



# BAYFRONT PARKWAY FEASIBILITY STUDY

JUNE 2017



*Prepared for:*



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## Executive Summary

The study of the Bayfront Parkway focused on defining the transportation needs of the corridor and developing a series of conceptual improvements to address these needs. The transportation needs were developed based upon a safety analysis; the existing and future operations; the physical conditions of the Bayfront; and placed an emphasis on engaging the community to better understand how the Bayfront was functioning. Technical studies were performed, an online public survey and stakeholder interviews were conducted, and a Project Advisory Committee (PAC) was formed to assist the study team to understand the existing conditions along the Bayfront, including current and proposed land use, and to develop appropriate conceptual improvements. The PAC and the project team held six (6) meetings and provided valuable input for the study. Additionally, in the spirit of the Pennsylvania Department of Transportation's PennDOT Connects initiative, a smaller group and subset of the PAC, consisting of local representatives from the City of Erie, Erie Downtown Partnership, Erie County, and the Erie Port Authority, was formed as a working group to review the project concerns and brainstorm potential solutions. The combination of the technical studies and stakeholder input was the foundation used to establish the transportation needs and develop conceptual solutions. The transportation needs are summarized as follows:

- **Safety concerns exist in the study area.**
- **Congestion and operations concerns exist in the study area.**
- **Transportation connections for all modes between Downtown Erie and the Bayfront (north/south) are lacking.**

A primary concern identified by the PAC and subset of the PAC, was that the Bayfront Parkway acts as a barrier to and is disconnected from the city roadway network and neighborhoods preventing safe and efficient access to the waterfront. This was noted to be particularly true for pedestrian and bicycle access from the downtown area to the waterfront. As the land redevelops and investment continues along the waterfront and downtown, the stakeholder groups emphasized the importance of better connecting downtown to the waterfront, as more of an extension of the downtown instead of viewing the waterfront and downtown as separate entities.

To address the needs and other improvement considerations, more than twenty conceptual improvements were identified from West 12<sup>th</sup> Street to East 12<sup>th</sup> Street along the Bayfront. Proposed conceptual improvements included upgrades to the Bayfront and specific improvements to intersections along the Bayfront within the study area. These conceptual improvements consisted of common elements that would apply to the entire corridor and improvements to sections of the corridor defined as Western (West 12<sup>th</sup> Street to Liberty Park), Central (Liberty Park to east of Holland Street), and Eastern (east of Holland Street to East 12<sup>th</sup> Street) Bayfront Parkway Improvements. The improvement concepts were grouped into two scenarios, the *Mobility Scenario* and the *Connected Scenario*. Scenario 1 - *Mobility Scenario* focused on minimizing vehicle delays and providing operational improvements at intersections and roadways throughout the corridor to maintain consistent speeds for vehicles traveling through the corridor. Scenario 2 - *Connected Scenario* focused on a boulevard concept with planted medians, shorter pedestrian crossings, and roadway narrowing to achieve a traffic calming effect within the Bayfront Corridor. With input gathered during a PAC Meeting and Public Meeting, preferred improvement concepts



from each scenario were identified and used as the basis to develop a *Blended Scenario*. Based upon additional PAC input, these improvements were further refined and considered to be advanced beyond the study as potential improvement projects.

The improvement concepts focused on modernizing the current infrastructure considering intelligent transportation systems (ITS) real time traffic messaging at the eastern and western project limits and a managed reversible lane concept in the western section applied during peak hours using the existing three (3) lane roadway template. Other Eastern Bayfront Parkway improvements include gateway treatments, an intersection improvement at East 8<sup>th</sup> Street, shared bike lanes, Cranberry Street traffic restrictions, and pedestrian rapid flashing beacons. In the Eastern Bayfront Parkway area, improvement concepts include narrowing the travel lanes, pedestrian refuge areas, bus pull-offs, speed display signs, gateway treatments, and a dual-lane roundabout at East 12<sup>th</sup> Street.

The projected growth occurring, primarily within the Central waterfront area, will lead to future failing level-of-service (LOS) at intersections throughout the corridor. Intersection improvement concepts were developed to improve future operations and provide an acceptable LOS. The study placed an equal emphasis on improving safety and access at the intersections in particular for pedestrian and bicycle access across the Bayfront. A notable example of this uniform approach is a proposed bridge (Cap) option carrying State Street over the Bayfront Parkway. The Cap would allow pedestrians and bicycles to access the waterfront with minimized conflict points and without any conflicts with the Bayfront traffic. Three Cap options were presented to the PAC with consideration for both ramp access to State Street and limited access. Additionally, proposed roundabout concepts at a new access point west of Sassafras Street and Holland Street along with a new Marginal Access Road connecting to existing Front Street would more efficiently manage traffic flow and provide a traffic calming effect to promote safer pedestrian movements within the Central Bayfront area. While the PAC was in general agreement that the Cap would provide an improved connection to the downtown city grid system rather than the current configuration crossing multiple lanes of Bayfront traffic, their input indicated that more detailed engineering, environmental technical studies, and additional public and stakeholder would be needed to fully assess the impact on the connected transportation system and adjacent land use associated with the Cap, as well as, other improvement concepts proposed at State Street, including a Roundabout option. PennDOT has already begun to initiate steps to advance and further analyze these improvement concepts.

Overall, Western, and Eastern improvements are less complex than the Central Bayfront improvement concepts. These conceptual improvements could be able to be advanced independently of the Central improvement concepts as funding becomes available or as required to better support corresponding local initiatives at the Western and Eastern Bayfront project limits. It will be critical to make sure common design elements such as streetscaping and landscape architecture are complimentary throughout the corridor to better establish a recognizable identify for the Bayfront. A detailed implementation plan was developed as part of this study identifying potential projects, including costs and timeframe for project development.

There are a number of local entities within Erie currently collaborating to champion local projects consisting of complimentary improvements adjacent to the Bayfront study area. Erie County has organized "Action Teams" to more holistically review and implement improvements to the downtown and waterfront area with an emphasis on

more efficiently allocating resources to achieve the City's and County's growth and redevelopment goals. Successfully advancing the study will likely require continuing to move forward with elements of PennDOT Connects and partnering with the City of Erie and Erie County utilizing the previously established PAC team and working sub groups. This will enable PennDOT to better determine appropriate investments to support these local goals; understanding a critical component, and the ultimate success, of these local initiatives will likely be defined by the approach to modernize the Bayfront Parkway.

## I. Introduction

### A. Study Background and Overview

The Bayfront Parkway Feasibility Report is a Pennsylvania Department of Transportation (PennDOT) initiated study of SR 4034 (Bayfront Parkway) along the Bayfront from SR 5 (West 12<sup>th</sup> Street) to SR 5 (East 12<sup>th</sup> Street) in the City of Erie, PA. See [Figure 1- Project Location Map](#). The Bayfront Parkway is a corridor of regional significance providing access to the Bayfront marina and Lake Erie waterfront development, Erie Convention Center, parks and public facilities, and Downtown Erie. The Bayfront Parkway provides access to commuters and travelers from major interstates to the north-south via I-79 and to east-west via I-90. The corridor varies from four (4) lanes to two (2) lanes; however, the majority of the study area consists of two (2) through lanes with a center left turn lane. There are approximately twenty (20) intersections, including eleven (11) signalized, within the study corridor. A series of bicycle trails, hiking trails, and railroad tracks run along the length of the Bayfront Parkway. Some of the trails are interconnected with each other while others only serve a small section of the area. The original construction of the Bayfront Parkway in the 1980s bisected portions of former state owned roadways Sassafra and Holland Streets. As a result, portions of Sassafra (SR 4021) and Holland Streets (SR 4023) were turned back from the state to the city and accepted as local city roadways (State Turnback Agreement No. 010238 – Sassafra and No. 010371 – Holland). Additionally, there are currently six (6) proposed developments along the corridor that could potentially affect the number of people traveling to and from the Bayfront in the coming years. This study analyzed the transportation needs of the corridor based upon existing and anticipated future traffic conditions; safety conditions; multi-modal connections; land use and proposed development; and other planning initiatives developed by the City of Erie and Erie County. The focus of the study was to evaluate and provide conceptual improvements to encourage more efficient and safe access to motorized vehicles; support pedestrian, bike and transit access to the Bayfront; enhance connections to downtown Erie and the neighborhoods; and support current and future development within the downtown and Bayfront areas. This study includes improvement concepts and an implementation plan for PennDOT and Erie stakeholders to modernize the Bayfront Corridor to meet existing and future needs to the region.

### B. Previous Studies

For more than twenty years, the Bayfront and downtown Erie area have been the focus of numerous studies. Many of them have resulted in the changes we see in the area today, while others are yet to be fully realized. To ensure that the Bayfront Parkway Corridor Study is consistent and considers the principals of these initiatives, the study team reviewed the previous studies listed below.

- [Waterfront Comprehensive Plan](#) - Erie Pennsylvania, City of Erie - May 1986
- [Toward an Economic Development Strategy for Erie \(Bosworth Report\)](#) - Economic Development Corporation of Erie County (EDCEC) – October 2001
- [Erie Downtown Master Plan](#) - Erie Redevelopment Authority and the City of Erie – 2005
- [Erie Parking and Transit Study](#) - June 2008
- [Erie Waterfront Master Plan Summary Report](#) - Erie-Western Pennsylvania Port Authority – March 2009
- [Completing the Bayfront](#) - Bayfront Place Concept Plan Report – Erie County Convention Center Authority – April 2012

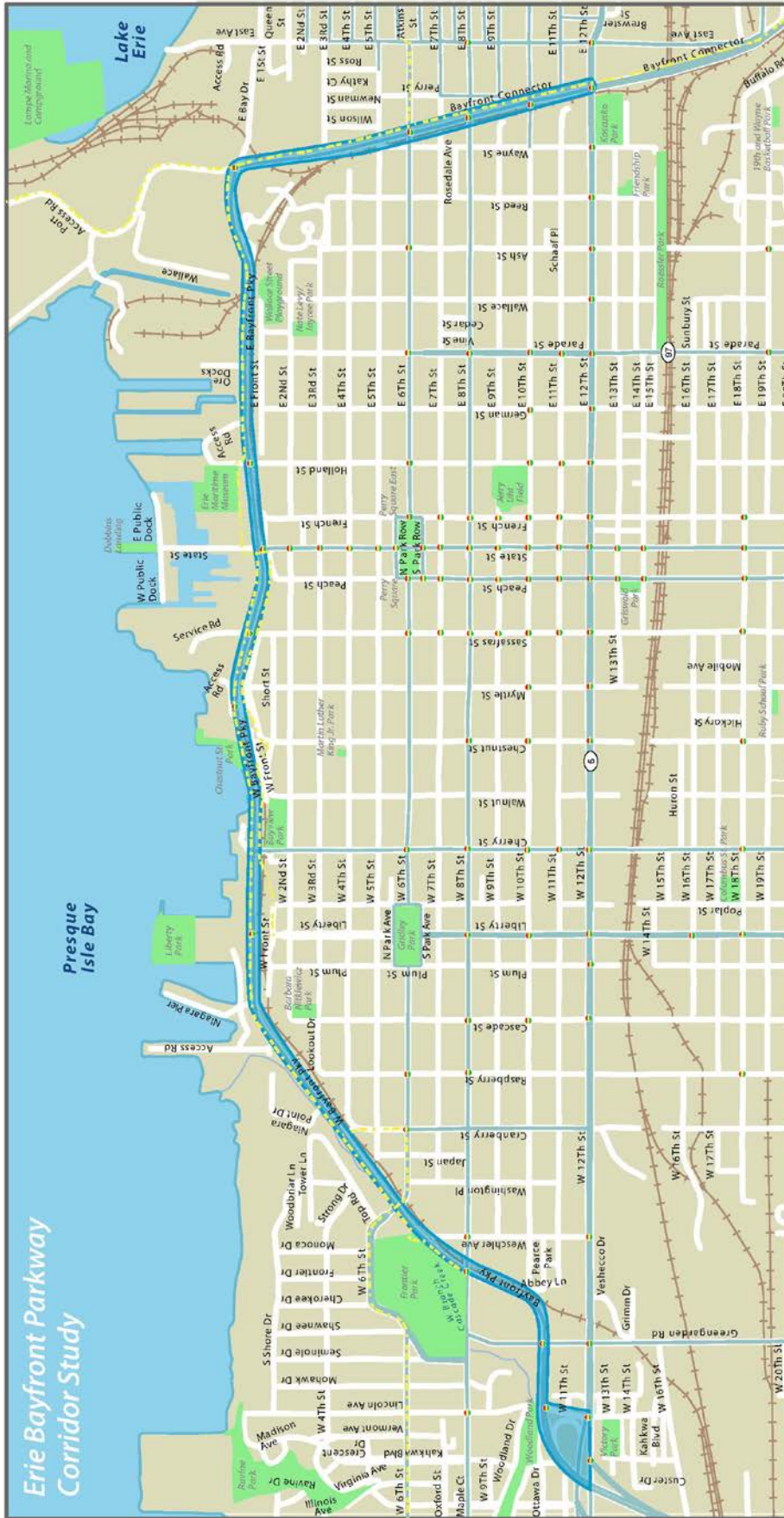


- [\*Unlocking the Bayfront's Full Potential\*](#) - Destination Erie: A Regional Vision – 2013
- [\*Destination Erie: A Regional Vision\*](#) - Vision Report - October 2013
- [\*Background Analysis: City of Erie Comprehensive Plan\*](#) - City of Erie – 2014

Two additional local plans were developed during the course of this study, including:

- [\*Erie Refocused - City of Erie - 2016\*](#)
- [\*Erie Downtown Master Plan - Erie Downtown Partnership - 2016\*](#)

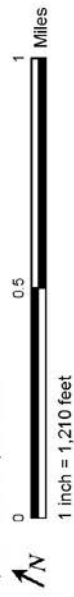
Both of these plans placed a heavy emphasis on the need to lessen the cognitive distance between the Bayfront and downtown Erie with an iconic feature that prioritizes pedestrian comfort, safety, and interest. While these plans were consistent with the progress of the Bayfront Parkway Corridor Study at the time of their completion, additional improvement concepts in the Central Bayfront area were developed to fully consider the recommendations of the local plans. More details related to influence of the previous plans are noted within the Conceptual Improvements section of this report.



**Figure 1 | Project Location Map**

City of Erie | Erie County, Pennsylvania

September 30th, 2014 | Source: ESRI



## II. Understanding the Corridor

### A. Community Outreach

Involvement from the community was an integral part of each phase of the Bayfront Parkway Corridor Study. As a result, a variety of communication methods were utilized to ensure feedback and input was considered from different stakeholder segments, including:

- Stakeholder Interviews,
- Online Public Survey,
- Project Advisory Committee (PAC), and
- Public Meeting.

These tools were utilized to reach out to, and engage, key stakeholders to better understand how the Bayfront Parkway serves the community now and how it will need to function in the future. The information and results of these communication tools are further identified below.

#### 1. Stakeholder Interviews

The community outreach for the project began in September 2015 with a series of Stakeholder Interviews. Over fifty (50) participants representing state, municipal and county government; transit organizations; transportation planners; local developers; existing businesses; emergency service providers; school transportation; and, other special interest groups were contacted to take part in the interviews. The majority of the interviews were conducted in person at the Erie Intermodal Transportation Center and a few others were done by phone. The following is a listing of the organizations that participated in the interviews:

- |                            |  |   |
|----------------------------|--|---|
| • City of Erie             | • Erie Regional Chamber and Growth Partnership | • Erie County Convention Center Authority |
| • Erie County              | • Erie Metropolitan Transit Authority          | • Bayfront Eastside Taskforce (BEST)      |
| • Emergency Services       | • Erie County Public Library                   | • Develop Erie                            |
| • Local Businesses         | • Erie-Western PA Port Authority               | • All Aboard Erie                         |
| • UPMC Hamot               | • Destination Erie                             | • Erie Water Works                        |
| • Bayfront Cobblestone Inn | • Erie Downtown                                | • Erie Insurance                          |
| • Scott Enterprises        |  | • Erie Parking Authority                  |
| • S.O.N.S. of Lake Erie    |  |   |
| • Gannon University        |  |   |

The purpose of the interviews was to:

- Understand how the Bayfront Parkway serves the stakeholders/organizations,
- Discuss challenges and weaknesses of the existing Bayfront Parkway and connecting roadways;
- Identify existing and future land use and economic development plans to determine their potential effect on the transportation system; and



- Consider the needs of all modes of transportation in the area.

Many common themes emerged from the stakeholder interviews that influenced the project needs and subsequent development of improvement concepts. The themes were categorized as Traffic Flow/Congestion, Speed/Safety, Pedestrian/Bicycle Access, Vehicle Access, Alternative Route Improvements, Parking and Facilities, and Transit. See **Figure 2 – Stakeholder Common Themes** for a detailed list of themes.

## 2. Project Website and Online Public Survey








The public website and online public survey were launched on December 19, 2014. Both were intended to generate interest in the project and gather feedback from the general public, including anyone that drives, walks, bikes, or rides a bus to get to work, school, shop, or attend an event in the area.

The website was available throughout the duration of the study to provide project updates as they occurred. The website included information about the study approach, project area history, corridor details, community outreach, traffic data, safety information, and study outcomes. The website is currently available at [www.Bayfrontparkwaystudy.com](http://www.Bayfrontparkwaystudy.com) (see **Figure 3 – Study Website**).

The online public survey was an interactive questionnaire intended to

Figure 2 – Stakeholder Common Themes

### STAKEHOLDER COMMON THEMES

**Traffic Flow/Congestion**

- Left turns are difficult from the Bayfront Parkway
- Traffic signal synchronization needed
- Widen the Bayfront Parkway
- 8th Street right turn lane creates congestion

**Speed/Safety**

- Better enforcement of posted speed limits
- Improve Emergency Service access throughout the Bayfront area
- Dead man's curve is a concern near Liberty Park

**Pedestrian and Bicycle Access**

- Improve pedestrian access points throughout the corridor
- Improve connections between the Bayfront and other parts of the city
- Increase access on the Eastside to other parts of Erie and the Bayfront
- Pave and improve existing pathways

**Vehicle Access**

- Consider managed lanes
- Erie Water Works intersection needs improved
- Add a service roads to connect current and future attractions along the Bayfront
- Consider connecting routes

**Alternative Route Improvements**

- Traffic signal synchronization
- Improve connections

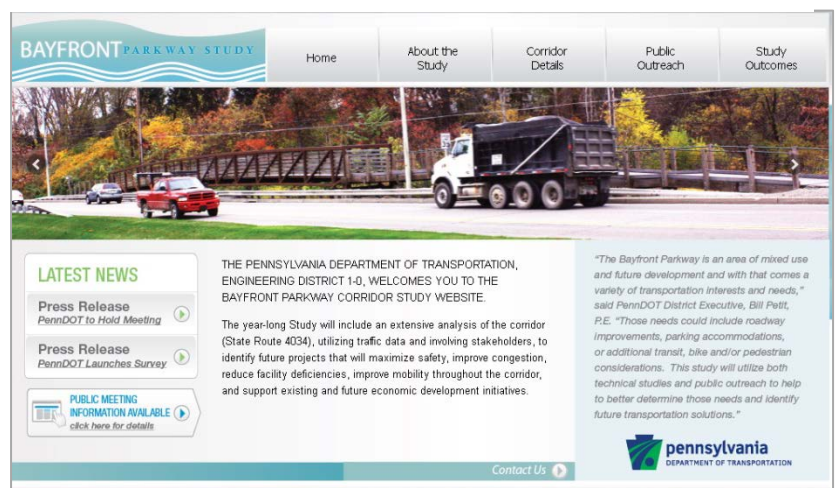
**Parking and Facilities**

- Congestion near larger parking garages during evening rush hour
- Additional Park-and-Ride Location on the Eastside
- Increase incentives to utilize Park-and Ride lots

**Transit**

- Better incentives to encourage transit use
- Add a transit lane that Emergency Services can also use

Figure 3 – Study Website



gather the public's thoughts and opinions on what type of transportation improvements were most needed along the corridor, why those improvements are a priority and where those improvements should be implemented. The survey was developed using MetroQuest, an online community engagement platform, and was available until February 27, 2015.

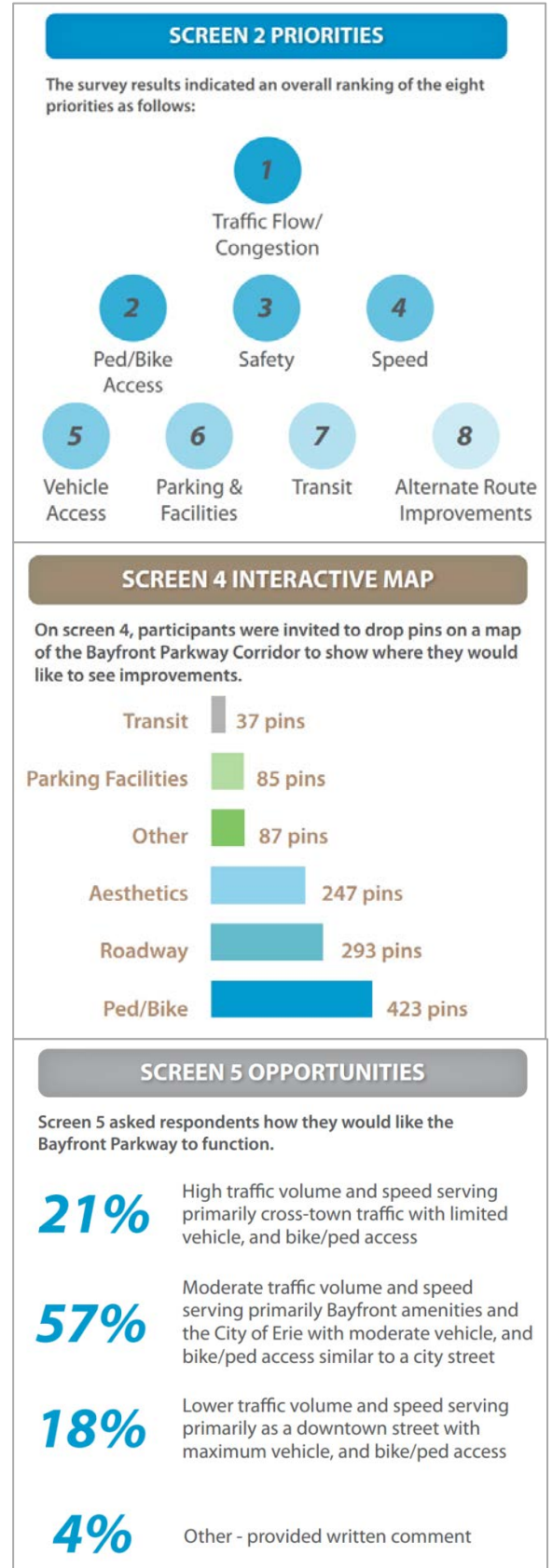
To distribute the survey, members of the PAC were asked to share the link with members of their respective organizations or companies by emailing a digital postcard provided to them by the project team. This digital post card included a hyperlink directly to the survey. In addition, PennDOT also prepared and distributed a press release to the local media.

The survey consisted of five (5) screens: the first was an introduction to the survey, the second asked for participants to rank their top priorities, the third asked for priority statements to be ranked, the fourth had participants drop pins on a map and leave comments about improvements, and the fifth asked how the Bayfront Parkway should function overall.

Nearly 500 participants responded to the survey and left over 1,900 comments (see **Figure 4 – Survey Summary Results**). The survey results were posted on the project website and included an interactive map that reported more than 1,000 improvement comments related to various modes of transportation, parking, aesthetics, and other interests. Participants also ranked their top five improvement priorities, which consisted of traffic flow/congestion, pedestrian/bicycle, safety, speed, and vehicle access. To clarify these priorities further, participants were asked to rank statements for each. A summary of the notable results for each priority are listed below:

- **Traffic Flow/Congestion:** Improve peak travel times, event travel times, and coordination/timing of alternate route traffic.

Figure 4 – Survey Summary Results





- Pedestrian and Bicycle Access: Improve east side access and pedestrian/bike access to the City from the Bayfront.
- Safety: Improve pedestrian/bike safety crossing the Bayfront and vehicle safety turning on/off of the Bayfront.
- Vehicle Access: Improve coordination/timing of traffic signals along the Bayfront.
- Speed: Do not increase speed on the Bayfront.
- Parking and Facilities: Improve event parking, add more bike storage, and consider alternative means to move people within the central Bayfront area.
- Transit: Consider additional east side access points.
- Alternative Route Improvements: Consider improving alternate routes to remove traffic from the Bayfront.

Finally, survey participants were asked about the general function of the Bayfront Parkway. The majority of respondents indicated they would prefer moderate traffic volume and speed, serving primarily Bayfront amenities and the City of Erie, and bike/pedestrian access similar to a city street. For more details, a complete summary of the survey results is provided in **Appendix A – Public Survey Summary**.

### 3. Project Advisory Committee (PAC)

PennDOT and the study team recognized the importance of having stakeholder input throughout the process, and with input from the stakeholder interviews and the online survey, established a Project Advisory Committee (PAC) with representation from variety of interests and concerns related to the Bayfront Parkway, including:

- Neighborhood and City Access
- Economic Development
- Alternate Transportation Modes
- Public Facilities
- Transportation Planning and Programming
- Emergency Services
- Bayfront Development

A complete list of PAC Members is provided in **Appendix B – Project Advisory Committee (PAC) Member List**.

The PAC provided valuable feedback and guidance to the study team, at each of the six (6) meetings held. Below is a brief listing of the meetings. A detailed summary of each meeting is available in **Appendix C – PAC Meeting Summaries**.

PAC Meeting #1	
<b>Date:</b>	December 17, 2014
<b>Location:</b>	Erie Intermodal Transportation Center
<b>Purpose:</b>	The purpose of this meeting was to introduce the group to the study, share details regarding existing conditions, and discuss improvements priorities for the Bayfront Parkway Corridor.
<b>Topics of Discussion:</b>	<ul style="list-style-type: none"> <li>• Scope of the Study</li> <li>• Review of Previous Studies</li> <li>• Current Conditions</li> <li>• Planned Economic Development</li> <li>• Improvement Priorities</li> </ul>
<b>Feedback Summary</b>	<ul style="list-style-type: none"> <li>• Working in groups, the PAC was asked to identify their top 3 improvement priorities for the corridor. Four of the five groups identified Traffic Flow/Congestion, Safety, and Alternative Routes as the top priority improvements.</li> <li>• A majority of Traffic Flow/Congestion details indicated an interest in improving peak travel time on the Bayfront Parkway, during events, and on alternate routes. Non-peak travel time on the Bayfront was noted as adequate.</li> <li>• A majority of safety details indicated an interest in improving safety for bikes/pedestrians crossing the Bayfront Parkway and vehicles turning onto/off of the Bayfront Parkway from existing access points. The majority felt safe walking/biking along existing bike/pedestrian facilities in the area, and driving along the Bayfront Parkway.</li> <li>• A majority of Alternative Route details indicated they use the Bayfront Parkway to avoid alternative routes. PAC members were divided on whether it is quicker to travel the Bayfront Parkway rather than using other routes. A majority felt alternate travel routes should be improved to reduce traffic on the Bayfront Parkway.</li> </ul>
PAC Meeting #2	
<b>Date:</b>	March 10, 2015
<b>Location:</b>	Erie Intermodal Transportation Center
<b>Purpose:</b>	The purpose of the second PAC meeting was to provide a study update, introduce the Purpose & Need, review potential improvement types and discuss next steps.
<b>Topics of Discussion:</b>	<ul style="list-style-type: none"> <li>• Future Traffic Modeling</li> <li>• Public Survey Results</li> <li>• Study Purpose and Needs and Improvement Considerations</li> <li>• Conceptual Improvement Approach</li> <li>• Improvement Image Survey</li> </ul>
<b>Feedback Summary</b>	<ul style="list-style-type: none"> <li>• PAC members confirmed the draft Purpose and Needs statement with the addition of the need for pedestrian and bicycle access and improvements and an improvement consideration for better emergency service access.</li> <li>• An image survey was conducted to gauge the type of improvements the PAC envisioned. Some of the improvements the PAC indicated preferences for included pedestrian bridges, bike and pedestrian paths that were not directly on the roadway with a buffer between the vehicle traffic, pedestrian crosswalk treatments, roundabouts at intersections, variable message signs, aesthetic options, bus shelters, real-time transit information, aesthetic wall treatments, and walkway connections from the bluff.</li> </ul>

PAC Meeting #3	
<b>Date:</b>	April 14, 2015
<b>Location:</b>	Tom Ridge Environmental Center
<b>Purpose:</b>	The purpose of the third PAC meeting was to present improvement scenarios to the PAC members for their review and comments.
<b>Topics of Discussion:</b>	<ul style="list-style-type: none"> <li>• An update on planned economic development</li> <li>• Review of two improvement scenarios</li> <li>• Next Steps for the Study</li> </ul>
<b>Feedback Summary</b>	<ul style="list-style-type: none"> <li>• Working in groups the PAC identified pros and cons of the Connected and Mobility Improvement Scenarios.</li> <li>• Some of the Connected Scenario pros included crosswalk treatments, roundabouts, a pedestrian tunnel, and eastside park-and-ride. Some of the cons included W. 8<sup>th</sup> St. merge lane extension, reduction to two lanes on the eastside, safety of pedestrian tunnel, and the median.</li> <li>• Some of the Mobility Scenario pros included pedestrian bridges, reversible lanes, roundabouts, gateway treatment, four lanes, no left turn at Cranberry St., and frontage road. Some of the cons included frontage road (if EMS access was not permitted), E. 6<sup>th</sup> St. is too wide, and State St. roundabout access to Hamot Hospital.</li> </ul>
PAC Meeting #4 (and Public Meeting #1)	
<b>Date:</b>	June 24, 2015
<b>Location:</b>	Bayfront Convention Center
<b>Purpose:</b>	The purpose of the meeting was to discuss the study to date, present improvement concepts to the PAC, Public Officials and the Public, and gather input.
<b>Topics of Discussion:</b>	<ul style="list-style-type: none"> <li>• Purpose and Needs of the Study Finalized</li> <li>• Present Improvement Concepts</li> <li>• Describe the Study Process</li> <li>• Next Steps for the Study</li> </ul>
<b>Feedback Summary</b>	<ul style="list-style-type: none"> <li>• PAC Meeting #4 was held in conjunction with the Public Officials Briefing and Public Meeting. See the Public Meeting portion of this report for feedback gathered.</li> </ul>

PAC Meeting #5	
<b>Date:</b>	September 30, 2015
<b>Location:</b>	Tom Ridge Environmental Center
<b>Purpose:</b>	The purpose of the meeting was to present and discuss the blended improvement option.
<b>Topics of Discussion:</b>	<ul style="list-style-type: none"> <li>• Study Update</li> <li>• Blended Scenario Detail</li> <li>• Improvement Concept Priorities</li> <li>• Next Steps for the Study</li> </ul>
<b>Feedback Summary</b>	<ul style="list-style-type: none"> <li>• The Blended Scenario was created to include the preferred improvements from both the Mobility and Connected options.</li> <li>• The PAC participated in an activity to identify priority improvements within the western, central, eastern, and overall corridor.</li> <li>• The top priorities for the Overall Improvement Concepts included the pedestrian push button/traffic signal equipment and timings/reflective signal backplates, enhanced pedestrian crossings, and wayfinding signs.</li> <li>• The top priorities for the Bayfront West Improvement Concepts included the restrict left turns from Cranberry St. during peak hours, shared bike lane along Lincoln Ave. and 8<sup>th</sup> St., and reversible lanes.</li> <li>• The top priorities for the Bayfront Central Improvement Concepts included the dual-lane roundabout at State St., two-way frontage road, and pedestrian bridge.</li> <li>• The top priorities for the Bayfront East Improvement Concepts included the pedestrian refuge at intersections, roundabout at 12<sup>th</sup> St., and speed display signs at E. 12<sup>th</sup> St.</li> <li>• Additional consideration for a more direct connection from the downtown area and neighborhoods to the Central Bayfront area was proposed. The study team was tasked with evaluating an alternative solution for State Street to provide an enhanced connection with the Bayfront waterfront development area.</li> </ul>

**PAC Meeting #6**

**Date:** December 5, 2016

**Location:** Tom Ridge Environmental Center

**Purpose:** The purpose of the meeting was to review results of the previous corridor prioritization activity from the fifth PAC meeting, present new Central Bayfront improvement concepts, identify or finalize concepts for advancement, and discuss final steps of the study.

**Topics of Discussion:**

- Development Update
- New Improvement Concepts for the Bayfront Parkway/State Street Intersection
- Next Steps for the Study

**Feedback Summary**

- The PAC was presented with the roundabout option at 12<sup>th</sup> Street, and three additional options for a grade separated State Street Bridge over the Bayfront to consider: full access from the Bayfront, no Bayfront access, and westbound only access.
- Overall, the PAC did not want to further pursue a roundabout option at State Street.
- Overall, the PAC did not want to further pursue the State Street westbound ramps (only) grade separated option.
- Representation from the developers and economic development preferred the State Street full access grade separated option, while others preferred the option with no connecting ramps to the Bayfront Parkway.
- More engineering details would be needed to fully evaluate the full access and no access grade separation options. Additionally, other considerations such as property, utility and emergency service impacts need to be further considered.

**4. Public Meeting and Public Officials Briefing**

On Wednesday, June 24, 2015, a Public Meeting and Public Officials Briefing were held by PennDOT Engineering District 1-0 at the Bayfront Convention Center.

A total of 20 people signed-in for the Public Meeting, while 19 public officials or PAC members attended the Briefing. The purpose of the meeting was to discuss the purpose and need of the study, present conceptual improvement concepts, describe the study process and next steps, and gather public input. The format for the meeting included an Open House area and a presentation. Attendees were encouraged to view the displays in the Open House area prior to the presentation. Study team members were stationed throughout the room to answer any questions.

The Open House displays included:

- Corridor Features Map
- Travel Time Comparison
- Levels of Service
- Public Outreach
- Mobility Scenario Improvement Concepts for West Bayfront, Central Bayfront and East Bayfront
- Connected Scenario Improvement Concepts for West Bayfront, Central Bayfront, and East Bayfront.
- Study Work Plan



Comments were solicited from the public and public officials during the meetings and via a comment form and improvement concept handout. As of August 7, 2015, a total of 12 comment forms were returned. The following is a summary of the comment form and improvement concept form responses:

- A majority of the attendees were City of Erie residents who travel the Parkway daily, and safety was their top improvement concern.
- Sixty-seven percent (67%) of the respondents agreed that the proposed improvement concepts satisfy the existing and future needs along the Bayfront Parkway Corridor.
- Forty-five percent (45%) of respondents thought the Connected and Mobility Scenario Concepts were comprehensive.
- Fifty-four percent (54%) of respondents strongly preferred or preferred the Mobility Scenario while forty percent (40%) of respondents preferred the Connected Scenario.
- The most preferred option in the Overall Improvements Concepts was the way finding signs for pedestrians and bicyclists.
- The top two preferred improvements for the Mobility Scenario were the pedestrian bridge near Peach Street and the reversible lanes from West 8<sup>th</sup> Street to Sassafra Street Extension.
- The top two preferred improvements for the Connected Scenario were the multi-use trail connecting the promenade at East German Street down the bluff to Holland Street and a Pedestrian Tunnel under the State Street and Bayfront intersection.
- Many of the attendees were also interested in traffic flow and congestion improvements as well as speed reductions and increased pedestrian and bicycle access.

A detailed summary of all comments received can be found in **Appendix D – Summary of Public Meeting Comments**.

### 5. Special Purpose Meetings

A number of Special Purpose Meetings were held throughout the study. The primary focus of these meetings was the central Bayfront area improvement concepts and planned developments. The meetings played a key role in coordinating planning and development efforts. See **Table 1 – Special Purpose Meetings**, below, for a brief listing of those meetings.

Table 1 – Special Purpose Meetings

STAKEHOLDER GROUP	MEETING DATE	MEETING PURPOSE
Erie Downtown Partnership and CMK Planning	March 10, 2015	The purpose of the meeting was to learn more about the Erie Downtown Master Plan update.

Table 1 – Special Purpose Meetings

STAKEHOLDER GROUP	MEETING DATE	MEETING PURPOSE
Bayfront Place Development – Kidder Wachter Architecture & Design	July 22, 2015	The purpose of the meeting was to share the status and goals of the study and gather updated Bayfront Place development information.
Harbor Place Development – Scott Enterprises	July 22, 2015	The purpose of the meeting was to share the status and goals of the study and gather updated Harbor Place development information.
City of Erie, Erie County, Erie Downtown Partnership, and the Port Authority	November 5, 2015	The purpose of the meeting was to obtain an update on the City of Erie Comprehensive Plan and the Downtown Master Plan, and discuss and brainstorm improvement concepts for the central Bayfront area.
City of Erie, Erie County, Erie Downtown Partnership, and the Port Authority	October 4, 2016	To share new traffic circulation data, present new improvement concepts for the central Bayfront area for review and consideration, and discuss next steps.
City of Erie, Erie County, Erie Downtown Partnership, Erie Chamber and Growth Partnership, and the Port Authority	December 13, 2016	To review feedback from the PAC Meeting and discuss the improvement concepts for the central Bayfront area moving forward and finalizing the study.

## B. Existing Conditions

Understanding the current conditions of the Bayfront Parkway and how the roadway operates was critical to establishing a working knowledge of the roadway features that operate well and areas where improvements may need to be considered. The study investigated the existing traffic conditions, safety concerns, and multi-modal usage to determine the needs of the corridor and consider potential improvement concepts. The existing conditions as observed are defined as follows:

### 1. Traffic Volumes and Level of Service

Turning movement traffic counts were conducted at eighteen (18) intersection locations within the study area during weekday AM and PM peak travel hours (see **Appendix E – Existing and Future Traffic Volumes**).

Counts were conducted over a three (3) hour period and staff documented vehicle types, pedestrians, and bicycles using the project area. The 2014 peak traffic volumes revealed higher volumes at the Bayfront and 8<sup>th</sup> Street, State Street, and 12<sup>th</sup> Street during the peak hours. The remaining intersection traffic volumes were observed to experience moderate traffic during the peak hours. The queuing of traffic was observed in the eastbound direction at the intersections of 8<sup>th</sup> Street and State Street and Bayfront during the AM peak hour. Other notable traffic data include the following:

- The 2014 Average Daily Traffic (ADT) traveling the Bayfront Corridor was approximately 16,000 vehicles.
- Seven percent (7%) of the ADT were trucks.
- The peak hour directional split of traffic “D” was slightly higher for vehicles traveling in the eastbound direction.

The existing Level-of-Service (LOS) was analyzed in September of 2014 by establishing a traffic model using Synchro traffic analysis software and its traffic simulation tool SIMTraffic. The Synchro model takes into account the influence of adjacent intersections to determine the delay at each intersection and overall delays within the corridor. The Synchro model determined a number of intersections were operating, during the morning and afternoon peak hours, at an LOS A or B. The intersections along the Bayfront of West 8<sup>th</sup> Street, East 6<sup>th</sup> Street, and East 12<sup>th</sup> Street operate at LOS C for the morning and afternoon peak hours. The intersection of the Bayfront and State Street operates at LOS B during the morning peak hours and LOS D during the afternoon peak hour. A detailed summary of existing LOS for each intersection analyzed within the study corridor is provided in **Appendix F – Existing and Future Levels of Service**.

### 2. Origin-Destination Study

The Origin-Destination Study (O&D) was conducted to determine how vehicles currently travel through the Bayfront. The O&D Study was performed at selected locations within the study area to better determine the percentage of traffic traveling into and out of the Bayfront Parkway. The O&D data was used as a variable to better calibrate the future traffic model and determine the distribution of future trips through the corridor.

Bluetooth technology was utilized to determine the origin and destination of trips entering and exiting the Bayfront Parkway. Bluetooth data collection devices were placed at the selected intersections to count blue tooth devices of vehicles travelling on the Bayfront Parkway. The devices eliminated duplicate Bluetooth devices in a single vehicle. The Bluetooth collection devices assigned random numbers to each Bluetooth device to ensure the data collected was anonymous. The Bluetooth data collection locations were placed in the vicinity of the following intersections along the Bayfront:

- West 12th Street
- West 8th Street
- Cranberry Street
- Sassafras Street
- Holland Street
- Port Access Road
- East 12th Street

General trends from the O&D study analysis when evaluating trips with an origination or destination of State Street determined that nearly 50% of these trips are to and from Interstate 79 or West 8<sup>th</sup> Street, as highlighted in Table 2 below. By contrast, trips along the Bayfront with an origination or destination of State Street to and from East 12<sup>th</sup> are approximately 13% of the traffic observed entering the corridor. Holland Street has a higher percentage of vehicles traveling to and from the west (I-79 and West 8<sup>th</sup>) and lower percentage to and from the east (East 12<sup>th</sup>). Additionally, approximately a quarter of the traffic entering the Bayfront at the project limits at West or East 12<sup>th</sup> Streets travel across the Bayfront without stopping and use the Bayfront as a by-pass around the city streets grid system, as highlighted below.

**Table 2: Percentage of Bayfront Parkway Trips - Origin and Destination**

		TRIP DESTINATION				
TRIP ORIGIN	West 12th St.	West 8th St.	Sassafras St.	State St.	Holland St.	East 12th St.
West 12th St.	N/A	18%	7%	14%	8%	20%
West 8th St.	19%	N/A	7%	12%	8%	11%
Sassafras St.	15%	19%	N/A	12%	9%	14%
State St.	22%	24%	7%	N/A	5%	13%
Holland St.	19%	23%	4%	8%	N/A	14%
East 12th St.	27%	17%	3%	8%	10%	N/A

Travel speeds between Bluetooth recorders were measured throughout the study area. The speeds varied based upon the time of day with lower speeds observed during the morning and afternoon peak hours and higher speeds outside of the peak periods. The average travel time across the study area from West 12<sup>th</sup> Street to East 12<sup>th</sup> Street covering a distance of approximately 4.75 miles, considering all times of day, averaged from

10 to 12 minutes. This time would be lower during the morning and afternoon peak travel periods (see **Appendix G – Bayfront Origin and Destination Summary**).

### 3. Safety Study

A safety analysis was conducted to analyze crash history, crash rates, severity of crashes, and locations of crashes. The Bayfront Parkway intersections and roadway segments were analyzed to be able to better evaluate the safety performance of the corridor. The analysis evaluated crash data reported from 2009 to 2013.

Based on the physical characteristics of the corridor four (4) roadway segments were analyzed along the Bayfront Parkway: Lincoln Avenue to Cranberry Street; Cranberry Street to Sassafras Street; Sassafras Street to Port Access Road; and Port Access Road to East 12<sup>th</sup> Street. The results of the roadway and the Annual Average Daily Traffic (AADT) segment crash analysis are provided in **Table 3 – Roadway Segment Crash Summary**. The AADT is based on a centralized 24-hour traffic count location within the study corridor that applies to the entire project area.

Table 3 – Roadway Segment Crash Summary

	Segment Length (miles)	Total Crashes (number)	AADT (Annual Average Daily Traffic)	Crash Rate (crashes per million vehicle miles)	Statewide Rate (crashes per million vehicle miles)
Lincoln Ave to Cranberry Street	1.13	69	16,074	2.08	2.32
Cranberry Street to Sassafras Street	0.72	14	16,074	0.66	1.96
Sassafras Street to Port Access Road	1.83	97	16,074	1.81	1.96
Port Access Road to East 12 <sup>th</sup> Street	0.69	66	16,074	3.26	2.32

The Lincoln Avenue to Cranberry Street segment included one (1) fatal crash and one (1) major injury crash. Twenty-one (21) crashes in this segment occurred in the area of the Greengarden Boulevard intersection. The calculated crash rate was slightly less than the statewide average for similar types of roadways.

The crashes between Cranberry and Sassafras did not include a fatality. One major injury crash was documented. Crashes in this segment were about one third of the statewide crash rate on similar types of roadways. This section has the least amount of conflict points entering the Bayfront Parkway. Eight (8) crashes in this segment occurred at the Niagara Pier intersection.

The crashes between Sassafras to Port Access included one fatality and no major injuries. Thirty (30) crashes in this segment occurred in the area of the State Street intersection. The calculated crash rate was slightly less than the statewide average for similar types of roadways.



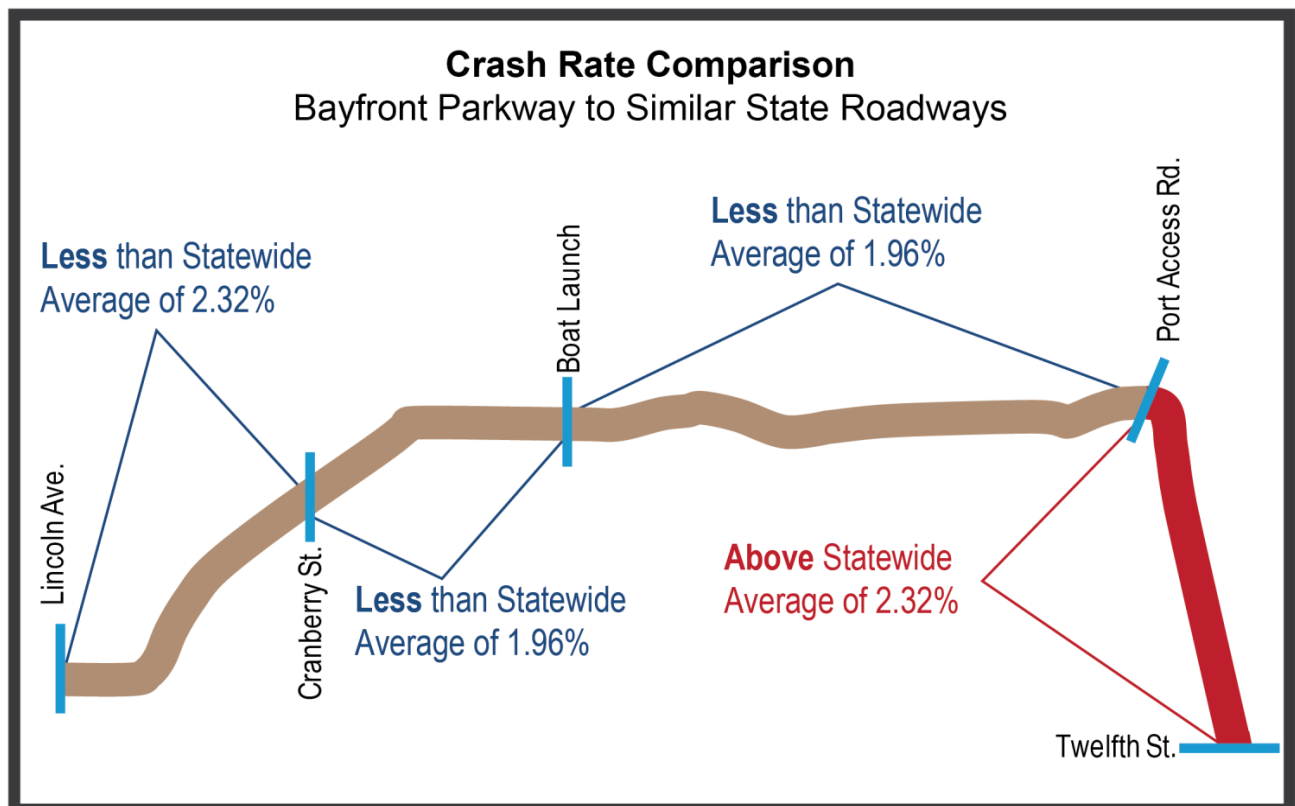
The crashes between Port Access to East 12<sup>th</sup> Street included two (2) fatalities and two (2) major injuries. Twenty-seven crashes (27) in this segment occurred in the area of the East 12<sup>th</sup> Street intersection. The calculated crash rate was notably higher than the statewide average for similar types of roadways. Further analysis of the higher crash intersections identified in the roadway crash segment analysis was conducted. Intersection collision diagrams illustrating the type of crash, conditions, severity, and relevant police report notes were prepared for the intersections of the Bayfront and Greengarden Boulevard, State Street, and East 12<sup>th</sup> Street.

Greengarden Boulevard crashes primarily involved angle collisions and approximately half of these crashes resulted in an injury. The crashes occurred primarily during clear and dry weather conditions. State Street crashes primarily included vehicles hitting fixed objects or rear end collisions. These crashes resulted in a number of injuries and one (1) fatality associated with hitting a fixed object. The crashes occurred primarily during clear and dry weather conditions.

East 12<sup>th</sup> Street crashes primarily involved angle crashes or rear end collisions. A pedestrian crash was also documented. A majority of the crashes were located at the eastbound approach to the intersection. The crashes occurred primarily during clear and dry weather conditions.

A cursory analysis of the safety performance of the Bayfront Parkway compared to similar roadway types throughout the state was performed. The performance compared to the statewide crash rate for roadway sections along the Bayfront is noted in **Figure 5**, below.

Figure 5 – Crash Rate Comparison of Bayfront Parkway to Similar State Roadways



The Erie County Metropolitan Planning Organization (MPO) has identified a primary roadway segment of the Bayfront Parkway as a safety priority area. This roadway segment of the Bayfront Parkway is located approximately west of Sassafras Street to East 12<sup>th</sup> Street. Based upon the severity of the crashes observed within this segment of roadway, it is likely proposed improvements would qualify for Highway Safety Improvement Program (HSIP) Funding. The focus of the improvements would need to be safety enhancements that would specifically address observed crash patterns to be eligible for the HSIP funding.

For a detailed depiction of these intersection crashes, see **Appendix H – Collision Diagrams**.

#### 4. Multi-Modal Transportation

The Bayfront Parkway and surrounding land adjacent to Lake Erie attracts roadway users with the desire to drive, walk and bike within the project area. The users of the roadway travel from the nearby neighborhoods, downtown area, and beyond to visit the Bayfront for work and recreational activities. Accommodating the needs of multi-modal users to safely travel across and along the Bayfront Parkway, especially for pedestrians and bicycles, was determined to be critical based on discussions with the City of Erie, Erie County, and project Stakeholders. Better connections to pedestrian and bicycle facilities would also enhance access and opportunities to establish transit locations.

##### a. Pedestrian and Bicycle Paths and Facilities

The Bayfront Parkway has pedestrian and bicycle facility gaps within the study area preventing consistent access along the Bayfront. The following gaps in established facilities were documented at the following areas along the Bayfront Parkway:

- Lincoln Avenue to West 8<sup>th</sup> Street.
- State Street to Holland Street.

Currently, the following at-grade pedestrian and bicycle crossings exist:

- Greengarden Boulevard
- West 8<sup>th</sup> Street
- Liberty Park
- Waterworks pedestrian crossing
- State Street
- Holland Street
- Port Access Road
- East 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> Streets

Recently, a pedestrian/bike path was constructed on the south side of the Bayfront connecting neighborhood communities near Cascade Street, south of the Bayfront Parkway, to the north at Liberty Park. This path will connect to an existing path located along the north side of the Bayfront Parkway. Access from the communities on the bluff is currently lacking between Liberty Street and State Street, and

Holland Street to E. 6th Street. Future planned projects may include a switch-back trail from West Front Street on the bluff to the Bayfront near the Erie Water Works crossing.

#### **b. Transit**

The Bayfront Parkway has limited existing transit service in the study area. As the adjacent land surrounding the Bayfront Parkway develops, there will likely be more opportunities for transit to increase service in this area. Currently, the Erie Metropolitan Transit Authority (EMTA) offers three (3) forms of transportation for residents of the City of Erie, the Bayfront and the surrounding areas.

- Fixed-route bus service: The Intermodal Center, located off the Bayfront Parkway, is a central hub for several bus routes that provide access to various parts of downtown Erie and the other routes in the EMTA system.
- The Bayliner Trolley: The Trolley offers five total routes, serving the Bayfront area, including two Park and Ride lots located along the Bayfront Parkway.
- The “e” Lift service: The Lift offers pre-scheduled transportation for groups outside of the normal EMTA routes.

For more details about existing transit service in the area, visit the EMTA website:

<http://www.ride-the-e.com>.

#### **c. Parking Considerations**

Currently, there are two (2) Park and Ride lots within the study area at the Thomas Hoffman Transportation Hub at Lincoln Avenue and Lincoln Park-N-Ride at Lincoln Park along the Bayfront Parkway. Both Park and Ride lots allow commuters to park outside of the Downtown area and take a trolley or bus to their destination.

Additional parking is available in the Downtown Erie area. In the four (4) block radius of the Parkway, there are thirteen (13) public parking lots/garages owned by Erie Parking Authority.

### **C. Future Conditions**

The future conditions analysis included a number of initiatives by the City of Erie, Erie County, and the Port Authority intended to modernize the Bayfront to improve the connection with downtown Erie and enhance pedestrian and bicycle access to the waterfront. Erie County's Planning Department is currently facilitating “Action Teams” to implement a series of improvements from the City of Erie's Comprehensive Plan and other previous studies. Currently, there is development in construction and planned by Erie Events at the former GAF Site. Scott Enterprises has plans to develop the property to the east of the former GAF Site. Additionally, the Erie Port Authority is considering redevelopment options of their property along the central section of the study area. These future conditions and planned improvements have been included in the future traffic analysis. This will better ensure proposed improvements to the Bayfront Parkway account for increases in projected traffic volumes to be able to support the future land use within the study corridor.

## 1. Projected Growth and Development

Understanding the projected growth along the Bayfront Parkway is necessary to support the proposed land use and provide efficient movement of traffic through the corridor. The 2034 future year growth was evaluated in order to project future traffic levels in the corridor. The resulting projected traffic served as the basis to determine improvement options to accommodate the increased traffic. Future growth considered a modest background growth factor, of 0.15% per year (compounded), provided through guidance from PennDOT's Bureau of Planning and Research. The major factor contributing to growth within the study area is the anticipated traffic generated from the identified planned developments. The primary known developments seen as generators of additional traffic were determined as follows:

- Bayfront Place
- Harbor Place
- GetGo Gas Station
- Cobblestone Hotel
- Erie Bayfront Plant Expansion
- McAllister Place

These planned developments and level of private investment in the Bayfront are proof that this area has economic growth potential, which will create additional traffic.

During the course of this study, various private developments were completed and new projects are planned. A summary of known projects is included below.

### Completed Developments

#### **Get Go**

The Get Go gas station and convenience store opened in the fall 2015. It is located at the northwest corner of West 12th Street and Greengarden Road. The store is more than 6,000 square feet, and includes made-to-order meals and other conveniences. Prior to completion, Get Go submitted a travel impact study, which was considered in the development of this plan.

#### **Cobblestone Hotel**

The Bayfront Cobblestone Hotel and Suites was developed by Tom Kennedy and opened in December 2016. The hotel is located across from Liberty Park at 701 West Bayfront Parkway and is three-stories with 56-rooms, and includes on-site parking for 65 vehicles on the east side of the hotel. As a result of the hotel's travel impact study and the recent addition of the Cascade trail, a traffic signal was added at this driveway location and the drive to Lawrence Pier at Liberty Park.

## Developments In Progress

### **Bayfront Place**

The *Bayfront Place* planned development is adjacent to the existing Erie Convention Center along the property between the Waterworks and the Presque Isle Yacht Club. Construction of the first stage is already complete. A Courtyard by Marriot Hotel, commercial office space, and a parking garage were opened in 2016. Additionally, residential living, retail, restaurants, and commercial development is planned for the site.

### **Harbor Place**

The *Harbor Place* planned development is primarily located between State Street (north of the Bayfront Parkway) and the Erie Maritime Museum and directly across from UPMC Hamot. The development is anticipated to include a hotel, commercial businesses, restaurants, and medical offices. The Harbor Place development is considering a partnership with UPMC Hamot to provide a connection over the Bayfront directly to the UPMC Hospital. Early concepts include a walkway over the Bayfront from Harbor Place to establish a secured connection to the hospital and a public connection to existing French Street.

For more detailed development conceptual plans and related images, See **Appendix I – Development Site Plans and Concepts**.

## Planned Developments

### **UPMC Hamot Hospital**

UPMC Hamot Hospital announced their plans December 2016\* to renovate their current facility along the Bayfront with a \$111 million investment to accommodate projected growth in its services and patient volumes. As part of the renovation plans they are considering the connection to Harbor Place from French Street.

### **Erie Insurance**

Erie Insurance, located approximately six blocks south of the Bayfront Parkway, announced in November 2016\*\* its plan to invest \$135 million in a 346,000-square-foot building next to the Heritage Center on East Sixth Street, facing the existing corporate headquarters. The expansion is expected to add approximately 600 new employees.

\*[UPMC Hamot Announces Construction of \\$111 Million Patient Tower](#), UPMC press release, 12/15/2016

\*\*[Erie Insurance plans \\$135 million expansion, 600 new jobs](#), Erie Times-News, 11/11/2016

## Future Developments

### **McAllister Place**

McAllister Place is located at East Dobbins Landing (McAllister Marine building) and is owned by the Port Authority. They are seeking proposals to redevelop the eastern part of Dobbins Landing. As previously proposed, the development would include condominiums/apartments, office space, retail shops and a 200-space parking facility in a five-story building. However, these plans would be subject to change by interested developers.



### Erie Bayfront Plant Expansion

The Port Authority is also evaluating an expansion of their East Bayfront industrial property. The expansion would increase the Capacity of the industrial facility to better accommodate the port's importing and exporting business. Further coordination and analysis will need to be required to ensure truck traffic associated with a future expansion can be accommodated. The deficiencies and potential improvement options to accommodate truck traffic could be evaluated in conjunction with the overall improvements to the Bayfront. The area has been of interest to DevelopErie, formerly the Economic Development Corporation of Erie County; however, there have been no confirmed investments or plans for the area to date.

The traffic generated by these completed, in progress, and future developments was calculated using the Institute of Transportation Engineers (ITE) Trip Generation Handbook. The resulting trips were determined using the anticipated development type of each planned development, i.e. office space, retail, hotel, residential, restaurants, etc. The actual types of businesses built within each development are likely to change based upon market conditions. However, the results provide a good representation of the magnitude and scale of the anticipated traffic based upon the size of the proposed planned developments.

The resulting ITE trips were documented including the assumptions, known developments, background growth, and methodology. A summary of this analysis and documentation is provided in **Appendix J – Traffic Forecast, Erie Bayfront Highway (SR 4034)**.

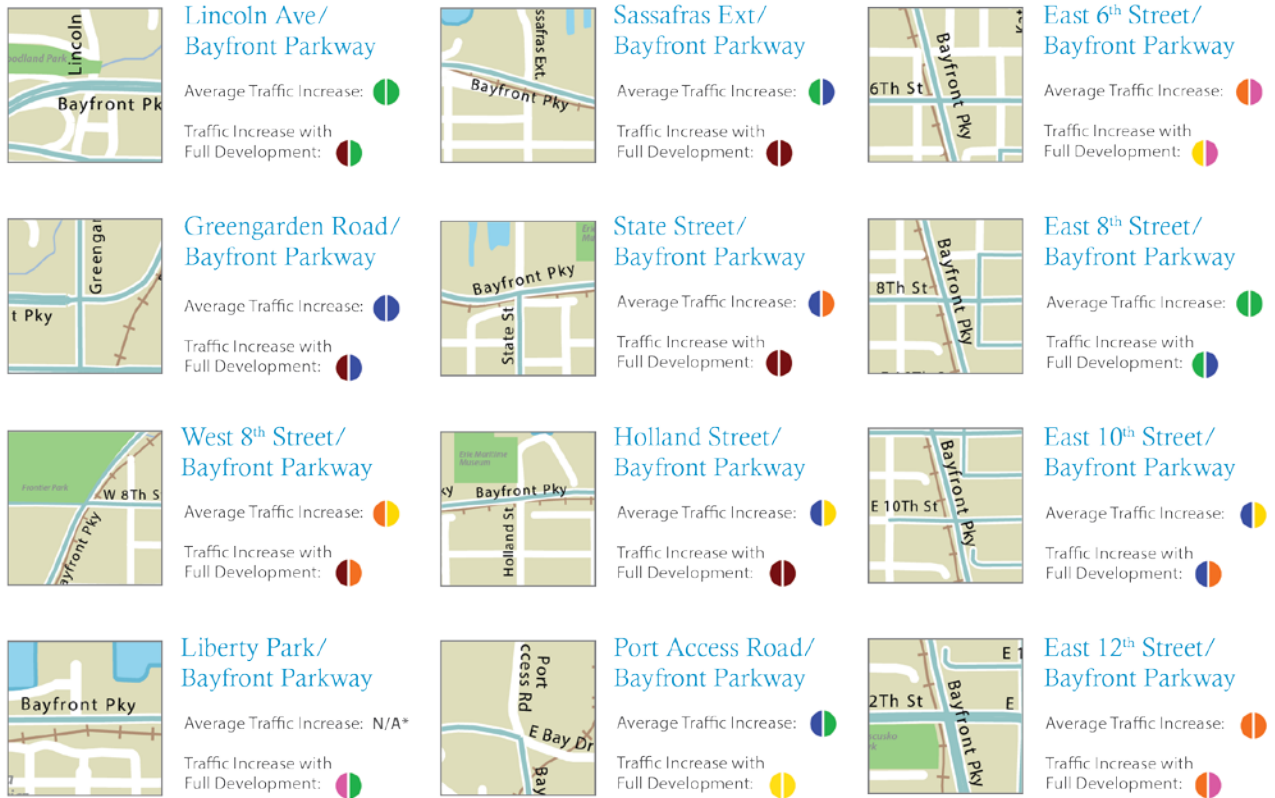
### 2. Traffic Volumes and Level of Service

The existing turning movement traffic counts (2014) were forecasted for a future build year of 2034 during weekday AM and PM peak travel hours (See **Appendix E – Existing and Future Traffic Volumes**). The future build year of 2034 assumed the planned development along the Bayfront had been constructed. The forecast showed significant increases in the peak hour traffic volumes on the Bayfront Parkway in particular at State Street, Sassafras Street and Holland Street where the proposed Bayfront Place and Harbor Place developments are located. The turning movement volumes at these intersections are projected to more than double on average in most directions. Traffic volumes are predicted to increase at every intersection within the study area. The majority of the additional traffic is projected to be traveling from the west and Interstate 79 towards State Street.

The Future 2034 Level-of-Service for critical intersections located along the Bayfront is provided in [Figure 6](#), on the following page. For comparison, the "Average Traffic Increase" assumes only minor growth within the project area and the "Traffic Increase with Future Development" assumes the planned development is constructed. It should be noted that the traffic volume and development is currently a fluid situation along the waterfront. The traffic volume assumptions and the influence of development should be revisited during preliminary engineering and the development of a detailed alternatives analysis. This will help to ensure the amount of traffic projected is based upon the latest anticipated development and the traffic volumes are not over or under stated.

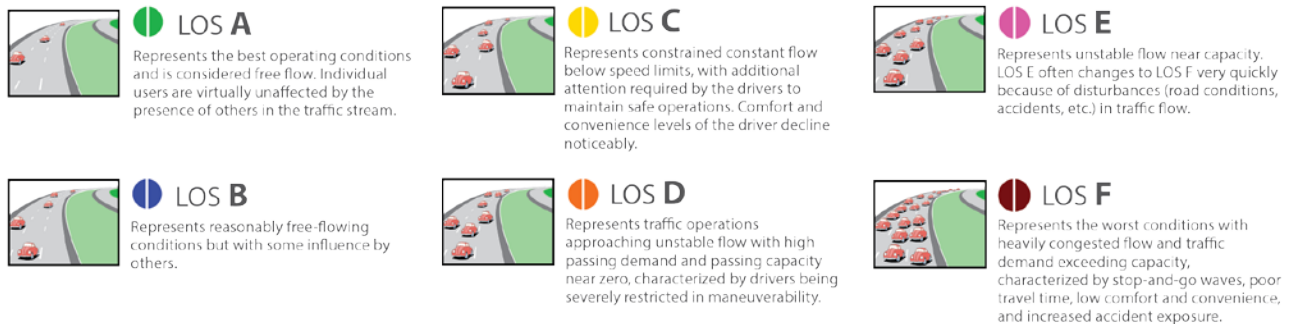
Figure 6 – Forecasted LOS 2034 Conditions at Signalized Intersections

## Forecasted LOS 2034 Conditions at Signalized Intersections



### Level of Service (LOS)

Highway traffic congestion is expressed in terms of Level of Service (LOS) as defined by the Highway Capacity Manual (HCM). LOS is a letter code ranging from "A" for excellent conditions to "F" for failure conditions. The conditions defining the LOS for roadways are summarized from the HCM as follows:



### Legend

AM Peak  PM Peak 

*Disclaimer: The traffic information was gathered in September 2014 and predates the traffic light at the intersection of Liberty Park and Bayfront Parkway.*

Other notable traffic observations include the following:

- The Projected 2034 Average Daily Traffic (ADT) is anticipated to be approximately 29,000 vehicles per day based upon the application of the future growth within the corridor.
- The peak hour directional split of traffic is anticipated to be higher in the eastbound direction.

The future Level-of-Service (LOS) was also analyzed for the 2034 build year. Similar to the analysis of the existing traffic conditions, the future conditions were analyzed using Synchro and its traffic simulation tool SIMTraffic to determine the future LOS within the corridor. The intersections at West 8<sup>th</sup> Street, East 10<sup>th</sup> Street, and East 12<sup>th</sup> Street would operate at LOS D or lower for the morning and afternoon peak hours. The intersections of the Bayfront and State Street, Sassafras Street, and Holland Street would operate at a failing LOS F during the afternoon peak hour and LOS E at lower of the morning peak hour. The exception would be at Sassafras, which would operate at a LOS of C during the morning peak. The remaining analyzed intersections would operate at a LOS of C or better during the peak hours. A detailed summary of the Future 2034 LOS for each analyzed intersection is provided in **Appendix F – Existing and Future Levels of Service**.

#### D. Study Purpose and Needs

A Purpose and Needs Memorandum was developed for the Bayfront Parkway Study in February 2015. This analysis is documented in the “Bayfront Purpose and Needs Memorandum (February 2015)”. A summary of the purpose and needs and the results are provided within this section of the report. The complete Memorandum is available in **Appendix K – Purpose and Needs Memorandum**.

##### 1. Study Purpose

The purpose of the study was to complete an extensive analysis of the Bayfront Parkway Corridor to determine how the roadway currently operates and to identify potential improvements to enhance the operation and support current and future land use consistent with City of Erie and Erie County Planning initiatives. Potential improvements were developed primarily based upon an analysis of the existing and anticipated future corridor conditions and input from project stakeholders. This information was utilized to identify potential projects that will improve safety, reduce congestion, improve mobility for all modes of transportation, and support existing and future economic development initiatives.

## 2. Study Needs

The Bayfront Parkway Corridor Study Needs Analysis was completed in accordance with the guidelines set forth in the Pennsylvania Department of Transportation *Needs Study Handbook for the Transportation Project Development Process (Publication Number 319)* dated December 2010. The following project needs were identified:

- **Safety concerns exist in the study area.**
  - 246 crashes within the Bayfront Parkway Study Corridor over a 5-year period.
  - 80% of the crashes were located at an intersection.
  - Crash rate between Port Access Road and the East 12<sup>th</sup> Street is higher than the statewide average for similar roadways.
  - Two (2) fatalities and two (2) major injuries occurred between East 6<sup>th</sup> Street and East 12<sup>th</sup> street.
  - Results of a public survey indicated a majority of respondent did not feel safe walking or biking across the Bayfront Parkway.
  
- **Congestion concerns exist in the study area.**
  - Existing level-of-service (LOS) for the intersection of State Street and the Bayfront is “D” for the AM peak and future year LOS is projected to be an “F” with proposed Bayfront Development.
  - Future years LOS are anticipated to be an LOS of “D” or lower at the intersections of the Bayfront and West 8<sup>th</sup> Street, Sassafras Street Extension, State Street, Holland Street, East 10<sup>th</sup> Street, and East 12<sup>th</sup> Street.
  
- **Operational concerns exist in the study area.**
  - Bayfront and West 8<sup>th</sup> street has observed queueing for the eastbound through lane and drivers using the right turn (only) lane to merge into the through to avoid waiting in the queue.
  - Limited gaps for left turning vehicles along the Bayfront.
  - Lack of consistent pedestrian or bicycle facilities along, or parallel to, the Bayfront.
  
- **Transportation connections for all modes between Downtown Erie and the Bayfront (north/south) are lacking.**
  - Multiple previous studies cite the lack of viable connections for pedestrians or bicycles between downtown to the Bayfront waterfront.
  - Project stakeholders and the public have indicated the Bayfront Parkway acts as a barrier to pedestrians and bicyclists connecting from downtown Erie to the Bayfront area.
  - Meetings with proposed waterfront developers have revealed the importance of a north/south connection to the waterfront for vehicles traveling to the waterfront from the city and from the west and east along the Bayfront.

The Erie Waterfront Master Plan Summary Report (March 2009) further noted “Pedestrian safety is also a concern between the city and the surrounding neighborhoods on the bluff and the Bayfront due to the heavy vehicular use of the Bayfront Parkway and the lack of well-designed cross-walks.”

### III. Conceptual Improvement Concepts

With the technical data collection efforts complete and initial public feedback gathered, a list of potential conceptual improvement options were identified. The improvement concepts were based on the project’s [Purpose and Needs](#), [Improvement Considerations](#), consistency with previous and ongoing local planning studies, [public and stakeholder input](#) and [existing and future traffic](#) projections. An emphasis was placed on addressing identified safety concerns and providing better access between downtown and the Bayfront for all modes of transportation. These improvements will better enable pedestrians, bicyclists, and motorists to safely and more efficiently connect the downtown area with the waterfront. Additionally, the management of projected future traffic operations and congestion were evaluated and addressed with the proposed improvements.

Studies and plans previously developed provided the study team with insight on past themes or ideas created through input from the community and project stakeholders. For example, *Completing the Bayfront – Bayfront Place Concept Plan Report* (April 2012), the “Preferred Concept” was developed to reflect “the interests of the community in providing types of development sought by residents and local officials balanced with current market conditions.” This report specified design themes such as a frontage road concept to better connect developments within the waterfront area and enhanced pedestrian and bicycle facilities and connections. The report specified types of development anticipated, which was considered in our traffic projections and supplemented with more recent input provided by the site developers. The *Erie Refocused - Comprehensive Plan and Community Decision-Making Guide* (March 2016) indicates the Bayfront is significant to the city. The plan specifically states it is critical for “the city and its partners make efforts to better connect downtown and the Bayfront a priority”. The study further specifies that action should be taken better connect the assets from the downtown to the waterfront using a “transitional” area to safely accommodate the movement of pedestrians and bicyclists. These report examples are representative of key elements of previous studies that were considered with the development of improvement options for the Bayfront Parkway.

#### A. Development of Improvement Concepts

As a result of the public online survey, PAC Meetings and Special Purpose Meetings, the study team had a number of improvement concepts to consider. With multiple interests to address, the project team developed two distinct Improvement Scenarios: **Scenario 1 – Mobility**, **Scenario 2 - Connected**. In addition, a number of overall improvement concepts were developed to include those improvements that could apply throughout the corridor. The Scenarios with the overall Improvements were presented to the PAC in April and then revised and presented to the PAC and the Public in June 2015.

The *Mobility Scenario* focused on minimizing vehicle delays and providing operational improvements at intersections and roadways throughout the corridor to maintain consistent speeds for vehicles traveling through the corridor. The primary improvements associated with the Mobility Scenario are as follows:



- West 8<sup>th</sup> Street Intersection Improvements
- Managed Lanes for peak hour traffic between West 8<sup>th</sup> Street to West of Sassafras Street
- New Frontage Road between Liberty Park and State Street
- Multi-use trail bridge over the Bayfront to the west of State Street
- Dual lane roundabout at State Street
- Holland Street Intersection improvements
- Pedestrian trail bridge east of Holland Street
- Widening of the Bayfront to four lanes between State Street and Port Access Road
- Bus pull offs between East 8<sup>th</sup> and East 10<sup>th</sup> Streets
- Dual lane roundabout at East 12<sup>th</sup> Street

See **Appendix L – Mobility Scenario Improvement Concepts**

The *Connected Scenario* focused on a boulevard concept with planted medians, shorter pedestrian crossings, and roadway narrowing to achieve a traffic calming effect within the Bayfront Corridor. The primary improvements associated with the Connected Scenario are as follows:

- West 8<sup>th</sup> Street Intersection Improvements
- Planted median within the previous center turn lane along the Bayfront starting to the east of West 8<sup>th</sup> Street and ending to the west of Sassafras Street with gaps in the median for turning movements onto side roads connecting to the Bayfront
- Signalized intersection improvements to State Street
- Convert the existing railroad culvert under State Street to a multi-use trail
- Extend multi-use trail from the existing culvert to the east across Holland Street along the hillside to the eastside neighborhoods on the bluff to the east of Holland Street
- Signalized intersection improvements to Holland Street
- Continuing the planted center median to the east of Holland Street to Port Access Road
- Single lane roundabout at Port Access Road
- Reduce the roadway template widths and to a single lane in each direction with turning lanes at intersections between Port Access Road and East 10<sup>th</sup> Street
- Pedestrian refuge areas at crossings from East 6<sup>th</sup> Street to East 10<sup>th</sup> Street

See **Appendix M – Connected Scenario Improvement Concepts**

In addition, Overall Bayfront Improvements were developed that consisted of general upgrades to the corridor, such as signing or cross walk treatments, which can be applied to the entire study area and are not exclusive to one particular section within the study area. A list of Overall Improvements, including cost range and potential funding source, is provided in **Appendix N – Overall Corridor Improvement List**.

The Mobility and Connected Scenarios were further analyzed to determine the anticipated travel time and level-of-service (LOS). Each scenario was analyzed during the morning and afternoon peak hours for the future 2034 year

build condition assuming full build out based upon the identified planned developments. Delays and the LOS were reported using SIMTRAFFIC travel demand model for each scenario. The results illustrated that improvements from the *Mobility Scenario* reduced delays at each intersection within the corridor, as intended, and a majority of the peak hours traffic operated at a LOS of C or greater. The *Connected Scenario* increased delays associated with the lane reductions along the Bayfront and a number of the intersections operated at a LOS of F including State, Holland, and East 12<sup>th</sup> Streets. Delays across the corridor were observed to be significant associated with the *Connected Scenario*. For more detailed information on each intersection and comparison of the delays and LOS, See **Appendix O – Bayfront Parkway Future Corridor – Intersection Delay Comparison**.

The PAC and public provided input on each of the scenarios at a public meeting. This input was utilized to develop a *Blended Scenario*, which utilized the most favorable components of the Mobility and Connected Scenarios. The *Blended Scenario* provided a specific list of improvement concepts within the Bayfront Corridor for further analysis and to advance forward for future consideration and development

## B. Logical Improvement Concepts Sections

Based upon the physical characteristics of the corridor and a goal to implement improvements with independent utility and logical termini; three (3) logical sections were developed for the *Blended Scenario*. The sections consisted of the Western, Central, and Eastern Bayfront.

These three improvements sections can be constructed as separate projects or collectively and would still address corridor needs. The details for each improvement section are further described below.

### 1. Western Bayfront

The Western Bayfront Parkway is generally defined to the west of Lincoln Avenue and to the east at Lawrence Pier Road entrance to Liberty Park. The improvements focus on enhancements to safety and operation at the intersections and the roadway segments. Additionally, there are Intelligent Transportation Systems (ITS) opportunities to better inform motorists to make real time travel decisions and to promote more efficient movement of traffic through the corridor.

A summary of the primary improvements considered within the Western Bayfront follows:

- **Variable Message Sign** on Interstate 79 Northbound approaching the Bayfront Parkway. Messages can provide real time travel information to motorists traveling to central downtown using the Bayfront, West 8<sup>th</sup> Street, or West 12<sup>th</sup> Street. Incidents, event information, and weather alerts can be posted to advise travelers prior to entering the study area.
- **Bike shared lanes** that can be accessed and signed from the Thomas Hoffman Transportation Hub across the Bayfront beginning at Lincoln Avenue to West 8<sup>th</sup> Street and connecting to the established trail system along the Bayfront at Frontier Park.
- **Gateway treatment** over the roadway near Greengarden Boulevard. This treatment will help provide a visual indication for motorists of the changing context of the roadway transitioning from Interstate 79 to the Bayfront Parkway. Also, the gateway would provide an aesthetic enhancement to better define an entrance to the Bayfront Parkway from the west.

- **Intersection upgrade** to the intersection of West 8<sup>th</sup> Street and the Bayfront. The eastbound movement will change the current right-turn only lane to a proposed shared thru and right lane. Two eastbound thru movements will be added to this approach to mitigate observed queuing associated with the existing single thru lane. The queuing of the eastbound thru lane is expected to increase with additional future traffic and this improvement will help address this issue.
- **Managed lanes** to the east of West 8<sup>th</sup> Street to the west of Sassafras Street. These reversible lanes can better manage peak hour traffic while using the existing three-lane roadway template without the need for widening. The additional lane available to accommodate traffic during the peak hours will be particularly important as traffic increases with future development.
- **Rapid Beacon Flashing Light** to be considered to warn motorists of pedestrians crossing the roadway, particularly at night. This treatment could be considered near the intersections of the Bayfront Parkway with Cranberry, West 8<sup>th</sup> and Greengarden Streets. Actual placement should be further analyzed based upon pedestrian activity and considering the physical characteristics of the roadway.
- **Cranberry Street Restrictions** to include peak hours left turn restrictions from Cranberry Street to reduce conflicts and provide more efficient traffic flow on the Bayfront during the morning and afternoon peak periods.

Further analysis of the Western Bayfront improvement concepts, including cost range and potential funding sources, is provided in **Appendix P – Western Bayfront Improvement List**. A conceptual plan illustrating the improvements and the locations is provided in **Appendix Q – Western Bayfront Improvement Concepts**.

## 2. Central Bayfront

The Central Bayfront improvements are generally defined from Lincoln Park to the east of Holland Street. The improvements focus on better connecting multi-modal roadway users to the waterfront and more efficiently distributing traffic considering the Bayfront Parkway, downtown grid system, and a new marginal access road. Additionally, the intersections of State and Holland Streets would be upgraded to better accommodate existing and future traffic. As a result of presenting improvement concepts at the September 29, 2015 PAC meeting, the PAC wanted the project team to explore an enhanced connection at State Street, including evaluating a grade separated option. As a result, a traffic circulation study was developed focusing on potentially changing traffic patterns and updated future growth at the intersections at Sassafras Street, State Street, Holland Street, and a new access point to the Bayfront to the east of the Waterworks driveway entrance. More detailed information of the analysis is provided in **Appendix R - Bayfront Parkway Traffic Circulation Study (August 2016)**. The results of the traffic circulation study were utilized to further develop and refine improvement concepts at these intersections from the new access driveway to Holland Street. The traffic analysis determined a proposed bridge (Cap) of State Street over the Bayfront would be able to accommodate traffic on the Bayfront and State Street. It was conceptually determined that changes in traffic patterns at State Street could be accommodated by adjacent intersections and more efficient use of the City of Erie downtown grid roadway network. The access points to the potential Cap of State Street from the Bayfront Parkway need further analysis to determine the appropriate connections to accommodate motorists and pedestrians/ bicycles access to the Bayfront waterfront. Additionally, a dual

lane roundabout and widened signalized intersection would still be viable intersection improvement options. These options would need to be analyzed further along with the Cap Option to determine refined impacts, connections to adjacent roadways and businesses, future development assumptions, accommodation of multi-modal traffic, and consider public and stakeholder comments.

A summary of the primary improvements considered within the Central Bayfront follows:

- **Construct Two-Lane Marginal Access Road with Pedestrian/Bike accommodations** from Lincoln Park to Holland Street to the north of the Bayfront Parkway. The frontage roadway will provide for better internal circulation of multi-modal traffic rather than short trips to adjacent properties requiring access to the Bayfront. A new conceptual intersection location with the Bayfront Parkway was evaluated to the east of Sassafras Street near the property boundary of the proposed Bayfront Place development and the existing Waterworks facility.
- **Pedestrian Bridges over the Bayfront Parkway** - locations were evaluated between State Street and Sassafras Street to connect the neighborhoods and businesses located along the Bayfront Promenade bluff to the waterfront. The topography from the higher elevation at the bluff to the lower elevation to the north of the Bayfront makes this connection challenging and costly. Proposed walls and switchback ramps would likely be required to accommodate this connection and minimize impacts to the adjacent Bayfront Place development.
- **State Street Intersection Improvement** concepts include an upgraded signalized intersection, dual lane roundabout, or grade separation options (Cap). Further analysis of the intersection improvements, the effect on city streets, and development traffic will need to be completed prior to selecting an improvement option. For a graphic depiction of Bayfront/State Street Grade Separation Options over the Bayfront, see **Appendix S – Conceptual Bayfront/State Street Grade Separation (Cap) Options**.
- **Public/Private Pedestrian Bridge connecting Harbor Place to UPMC Hamot** to provide public access across the Bayfront from French Street and a private component associated with a secured connection to UPMC Hamot Hospital. This concept is currently being developed through the Harbor Place site plan development in partnership with UPMC Hamot.
- **Holland Street Intersection Improvement** concepts including an upgraded signalized intersection or dual lane roundabout. Further analysis of the intersection improvements, the effect on city streets, proposed State Street improvements, and impact development traffic will need to be completed prior to selecting an improvement option.
- **Connect Eastern Bluff neighborhoods with a Multi-Use Trail** from East German Street to the intersection with Holland Street. This will provide a direct connection to Holland Street to cross the Bayfront and access the Intermodal Center and the waterfront.
- **Four-lane roadway to the east of Holland Street** will likely be required for the westbound approach to Holland Street associated with upgrades to this intersection. Further analysis will be warranted to determine if the four lane widening should extend to Port Access Road, or can be tapered to the existing two lane roadway typical to the east of Holland Street.

Further analysis of the Central Bayfront improvement concepts including cost range and potential funding sources is provided in **Appendix P – Central Bayfront Improvement List**. A conceptual plan illustrating the improvements and the locations is provided in **Appendix Q – Central Bayfront Improvement Concepts**. Additionally, renderings of the Bayfront/State Street Grade Separation Options were developed and are provided in **Appendix T – Conceptual Bayfront/State Street Grade Separation (Cap) Renderings**.

### 3. Eastern Bayfront

The Eastern Bayfront Parkway is generally defined from the east of Holland Street to the intersection of East 12<sup>th</sup> Street. The improvements focus on enhancements to safety, pedestrian movements, and traffic calming. Additionally, similar to West Bayfront, there are Intelligent Transportation Systems (ITS) opportunities to better inform motorists to make real time travel decision and to promote more efficient movement of traffic through the corridor from the east.

A summary of the primary improvements considered within the Eastern Bayfront are the following concepts:

- **Narrow travel lanes along Bayfront** from 12 to 11 feet across the multi-lane roadway. This would provide a slightly shorter distance for pedestrians to cross the Bayfront and these narrower lanes may provide a traffic calming affect for traffic traveling along the Bayfront.
- **Pedestrian refuge areas** to be considered at the intersections of East 6<sup>th</sup>, East 8<sup>th</sup> and East 10<sup>th</sup> Streets. This will provide pedestrians with a landing area to be able to cross two (2) lanes at a time with a break in traffic. The proposed lane narrowing should allow construction of a majority of the refuge areas without major widening of the Bayfront.
- **Bus pull-off along the Bayfront** located between East 8<sup>th</sup> Street and East 10<sup>th</sup> Street along the eastern and western sides of the Bayfront. This will accommodate transit users with destinations to the east or west along the Bayfront. The pull-offs would be located near a traffic signal to allow pedestrians to more safely cross the Bayfront for access to the pull-offs. The pull-offs will allow EMTA buses a location to exit and enter the Bayfront without blocking a travel lane. Further coordination of the bus pull-off locations and operation will need to be conducted with EMTA prior to the implementation of this concept.
- **Gateway treatment** over the roadway near East 12<sup>th</sup> Street. This treatment will help to signal motorists of the changing context of the roadway from the Bayfront Connector. Also, the gateway would provide an aesthetic improvement to better define an entrance to the Bayfront Parkway from the east.
- **Variable Message Sign** on the Bayfront Connector approaching the Bayfront Parkway. Messages can provide real time travel information to central downtown using the Bayfront, East 6<sup>th</sup> Street, East 8<sup>th</sup> Street, or East 12<sup>th</sup> Street. Additionally, incidents, event information, and weather alerts can be posted to advise travelers prior to entering the study area.
- **Install Speed display signs** along East 12<sup>th</sup> Street as a speed control measure for vehicles approaching the intersection with the Bayfront which have been noted and observed traveling at high speeds.



- **East 12<sup>th</sup> Street Intersection Improvement** concept of a dual lane roundabout using two (2) lanes at each approach to the intersection. The dual lane roundabout would be able to more efficiently distribute traffic along the Bayfront and East 12<sup>th</sup> Street and calm westbound traffic approaching from the Bayfront Connector. Further analysis of the dual lane roundabout, the impact on East 12<sup>th</sup> Street, and the adjacent bridge to the east of the intersection will need to be completed prior to selecting an improvement option.

Further analysis of the Eastern Bayfront improvement concepts including cost range and potential funding sources is provided in **Appendix P – Eastern Bayfront Improvement List**. A conceptual plan illustrating the improvements and the locations is provided in **Appendix Q – Eastern Bayfront Improvement Concepts**.

## IV. Implementation

An ultimate measure of effectiveness for the study will be the ability to implement the logical concept sections. An implementation plan was developed to identify anticipated projects, estimate project durations, document needs addressed by each improvement section, and identify primary challenges of the proposed project. As a result, the Bayfront Corridor Implementation Plan was developed with the intent to provide information for project planners to consider when programming proposed improvements. The Bayfront Implementation Plan complements local initiatives as part of the City of Erie's Comprehensive Plan or the Erie County "Action Teams" and provides options to implement proposed infrastructure improvements to support local improvements and land use goals.

### A. Implementation Plan

Generally following the structure defined for the Bayfront Improvement Concepts as Overall, Western, Central, and Eastern Bayfront Improvements, an anticipated project list was developed. Five (5) anticipated projects were defined as follows:

- Overall Corridor Improvements
- ITS Structures: Interstate 79 (west) and Bayfront Connector (east)
- Western Bayfront Improvements
- Central Bayfront Improvements
- Eastern Bayfront Improvements

For more detailed information regarding the implementation of these projects, see **Appendix U – Bayfront Corridor Implementation Plan**.

### B. Prioritization Strategies

Based upon feedback from the PAC and the current development along the Bayfront, additional detailed analysis of impacts, traffic patterns, and costs should be developed for the more complex improvements within the Central Bayfront area. The development of this detailed information will provide PennDOT, the PAC, the public, and the adjacent development a better understanding of the footprint required to construct these proposed improvements.

Proposed ITS Structures should be considered in advance of improvements to the Central Bayfront to manage traffic entering the Bayfront from the east and west. Additionally, ITS messaging would be beneficial during construction of the Central Bayfront Improvements to advise motorists of closures, construction activities, and alternate routes.

Overall, Western, and Eastern improvements are less complex than the Central Bayfront improvement concepts. These conceptual improvements should be able to be advanced independently of the Central improvement concepts as funding becomes available or as required to better support corresponding local initiatives at the Western and Eastern Bayfront project limits. It will be critical to make sure common design elements such as streetscaping and landscape architecture are complimentary throughout the corridor to better establish a recognizable identity for the Bayfront.

## V. Next Steps

With the completion of this study and local planning efforts, progress from local developers, and recent announcements of additional investments/expansions from Hamot Hospital and Erie Insurance, the implementation of the Bayfront Parkway improvements will be essential to accommodate growth already occurring and overall livability interests for the area. PennDOT, the Erie Metropolitan Planning Organization (MPO), City of Erie, and local stakeholders will have key roles advancing projects identified in this study as a coordinated effort. This will help to ensure that the investment along the Bayfront compliments and supports local planning and redevelopment efforts.

As a result of the dynamic changes occurring in the central Bayfront area, PennDOT has already begun to initiate steps to advance and further analyze improvement concepts related to State Street, Holland Street, and the proposed new access point east of Water Works Drive connecting to a proposed Marginal Access Road/Frontage Road. These efforts should begin in summer 2017 and will include a detailed alternatives analysis to better identify potential impacts, benefits, costs and design/construction sequencing of projects. Additionally, the PAC members' and local input emphasized the importance of evaluating the current and future use of the 12<sup>th</sup> Street Corridor and the downtown grid system concurrently with the Bayfront Parkway Improvements. This will ensure these roadway assets work together to better distribute multi-modal traffic throughout the transportation network and address the needs of the downtown and waterfront areas. PennDOT is committed to continued public outreach and coordination with the PAC as this project develops.

Recently, the Erie Metropolitan Planning Organization (MPO) identified Bayfront Parkway Multimodal Improvements as a high-ranking project and priority as indicated in the Erie County 2042 Long Range Transportation Plan (LRTP) Draft - March 2017. Moving forward, the MPO will be an important partner as specific projects and funding needs are further refined along the Bayfront. This study should be able to assist the MPO in consideration of the Implementation Plan developed and the conceptual improvements identified for further advancement. Other funding sources to consider for Bayfront Parkway improvements will be pursued through federal and state grant programs and potential public-private partnerships with local developers.

Ultimately, PennDOT will need the continued support of local government, planning agencies, economic development groups, and other stakeholders to successfully and efficiently advance the improvement concepts.