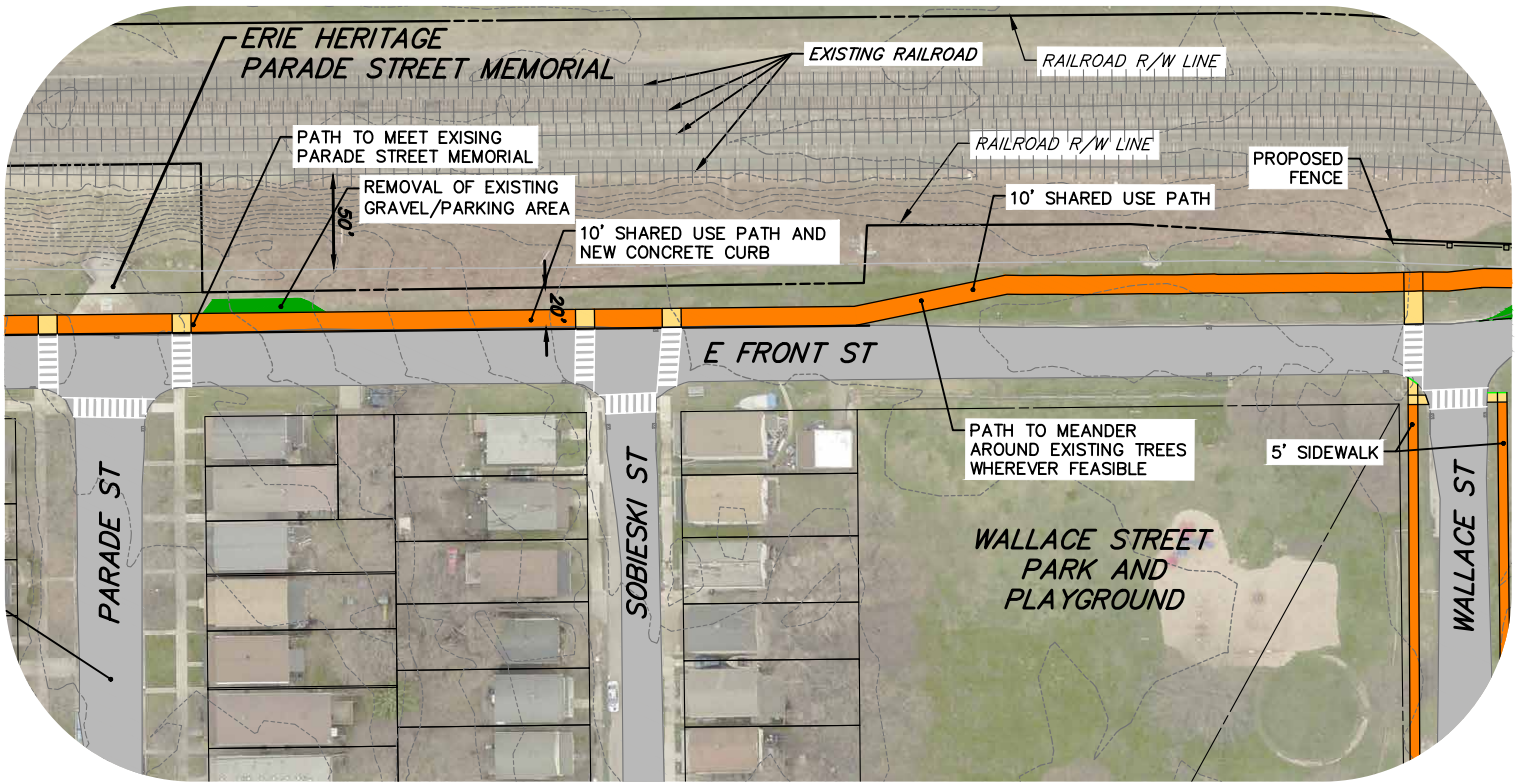
- NEW ACTIVE TRANSPORTATION CONNECTION
- ADA CURB RAMP
- NEW GRASS AREA
- IMPROVEMENTS PROPOSED BY PENNDOT BAYFRONT PARKWAY PROJECT
- EXISTING ASPHALT PATH

NOTES:




- EXISTING CONDITIONS DEPICTED ON THE CONCEPTUAL DESIGN EXHIBIT ARE BASED ON GIS DATA, AERIAL PHOTOGRAPHY AND LIMITED FIELD MEASUREMENTS ONLY.
- LEGAL RIGHT-OF-WAY LINES AND PROPERTY LINES ARE ESTIMATED BASED ON GIS DATA AND PLANS PROVIDED BY THE CITY OF ERIE AND PENNDOT. LEGAL RIGHT-OF-WAY LINES OR PROPERTY LINES HAVE NOT BEEN INDEPENDENTLY VERIFIED THROUGH FIELD SURVEY OR TITLE/DEED RESEARCH.
- THIS EXHIBIT DOES NOT DEPICT REQUIRED EASEMENT LINES (TEMPORARY OR PERMANENT) WHICH WILL LIKELY BE REQUIRED FOR THE CONSTRUCTION OF THE PATHS AND CONNECTIONS. THE SIZE AND LOCATION OF ALL EASEMENTS WILL NEED TO BE DETERMINED DURING THE PRELIMINARY ENGINEERING.



FRONT STREET: PARADE STREET - WALLACE STREET

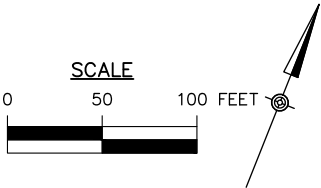


LEGEND

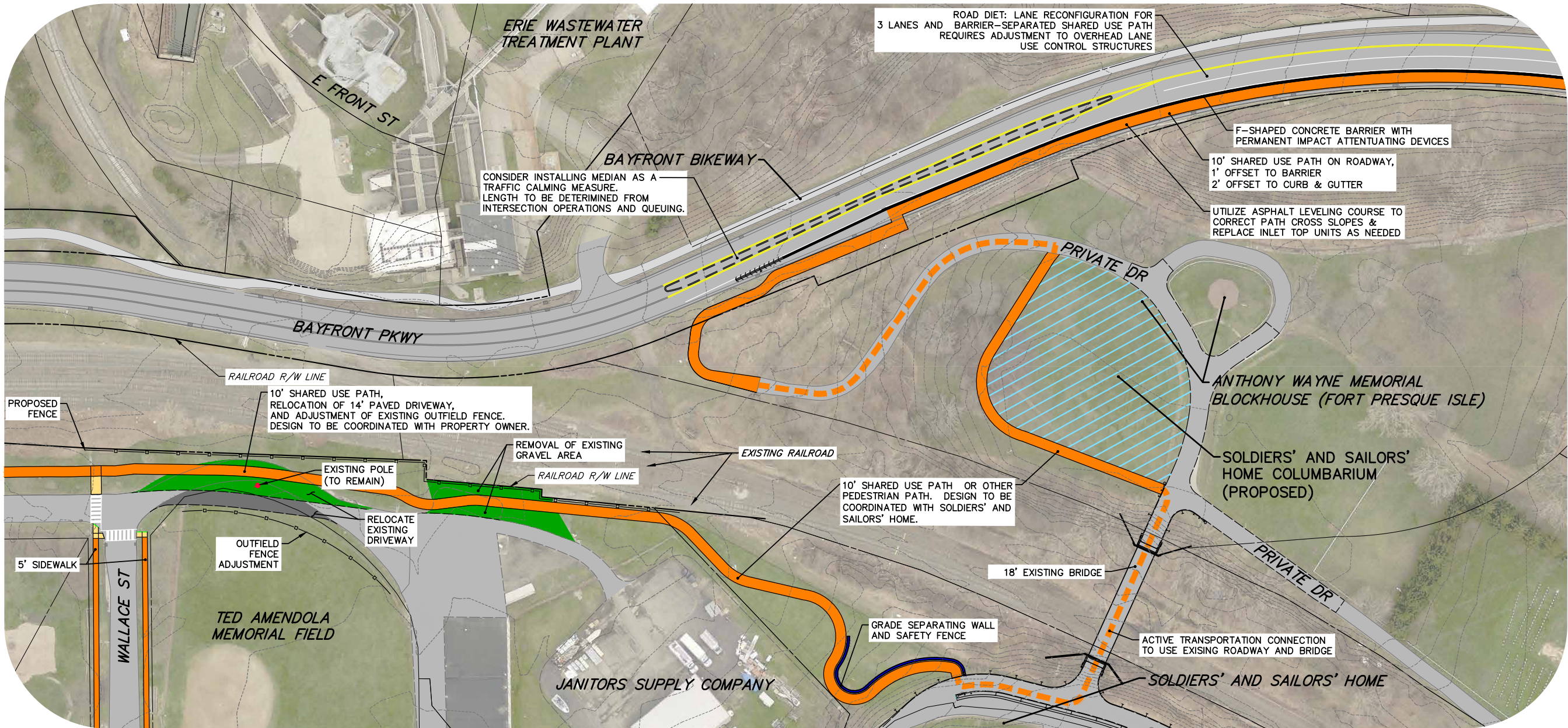
-  NEW ACTIVE TRANSPORTATION CONNECTION
-  NEW GRASS AREA
-  ADA CURB RAMP

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THE CONCEPTUAL DESIGN EXHIBIT ARE BASED ON GIS DATA, AERIAL PHOTOGRAPHY AND LIMITED FIELD MEASUREMENTS ONLY.
2. LEGAL RIGHT-OF-WAY LINES AND PROPERTY LINES ARE ESTIMATED BASED ON GIS DATA AND PLANS PROVIDED BY THE CITY OF ERIE AND PENNDOT. LEGAL RIGHT-OF-WAY LINES OR PROPERTY LINES HAVE NOT BEEN INDEPENDENTLY VERIFIED THROUGH FIELD SURVEY OR TITLE/DEED RESEARCH.
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WALLACE STREET - BRIDGE AT SOLDIERS' AND SAILORS' HOME - BAYFRONT PARKWAY



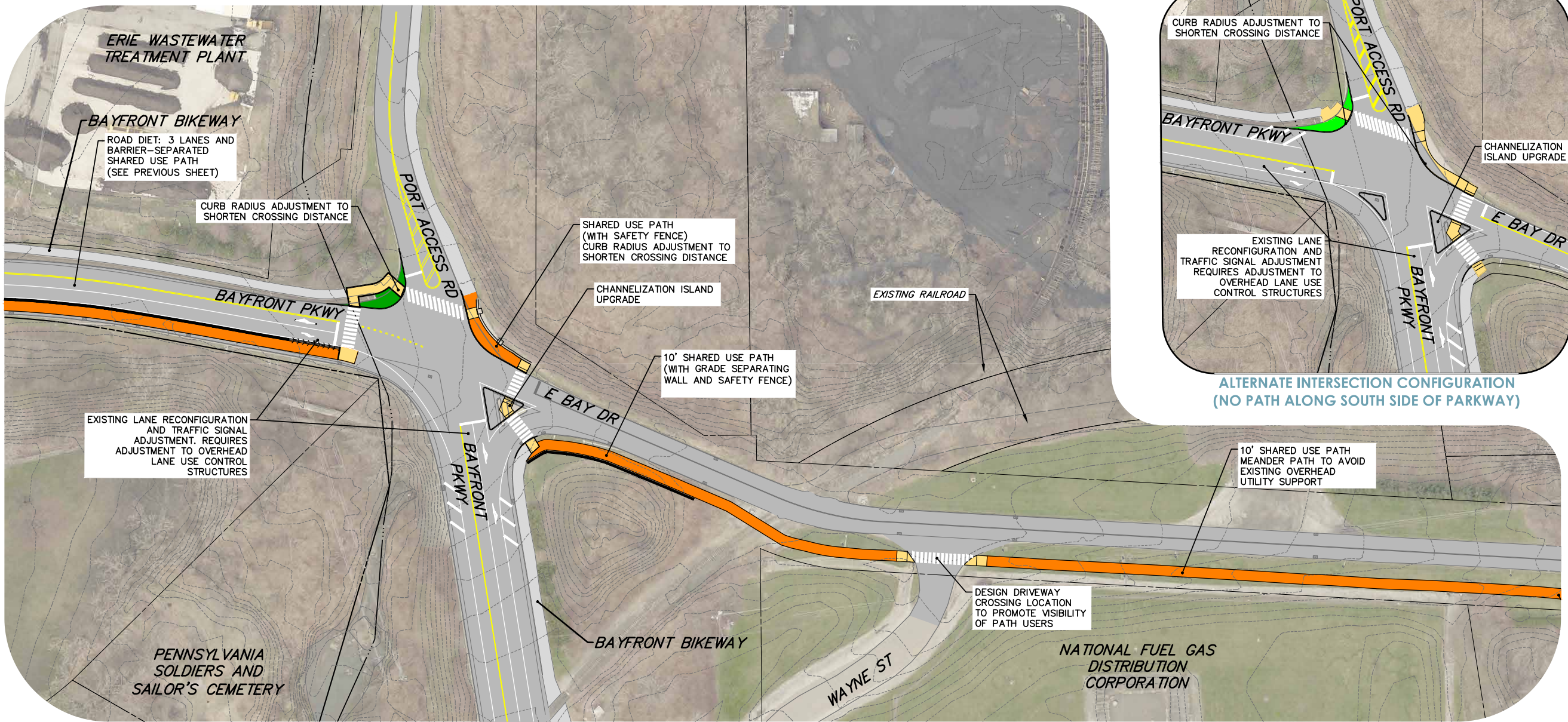
LEGEND

	NEW ACTIVE TRANSPORTATION CONNECTION		ADA CURB RAMP
	PROPOSED DRIVEWAY		
	PROPOSED IMPROVEMENTS TO SOLDIERS & SAILORS PROPERTY		
	NEW GRASS AREA		
	EXISTING ASPHALT PATH		
	UTILIZE EXISTING SIDEWALK OR PATH		

- NOTES:**
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BAYFRONT PARKWAY / BAY DRIVE / PORT ACCESS ROAD INTERSECTION AND BAY DRIVE



LEGEND

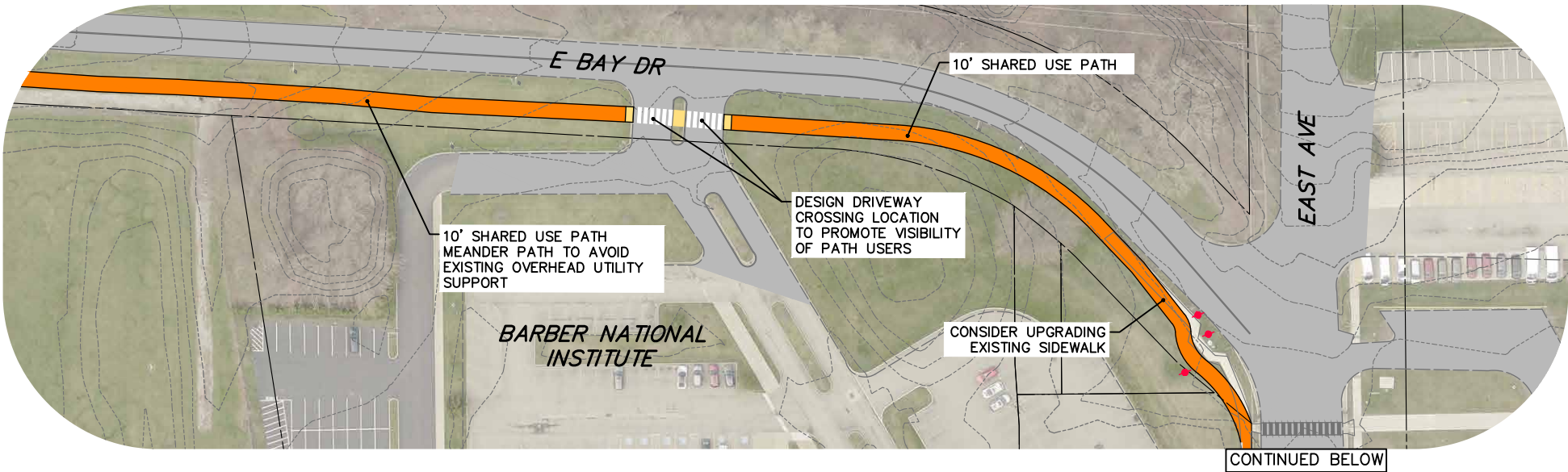
- NEW ACTIVE TRANSPORTATION CONNECTION
- ADA CURB RAMP
- NEW GRASS AREA
- EXISTING ASPHALT PATH

NOTES:

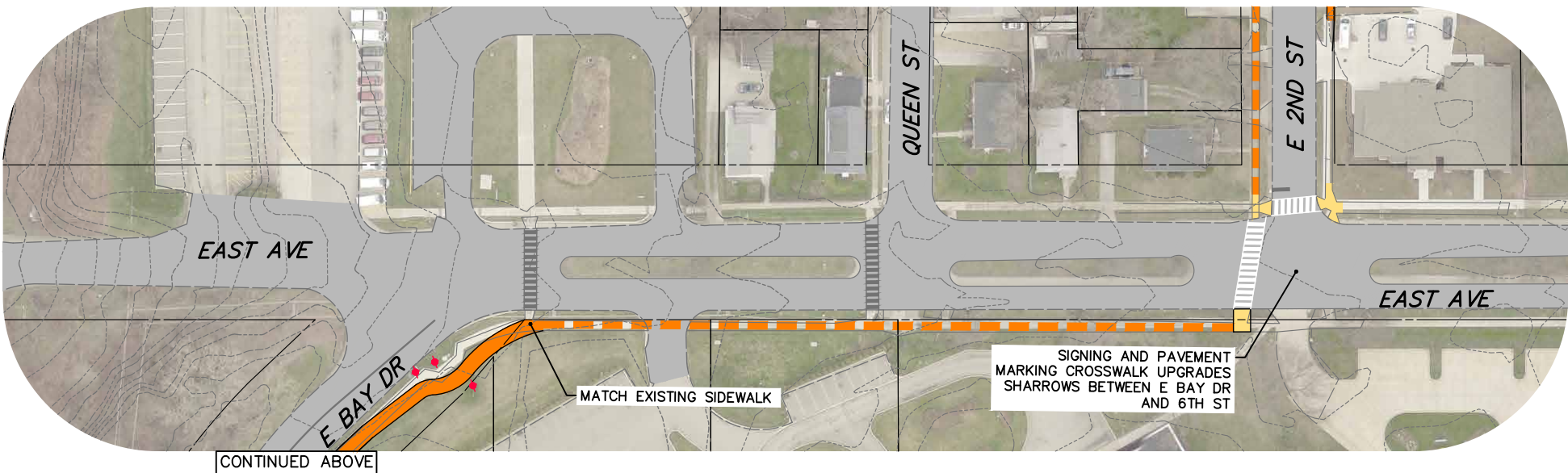
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BAY DRIVE - EAST AVENUE



EAST AVENUE - 2ND STREET

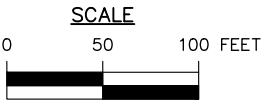


LEGEND

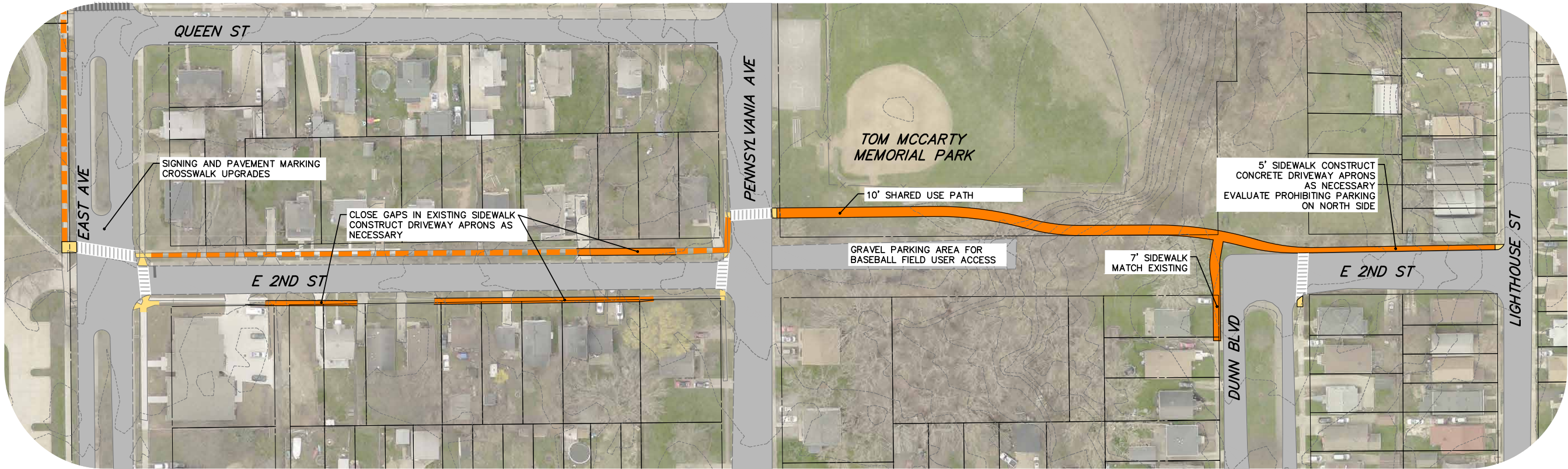
-  NEW ACTIVE TRANSPORTATION CONNECTION
-  ADA CURB RAMP
-  EXISTING ASPHALT PATH
-  UTILIZE EXISTING SIDEWALK OR PATH

NOTES:

1. EXISTING CONDITIONS DEPICTED ON THE CONCEPTUAL DESIGN EXHIBIT ARE BASED ON GIS DATA, AERIAL PHOTOGRAPHY AND LIMITED FIELD MEASUREMENTS ONLY.
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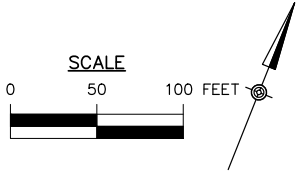
2ND STREET - EAST AVENUE - LIGHTHOUSE STREET



LEGEND

- NEW ACTIVE TRANSPORTATION CONNECTION
- ADA CURB RAMP
- EXISTING ASPHALT PATH
- UTILIZE EXISTING SIDEWALK OR PATH

- NOTES:**
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Erie Land Lighthouse

CHAPTER SIX

Conclusions and Next Steps

This chapter presents an overview of how bicycle and pedestrian improvements can be implemented in a phased approach over time to build a more connected network. The chapter identifies specific capital improvement projects and includes construct cost estimates and potential next steps for implementation.

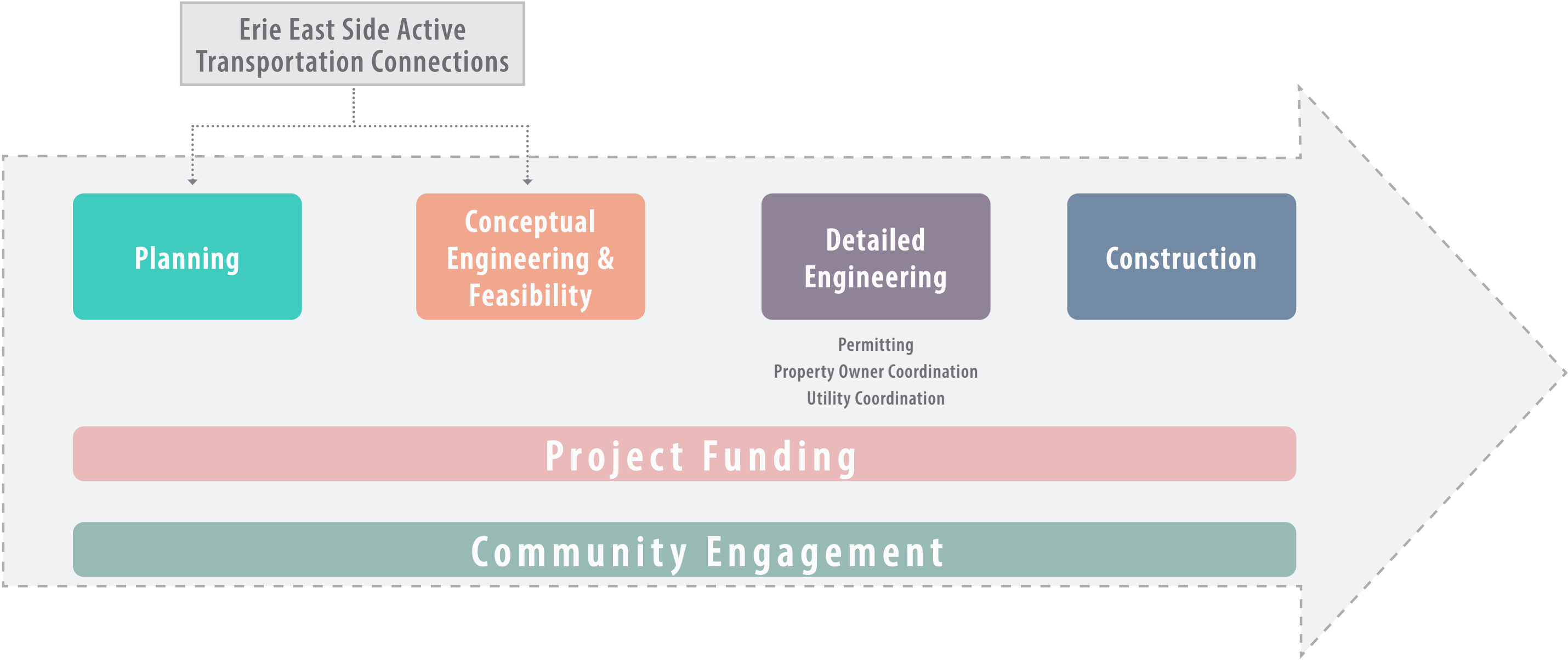
CONTENTS

- Project Process
- Improvement Projects
- Order of Magnitude Cost Estimates
- Potential Funding Sources
- Implementation Strategy

PROJECT PROCESS

This feasibility study identified several capital improvements to provide bicycle and pedestrian access and mobility in the Erie East Side community. This study can be used by the various project partners to make decisions about priorities and potential implementation. This evaluation focused primarily on technical feasibility and did not include stakeholder or community engagement.

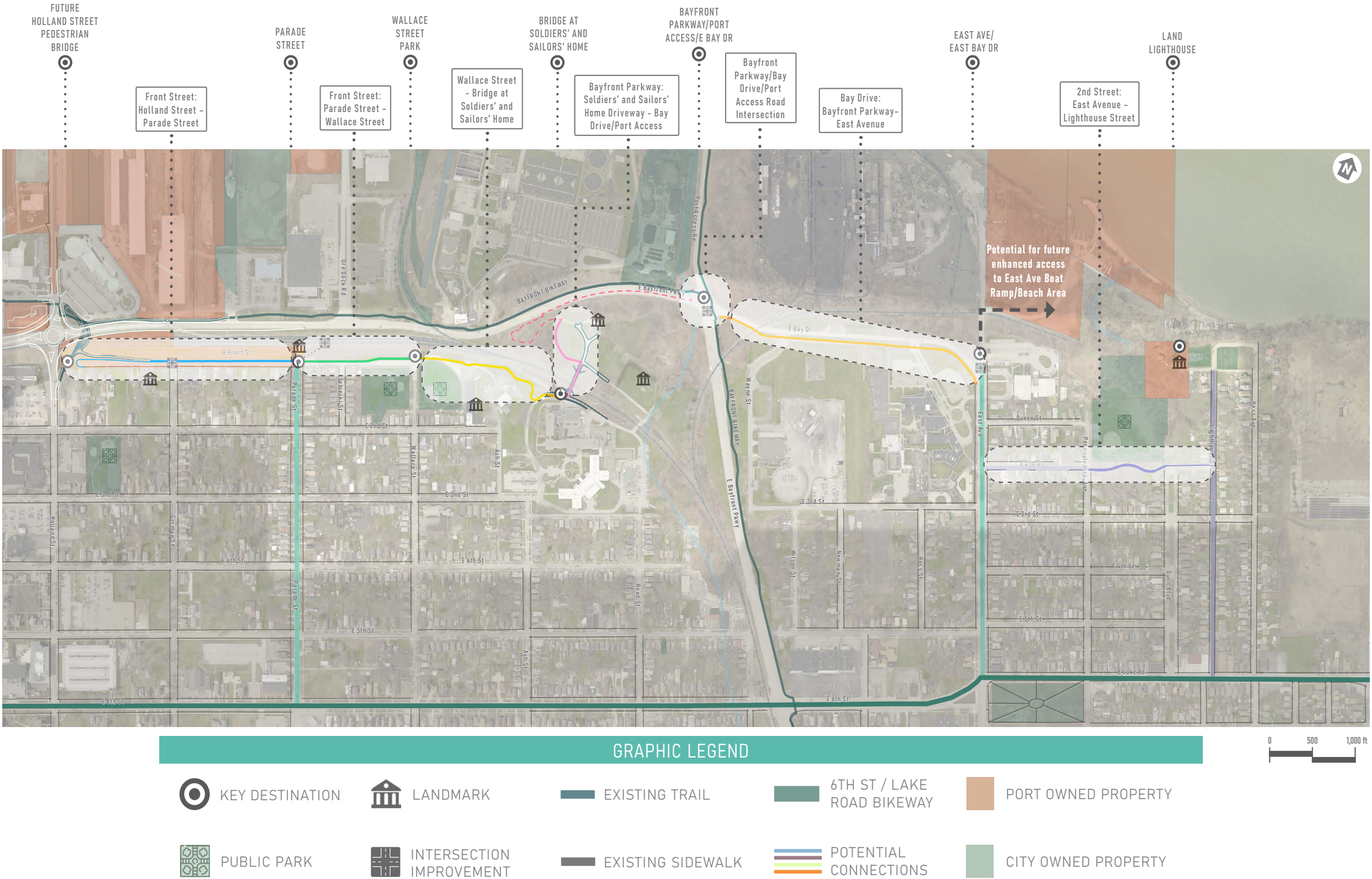
Further feasibility evaluation, detailed engineering, permitting, property owner coordination, and utility coordination will likely be required before improvements can be constructed. Future design and implementation will require coordination between the project partners, and opportunities for public input should be sought early and often through the design process.



IMPROVEMENT PROJECTS

The improvements can be implemented in through a phased approach based on priorities, available funding and resources, and other opportunities. This implementation strategy identifies separate projects within the selected route that have logical termini and provide meaningful benefits individually.

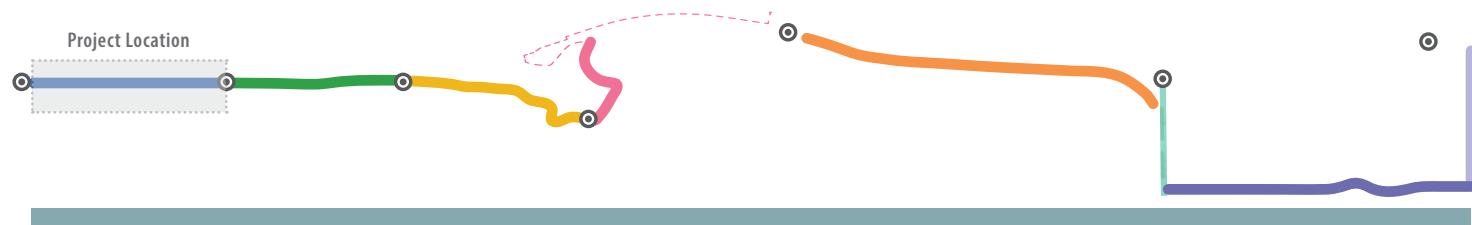
There may also be opportunities to combine certain projects into one, making implementation more cost-efficient. The **Improvement Projects Map** and following projects summaries provide an overview of the location, limits, and potential next steps for the potential projects.



Improvement Project Profiles

FRONT STREET

Holland Street - Parade Street



LIMITS

East Front Street between the western terminus near Holland Street and Parade Street

DESCRIPTION

- **See Design Exhibit #1**
- Upgrade the existing shared use path (north side) and provide a new safety barrier protecting users from the steep adjacent slope. Connect this upgraded shared use path to the future Holland Street Pedestrian Bridge
- Install a new sidewalk (5' wide) around the western terminus of Front Street and the future Holland Street Pedestrian Bridge connection
- Install new marked crosswalks and ADA curb ramps at Front Street/German Street and Front Street/Parade Street
- Maintain access at existing alleys and driveways on the south side of Front Street
- Upgrade existing seating and/or signs for overlook areas
- Optional:
 - Create an overlook area with seating and/or interpretative signs at western terminus of Front Street
 - Provide other streetscape enhancements, such as lighting and receptacles
 - Restrict on-street parking on the north side of Front Street

POTENTIAL NEXT STEPS

- Gather public input on the potential improvements and conceptual design, including:
 - Potential restriction of parking along the north side of Front Street
 - Design features for the new overlook area at Front St western terminus
 - Aesthetics for the safety barrier protecting users from the steep slope
 - Consideration for other streetscape enhancements, such as lighting
- Identify funding for design and/or construction
- Initiate design and permitting processes
- Coordinate with PennDOT regarding the design of connections to the Holland Street Pedestrian Bridge

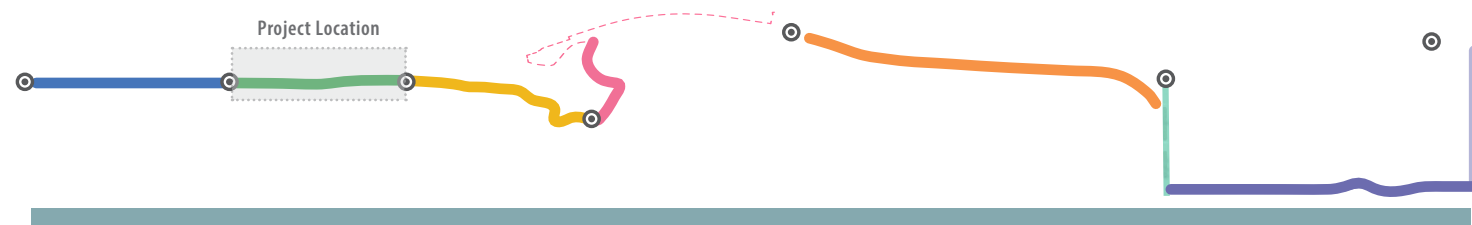
CONSTRUCTION COST ESTIMATE: \$1.1 - \$1.7 MILLION

Other Considerations

- Possibly combine with Front Street improvements between Parade Street and Wallace Street. Consider combining project with other capital-type improvements, such as reconstruction of Front Street, possibly to be combined with other drainage and/or utility replacements

FRONT STREET

Parade Street - Wallace Street



LIMITS

East Front Street between Parade Street and Wallace Street

DESCRIPTION

- **See Design Exhibit #2**
- Install new shared use path (10' wide) on the north side of Front Street
- Install new marked crosswalks and ADA curb ramps at Front Street/Wallace Street

POTENTIAL NEXT STEPS

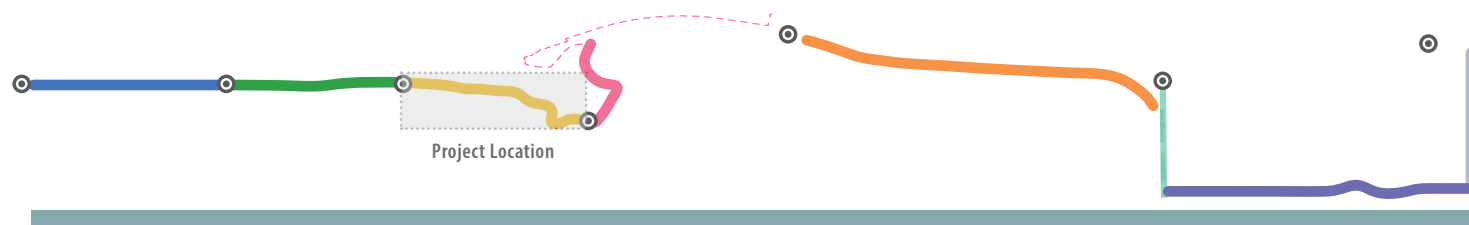
- Gather public input on the potential improvements and conceptual design, including:
 - Removal of parking area and/or restriction of parking along the north side of Front Street
 - Upgrades or enhancements to the Erie Heritage Parade Street Memorial
 - Consideration for other streetscape enhancements, such as lighting and receptacles
- Identify funding for design and/or construction
- Initiate design and permitting processes

CONSTRUCTION COST ESTIMATE: \$500,000 - \$800,000

Other Considerations

- Possibly combine with Front Street improvements between Holland Street and Parade Street
- Possibly include new sidewalks/pedestrian paths on both sides of Wallace Street between 2nd Street and Front Street as part of this project or as a separate project involving Wallace Street Park improvements
- Consider combining project with other capital-type improvements, such as reconstruction of Front Street, possibly to be combined with other drainage and/or utility replacements

WALLACE STREET - BRIDGE AT SOLDIERS' AND SAILORS' HOME



LIMITS

- Connection between the intersection of East Front Street/Wallace Street and the Soldiers' and Sailors' Home bridge over CSX railroad
- Connection located generally in the area between CSX railroad tracks (and outside of railroad right-of-way) and Janitors Supply (no impact to existing building/structures)

DESCRIPTION

- **See Design Exhibit #3**
- Install a new shared use path (10' wide) south of the CSX railroad tracks
- Install a fence (or other separation barrier) between the path and CSX railroad tracks
- Install a grade separating wall and safety fence where there is path switch-back and steep slope near the bridge over CSX railroad
- Shift the driveway location for Janitors Supply to Wallace Street
- Reduce the outfield depth and relocate fence for the Ted Amendola Memorial Field

POTENTIAL NEXT STEPS

- Continue coordination with Soldiers' and Sailors' Home / PA Department of Military and Veterans Affairs regarding the potential alignment of the shared use path on their property
- Continue coordination with Janitors Supply regarding the potential alignment of the shared use path and modifications to the driveway
- Identify funding for design and/or construction
- Initiate design and permitting processes

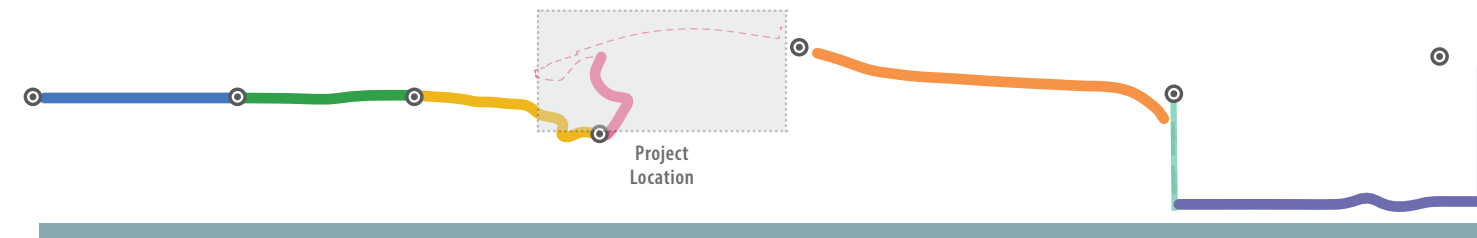
CONSTRUCTION COST ESTIMATE: \$1.4 - \$2.1 MILLION

Other Considerations

Coordinate with Soldiers' and Sailors' Home / PA Department of Military and Veterans Affairs regarding the proposed columbarium and any potential improvements to accommodate bicyclists and pedestrians between the bridge over CSX railroad tracks and the Bayfront Parkway

BAYFRONT PARKWAY

Bridge at Soldiers' and Sailors' Home Driveway - Bay Drive/Port Access



LIMITS

Bayfront Parkway between the existing utility/maintenance driveway for Soldiers' and Sailors' Home and the intersection of Bayfront Parkway / East Bay Drive / Port Access Road

DESCRIPTION

- **See Design Exhibit #3**
- Install a new shared use path (10' wide) on the south side of Bayfront Parkway, which requires a road diet or reduction in the number of travel lanes from four to three
- Install a concrete barrier between the shared use path and travel lanes
- Restripe travel lanes on the Bayfront Parkway
- Adjust overhead lane use control structures
- Optional:
 - Install a center median on the Bayfront Parkway to serve as a gateway and traffic calming measure

POTENTIAL NEXT STEPS

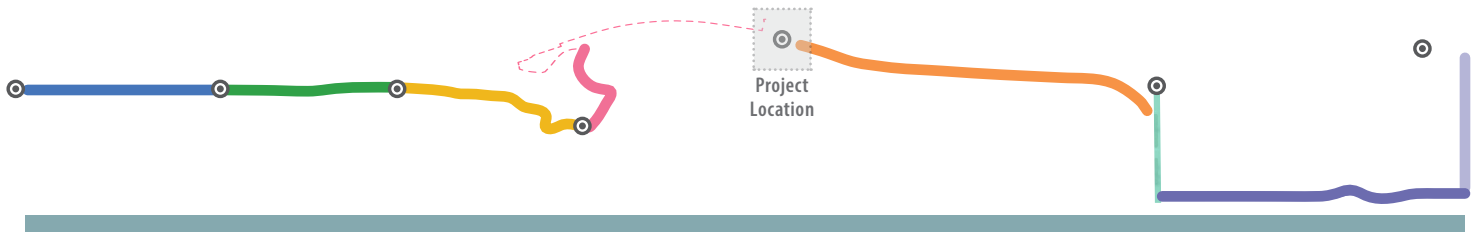
- Gather public input on the road diet concept
- Further evaluate the Bayfront Parkway road diet concept, including additional traffic analysis and coordination between PennDOT and the City of Erie regarding potential maintenance issues and affects on large vehicle access to/from the port (see next section)
- Identify funding for design and/or construction
- Initiate design and permitting processes

CONSTRUCTION COST ESTIMATE: \$900,000 - \$1.4 MILLION

Other Considerations

Road diet improvements must be closely coordinated with improvements to the Bayfront Parkway / Bay Drive / Port Access Road Intersection

BAYFRONT PARKWAY/BAY DRIVE/PORT ACCESS ROAD



LIMITS

Intersection of Bayfront Parkway / Bay Drive / Port Access Road

DESCRIPTION

- **See Design Exhibit #4**
- Reconfigure and restripe lanes on both legs of the Bayfront Parkway to eliminate the northbound dual left turns and split phase signal operations
- Upgrade the existing trail crossings of Port Access Road and Bay Drive
 - Upgrade crosswalks, islands, and ADA ramps
 - Adjust curb radii to shorten pedestrian crossing distances
- Install a new traffic signal
 - Adjust overhead lane control structure
- Optional:
 - Provide a trail crossing for the western leg of Bayfront Parkway with the Bayfront Parkway road diet

POTENTIAL NEXT STEPS

- Further evaluate the Bayfront Parkway road diet concept to determine the preferred improvements at this intersection
- Coordinate with the Port of Erie and others regarding potential routing for oversized products (such as wind turbine blades) and confirm proposed improvements will not preclude transport of products
- Identify funding for design and/or construction
- Initiate design and permitting processes

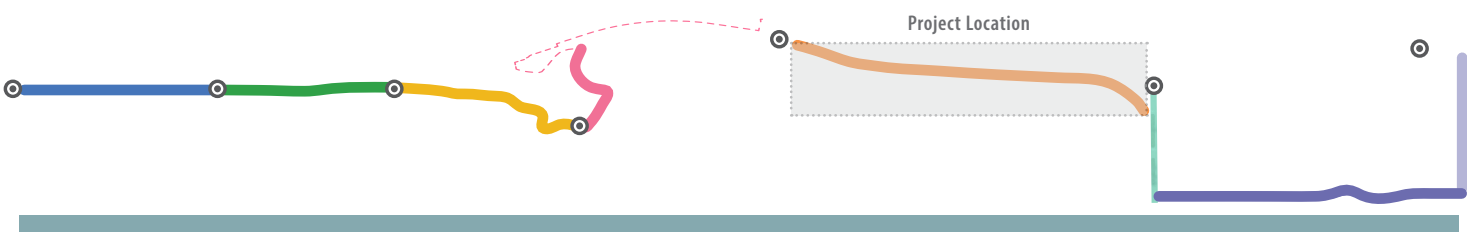
CONSTRUCTION COST ESTIMATE: \$800,000 - \$1.2 MILLION

Other Considerations

- Consider implementing the alternative intersection configuration in the near term to improve crossings for the existing Bayfront Bikeway
- Intersection upgrades must be closely coordinated with any road diet improvements along the Bayfront Parkway

BAY DRIVE

Bayfront Parkway - East Avenue



LIMITS

Bay Drive between Bayfront Parkway and East Avenue

DESCRIPTION

- **See Design Exhibits #4 and #5**
- Provide new shared use path (10' wide) on the south side of East Bay Drive with a connection to the existing sidewalk on the west side of East Avenue
- Install grade separating wall and safety fence where the trail is adjacent to an existing basin near the intersection of Bayfront Parkway / Bay Drive / Port Access Road
- Install high visibility crossings with signage and ADA upgrades for crossing intersecting roads and driveways

POTENTIAL NEXT STEPS

- Coordinate with key property owners (including National Fuel Gas Distribution Corporation and Barber National Institute) and public utility owners regarding the conceptual design of the proposed improvements
- Identify funding for design and/or construction
- Initiate design and permitting processes

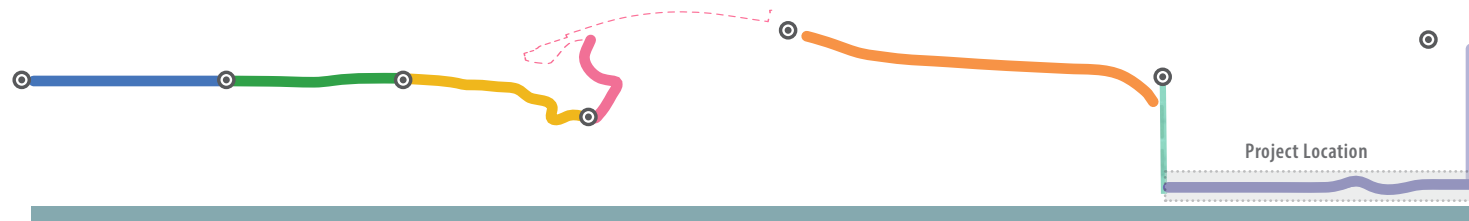
CONSTRUCTION COST ESTIMATE: \$900,000 - \$1.4 MILLION

Other Considerations

Road diet improvements must be closely coordinated with improvements to the Bayfront Parkway / Bay Drive / Port Access Road Intersection

2ND STREET

East Avenue - Lighthouse Street



LIMITS

2nd Street between East Avenue and Lighthouse Street (including in the area of 2nd Street extended between Pennsylvania Avenue and Dunn Boulevard)

DESCRIPTION

- See Design Exhibit #6
- Upgrade and/or close gaps in the sidewalk along 2nd Street between East Avenue and Pennsylvania Avenue
- Install a new shared use path (10' wide) in the area of 2nd Street extended between Pennsylvania Avenue and Dunn Boulevard
- Install a new sidewalk along between the shared use path terminus at Dunn Boulevard and Lighthouse Street
- Install connections to existing sidewalks at Dunn Boulevard
- Install wayfinding on Lighthouse Street between 6th Street and Land Lighthouse
- Provide new marked crosswalk and ADA curb ramps at 2nd Street/Pennsylvania
- Optional:
 - Restrict parking on the north side of 2nd Street between Dunn Boulevard and Lighthouse Street

POTENTIAL NEXT STEPS

- Gather public input on the potential improvements and conceptual design to confirm the proposed shared use path alignment supports access to the park and doesn't negatively impact recreational use of the park
- Identify funding for design and/or construction
- Initiate design and permitting processes

CONSTRUCTION COST ESTIMATE: \$500,000 - \$1 MILLION

Other Considerations

Consider implementing the shared use path and sidewalk improvements in conjunction with other improvements to the park, including an improved parking area.

OTHER CAPITAL IMPROVEMENTS

Wallace Street Sidewalks

LIMITS

Wallace Street between Front Street and 2nd Street

DESCRIPTION

- Install new sidewalks (or pedestrian paths) on both sides of Wallace Street along the frontage of the Wallace Street Park

POTENTIAL NEXT STEPS

- Consider installing in conjunction with the shared use path improvements on Front Street or in conjunction with other improvements to Wallace Street park.
- Identify funding for design and/or construction.

Parade Street and East Avenue Sharrows

LIMITS

- Parade Street between Front Street and 6th Street
- East Avenue between Bay Drive and 6th Street

DESCRIPTION

- Install shared lane markings (sharrows) on Parade Street and East Avenue
- Install wayfinding signage, particularly to the Erie Bayfront and Land Lighthouse
- Optional:
 - Install "Bicycles May Use Full Lane" Sign or "Share the Road" signs

POTENTIAL NEXT STEPS

- Consider installing in conjunction with improvements, such as:
 - Shared use path improvements on Front Street and Bay Drive, respectively
 - City of Erie bikeway project
 - Streetscape enhancement project
- Identify funding for design and/or construction.

ORDER OF MAGNITUDE COST ESTIMATES

Implementing the identified capital improvements will require assembling funding for further plans and studies, design, permitting, right-of-way acquisition, and construction. Order of magnitude cost estimate ranges were developed for the construction of the shared use path and related capital improvements identified in this feasibility study. Construction estimates are based on material and work quantities derived from the feasibility evaluation and unit prices from recently bid projects, as well as recent project experience. Due to several unknown and excluded costs, the estimates are only appropriate for high-level planning and budgeting purposes. Additional information/preliminary engineering is needed to develop estimates for pre-construction activities and refined construction costs.

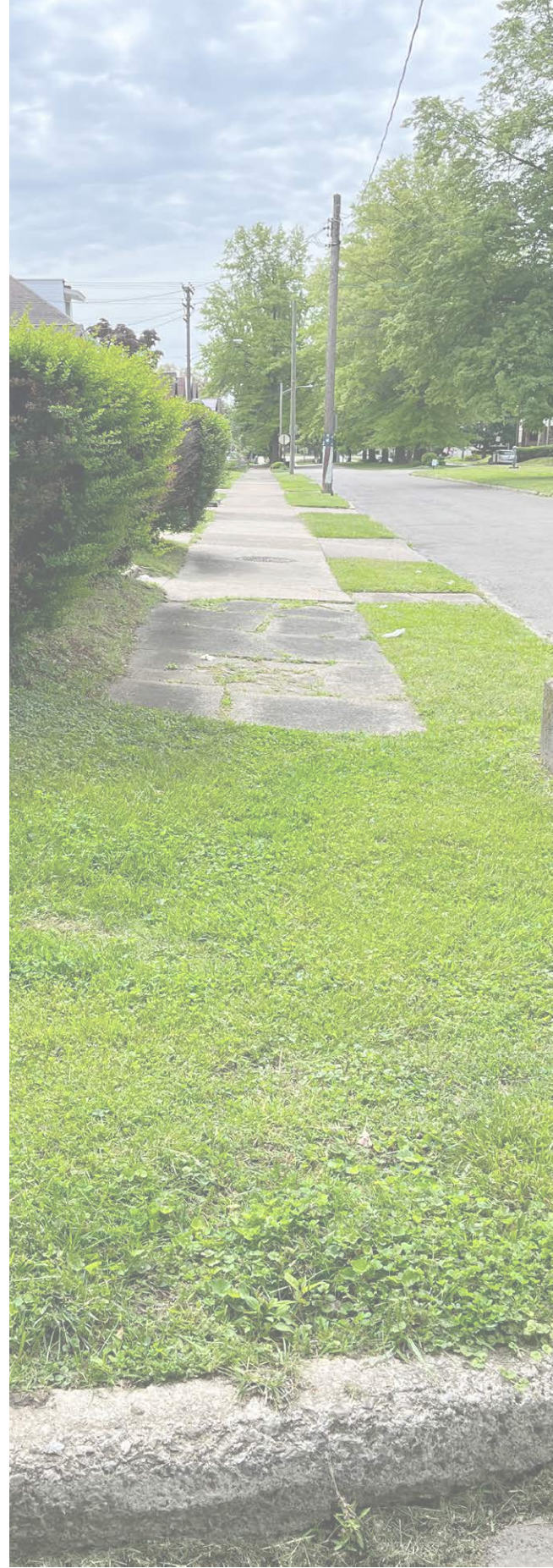
Additional Costs Not Included in the Construction Cost Estimates

The estimates developed are for construction only and do not include other critical phases and elements that would be needed to complete this project. Required pre-construction activities and other cost factors not included in the estimate are summarized below. Information was not available to provide accurate estimates of these additional costs at the time of this report. Any planning and budgeting for the project should account for these additional costs.

- Project development: Project development includes topographic survey, environmental studies, geotechnical exploration, subsurface utility engineering, preliminary engineering, environmental permitting, and final design. Costs for project development can vary, depending upon the scope of the project and requirements associated with specific funding sources and agencies involved.
- Right-of-way coordination and acquisition: Temporary construction easements and permanent easements or right-of-way will be needed for construction of many segments of the selected improvement options. Property owners affected and the physical size or value of these rights-of-way are unknown at this time, and likely will not be understood until preliminary engineering activities are completed. The construction estimate does not include costs for easements or legal fees associated with the acquisition process.
- Utility coordination and relocation: Construction of the bicycle and pedestrian connections may require relocating or resetting existing underground and above ground utilities. Specific impacts to existing utilities will need to be confirmed during preliminary engineering and final design and through coordination with the area utility companies.
- Environmental Remediation: Based on the conclusions of the *Environmental Constraints Memo*, there is a potential for hazardous and residual wastes within certain areas of the project. Therefore, there may be a need for environmental remediation of these soils during construction. The extent of contaminated soils and potential cost of mitigation is unknown.
- Other Environmental Affects and Mitigations: The *Environmental Constraints Memo* identified other future investigations and coordination needed including coastal zone coordination, wetlands and waterways investigation, threatened and endangered species coordination, cultural resources coordination, Section 4F coordination, and environmental justice public meetings. Costs of these activities and the resultant outcomes have not been accounted for in the project cost estimates.

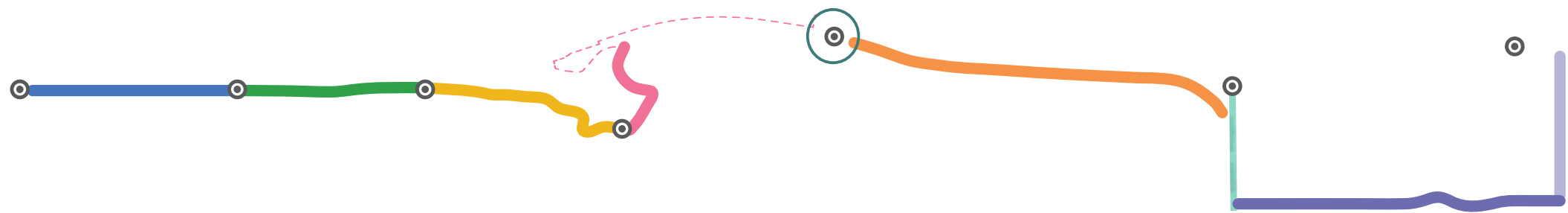
- Construction inspection: Construction inspection is another additional cost, which can typically be 10% to 15% of the construction cost.
- Inflation: Construction cost estimate ranges are presented in 2023 dollars and do not include inflation. Inflation was not included because the timing for construction and future inflation rates are unknown. Inflation factors should be applied once there is an anticipated timeframe for construction and before pursuing funding.
- Maintenance: After the connections are constructed, there will be costs associated with routine maintenance. Future maintenance costs will vary depending on the types of facilities constructed and agreements executed with the entities owning the land on which the facility lies. Maintenance costs will be on-going and may vary year-to-year.

Appendix E presents additional details regarding the quantities and cost drivers for each improvement project.



Construction Cost Estimates Table

IMPROVEMENT PROJECT (LIMITS)	LENGTH FEET / MILES	CONSTRUCTION COST ESTIMATE RANGE (2023 DOLLARS)
<i>Front Street: Holland Street – Parade Street</i>	1,300 FT / 0.25 MI	\$1.1 – \$1.7 million
<i>Front Street: Parade Street – Wallace Street</i>	700 FT / 0.13 MI	\$500,000 – \$800,000
<i>Wallace Street - Bridge at Soldiers' and Sailors' Home</i>	950 FT / 0.18 MI	\$1.4 – \$2.1 million
<i>Bayfront Parkway: Soldiers' and Sailors' Home Driveway - Bay Drive / Port Access</i>	1,250 FT / 0.24 MI	\$900,000 - \$1.4 million
<i>Bayfront Parkway / Bay Drive / Port Access Road Intersection</i>	NA	\$800,000- \$1.2 million
<i>Bay Drive: Bayfront Parkway – East Avenue</i>	650 FT/ 0.12 MI	\$900,000 - \$1.4 million
<i>2nd Street: East Avenue – Lighthouse Street</i>	1350 FT / 0.26 MI	\$500,000 - \$1.0 million



Note: Appendix E presents additional details regarding the quantities and cost drivers for each improvement project.

CONSTRUCTION COST DRIVERS

Ranges for order of magnitude cost estimates are provided in the following table. This feasibility evaluation was based on readily available information and did not include topographic survey or environmental studies.

There are several factors and assumptions that could significantly increase the costs beyond the ranges provided. Currently, the biggest cost driver for any of the selected improvements is an undefined scope of work. Scope inclusions and exclusions will need to be clearly be defined before design activities can be identified.

Topographic survey and property/right-of-way research, additional coordination with the public and project owners/sponsors, and additional environmental studies are then needed to refine construction cost estimates.

- Environmental restrictions on the work area, including (but not limited to) the presence of historic resources, threatened and endangered species, soil contaminants, and cultural resources may increase construction costs by requiring additional monitoring or testing during construction and limit the work seasons and type of equipment being used.
- Access to work areas during construction may increase construction costs due to the confined nature of sections of the corridor.
- Selected features of the safety barrier, as well as the fluctuation in steel prices, may increase the project construction cost.
- Specific post-construction stormwater management requirements for the project, as well as the constrained corridor and limited opportunities for controlling runoff, may increase the project cost.

POTENTIAL FUNDING SOURCES

Identifying funding is a critical next step to advance design or construction for any capital improvement. Information about potential funding options and opportunities is available as part of the PennDOT Connects initiative. There are a number of competitive grant funding programs that could be pursued, specifically for bicycle and pedestrian improvements.

A summary of the current competitive federal and state grant programs is provided to the right. Each grant program has different eligibility for the type of project, use of funds, matching requirements, and timelines for implementation. Grant programs typically require the project sponsor to provide matching funds.

Local funding sources from foundations, hospitals, the County and non-profit organizations should also be investigated. In addition, applicants should work with the Erie Metropolitan Planning Organization to program federal transportation funds onto the Bayfront Parkway.

Local Funding Resources

- Erie County Coastal Management Program (CZM)
- Erie County Greenways Program
- Erie County Gaming Revenue Authority
- Erie Community Foundation

SUMMARY OF FEDERAL AND STATE COMPETITIVE GRANT PROGRAMS FOR BICYCLE/PEDESTRIAN INFRASTRUCTURE

PROGRAM - Administering Agency	DETAILS	ELIGIBLE PROJECT PHASES				TIMING
		PLANNING	DESIGN	ROW	CONSTRUCTION	
Safe Streets For All - U.S. Department of Transportation	<ul style="list-style-type: none">- Federal transportation funds- 20% match requirement- Planning and Demonstration Grants: \$100,000 – \$10 million- Implementation Grants: \$2.5 – \$25 million; Projects must be identified in an Action Plan	✓	✓	✓	✓	Annual
Transportation Alternatives Set Aside (TA) - Pennsylvania Department of Transportation (PennDOT) - Erie County Metropolitan Planning Organization (MPO)	<ul style="list-style-type: none">- Federal transportation funds- Match requires funding all pre-construction activities- \$50,000 minimum and \$1 – \$1.5 million maximum- 2 year timeframe to complete design, right-of-way, and utility clearance				✓	Biennial (typical)
CFA/DCED – Multimodal Transportation Fund (MTF) - Commonwealth Financing Authority (CFA) with Department of Community and Economic Development (DCED)	<ul style="list-style-type: none">- Annual competitive grant program for state funds (Act 89)- 30% match; \$100,000 minimum; \$3 million maximum- 2 – 3 year timeframe to complete the grant funded activities- Design and engineering cannot exceed 10% of the grant award		✓	✓	✓	Annual: March-July
PennDOT – Multimodal Transportation Fund (MTF) - PennDOT	<ul style="list-style-type: none">- Annual competitive grant program for state funds (Act 89)- 30% match (based on grant award); \$100,000 min; \$3 million max- 3 year timeframe to complete the grant funded activities- Design and engineering cannot exceed 10% of the grant award			✓	✓	Annual: September – November
Greenways, Trails and Recreation Program (GTRP) - CFA with DCED & Department of Conservation of Natural Resources (DCNR)	<ul style="list-style-type: none">- Annual competitive grant program for state funds (Act 13)- 15% match; \$250,000 maximum- 2 – 3 year timeframe to complete the grant-funded activities- Design and engineering cannot exceed 10% of the grant award		✓		✓	Annual: February – May
Community Conservation Partnerships Program (C2P2) - Department of Conservation and Natural Resources (DCNR)	<ul style="list-style-type: none">- Annual competitive grant program- Various federal and state funds available for trails and improving access to recreational opportunities- Match requirement depends on program, 20% – 50%	✓	✓		✓	Annual: January – April
Local Share Account (LSA) - Statewide - Commonwealth Financing Authority (CFA) with Department ofCommunity and Economic Development (DCED)	<ul style="list-style-type: none">- Competitive grant program for distribution of gaming revenues through the state- No match required; \$25,000 minimum; \$1 million maximum	✓	✓	✓	✓	?

IMPLEMENTATION STRATEGY

PARTNERSHIPS

As a first step, the various project partners can review this feasibility study and work together to define potential roles, responsibilities, and partnerships for implementing improvements. While some improvements may require significant coordination or collaboration among partners, others can possibly be completed by a single entity. Implementation will be more efficient and effective if the partners collaborate on plans, ideas, and resources for improving bicycle and pedestrian connections in the Erie East Side community.

The City of Erie, Port of Erie, and PennDOT District 1 are the primary partners for implementing potential capital improvements identified in this feasibility study. These three partners are most likely to have some involvement in either funding, designing, approving, and/or maintaining new bicycle and pedestrian infrastructure within the study area. Some of the current roles, responsibilities, and jurisdiction of these partners are described below.

City of Erie

The City of Erie owns and maintains city-owned roadways. As such, the city would be involved in any improvements within the public right-of-way for city owned streets, such as East Front Street, Parade Street, Wallace Street, Bay Drive, East Avenue, 2nd Street, and Lighthouse Street. The city is also responsible for traffic signals and would have a role in potential improvements at the intersection of Bayfront Parkway / Bay Drive / Port Access Road. Additionally, the city owns and maintains several public parks within the study area, including the Wallace Street Park/Ted Amendola Memorial Field and McCarty Memorial Park. The city would be involved in any improvements within the parks and on city owned property.

Port of Erie

The Port of Erie owns and maintains property along the bayfront and within the study area, including a portion of East Front Street (and the existing shared use path) and the Light Lighthouse. The port would be involved in any improvements to port owned property. Additionally, the port supports the commercial lake port and various recreational activities along the Bayfront. As such, the port has an overall interest in bicycle and pedestrian connections, as well as roadway improvements along the Bayfront.

PennDOT District 1

PennDOT owns and maintains state-owned roadways, including Bayfront Parkway within the study area. Additionally, PennDOT provides oversight for improvements designed or constructed with federal and/or state transportation funds.

Other Partners

In addition, there are numerous other organizations who may have some involvement in planning, funding, designing, reviewing, permitting, or maintaining specific projects.

- Erie County Redevelopment Authority
- Erie Metropolitan Planning Organization (MPO)
- Soldiers’ and Sailors’ Home / PA Department of Military and Veterans Affairs
- Presque Isle Light Station
- Community organizations, including East Side Renaissance, Parade Street Redevelopment, Bayfront Eastside Taskforce, S.O.N.S. (Save Our Native Species)

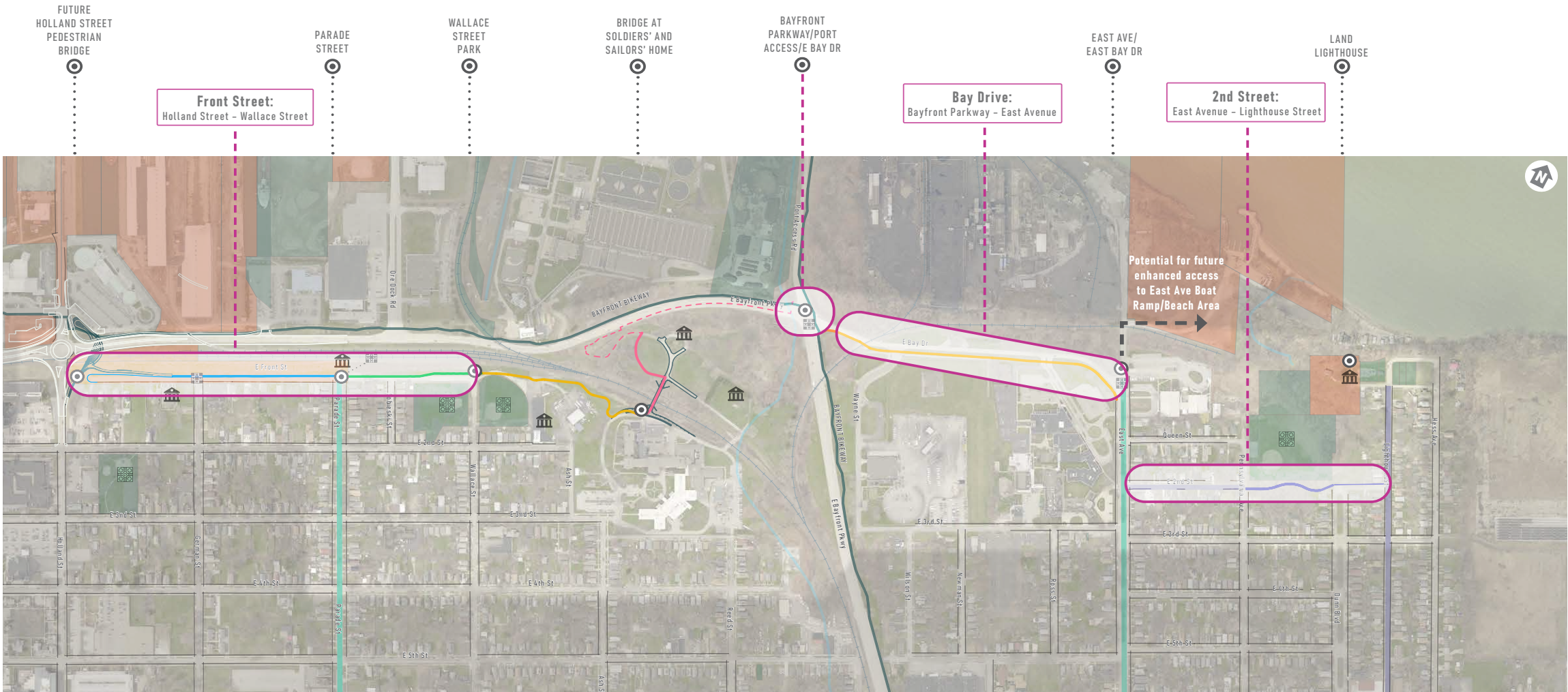


Prioritize Projects

This feasibility study presents several capital improvements and there are a variety of options for if/how improvements may be implemented. The project partners can collectively evaluate and prioritize improvements for implementation. Potential considerations for prioritizing projects for implementation may include:

- Connections to existing sidewalks or paths
- Opportunities to coordinate with related projects/ improvements
- Consistent with previous plans and helps to achieve the community’s vision
- Can be used independently without other connections
- Doesn’t require further feasibility study or evaluation
- Supports safety benefit for all users
- Few feasibility constraints (particularly related to property owners and permitting)
- Reflects stakeholder and public support

Considering these factors and feedback from stakeholders received during the feasibility study, the following three projects are candidates for the initial phase of implementation. Individually, these projects will provide meaningful and beneficial connections for bicyclists and pedestrians and benefits to the Erie East Side community.



FRONT STREET

Upgrading and extending the shared use path on the north side of Front Street will provide access to the future Holland Street Pedestrian Bridge and various destinations along the Bayfront, including the Bayfront Bikeway. It will also provide a scenic area for walking, biking, and viewing Lake Erie. The improvements could support access to Parade Street and revitalization efforts along that corridor. The initial phase could include the segment of East Front Street between the western terminus near Holland Street to Parade Street or could extend to Wallace Street.

The City of Erie and Port of Erie are key partners for this project given their ownership and maintenance responsibilities for East Front Street.

BAY DRIVE: Bayfront Parkway – East Avenue

The shared use path on the south side of Bay Drive between the Bayfront Parkway and East Avenue will expand access to the existing Bayfront Bikeway and regional trail network. It could support access to the East Avenue corridor and support revitalization efforts along that corridor. It could also support access to the East Avenue Boat Ramp/Beach area. The initial phase could include improvements to the trail crossing at the intersection of Bayfront Parkway / Bay Drive / Port Access Road or those improvements could be implemented separately since there is an existing trail crossing for the Bayfront Bikeway.

The City of Erie is a key partner for this project given their ownership of Bay Drive. PennDOT District 1 may be involved if there are improvements related to the Bayfront Parkway / Bay Drive / Port Access Road intersection.

2ND STREET: East Avenue – Lighthouse Street

The sidewalk and shared use path connections along 2nd Street (including 2nd Street Extended) will expand bicycle and pedestrian access to McCarty Memorial Park and the Land Lighthouse. When combined with Bay Drive, it will also expand access to the Bayfront Bikeway and the regional trail network. The City of Erie is a key partner for this project given their ownership of 2nd Street and McCarty Memorial Park.

BAYFRONT PARKWAY / BAY DRIVE / PORT ACCESS INTERSECTION

The sidewalk and shared use path connections along 2nd Street (including 2nd Street Extended) will expand bicycle and pedestrian access to McCarty Memorial Park and the Land Lighthouse. When combined with Bay Drive, it will also expand access to the Bayfront Bikeway and the regional trail network. The City of Erie is a key partner for this project given their ownership of 2nd Street and McCarty Memorial Park.