

WATERFRONT TRANSIT STUDY



Waterfront Transit Study

Acknowledgment

This study was funded in part through a generous contribution from the **William Penn Foundation**.

In addition, Delaware River Waterfront Corporation would like to thank our project partners, including:

- SEPTA
- Philadelphia Streets Department
- City of Philadelphia Office of Transportation, Infrastructure, and Sustainability (oTIS)
- Philadelphia City Planning Commission
- Delaware Valley Regional Planning Commission
- Central Delaware Advocacy Group (CDAG)
- Pennsylvania Department of Transportation (PennDOT)

Consultants

This study was prepared with assistance from:

- Foursquare Integrated Transportation Planning
- Interface Studio
- Gannett Fleming

CONTENTS

Chapter 1.	Introduction	1
1.1	Project Background	1
1.2	Project Purpose.....	1
1.2.1.	Goals and Objectives	2
1.3	Project Partners	3
1.4	Report Organization.....	4
Chapter 2.	Existing Conditions & Needs Analysis	5
2.1	Waterfront Activities and Events.....	5
2.2	Land Use and Development.....	6
2.2.1.	Zoning	6
2.3	Existing Plans and Studies	8
2.4	Existing Transit Service	9
2.4.1.	Overview	9
2.4.2.	Transit Level of Service.....	9
2.4.3.	Transit Market Analysis	11
2.4.4.	Existing Transit Potential	11
2.4.5.	Projected Transit Potential	11
2.4.6.	Transit Propensity	12
2.4.7.	Travel Flow Analysis	15
2.5	Pedestrian and Bicycle Environment.....	16
2.5.1.	Intersections.....	16
2.5.2.	Connections to the Market-Frankford Line.....	17
2.5.3.	Sidewalk and Bus Stop Conditions	18
2.5.4.	Bicycle Access	19
2.6	Signage and Wayfinding.....	20
2.7	Roadway Conditions	21
2.7.1.	Traffic Congestion	21
2.7.2.	Road Right-of-Way.....	21

2.8	Public Engagement.....	22
2.8.1.	Feedback from Public Meetings.....	22
2.8.2.	Survey Results.....	22
	Summary of Findings	23
2.8.3.	Transit gaps.....	24
2.8.4.	Infrastructure gaps	24
2.8.5.	Information gaps	25
Chapter 3.	Recommendations	26
3.1	Overview of Recommendations	26
3.2	Transit Service Recommendations.....	26
3.2.1.	Constraints and Considerations.....	26
3.2.2.	Route 25.....	28
3.2.3.	Route G.....	30
3.2.4.	Route 40.....	31
3.2.5.	Waterfront Ferry Service.....	32
3.2.6.	Special Event Shuttles.....	33
3.2.7.	Fixed-Guideway Transit.....	34
3.2.8.	SEPTA Contingency Plans for I-95 Cap	34
3.3	Public Realm	36
3.3.1.	Bus Access and Stop Experience.....	38
3.3.2.	Pedestrian Safety and Experience	44
3.3.3.	Rideshare Safety and Efficiency	50
3.3.4.	Bicycle Safety and Convenience	51
3.3.5.	Wayfinding.....	52
3.3.6.	Penn’s Landing Cap and Related Investments	56
3.3.7.	Policy Initiatives.....	56
3.4	Marketing and Transportation Demand Management.....	59
3.4.1.	Build on Existing TDM Programs in Philadelphia	59
3.4.2.	Special Event Management	61
3.4.3.	Tourist/Visitor Outreach	61

3.4.4. Coordinate with Residential Developments	62
Chapter 4. Implementation Plan.....	63
4.1 Phasing.....	63
4.2 Partners.....	63
4.3 Funding	64
4.4 Governance and Oversight.....	66
4.4.1. Partner Coordination.....	66
4.4.2. Community Engagement	66
4.5 Matrix of Recommendations.....	67
4.6 Performance Monitoring	74
4.7 Next Steps.....	75
Chapter 5. Conclusion.....	76

FIGURES

Figure 1 Number of Annual Events by Start Period	5
Figure 2 Number of Annual Waterfront Events by Day.....	5
Figure 3 Recently Completed, Underway, or Planned Development Projects	7
Figure 4 Existing Transit Service Near the Waterfront	10
Figure 5 Area Accessible by One-Seat Ride from Waterfront.....	11
Figure 6 Existing Transit Potential	13
Figure 7 Projected Transit Potential	14
Figure 8 Sidewalk Grade.....	16
Figure 9 Inventory of Crosswalk Conditions Along Columbus Blvd / Delaware Avenue.....	16
Figure 10 Diagrams of Walking Paths from MFL Stations to the Waterfront with Positive and Negative Features Noted.....	17
Figure 11 Typical Sidewalk, Signage, and Bus Stop Deficiencies.	18
Figure 12: Example of Fading Bicycle Lane along Columbus Boulevard	19
Figure 13 Example of Common Signage Issues	20
Figure 14: Examples of dirty, vandalized, and low reflectivity signage on Delaware Avenue.....	21
Figure 15 Reasons Visitors Chose Not to Utilize Public Transit on Their Most Recent Trip to the Waterfront (Summer 2018 Intercept Survey) ..	23
Figure 16 Ease of Accessing the Waterfront by Mode	23
Figure 17 Route 25 Phase I Enhancements.....	29
Figure 18 Route G Enhancements	30
Figure 19 Route 40 Extension	31
Figure 20 Waterfront Ferry Extension	32
Figure 21 Event Shuttle Alignments.....	33
Figure 22 Common Public Realm Issues Along Columbus Boulevard / Delaware Avenue	37
Figure 23 Summary Map of Bus Stop Recommendations.....	40
Figure 24 An example of City of Philadelphia's new standard bus shelter.....	41
Figure 25 Map of Recommended Pedestrian Access Improvements at Pier 70 Blvd	42
Figure 26 Map of Existing Pedestrian Access at Pier 70 Blvd	43
Figure 27 Low-Cost Investments in Placemaking Near 30th Street Station.....	48
Figure 28 Illustration of Potential Form that Placemaking Could Take at Market Street Viaduct Transit Stop.....	49

Figure 29 Examples of Rideshare Drop Points	50
Figure 30 Example of Incorporating Art into Bike Rack Design	51
Figure 31 Horizontal Wayfinding at Lonsdale Quay in Vancouver	51
Figure 32 Current Waterfront Wayfinding Signage Types	52
Figure 33 Map of Current Wayfinding Signage Along Columbus Boulevard / Delaware Avenue	54
Figure 34 Examples of Effective Pedestrian Wayfinding Signage at Detroit's Esplanade on Woodward Avenue (Left), Chicago's Bloomingdale Trail (Middle), and artist Bundith Phunsombatler's 2014 installation at New York's Flushing Meadows Park (Right).	55
Figure 35 Map of Key Areas, Connector Streets, and Locations for Pedestrian Wayfinding Signage.....	55
Figure 36 Rendering of the Cap with Key Connection Point to Columbus Boulevard Circled	56
Figure 37 Map of Spring Garden Station TOD Overlay at 500 feet, 1000 feet, and 500 feet from entrance points if they were defined as the edge of the I-95 overpass	58
Figure 38 Marketing Material for SEPTA's new Route 49 service	59
Figure 39 SEPTA Mobile Fare Kiosks	62

TABLES

Table 1 Major Plans and Studies.....	8
Table 2 Mode Share by Waterfront Destination (Summer 2018 Intercept Survey)	23
Table 3 Route 25 Headways (Near-term).....	28
Table 4 Route G Headways (Broad-Oregon / Food Distribution Center / Columbus Commons).....	30
Table 5 Route 40 Headways.....	31
Table 6 Cost Estimate for One Day of Event Shuttle Service.....	33
Table 7 Summary of Bus Stop Recommendations.....	39
Table 8 Summary of Crosswalk Recommendations - <i>Connector Streets are bolded</i> (Following Page)	45
Table 9 Roadway Deficiencies (excluding recommendations related to bus stops, sidewalks, and crosswalks)	47
Table 10 Implementation Matrix	67
Table 11 Performance Measures	74



Credit: Matt Stanley

CHAPTER 1.

INTRODUCTION

1.1 Project Background

Philadelphia's Central Delaware River waterfront has undergone a renaissance over the last decade as investments in private development and public spaces have changed the character of an area that historically was dominated by commercial and industrial uses. These changes are being guided by the Delaware River Waterfront Corporation (DRWC) and its partners and reflect a decade long process of public engagement that resulted in the Master Plan for the Central Delaware.¹

Improving access to the waterfront is a cornerstone of the Master Plan and public transportation is an important tool to accomplish this goal. Several past plans envision light rail or streetcar service along Delaware Avenue; while such an investment could be transformational for the Central Delaware, the demand simply does not exist today to justify the cost of implementation. Any new rail would require significant capital investments and compete for funding against the many transit needs across Philadelphia.

There are many other approaches to improving access by transit, and DRWC acknowledges that improving transit access cannot happen overnight. Better transit service and the development that supports that service must happen in lock-step. DRWC, with funding

from the William Penn Foundation, embarked on this study to improve crosstown connections and linear waterfront access by transit.

1.2 Project Purpose

The Waterfront Transit Study is intended to identify implementable ways to improve transit access along Philadelphia's Central Delaware River waterfront. The study area is defined by DRWC's service boundaries and focuses on the Delaware Avenue corridor (the combined Delaware Avenue and Columbus Boulevard) between Oregon Avenue and Columbia Avenue. The area between Columbia and Allegheny also falls within DRWC's boundaries but due to the lack of waterfront development was not a focus of this study.

There is over a decade of history related to planning for better transit along the waterfront, notably on Delaware Avenue and Columbus Boulevard, the main thoroughfare through the corridor. These efforts have focused on large scale investments, such as light rail. This study takes a more near-term approach to better understand what types of incremental improvements can enhance transit access today.

¹ DRWC, *Master Plan for the Central Delaware*, 2011; available at: <https://www.delawareriverwaterfront.com/planning/masterplan-for-the-central-delaware>

The transformation of the waterfront over the last decade has been driven largely by the vision outlined in DRWC's Master Plan for the Central Delaware. The Master Plan is framed around eight principles, all of which relate in some way to the work conducted in this study:

- **PRINCIPLE 1** | Create a network of civic and public spaces that are distinctive public amenities as well as catalysts for private development: *Transit is a key ingredient to connecting Philadelphians and visitors to the waterfront's growing array of public spaces. Without convenient transit access, these investments in the public realm will not be able to achieve their full potential.*
- **PRINCIPLE 2** | Promote the development of new, low- to mid-rise, dense and walkable residential neighborhoods: *Dense and walkable development will not be feasible unless residents are served by a robust transit system. Transit reduces car dependency, which in turn reduces the demand for the auto infrastructure and large parking lots that are antithesis to a vibrant urban neighborhood.*
- **PRINCIPLE 3** | Accommodate diverse land uses along the waterfront: *Transit is an essential ingredient to diversifying the land uses along the waterfront for the same reasons it supports dense walkable development.*
- **PRINCIPLE 4** | Incorporate best practices in sustainability: *Making it easier to access transit will help reduce the environmental footprint of transportation to the waterfront.*
- **PRINCIPLE 5** | Participate with city and state transportation entities to create a pedestrian-friendly and balanced transportation plan that supports the walkability of the

waterfront and its strong connection to the city and the region: *Access to an automobile should not determine one's ability to visit the waterfront. Transit is a tool for making the Delaware River accessible to the region.*

- **PRINCIPLE 6** | Create strong inclusionary opportunities for economic development for minority owned, women-owned, and disadvantaged businesses: *Transit is an important part of creating inclusive opportunities along the waterfront. Women and people of color are disproportionately represented among transit riders.*
- **PRINCIPLE 7** | Create a plan that can be implemented in discrete increments over time: *This study is committed to the incremental approach that is the foundation of DRWC's success. By focusing on both short- and long-term action items, the study intends to support constant improvement to waterfront transit service.*
- **PRINCIPLE 8** | Create a truly Philadelphia waterfront: *A transit-oriented city such as Philadelphia should have a transit-oriented waterfront. Transit ensures that neighborhoods across the city are connected to the river so that all residents can enjoy the river and waterfront amenities.*

1.2.1. Goals and Objectives

At the start of the Waterfront Transit Study, project stakeholders from DRWC, the City of Philadelphia, and the Southeastern Pennsylvania Transportation Authority (SEPTA) came together to define what the Waterfront Transit Study hopes to accomplish through study goals and objectives. The goals and objectives are intended to mirror the guiding principles of the Master Plan while

focusing more specifically on the role transit can play to accomplish them.

The study is anchored by the following vision:

*Help achieve a more humane, walkable,
dense, and urban waterfront through
better transit access*

Supporting the vision are five goals that drive the study and its recommendations:

1. **Transit Access** | Improve transit access to the waterfront for Philadelphians and visitors:
 - 1.1. Ensure transit is time and cost competitive with other modes.
 - 1.2. Create travel options that are dependable, reliable, and frequent.
 - 1.3. Maximize Philadelphians' access to the waterfront regardless of race, income, or neighborhood.
2. **Multi-modalism** | Make walking, biking, and transit the preferred mode of transportation to the waterfront:
 - 2.1. Minimize the need for a car to access the waterfront.
 - 2.2. Ensure that pedestrian and bicycle links to transit from and within the waterfront are convenient and safe.
 - 2.3. Increase public awareness, legibility, and visibility of transportation options to the waterfront.
3. **Placemaking** | Leverage transportation to realize DRWC's waterfront Master Plan:
 - 3.1. Reduce the need for additional parking along the waterfront.

- 3.2. Demonstrate the attractiveness and convenience of pedestrian, bicyclist, and transit user-oriented spaces.
- 3.3. In enhancing transit connections, promote context-sensitive urban design that mirrors the waterfront's unique setting.

4. **Public Buy-In** | Attain widespread support for transit improvements by stakeholders:
 - 4.1. Ensure local communities, businesses, and property owners have ample opportunity to provide feedback on enhancing transit access.
 - 4.2. Conduct inclusive public outreach that actively facilitates the involvement of low-income, Limited English Proficient (LEP), and minority communities.
 - 4.3. Develop recommendations that align with past and ongoing planning efforts.
5. **Sustainability** | Provide environmentally and economically sustainable transportation:
 - 5.1. Identify public and private funding sources for transportation improvements.
 - 5.2. Make improvements that support and enhance the rest of the transit system.
 - 5.3. Reduce the environmental impact of transportation to and from the waterfront.

1.3 Project Partners

DRWC recognizes that achieving a more transit-accessible waterfront will involve close partnerships with a variety of public agencies and stakeholders. The study was guided by a stakeholder group that included SEPTA, the City of Philadelphia's Office of Transportation and Infrastructure Systems (OTIS), Philadelphia City Planning Commission (PCPC), and the Delaware Valley Regional Planning Commission (DVRPC). In addition to these groups, City

Council members, the general public, and PennDOT were updated on project progress at key intervals of the study.

1.4 Report Organization

This report is broken into the following three sections:

- **Existing Conditions and Needs Analysis** | A summary of the existing conditions, public feedback, and transportation needs across the study area. This chapter concludes with a list of gaps that recommendations seek to address.
- **Recommendations** | Description of the recommendations intended to address the findings of the existing conditions. The recommendations are grouped into three categories: transit service improvements, public realm improvements, and marketing / Transportation Demand Management (TDM) strategies.
- **Implementation Plan** | Action plan for how DRWC and its partners can move forward with implementing the study's recommendations. It outlines governance structure, points of responsibility, timeline, and next steps.



Credit: Matt Stanley

CHAPTER 2. EXISTING CONDITIONS & NEEDS ANALYSIS

Philadelphia's Central Delaware waterfront is a place in transition. New private residential and retail development, coupled with investments in public spaces, are transforming this once largely commercial and industrial corridor into a mixed-use neighborhood and recreation destination. In this state of ongoing change, the transportation needs of the corridor are also evolving. The Waterfront Transit Study began with an existing conditions analysis that attempts to understand how these trends are impacting the corridor's mobility needs.

Analysis of existing data supplied by DRWC and its partners, feedback from the public, and findings from past studies paint a complex picture of waterfront transit needs. This chapter includes a summary of the following:

1. Inventory of existing plans and studies
2. Waterfront events and activity generators
3. Analysis of land use and development patterns
4. Analysis of existing transit service
5. Transit market analysis
6. Pedestrian and bicycle conditions
7. Signage and wayfinding assessment
8. Inventory of roadway conditions

The full existing conditions report is available in the appendix.

2.1 Waterfront Activities and Events

The waterfront hosts numerous cultural events over the year, including parades, festivals, and concerts. Within the study area, there are several destinations including Spruce Street Harbor Park, Cherry Street Pier, Walnut Plaza, and the Great Plaza. Special events

are a major source of travel demand along the corridor and contribute to travel patterns that are highly seasonal, and leisure/recreation focused. **FIGURE 1** shows that events typical start in the afternoon, evening or night. Most events are scheduled for Thursday through Sunday (**FIGURE 2**) and last on average about three and a half hours.

While the summer and early fall are the busiest times of year for waterfront events and public space programming, there are additional attractions year-round. From late November to early March, the Blue Cross RiverRink Winterfest brings many visitors to the waterfront.

Figure 1 | Number of Annual Events by Start Period

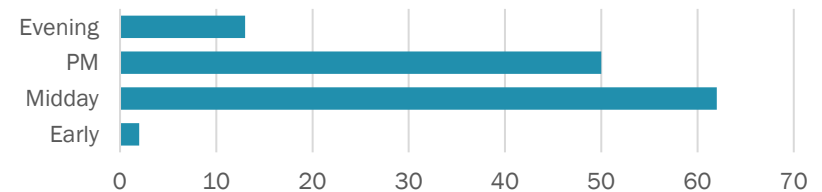
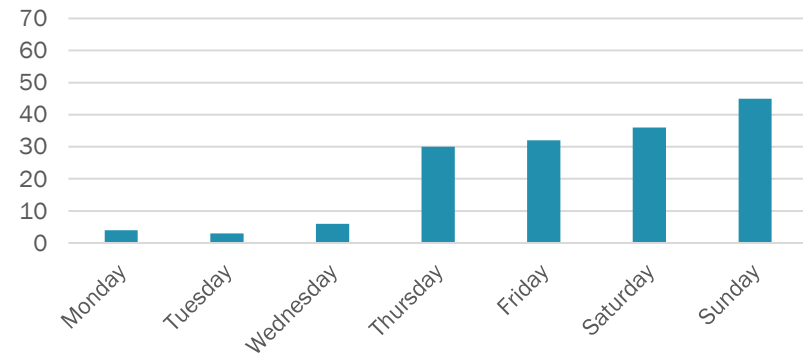


Figure 2 | Number of Annual Waterfront Events by Day



2.2 Land Use and Development

The Delaware River waterfront is home to a mix of land uses – commercial, industrial, residential, cultural or institutional, and open space among them. However, much of the development pattern, particularly south of Washington Avenue, is auto-oriented with buildings set back from the streets and situated among surface parking lots. The area north of Penn Treaty Park is largely industrial or vacant with a lack of active frontages. Along the six-mile stretch of the Delaware Avenue corridor only 35 percent of the corridor has an active street wall on at least one side of the street. The remaining street frontage is occupied by blank walls, vacant land or surface parking.

The existing land uses are not conducive to supporting high levels of transit service along much of the study area. Higher population and employment densities correlate closely with higher transit usage. While there is no single agreed-upon minimum density for transit-supportive development, generally planners consider areas with 5 to 10 people per acre as the minimum density necessary for high-quality frequent transit service. The Federal Transit Administration (FTA), in scoring transit projects for New Starts funding, defines areas with 25 dwelling units per acre as “high” in its density scoring criteria.² The majority of the waterfront is below 10 people per acre, and only a handful of sites exceed a density of 25 people per acre.

However, the Delaware River waterfront is changing, and there are over 15 development projects proposed across DRWC’s six-mile jurisdiction (FIGURE 3). These developments are poised to welcome a significant number of new residential units to the waterfront, dramatically increasing the population.

One challenge is that much of the development along the waterfront is of a lower density than the maximum allowed under current zoning. Instead of generating midrise mixed-use development, the market has produced several residential town-house developments. The lower land-use density poses a challenge to realizing improved transit investments as density strongly correlates with transit demand. The challenge for the waterfront is that the relationship between transit and development goes both ways: generating higher-density development would be easier if transit access was improved.

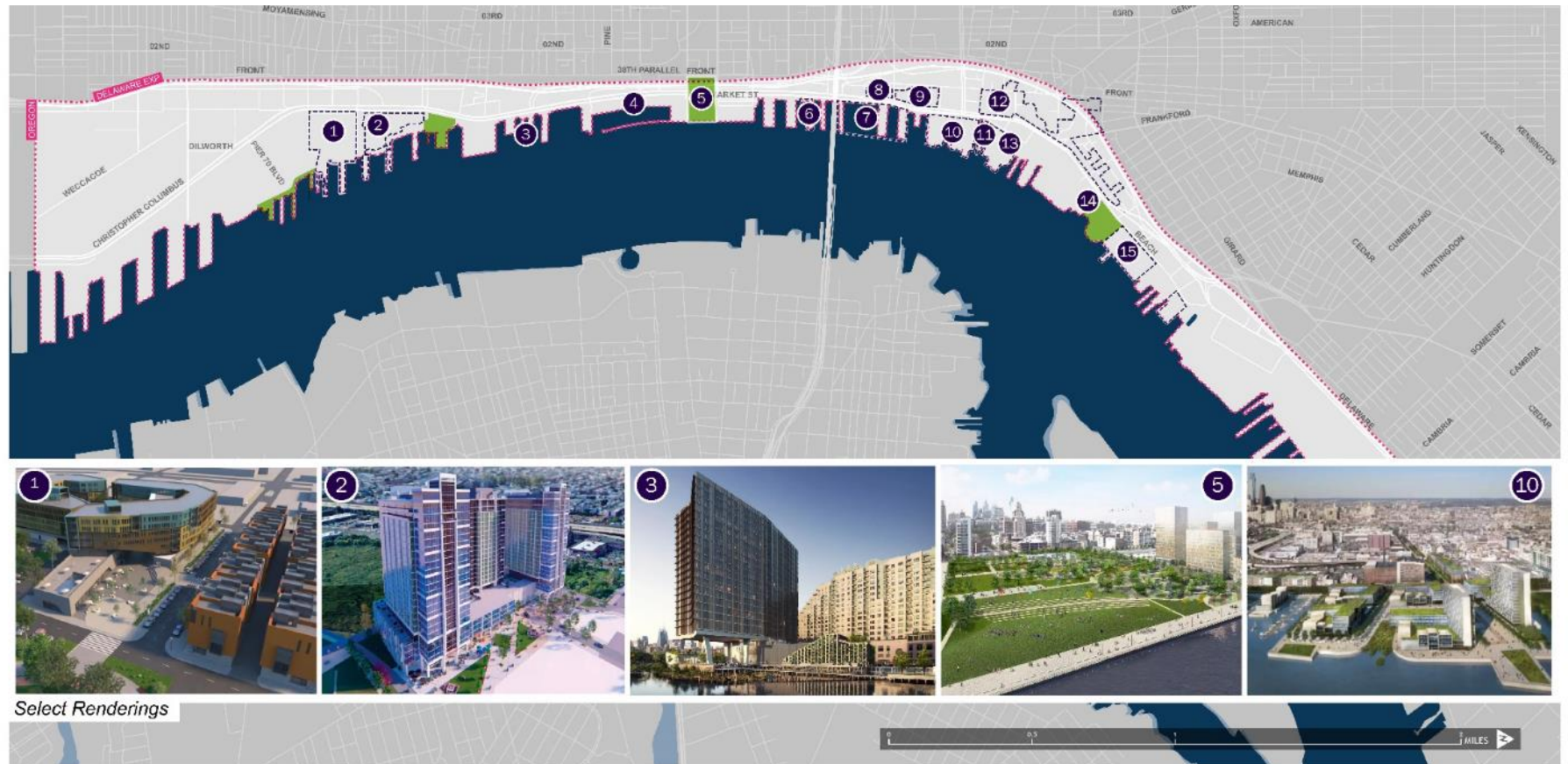
2.2.1. Zoning

With the exception of industrially-zoned land bookending the study area to the north and south, most of the study area is zoned for mixed-use development. Most properties within DRWC’s planning area are zoned CMX-3 or CMX-4, which is intended to accommodate community- and region-serving mixed-use development.

If the waterfront’s underutilized or vacant land were to be redeveloped according to existing plans and the permitted zoning, the corridor between Penn Treaty Park and Washington Avenue would average approximately 24 to 26 people per acre. This density is still lower than the average for Greater Center City (35/acre) but achieves the level of density necessary to support high-capacity transit investments. However, much of the new development is less dense than that permitted by zoning. If these trends continue, the waterfront will have a population density per acre substantially less than 24 to 26 people per acre.

² FTA, *Guidelines for Land Use and Economic Development Effects for New Starts and Small Starts Projects*, 2013

Figure 3 | Recently Completed, Underway, or Planned Development Projects



Recent, Planned, or Anticipated Development Projects

- | | | |
|--------------------------------|---------------------------|--------------------------------|
| 1 Waterfront Boulevard | 6 Cherry Street Pier | 11 Pier 35 1/2 |
| 2 Liberty on the River | 7 Piers 12-24 North | 12 Penn Treaty Village |
| 3 Pier 34 | 8 Vine Street Parking Lot | 13 Waterfront Square |
| 4 Penn's Landing Redevelopment | 9 Renaissance Plaza | 14 Views at Penn Treaty |
| 5 Penn's Landing Cap | 10 Festival Pier | 15 Delaware Generating Station |

2.3 Existing Plans and Studies

The Delaware River waterfront has been the subject of numerous transit, traffic, and development studies ([TABLE 1](#)) in the past decade by the Delaware River Waterfront Corporation and other partners, such as the Delaware Valley Regional Planning Commission (DVRPC), Delaware River Port Authority (DRPA), and City of Philadelphia. These studies establish a vision of the Delaware Avenue corridor as a pedestrian-oriented urban boulevard. A long-term goal is for dedicated transit along the roadway.

Table 1 | Major Plans and Studies

Project	Year	Study Purpose	Key Findings
South Philadelphia Transit Center Plan (DVRPC)	2019	Concept plan for creating one or more transit centers for bus service in South Philadelphia.	Recommends a new transit center at the Pier 70 shopping center. Calls out the impact poor pedestrian conditions have on transit service in along Columbus Boulevard.
Concept Development for Transit on Delaware Avenue (DVRPC)	2018	Report explores whether it make sense to expand SEPTA's trolley system to serve Delaware Avenue within the 8-10 year trolley modernization timeline?" The study is broken into near-term goals to improve public transit and a long-term vision of a dedicated transit right of way.	<ul style="list-style-type: none"> ▪ Demand not sufficient over the next 5-10 years to warrant major investment in light rail or trolley service. ▪ Near-term opportunities to tweak existing transit to better serve the corridor, such as headway and schedule adjustments. ▪ Poor pedestrian and bicycle infrastructure and freight conflicts inhibit transit access along the corridor.
Central Delaware waterfront Strategic Modeling Results (DRWC)	2015	Reviews highway traffic and public transportation ridership modeling results for several transportation and development scenarios in the portion of Center City Philadelphia adjacent to the Delaware River.	No specific transit recommendations offered, but it was determined that Columbus Boulevard can accommodate more development without an increase in traffic if additional transit is provided.
Waterfront Streetcar Study (DRPA)	2011	Evaluation of three different surface running light rail alternatives along with one enhanced bus, "no build" alternative.	Final recommendation (Alternative 2) was selected. This Alternative included light rail operating on Market Street, between the Convention Center and City Hall, and operating from Pier 70 in the south to Frankford Avenue (Trolley) and Girard Avenue (MFL) to the north.
Master Plan for the Central Delaware	2011	Master Plan for the Central Delaware waterfront from Oregon to Alleghany Avenue. Outlines a vision for a walkable, transit-oriented waterfront that is a residential, commercial, and leisure destination. Builds on the vision outlined in the 2008 <i>Civic Vision for the Central Delaware</i> .	Master Plan includes five key transportation recommendations: <ul style="list-style-type: none"> ▪ Invest in connector streets leading across I-95 to the waterfront. ▪ Create a multi-use waterfront trail. ▪ Transform Delaware Avenue into an urban boulevard with dedicated transit. ▪ Actively manage parking along the waterfront ▪ Expand water transportation along the waterfront.

2.4 Existing Transit Service

2.4.1. Overview

The Philadelphia waterfront has multiple transit options within or near the study area boundaries:

- **Subway** | The Market-Frankford Line (MFL) 2nd Street, Spring Garden, and Girard Stations are within walking distance of the waterfront.
- **Bus** | Numerous SEPTA bus routes terminate at waterfront destinations, such as Penn's Landing and the Pier 70 commercial area, including routes 5, 7, 12, 17, 21, 25, 29, 33, 39, 40, 42, 43, 48, 54, 57, 60, 64, 73, 79, and G.
- **Trolley** | The Route 15 trolley currently terminates at Frankford and Delaware Avenues on a long-term detour due to I-95 reconstruction.
- **Ferry** | A DRWC-provided ferry across the Delaware River connects Philadelphia's and Camden's waterfront during the summer months with both regular and special-event service.
- **Circulator** | The Phlash Bus, a visitor-oriented downtown loop managed by the Independence Visitor Center Corporation, runs to Penn's Landing.
- **PATCO and NJ Transit** | The Port Authority Transit Corporation (PATCO) Speedline and NJ Transit Commuter Buses stop within a 10 to 15-minute walk of the waterfront.

FIGURE 4 displays the existing transit routes serving the study area. Approximately **391,000 residents are within a one-seat ride by transit to the waterfront** (see **FIGURE 5**). With the exception of the far Northeast and Northwest neighborhoods of Philadelphia, nearly the entire City is within a 60-minute transit ride if transfers are included;

Several inner ring suburbs in Camden, Montgomery, and Delaware Counties also fall into this catchment area.

2.4.2. Transit Level of Service

The only transit service running the length of the entire corridor is the Route 25 bus, which operates between Frankford Transportation Center and Columbus Commons via Delaware Avenue. Approximately half the trips during the AM Peak (6 a.m. to 9 a.m.) and PM Peak (3 p.m. to 7 p.m.) terminate at Spring Garden MFL station. South of Spring Garden, the Route 25 operates approximately every 30-minutes. The Route 43 provides additional service along Delaware Avenue north of Spring Garden.

Travelers to the waterfront can access several crosstown routes that terminate or stop at the waterfront. These routes cluster in three locations: Pier 70 where several bus routes in South Philadelphia terminate; Penn's Landing, notably the Market Street viaduct that crosses above Columbus Boulevard; and at the Frankford Avenue trolley loop. Bus Routes 17, 21, 33, 42, 48, and 79, as well as the Route 15 trolley, all operate with headways of 15-minutes or less during the daytime (6 a.m. to 9 p.m.). A challenge for waterfront access is that these routes depend on connections to the Route 25 or 43 to facilitate north-south travel. For example, riders alighting at Penn's Landing on the Route 17 would have to make an inconvenient transfer to the Route 25 to reach a waterfront destination beyond walking distance.

The MFL serves three stations near the waterfront (2nd Street, Spring Garden, and Girard). The line is the most frequent (and fastest) transit route to the waterfront. Like with the crosstown bus routes however, MFL riders have to connect to the Route 25 or 43 to reach destinations that are not within walking distance of a station.

Chapter 5 of the Existing Conditions technical memorandum provides more detail on transit level of service and span.

Figure 4 | Existing Transit Service Near the Waterfront

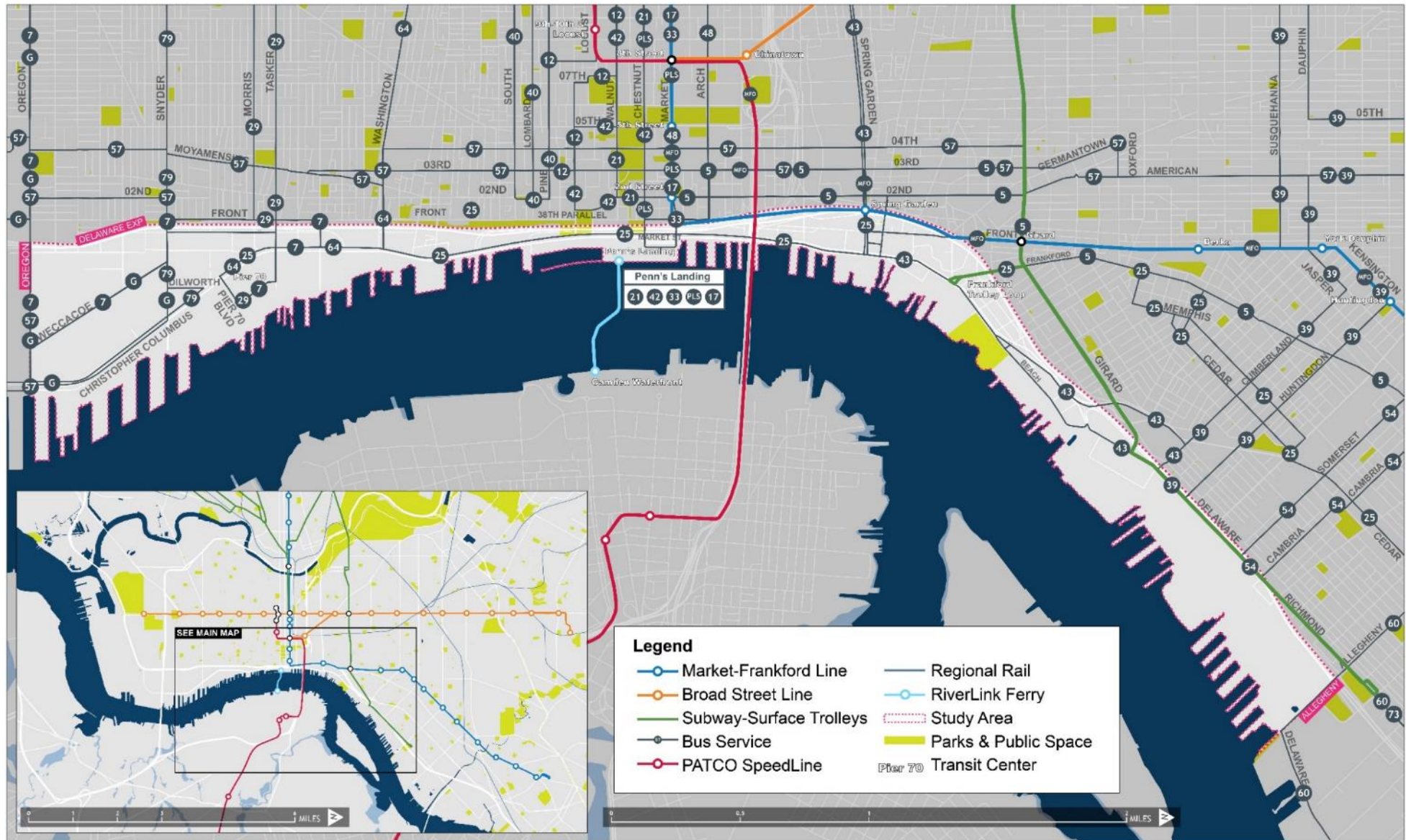
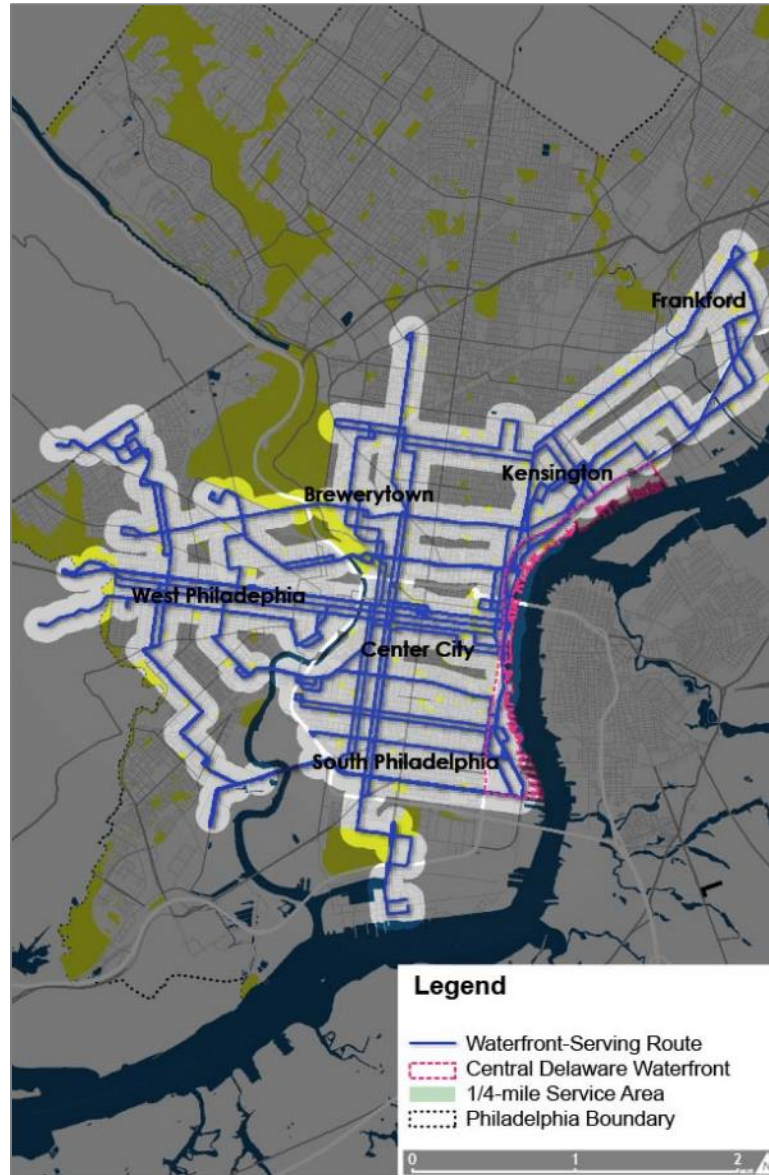


Figure 5 | Area Accessible by One-Seat Ride from Waterfront



2.4.3. Transit Market Analysis

To better understand the market for transit usage both within and around the waterfront, the study team performed a three-tiered market analysis of the waterfront and Philadelphia Region:

- **Transit Potential Analysis** | a density analysis to determine parcels that can support regular transit service.
- **Transit Propensity Analysis** | a series of indices that identify populations and areas with more specific transit needs (choice commuters vs. the transit dependent, employment and activity destinations, need for all-day service vs. peak period service).
- **Travel Flow Analysis** | looking at projected travel patterns within the waterfront and to/from the waterfront around the DVRPC region.

Maps highlighting the results of all of these analyses are available in the Existing Conditions technical memorandum.

2.4.4. Existing Transit Potential

Transit potential is an analysis of population and employment density. As transit service is generally most effective in areas with high concentrations of residents and/or businesses, combining both residential and employment densities show the locations with the highest potential to support transit service and generate strong transit ridership.

Within the study area, areas of high transit-supporting density include the Snyder Plaza commercial area, the Pier 70 commercial area, developments north of Penn's Landing around Race Street Pier, and the census blocks surrounding the Frankford Trolley Loop. However, large swaths of the northern half of the study area lack the minimum density to support local-serving transit.

2.4.5. Projected Transit Potential

Since the waterfront has been and is continuing to undergo rapid change, additional population and employment was projected for

any development that was not online when the source data was collected. To project the increase in transit potential for the study area, proposed and in-progress residential and commercial developments were identified and assigned projected numbers of residents or jobs added. After establishing the residents or jobs created by these new developments, these numbers were added to each block's current population and jobs estimates, then the density was recalculated. For more information on transit potential, see Chapter 6.1 of the Existing Conditions technical memorandum.

2.4.6. Transit Propensity

To determine the likelihood of transit demand or need in and around the study area, a transit propensity analysis was also performed. This analysis differs from the transit potential analysis in that it goes beyond density measures to examine attributes of jobs and residents which are typical indicators of transit need or demand.

This analysis was performed on all census blocks in the study area, as well as the blocks within a six-mile radius of the waterfront. Since the scoring of each block in each index is relative to the scores of the blocks in the rest of the analysis area, blocks from a six-mile radius of the waterfront were also included. This was done to ground the analysis of the waterfront within the larger region in order to obtain an accurate picture of larger, regional transit demand or need. This propensity analysis was only completed for census blocks that had a combined density (the number of people per acre plus the number of jobs per acre) greater than or equal to two.

The results of the propensity analysis for all seven indices are listed below. For a more complete analysis, see Chapter 6.2 of the Existing Conditions technical memorandum.



Source: [Darius Pinkston](#) / CC BY-SA 2.0

Figure 6 | Existing Transit Potential

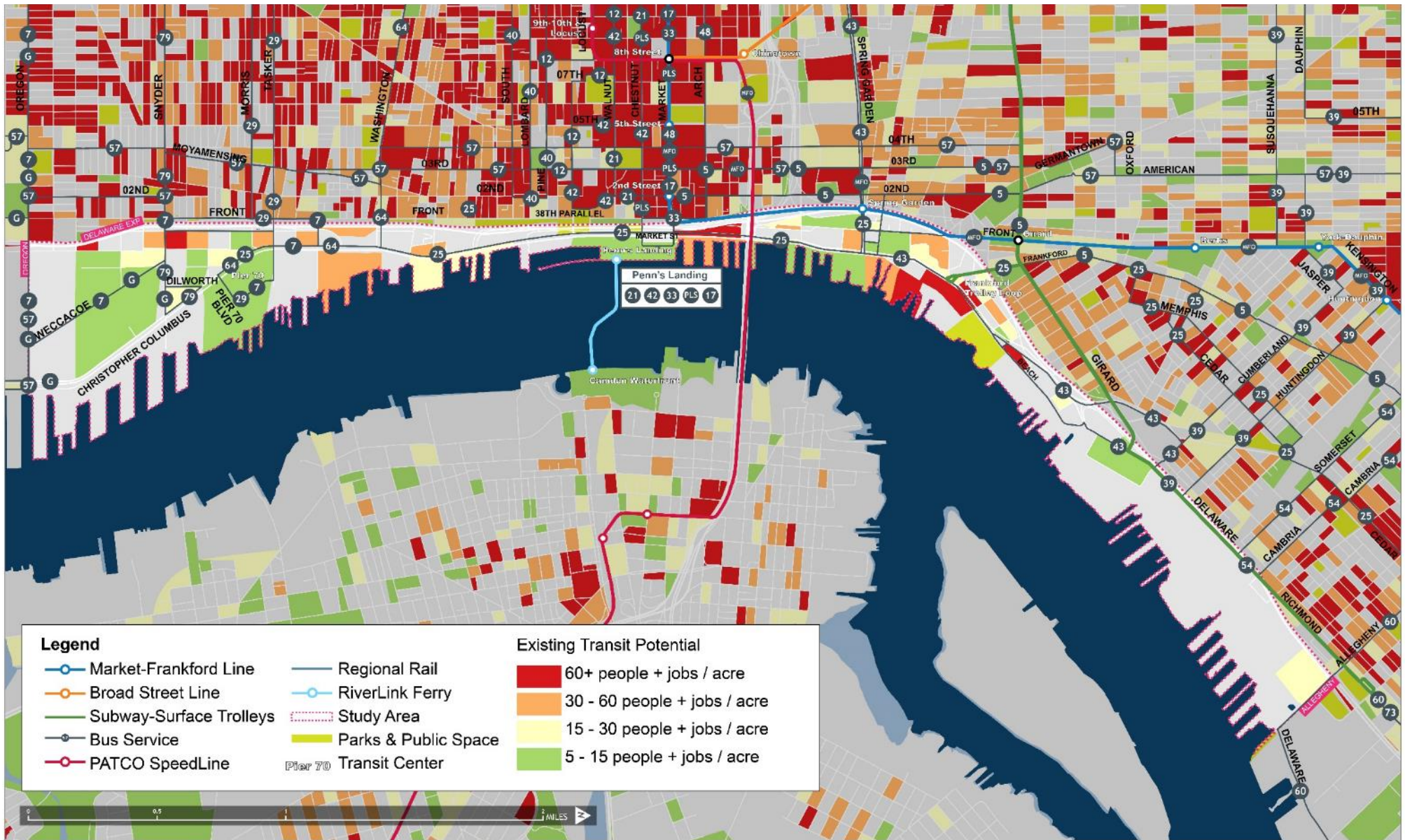
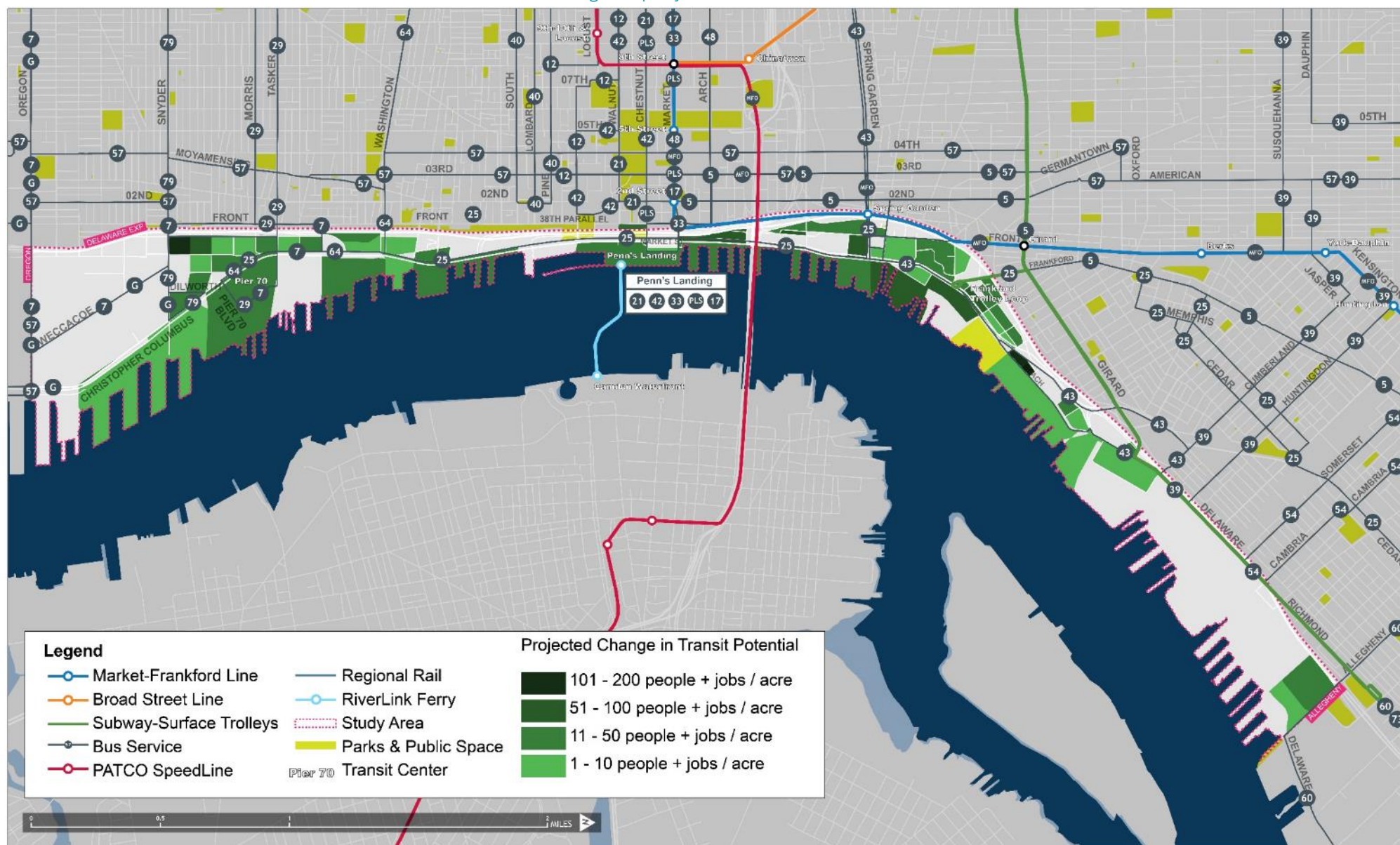


Figure 7 | Projected Transit Potential



- **Transit Oriented Population Origins** | no major concentrations within study area, major concentrations just west of it in South Philadelphia and North Philadelphia.
- **Commuter Population Origins** | a few moderately-high concentrations in the study area North of Penn's Landing, major commuting populations throughout South Philadelphia.
- **Employment Destinations** | mostly contained within Center City along Market and Walnut Streets.
- **Activity Destinations** | mostly confined to Center City west of Independence Mall.
- **All-Day Service** | no major demand within the waterfront area, moderate to high demand in North and South Philadelphia.
- **Peak Service** | moderate support for a few isolated blocks within the study area, major demand south of Market Street.
- **Enhanced Service Index** | major demand in Center City and South Philadelphia, less demand in North Philadelphia.

2.4.7. Travel Flow Analysis

Internal Flows

The internal flow analysis examines the travel patterns occurring exclusively within the waterfront to better understand internal circulation and the need and role of transit services and connections north and south along the Delaware Avenue corridor. This analysis includes trips between Travel Analysis Zones (TAZ) that lie within the study area boundaries, even if only partially. Significant numbers of internal trips occur between Pier 70 and Whitman, and between Northern Liberties and Penn Treaty Park. A moderate number of weekday trips also occur from Pier 70 to the northern portion of the waterfront, including Spring Garden, Northern Liberties, and Penn Treaty Park.

External Flows to/from the South Waterfront

The largest volume of trips to the southern waterfront are from adjacent neighborhoods in South Philadelphia. There are also over 100 daily trips between the southern waterfront corridor at the Navy Yard. Remaining trip are fairly well dispersed across the City.

External Flows to/from the Central Waterfront

This portion of the waterfront has the most trips to Center City, Passayunk Square and Queen Village, Northern Liberties, the River Wards, and Chinatown, with other noticeable clusters at the Navy Yard, Camden waterfront, and Frankford Transportation Center. Compared to the other areas of the waterfront, the central portion has the most widespread and even distribution across Philadelphia with moderate trip totals across Center City, South Philadelphia, and North Philadelphia.

External Flows to/from the North Waterfront

The highest number of trips are found in neighboring TAZs just across I-95 from the study area, in the River Wards and along the Girard Avenue corridor. Other areas with high trip counts include Northern Liberties, the Navy Yard, and the Market West subarea of Center City.

For more detail on the travel flow analysis, see Chapter 6.3 of the Existing Conditions technical memorandum.

2.5 Pedestrian and Bicycle Environment

The study team assessed pedestrian and bicycle conditions between bus and subway stops and the waterfront. The roadway, in its current form, does not meet the Master Plan's vision of an urban multi-modal boulevard. High traffic speeds, the roadway width, poor maintenance, and inadequate pedestrian and bicycle facilities all pose a challenge for pedestrians and cyclists.

2.5.1. Intersections

Many of the intersections along the Delaware Avenue corridor are inhospitable to pedestrians. The study team assessed the condition of crosswalks on a grading scale of A to F (FIGURE 8). Only one intersection along Delaware Avenue had crosswalks scoring an A in all four directions. Several intersections lacked visible crosswalks in all directions (FIGURE 9).

In addition to poorly maintained or missing crosswalks, pedestrians face several other deficiencies at intersections. The study team identified multiple instances of non-ADA compliant or misaligned curb ramps, lack of pedestrian signals, non-complaint pedestrian push-button signals, and inadequately illuminated intersections.

Figure 8 | Sidewalk Grade

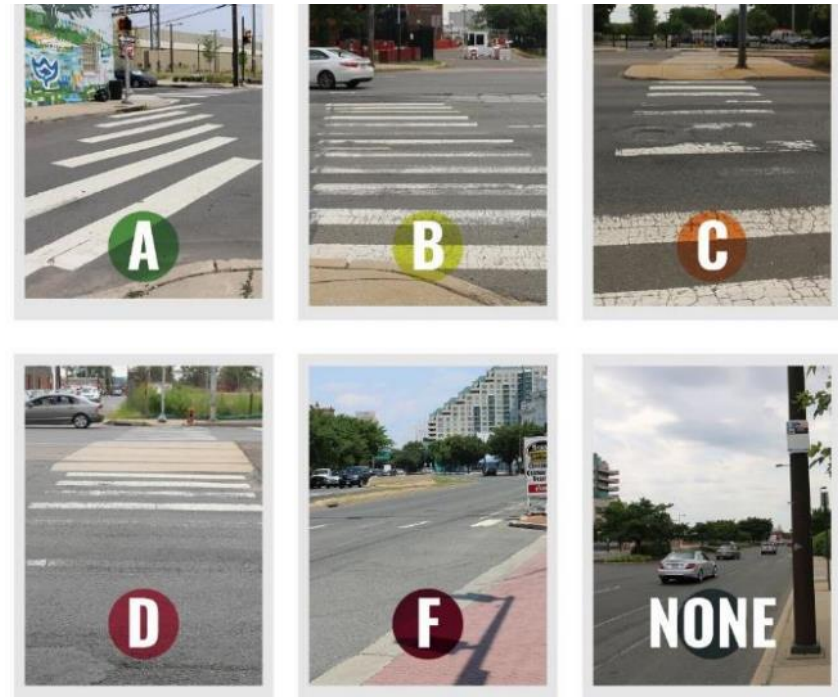
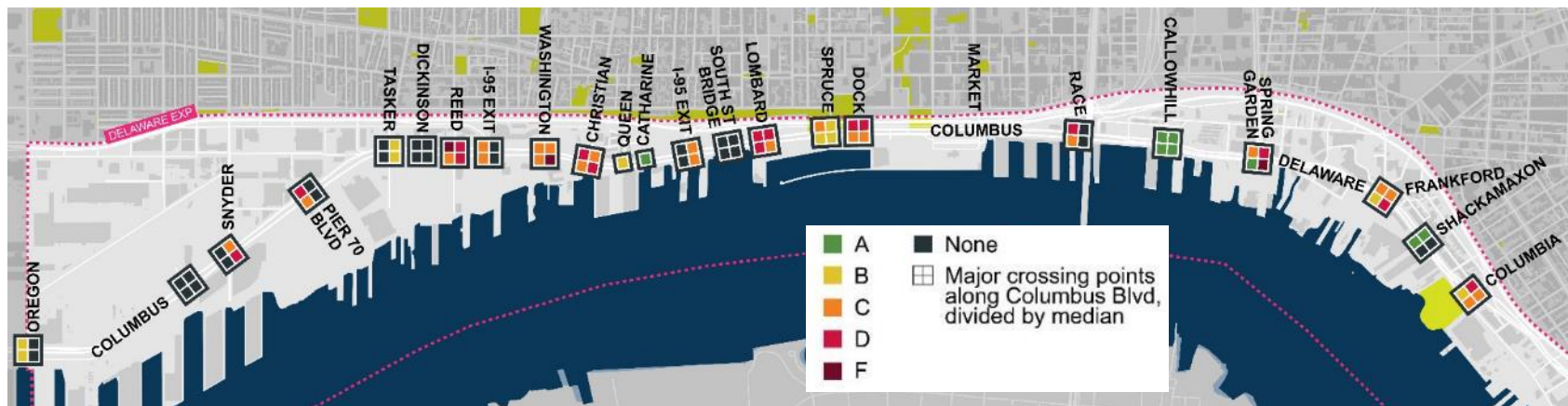


Figure 9 | Inventory of Crosswalk Conditions Along Columbus Blvd / Delaware Avenue

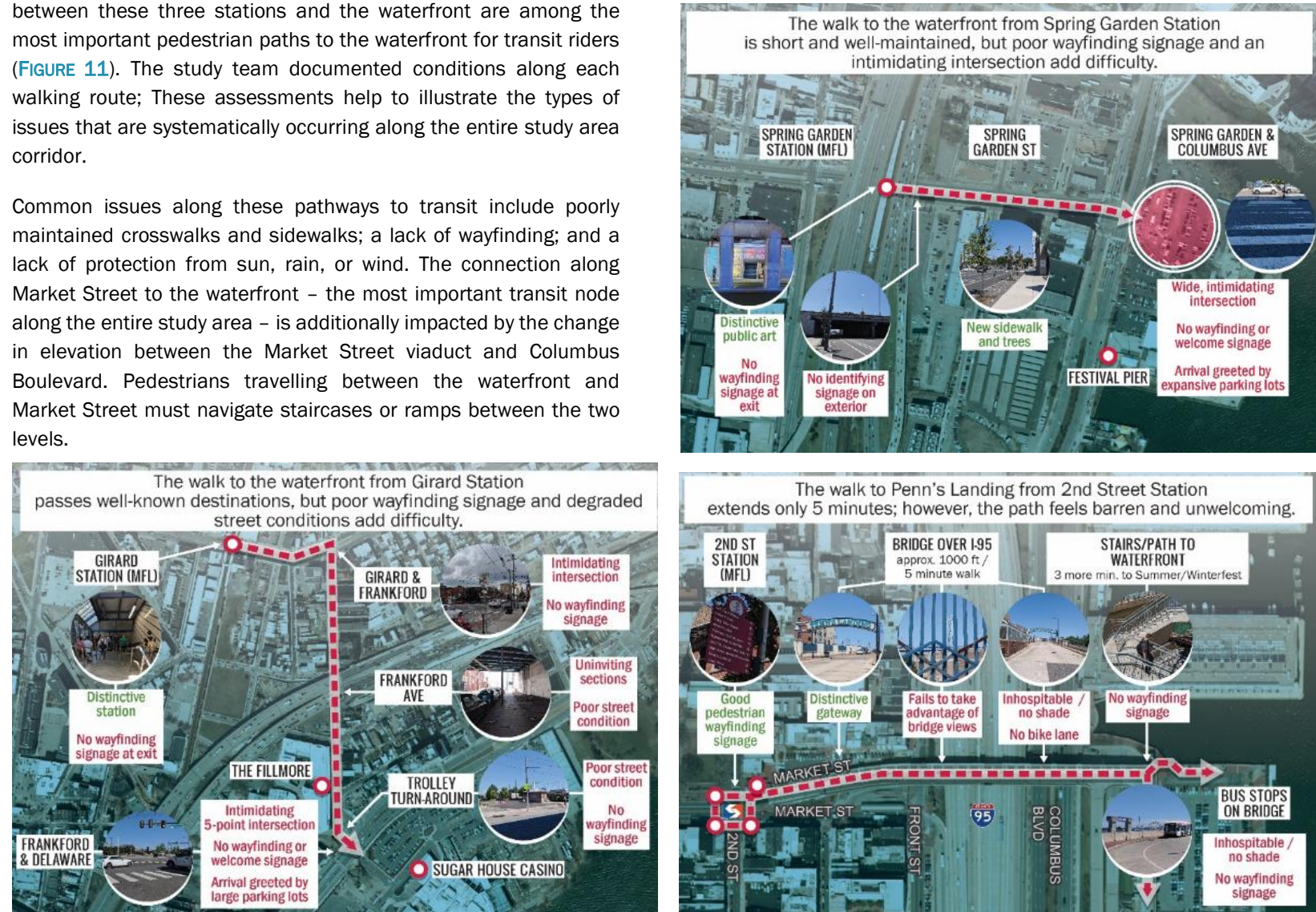


2.5.2. Connections to the Market-Frankford Line

Three stations along SEPTA's MFL are within walking distance of the waterfront: 2nd Street, Spring Garden, and Girard. The routes between these three stations and the waterfront are among the most important pedestrian paths to the waterfront for transit riders (FIGURE 11). The study team documented conditions along each walking route; These assessments help to illustrate the types of issues that are systematically occurring along the entire study area corridor.

Common issues along these pathways to transit include poorly maintained crosswalks and sidewalks; a lack of wayfinding; and a lack of protection from sun, rain, or wind. The connection along Market Street to the waterfront – the most important transit node along the entire study area – is additionally impacted by the change in elevation between the Market Street viaduct and Columbus Boulevard. Pedestrians travelling between the waterfront and Market Street must navigate staircases or ramps between the two levels.

Figure 10 | Diagrams of Walking Paths from MFL Stations to the Waterfront with Positive and Negative Features Noted



2.5.3. Sidewalk and Bus Stop Conditions

There are several systematic problems with sidewalks and bus stops along the Delaware Avenue corridor (FIGURE 11). Many bus stops are poorly marked or located near land-uses that present an inactive street façade. Sidewalks connecting bus stops feature a range of issues, from poor maintenance to inadequate width and obstructions such as utility poles blocking pedestrians.

The study team identified several common deficiencies with bus stops along the corridor. Many stops are hard to find, do not meet ADA standards, lack amenities like shelters and seating, and are inappropriately placed in curb cuts or locations without direct sidewalk access.

Figure 11 | Typical Sidewalk, Signage, and Bus Stop Deficiencies.



2.5.4. Bicycle Access

Along the waterfront, conventional bicycle lanes run along the Delaware Avenue corridor from the study area's southern edge to Norris Street. Additional bike lanes connect to this main thoroughfare along Washington Avenue and Spring Garden Street, with additional nearby east-west bike lane connections running along Pine and Spruce Streets. In addition, on the northern side of the study area, Arch Street, Marlborough Street, and Columbia Avenue are marked with shared-use bicycle arrows, or sharrows.

The south section of the Delaware River Trail (as of summer 2019) runs along the waterfront between Pier 70 Boulevard and Washington Avenue and Spring Garden Street and Penn Treaty Park. When constructed in its entirety, this planned, continuous, multi-use trail will run along the waterfront between Pennsport and Port Richmond, connecting with regional and citywide trails. Additional trails in the study area include the Ben Franklin Bridge walkway.

Philadelphia's bikeshare system, Indego, opened in 2015. The waterfront study area features four stations:

- Delaware River Trail & Penn Street
- Spring Garden Market-Frankford Line Station
- Race Street Pier
- Foglietta Plaza

Several additional Indego stations lie just outside the study area. However, there is no station at one of the key transit nodes: Pier 70, even though the node is located on a bike lane.

The existence of bicycle infrastructure along the corridor does not necessary translate to comfortable or convenient access by bicycle to the waterfront. The existing bicycle lanes lack any protection for fast moving traffic along the Delaware Avenue corridor. In several locations bicycle lanes intersect with highway on- or off-ramps, turn lanes, and driveways. Finally, pavement markings have deteriorated

to the point that the bicycle lane is barely visible in places ([FIGURE 12](#))

Bicycle riders travelling from Center City to the waterfront have limited convenient options for crossing I-95. Spruce and Dock Street feature cobblestones on the segments connecting with Columbus Boulevard; while cobblestones help to calm traffic, they also force cyclists onto the sidewalk for those short segments. For cyclists traveling between the waterfront and Market and Chestnut street, its challenging to navigate the grade change between Penn's Land and the viaduct.

Figure 12: Example of Fading Bicycle Lane along Columbus Boulevard



2.6 Signage and Wayfinding

There are a wide range of signs that currently exist along the Delaware waterfront. As they were designed for different purposes and audiences they often fail to provide effective wayfinding to and from waterfront destinations, particularly with respect to existing transit. Several of the signage types that repeat along the waterfront are part of sign networks that appear throughout Center City and beyond, including the large red destination signs and large blue wayfinding signs, which are oriented towards automobiles; Walk Philadelphia pedestrian wayfinding signs; bicycle wayfinding signs; bus stop signs; and historical markers. Other sign types are specific to waterfront destinations, including signage bearing the Summerfest and Winterfest graphic styles, signage featuring Spruce Street Harbor Park's distinctive handwritten scrawl, and signs for the Delaware River Trail.

Some waterfront signs are obstructed by overgrown trees, making them difficult or impossible to read. Many feature blank backs or directions only to far-away destinations, qualities that are designed primarily with automobiles in mind and that do not serve pedestrians well. Only bicycle wayfinding signs include the distances to destinations. Bus stop signs in particular are small and may be difficult to find. **FIGURE 13** shows some of the common issues related to signage in the study area.

Generally, destinations on all signs appear out of date, with both transit stops and newer waterfront destinations, such as Spruce Street Harbor Park or Summerfest/Winterfest, absent. Those destinations are only served by their own signage and their own graphic styles.

Overall, there are far fewer pedestrian-oriented signs than automobile-oriented ones. Pedestrian-oriented waterfront signs appear only between Market Street and Spruce Street Harbor Park; elsewhere, signs are designed for automobile users.

One final point is the inconsistent branding of waterfront destinations. The central portion of the waterfront is referred often simply as Penn's Landing. Other times, signage calls out specific destinations that may fall within Penn's Landing, such as the Great Plaza and Seaport Museum. This inconsistent branding could be especially confusing to visitors who may not be familiar with the term Penn's Landing or the destinations that fall within it. For more detail about signage and wayfinding, see Chapter 3.3 of the Existing Conditions technical memorandum.

Figure 13 | Example of Common Signage Issues



2.7 Roadway Conditions

2.7.1. Traffic Congestion

DVRPC's *Concept Development for Transit on Delaware Avenue* includes a summary of weekday average traffic speeds for the corridor from approximately Callowhill Street to Morris Street. Traffic speeds average between 20 to 25 miles per hour for much of the corridor, speeds that are typical for urban multi-modal arterials. The most congested segment of the road is between Market Street and the I-95 off-ramps just south of Washington Avenue. Within this roadway segment, traffic speeds average between 10 and 15 miles per hour. Traffic congestion is worse for southbound traffic than northbound traffic along much of Delaware Avenue.

Traffic speed data suggests existing congestion is not having a major impact on bus travel speeds.

2.7.2. Road Right-of-Way

The study team identified several systemic issues with roadway conditions along the Delaware Avenue corridor. The corridor takes the form of an industrial or suburban arterial for much of its length. The roadway's width coupled by the lack of landscaping along sidewalks and poor maintenance all contribute to it feeling like a highway instead of an urban boulevard. The Philadelphia Belt Line Railroad occupies the median right-of-way and still maintains infrequent freight railroad service along Columbus Boulevard. The City or Commonwealth would have to acquire this right-of-way before a more significant redesign of the road could occur. Finally, the corridor is designated a reliever and detour route for I-95.

An inventory of roadway conditions along the Delaware Avenue corridor identified some safety concerns. The highway scale lighting along the corridor does an inadequate job illuminating intersections and crosswalks. Much of the highway signage along the corridor has

low reflectivity; in addition, many signs are faded or obscured by dirt and grime (FIGURE 14).

Figure 14: Examples of dirty, vandalized, and low reflectivity signage on Delaware Avenue



2.8 Public Engagement

The study included an extensive public engagement component. During the summer of 2018, DRWC conducted an intercept survey at six popular destinations along the waterfront (see [TABLE 2](#)). The intercept survey included questions on mode choice and reasons for not taking public transit.

DRWC also hosted an online survey during the summer and fall of 2018 to gather more detailed information on transportation mode choice for waterfront visitors.

Finally, DRWC hosted two open-house meetings in October 2018 to discuss the study and solicit additional feedback. The first meeting was held at the Independence Visitor's Center located on Market Street at 6th Street in Center City, while the second meeting was held at the Gloria Dei (Old Swedes') Church located on Swanson Street between Christian Street and Water Street in Queen Village.

2.8.1. Feedback from Public Meetings

The public meetings confirmed many of the findings of the Existing Conditions technical memorandum. Participants voiced a dissatisfaction with the quality of connections between Delaware Avenue and nearby transit. Suggestions from the public included: removing cobblestones on connector streets to Columbus Boulevard, incorporating public art to make the walk across I-95 more pleasant, and improving wayfinding signage.

Some major themes related to transit included: a desire for more frequent service; consideration of high-capacity transit (light rail or bus rapid transit) along Washington Avenue or Columbus Boulevard; and addressing security concerns on buses.

2.8.2. Survey Results

The intercept survey found that 20 percent of respondents used public transit to access the waterfront. The transit mode share

remains unchanged from the previous year's survey. Only walking (28 percent of trips) and driving (38 percent of trips) had a larger mode share. The mode share varied considerably based on the type of destination. Respondents were most likely to use public transit to access the Great Plaza and RiverRink ([TABLE 2](#)). These destinations conversely had lower walk and bike mode share. There does not appear to be a strong relationship between the driving and transit mode share of trips (i.e., if driving mode share is high, transit mode share will be low; if driving mode share is high, transit mode share is high).

Uber, Lyft, and taxi trips were highly concentrated at RiverRink and Spruce Street Harbor Park. The high mode share of these services helped to confirm ongoing concerns with congestion caused by ride hailing services at these locations.

Survey respondents cited a range of reasons for not taking public transit, including "takes too long," "not familiar with transit system," and "too difficult" ([FIGURE 15](#)). The responses suggest a certain share of non-transit users would utilize public transit if they had information about available transit connections and service better matched their travel needs.

The online survey found that drivers had the lowest satisfaction with ease of access to the waterfront ([FIGURE 16](#)). Transit riders were slightly more likely to describe their trip as "very easy" or "manageable." Pedestrians reported the highest ease of access, with 69 percent describing their trip as "very easy" or "manageable."

Finally, the online survey found some differences between mode choice during a typical weekday or weekend and during special events. Respondents were less likely to drive, bike, and walk to the waterfront during special events, and significantly more likely to utilize a taxi / ride-hailing service or ferry. Respondents reported a similar preference for taking the bus, MFL, trolley, or PATCO during special events and typical days.

Table 2 | Mode Share by Waterfront Destination (Summer 2018 Intercept Survey)

Mode	Great Plaza	Pier 68	Race Street Pier	RiverRink	Spruce Street Harbor Park	Washington Avenue Pier	Total
Drive	35%	47%	37%	50%	34%	10%	38%
Walk	18%	6%	47%	14%	32%	45%	28%
SEPTA	42%	0%	6%	23%	16%	10%	20%
Taxi / Uber / Lyft	1%	0%	1%	10%	15%	0%	10%
Bike	1%	12%	10%	1%	2%	34%	4%
Other	2%	0%	0%	1%	1%	0%	1%

Figure 15 | Reasons Visitors Chose Not to Utilize Public Transit on Their Most Recent Trip to the Waterfront (Summer 2018 Intercept Survey)

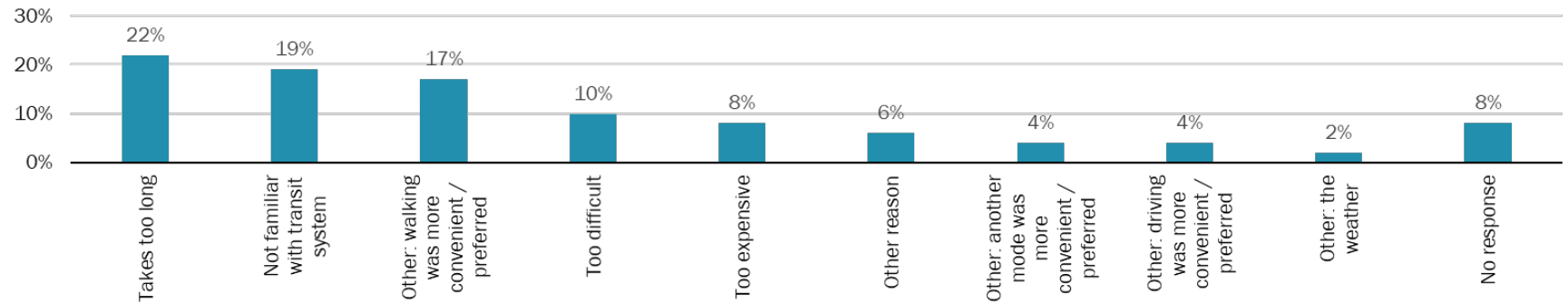
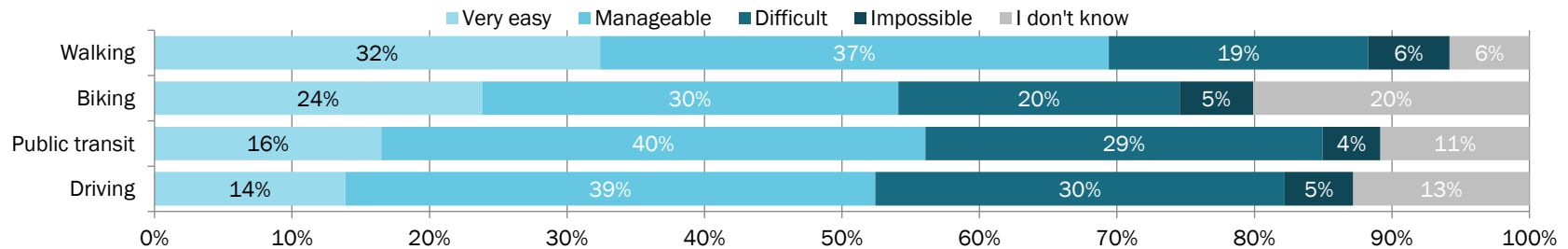


Figure 16 | Ease of Accessing the Waterfront by Mode



Summary of Findings

The existing conditions analysis identified several gaps in waterfront transit access that future parts of this study should address. Overall, the mobility needs of the waterfront are largely tactile and can be addressed by small incremental improvements. Most of the waterfront is near high quality transit service, however I-95 and a sometimes-uninviting pedestrian environment inhibit connections to these services.

2.8.3. Transit gaps

- **East-west transit** | East-west routes typically only serve one destination along the waterfront. Riders who continue their journey along the spine of the waterfront have limited transfer opportunities due to the low frequency of Route 25.
- **Gaps in high-frequency service** | While much of the corridor is within walking distance of high-frequency transit lines (15-minute headways or less), a gap exists along Columbus Boulevard between Tasker Street and Penn's Landing.
- **Lack of special-event and season service** | Special events are a large draw for the waterfront, and with the exception of PHLASH and the ferry, there is no seasonally adjusted service to accommodate increases in travel demand during the peak season and during special events.
- **Under-served or emerging waterfront destinations** | In proportion to the other areas along the waterfront, the stretch between Penn's Landing and Pier 70 appears to have medium to high transit potential and transit propensity index scores but is mainly only served by route 25.
- **Under-served connections to the Navy Yard** | According to the flow analyses for all three sections of the study area, the Navy Yard appeared as the other end of a moderate or high number of weekday trips. While Route 17 does provide service from the

Navy Yard to Penn's Landing, it is only on the weekends and does not serve the majority of waterfront destinations.

2.8.4. Infrastructure gaps

Infrastructure is a key component to accessing the waterfront via transit services. Key findings from the Existing Conditions technical memorandum reveal that there are several gaps in infrastructure:

- **Poorly maintained crosswalks** | Many intersections along the waterfront either lack crosswalks or have poorly maintained crosswalks.
- **Hostile pedestrian environment** | Pedestrians walking along busy and high-speed streets may feel vulnerable due to the speed of traffic and narrow sidewalk widths.
- **Poor built environment conditions along key links to transit** | There are several transit hubs within walking distance to the waterfront. Factors like change in elevation, dangerous intersections, and unpleasant crossing over or under I-95 all pose barriers for transit users trying to access these hubs.
- **Lack of bus stop infrastructure and poor bus stop siting** | Several bus stops along the waterfront lack safe, welcoming, and Americans with Disabilities Act (ADA) compliant waiting areas. Some also are spaced closely together and appear to have been sited due to convenience of placing bus stop signage on existing utility poles rather than where bus stops would be safe for pedestrians, transit users, and other vehicles.
- **Poor bicycle conditions** | Bicycle lanes are faded along stretches of Delaware Avenue and Columbus Boulevard. Bicyclists are required to carry their bicycles up or down stairs to access the Market Street Bridge across I-95.
- **Underutilized bike share** | Ridership at waterfront Indego stations is lower than stations in adjacent neighborhoods; the lack of bicycle connections across I-95 may inhibit ridership,

and there are no stations south of Spruce Street along the waterfront.

- **Deficient roadway infrastructure** | Common issues include unmarked or poorly marked crosswalks, low-visibility signage, lack of pedestrian signals, lack of lighting at crosswalks, and inadequate sidewalk clear space.

2.8.5. Information gaps

- **Wayfinding clutter** | Several types of signs exist, directed at different mode-users and created and maintained by different groups. Pedestrian focused signage is lacking.
- **Insufficient sign maintenance** | Some signage is obscured by trees or other signage. Out of date signage also lacks newer destinations, which is important for pedestrians.
- **Lack of transit-waterfront wayfinding** | Some signage for directing pedestrians along the paths between the waterfront and to/from the transit stations is missing or nonexistent.
- **Poor bus stop signage** | Bus stop signage is small and difficult to locate.
- **Inconsistent branding of Penn's Landing** | Somewhat inconsistent usage of the term Penn's Landing vis-à-vis specific destinations such as Spruce Street Harbor or the Great Plaza.
- **Lack of information on transit options** | Survey results show that a lack of information on available transit service is one of the top reasons waterfront visitors choose to take another mode.

CHAPTER 3. RECOMMENDATIONS

3.1 Overview of Recommendations

Based on the findings of the existing conditions analysis, the study team developed recommendations that fall into three broad categories:

- **Transit service recommendations** propose how transit service can be improved to better meet the needs of the waterfront. These recommendations range from near-term fixes to existing bus service to major capital investments in new transit infrastructure;
- **Public realm recommendations** focus on how investments in the built environment along the waterfront can improve the accessibility, ease, and comfort of nearby transit services. These recommendations include a range of improvements, from improving bus stops and signage, to investing in better pedestrian and cycling infrastructure; and
- **Transportation Demand Management recommendations** explore how DRWC and its partners can better incentivize users to ride transit, bicycle, or walk to the waterfront instead of drive. Many of these recommendations are focused around public education and marketing of transit services.

These recommendations fall into three time periods:

- **Near-Term:** Improvements that can be implemented over the next three years;
- **Mid-Term:** Improvements that, due to their cost, complexity or dependencies, cannot occur until three to eight years from today; and
- **Long-Term:** More ambitious recommendations slated to occur nine years or later.

3.2 Transit Service Recommendations

While much of the waterfront is already within walking distance of bus service or MFL service, there are still several opportunities to enhance transit services to better meet the needs of people travelling to, from, or along the Delaware River Waterfront. The transit service recommendations focus most closely on near and mid-term changes to SEPTA bus service. As SEPTA is in the process of initiating a Comprehensive Bus Network Redesign, this is the perfect time to explore changes to the bus network to improve waterfront access.

The study also looks at other means to improve transit service, including special event shuttles and enhancements to ferry service. In the long-term, DRWC and its Master Plan envisions a larger-scale transformation of the waterfront through the reconstruction of the Delaware Avenue corridor into an urban boulevard with dedicated transit lanes. This transformative investment is still likely over a decade away from being realized and the smaller incremental transit improvements provide a means to set the conditions for larger-scale transit improvements.

3.2.1. Constraints and Considerations

In conversations with SEPTA, DRWC learned of several constraints and considerations to heed in the development of service recommendations, particularly with near-term recommendations. Staying within the parameters of these considerations to the greatest extent possible is key to keeping recommendations realistic and implementable.

The first consideration is the planned Comprehensive Bus Network Redesign (CBNR). SEPTA staff indicated that any waterfront recommendation (particularly in the longer-term) should take care

not to contradict the defining framework and principles of the redesign. These principles were established in SEPTA's 2018 *Bus Network Choices Report*, which emphasized a high-frequency network along major corridors and arterials. A second consideration is that SEPTA has limited resources to devote to piecemeal service changes as it undertakes a larger system redesign.

These financial constraints (including staff hours, vehicles, and operating resources) mean that near-term bus service recommendations need to be cost-neutral, or as close to cost-neutral as possible, by balancing any increases with efficiency savings that could be found throughout the SEPTA system, using ridership data on the route, trip, and stop-level. By reducing trips and resources where there was more service than needed (as indicated by the ridership), resources became available to fund waterfront transit improvements. Additionally, all resource reallocation had to be within routes operating out of the same bus garage due to operational logistics and union agreements.

Finally, the agency wants to limit the scope of service changes over the next few years so that it is not conducting extensive outreach on service proposals that are unrelated to CBNR (and potentially will be undone by the redesign). Entirely removing a service pattern, proposing a new pattern, and using new roads not currently hosting SEPTA bus service requires conversations with both the public and SEPTA leadership. Due to these constraints, near-term recommendations only consist of frequency and schedule adjustments of established routes and patterns, which require less scrutiny.

With regard to the long-term considerations, the study area's potential density (predicted by existing zoning maximums and future developments) was analyzed to determine if the waterfront could support larger-scale investments (such as exclusive right-of-way transit options) in the future. As shown by the work done through

DVRPC's *Concept Development for Transit on Delaware Avenue*, the ridership demand over the next decade does not support a large-scale investment in new high-capacity transit. However, this study does include such an investment as a long-term recommendation.

While some of the recommendations of this study echo those presented in previous plans and studies, the *Waterfront Transit Plan* makes a greater emphasis on short-term and actionable recommendations. DRWC looked at solutions like improvements to existing bus service and enhancing pedestrian linkages to transit that were not a focus of previous studies.

Near-Term Constraints and Considerations:

- Remain cost-neutral.
- Minimize the need for engagement and approvals that may conflict with CBNR.
- Keep resources within the same garage.

Mid- and Long-Term Constraints and Considerations:

- Follow goals and framework of SEPTA's bus system redesign.
- Analyze if future density can support higher-capacity transit options.

Note on Time Periods

The transit service recommendations may vary by time-period. In the real-world, time-periods vary by route but for simplicity sake, the time periods in this study are defined as:

- Early: Until 6 a.m.
- A.M. Peak: 6 a.m. to 9 a.m.
- Midday: 9 a.m. to 3 p.m.
- PM Peak: 3 p.m. to 7 p.m.
- Evening: 7 p.m. to 11 p.m.
- Late Night: After 11 p.m.

3.2.2. Route 25

- Connects all waterfront destinations to one another
- Link the waterfront to the Riverwards, numerous bus routes, and the MFL.

Phase I: Increase Frequencies on the Route 25.

PERIOD: NEAR-TERM

Route 25, which runs from Frankford Transportation Center in Northeast Philadelphia to Columbus Commons and Pier 70 in South Philadelphia, is the waterfront's transit "spine." The route links all the major destinations along the waterfront to one another and the Riverward neighborhoods.

Many Route 25 trips short-turn at Spring Garden, reducing the amount of service south of that point along Columbus Boulevard. DRWC proposes in the near-term that all Route 25 trips after 9 a.m. continue all the way to Pier 70. Headways would be improved to every 20-minutes during the off-peak, and every 15 during the PM peak (TABLE 3).

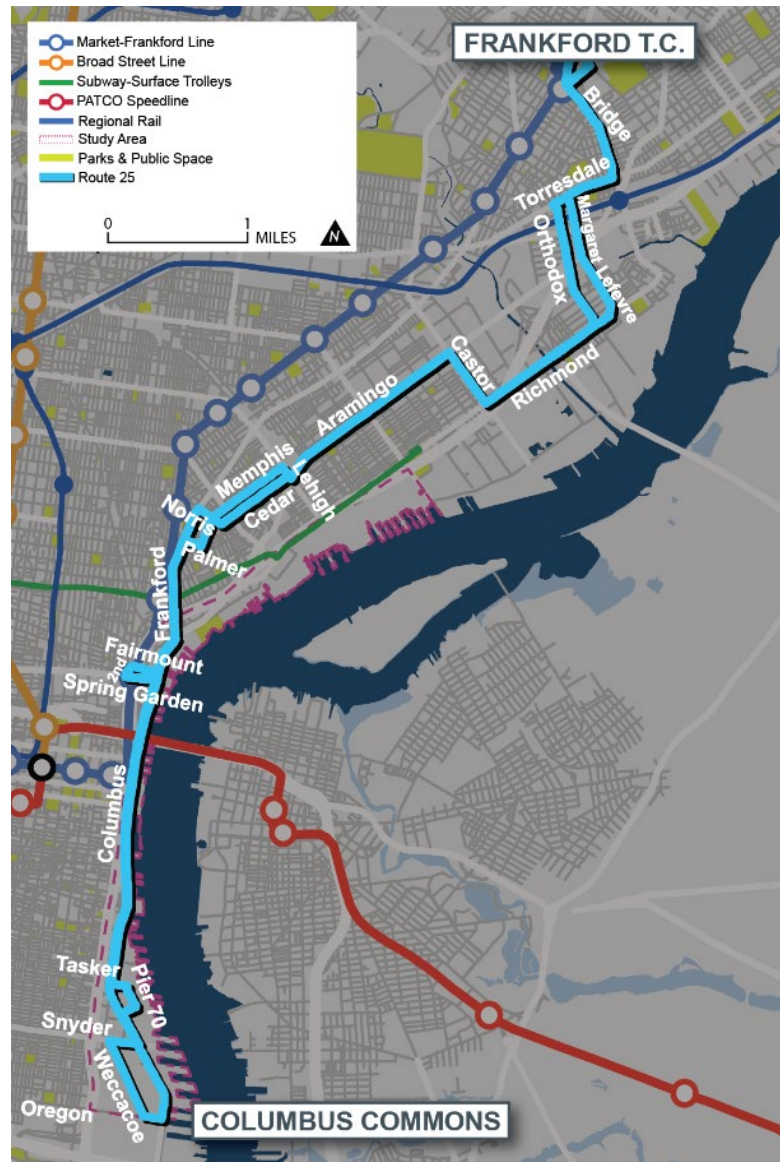
A higher level of service along Route 25 will better enable riders to walk up and wait at bus stops without having to consult schedules. Moreover, the improved frequency will make it more convenient to transfer from other SEPTA routes to the Route 25 to reach a final destination along the waterfront.

The study team worked with SEPTA to identify savings that can be generated from other routes based at the Frankford garage. With these savings in place, improvements to the Route 25 would require a net 4,000 additional annual service hours.

Table 3 | Route 25 Headways (Near-term)

Time Period	Existing (All Trips / South of Spring Garden)	Proposed
Early	18 / 42	No Change
AM Peak	17 / 48	15 / 30
Midday	24 / 28	20
PM Peak	16 / 27	15
Evening	34/34	20
Late	No service	30
Saturday	32 / 33	20
Sunday	32 / 33	20

Figure 17 | Route 25 Phase I Enhancements



Phase II: Work with SEPTA to Incrementally Improve Route 25 / Delaware Avenue corridor bus service as additional development comes on-line along the waterfront

PERIOD: MID-TERM AND LONG TERM

The study team explored various scenarios for creating a new dedicated waterfront bus route that roughly mirrors the alignment the Route 25 takes today along Columbus Boulevard and Delaware Avenue. Through discussions with SEPTA, the team concluded there was inadequate demand for such a route as the service would carry fewer riders than the existing Route 25.

As the waterfront grows and evolves, travel demand on the corridor likely will look very different than it does today. DRWC would like to continue partnering with SEPTA to make incremental transit improvements along the Route 25 alignment.

3.2.3. Route G

- Serves shopping destinations at southern end of Columbus Boulevard
- Link the waterfront to South Philadelphia and West Philadelphia

Adjust Pattern Distribution & Smooth Schedules.

PERIOD: NEAR-TERM

Route G is one of the more complicated SEPTA bus routes in Philadelphia, with multiple service patterns emanating from its crosstown trunk along Oregon Avenue. Eastbound trips terminate at either the Food Distribution Center or Columbus Commons. Outside of trips in the Early and PM peak periods, the Food Distribution Center branch sees very low ridership. Because of this, route resources from other times of day could be redirected to the Pier 70 / Columbus Commons patterns to enhance waterfront connections from South Philadelphia, West Philadelphia, and the Broad Street Line. Additionally, this study recommends minor schedule adjustments to smooth out the frequency so that it can become a more predictable service. These adapted headways are shown in **TABLE 4**.

Because this recommendation involves just reallocating resources within a route, it can be considered a cost-neutral option for early implementation.

Table 4 | Route G Headways (Broad-Oregon / Food Distribution Center / Columbus Commons)

Time Period	Existing	Proposed
Early	17 / 17 / -	17 / 17 / -
AM Peak	9 / 9 / 35	9 / 15 / 15
Midday	14 / 14 / 29	14 / 20 / 20
PM Peak	10 / 10 / 20	10 / 15 / 15
Evening	23 / 23 / 48	23 / - / 23

Time Period	Existing	Proposed
Late	35 / 35 / 72	35 / - / 20
Saturday	18 / 45 / 20	18 / 45 / 20
Sunday	23 / 29 / 86	23 / 60 / 30

Figure 18 | Route G Enhancements



3.2.4. Route 40

- Connects to Penn's Landing and Spruce Street Harbor
- Link the waterfront to Center City, University City, and West Philadelphia.

Extend Route 40 to Waterfront and Increase Peak Frequencies.

PERIOD: MID-TERM

SEPTA's Route 40 is a major east-west route running along South Street and Lombard Street in Center City. Currently, the route stops just short of the waterfront at 2nd Street. The Route 40 could be extended to the waterfront via Front Street, Columbus Boulevard, Dock Street, 38th Parallel Place, Spruce Street, and 4th Street to reconnect with Lombard for westbound service. It would terminate at Dock Street (where Route 12 currently ends).

Alongside extending the route to the waterfront, the study team also proposes increasing peak frequencies to reduce overcrowding during the peak, though higher frequencies would mainly serve non-waterfront riders (TABLE 5). The limited layover space at the Route 40's current terminus is a constraint to adding service. Relocating the terminus to Dock Street could allow for more flexible operations.

Improvements to the Route 40 will likely have to occur in tandem with the system redesign as they will trigger additional approval processes and funding resources.

Table 5 | Route 40 Headways

Time Period	Existing	Proposed
Early	15	15
AM Peak	10	8
Midday	15	15
PM Peak	14	8
Evening	27	27
Late	43	43
Saturday	31	31
Sunday	32	32

Figure 19 | Route 40 Extension



3.2.5. Waterfront Ferry Service

Improve Existing Span of Service and Fare Options.

PERIOD: NEAR-TERM

Modifications to the existing RiverLink ferry between Penn's Landing and Camden could make it a more viable option for regular travelers. Operating hours could be extended to include more morning and evening trips to better serve commuters and event-goers. Additionally, one-way tickets and commuter fare options should be priced out and offered to make the ferry a more appealing option for both occasional and frequent users.

Create a Multi-Stop Ferry Along the Central Delaware Waterfront.

PERIOD: MID-TERM

In the mid-term period, the DRWC RiverLink ferry could be extended along the waterfront into a year-round service that connects several stops along the waterfront corridor. If ridership is lower during certain times of day or certain seasons, water taxis could be used in lieu of a full-size ferry as a lower capacity option. An additional study is needed to determine the full ridership market, cost, and feasibility of implementing a ferry service, and this work should be pursued only after bus service investments are implemented. Implementing a larger-scale year-round service will require infrastructure investments in new docks and vessels.

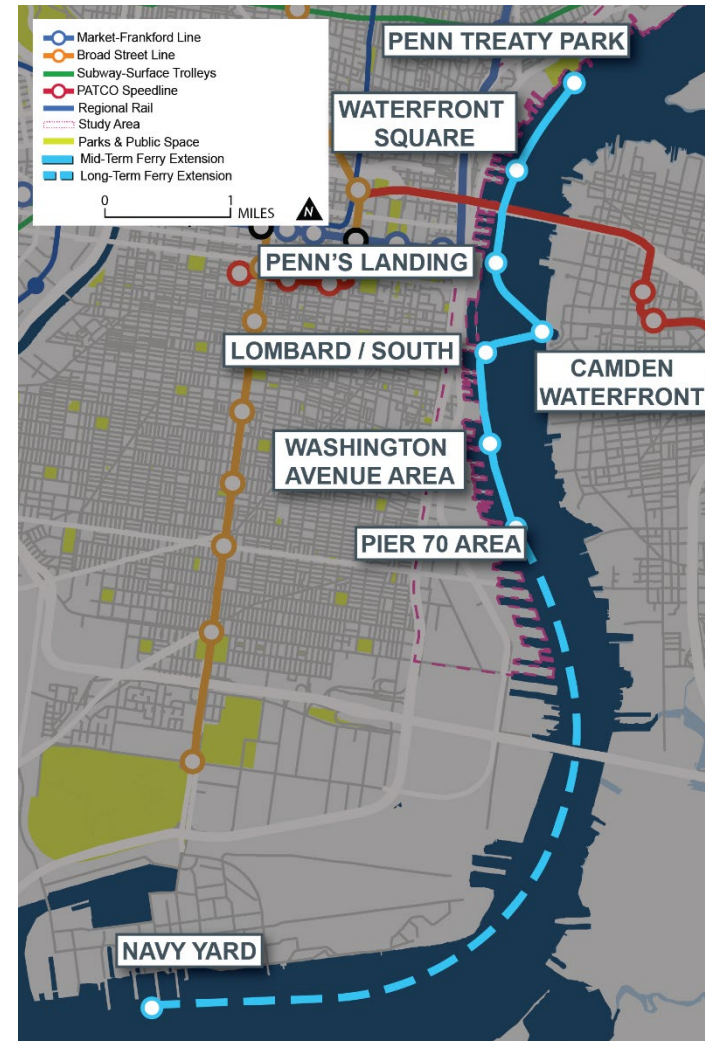
Establish a High-Speed Ferry to the Navy Yard and Beyond.

PERIOD: LONG-TERM

If a multi-stop ferry proves successful, DRWC could upgrade the service to a high-speed ferry that includes stops at the Navy Yard and even the Philadelphia International Airport. The Navy Yard is a major commuter destination for waterfront residents according to

existing travel demand data. A high-speed ferry would be a major undertaking that requires entirely new vessels.

Figure 20 | Waterfront Ferry Extension



3.2.6. Special Event Shuttles

Launch Shuttle Pilot During a Busy Waterfront Special Event.

PERIOD: NEAR-TERM

Spruce Street Harbor Park, the Great Plaza, and the BlueCross RiverRink are all major event spaces. During peak event travel times, a special event shuttle could better connect the waterfront to Regional Rail at Jefferson Station. The study considered three alignment options: via Race Street and Spruce Street, via Penn's Land Viaduct, and via Lombard Circle. The cost for operating this service for 4 hours at 15-minute frequencies is listed in [TABLE 6](#). Costs vary by shuttle alignment due to differing route lengths.

The study team feels that a special shuttle is not needed during regular days and would simply compete with existing transit services between the waterfront and Center City. A shuttle is most useful during special event that draw a large number of infrequent visitors; any shuttle operations will have to be coordinated with a larger marketing effort to encourage visitors to take transit instead of driving.

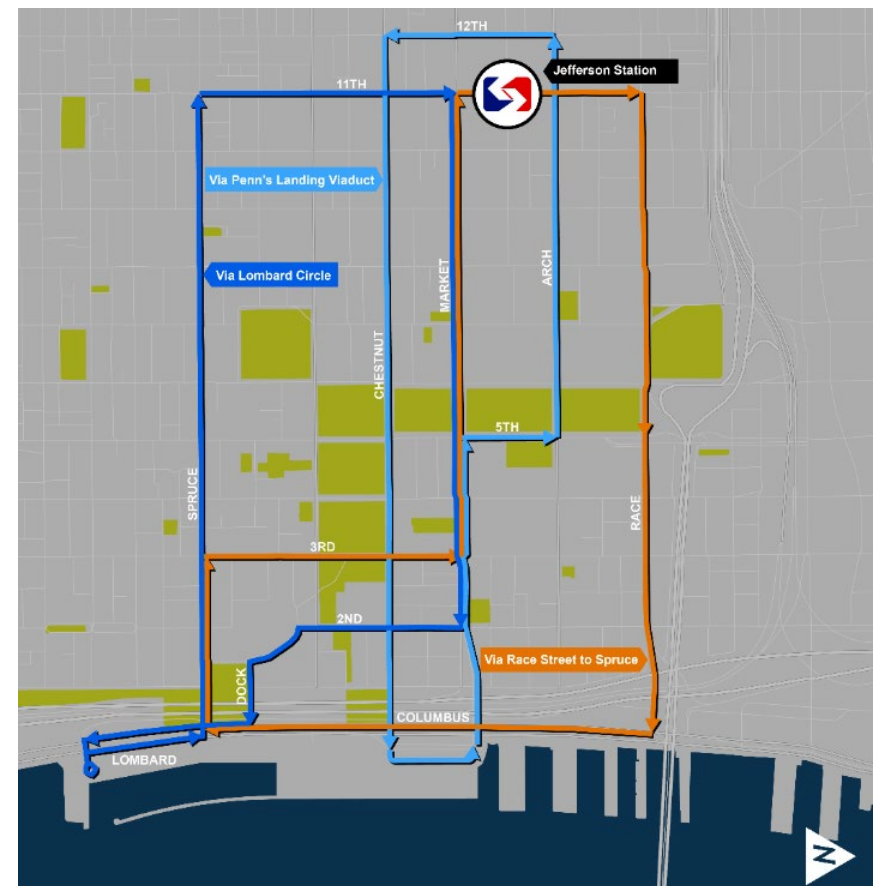
The study team recommends DRWC launch the shuttle as a pilot during a high-traffic special event, such as New Year's Eve fireworks, and support the shuttle with coordinating marketing and outreach, including ambassadors at Jefferson Station to guide visitors to the shuttle stop.

Table 6 | Cost Estimate for One Day of Event Shuttle Service

	Revenue Hours	Operating Cost Estimate
Via Race and Spruce Streets	12	\$1,500
Via Lombard Circle	12	\$1,500
Via Penn's Land Viaduct	8	\$1000

Assumes four-hour span of service with 16 round-trips at \$125/hr

Figure 21 | Event Shuttle Alignments



3.2.7. Fixed-Guideway Transit

Construct a new transit line along Columbus Boulevard and Delaware Avenue as part of a major roadway reconstruction.

PERIOD: LONG-TERM

The waterfront and Delaware Avenue corridor have been the subject of numerous studies considering the feasibility of higher capacity, exclusive right-of-way transit, such as a streetcar (trolley) or Light Rail (LRT) line. While this study does not explore recommendations of this nature in-depth, it is important to note the opportunities and challenges facing large-scale transit investments.

Certain factors make the Delaware Avenue corridor a candidate for a dedicated right-of-way transit line. The road is one of the few major north-south arterials with the width to accommodate dedicated transit lanes. The median of Columbus Boulevard south of Race Street is already occupied by the underutilized Philadelphia Belt Line, a freight rail line which is privately owned and still in (infrequent) active use. Large parcels of undeveloped land hold the potential for high-density, transit-supportive development. An existing trolley linkage exists at the Frankford Trolley loop, allowing for connections to the Route 15 (a route which would benefit itself from dedicated right-of-way along Girard Avenue).

As highlighted in DVRPC's *Concept Development for Transit on Delaware Avenue*, there are several barriers to implementing a new transit corridor along the Delaware Avenue corridor. The travel demand along the corridor does not exist today to justify an investment that could cost upwards of hundreds of millions of dollars. Additionally, most concepts for a waterfront transit line assume the acquisition of the Philadelphia Belt Line. For any rail transit alternative, a new storage facility would be required to house vehicles. Finally, there remain institutional barriers to reconfiguring Columbus Boulevard and Delaware Avenue. PennDOT considers the

route a relief line for I-95 and the road carries heavy truck traffic, especially along the southern portion near the Packer Avenue container port.

With all these barriers in mind, DRWC is committed to advocating for the Master Plan's vision of a transit-oriented Delaware Avenue. The organization hopes that incremental investments in better transit help build the use case for a more substantial investment in transit infrastructure along the corridor.

3.2.8. SEPTA Contingency Plans for I-95 Cap

SEPTA, the City of Philadelphia, and PennDOT should coordinate on a contingency plan for transit disruptions caused by the construction of the Penn's Landing Cap park.

PERIOD: NEAR-TERM

In the next two years construction is expected to start on the Penn's Landing Cap Park between Chestnut and Walnut Street. Construction will impact SEPTA bus service to Penn's Landing as Chestnut-Market Connector viaduct will be closed for portions of the construction period. SEPTA should work closely with PennDOT to develop a contingency plan during construction.



Rendering of “Delaware Boulevard” envisioned in 2011 Master Plan



3.3 Public Realm

The current development patterns and public realm conditions along DRWC's six-mile stretch of the Delaware River waterfront do not encourage transit use (FIGURE 22). Approaching the waterfront on foot, by bus, train, or bicycle can be confusing due to the lack of clear signage, intimidating due to the high speed of cars traveling along the Delaware Avenue corridor, and time consuming due to the relative infrequency of bus service and the perceived distances between waterfront destinations and active ground floor uses, which make walking or waiting for transit interesting and alluring.

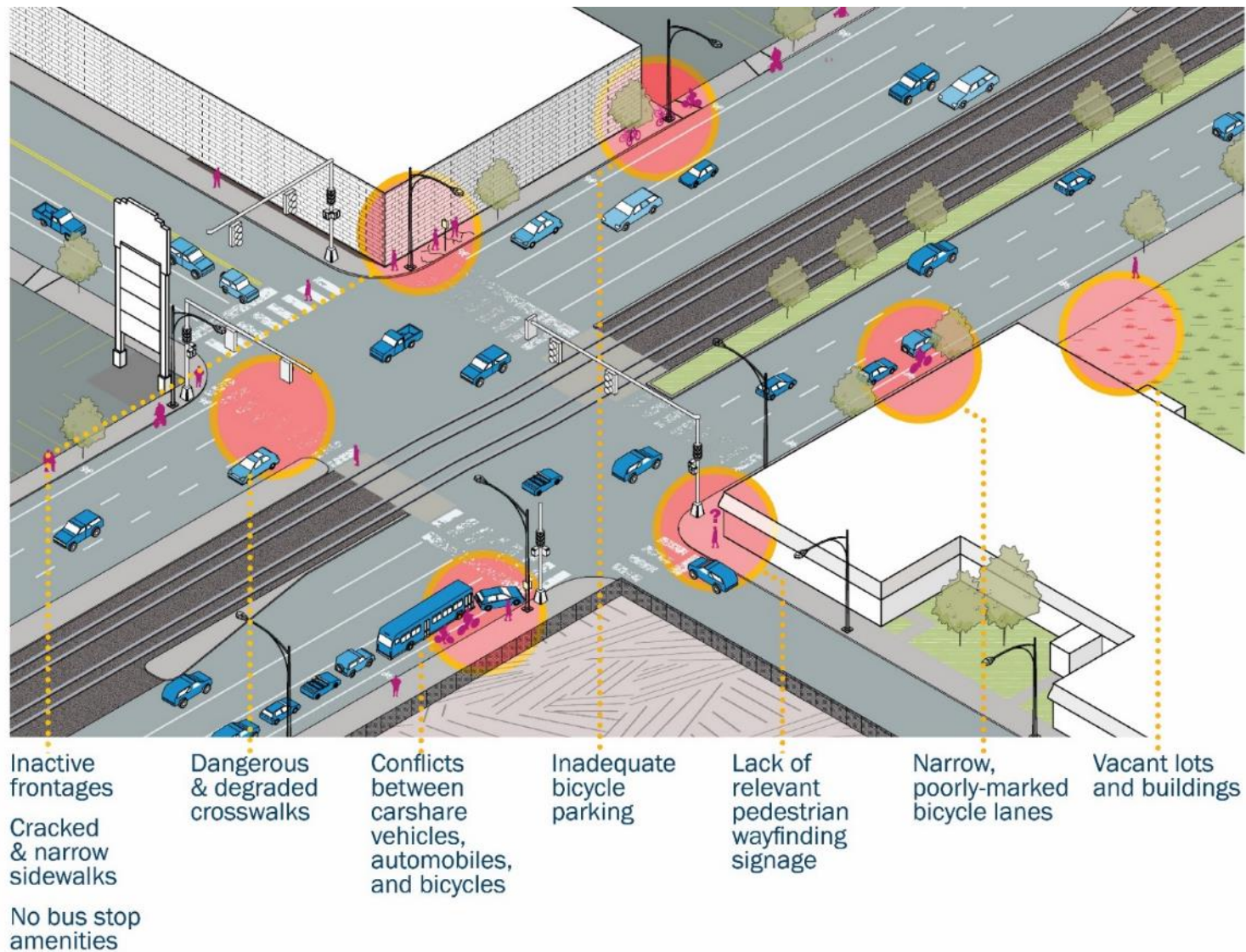
In fact, a full 65 percent of the Delaware Avenue and Columbus Boulevard street wall has inactive or blank frontages on both sides of the street. Only ten percent has an active streetwall (or river) frontage on both sides of the street. Beyond that, cracked or narrow sidewalks, few bus stop amenities, degraded crosswalks, signage clutter, and lack of wayfinding signage relevant to today's destinations further detract from the pedestrian experience.

This section of recommendations focuses on both the public realm and opportunities to encourage transit-oriented development. Responsible for bringing miles of new trails and acres of new parks

and activated open spaces to the waterfront, DRWC has proven itself an excellent partner and leader in transforming the public realm and fostering a more active, beautiful, urban experience along the Delaware River.

DRWC is also working to attract and guide new mixed-use development along the waterfront. The form and density of current developments are inadequate to support the most efficient, high quality public transit options along the waterfront. In order to achieve a future in which the waterfront is a truly urban neighborhood where residents and visitors can quickly travel to and from the rest of the city using multiple safe and convenient transportation options, the waterfront must grow its constituency of users who are predisposed to utilize options other than personal automobiles. In order to grow that constituency, the waterfront must actively cultivate an environment that is structured for public transit, pedestrians, and bicyclists. This environment should be user-friendly, comfortable and safe at the pedestrian scale, and home to a density of uses and residents that will support high quality transit options.

Figure 22 | Common Public Realm Issues Along Columbus Boulevard / Delaware Avenue



3.3.1. Bus Access and Stop Experience

Currently, buses are the only public transportation option that span the entirety of the Philadelphia waterfront. Improving the experience of bus riders is essential for making transit more convenient along the waterfront. The system will be more likely to draw new users if waterfront residents and visitors perceive the buses as easy to use, convenient to access, and comfortable at every stage of their trip. In previous sections, these goals were addressed in relation to the bus system's service and routes. This section addresses the experience of using the bus before and after a passenger rides: while they are locating the correct stop, waiting for the bus to come, or departing from the bus and orienting themselves to their surroundings. Additionally, in addressing the visibility of bus stops and their appearance, this section addresses the elements of the system that will be most visible to non-users – and most likely to reorient their perceptions of bus travel.

Addressing ease, convenience, and comfort will involve ensuring the most basic standards, such as ADA accessibility and unimpeded sidewalk access, as well as more intense interventions, such as bus stop amenities, helpful signage, and public art. Coordinated with bus stop recommendations, are proposed rideshare loading zones, chosen to reduce curbside conflicts with vehicles and buses. Together, these recommendations (detailed in [TABLE 7](#) and [FIGURE 23](#)) will help make bus travel a more attractive means to accessing the waterfront.

Ensure bus stops meet safety and accessibility standards.

PERIOD: NEAR-TERM

At a minimum, all bus stops where passengers board and alight should have paved boarding areas that are uncracked and level, a minimum size of five feet wide by eight feet deep, and be

unimpeded and accessible to adjacent sidewalks. The following stops require investment to bring them up to accessibility standards (information also in [TABLE 7](#)):

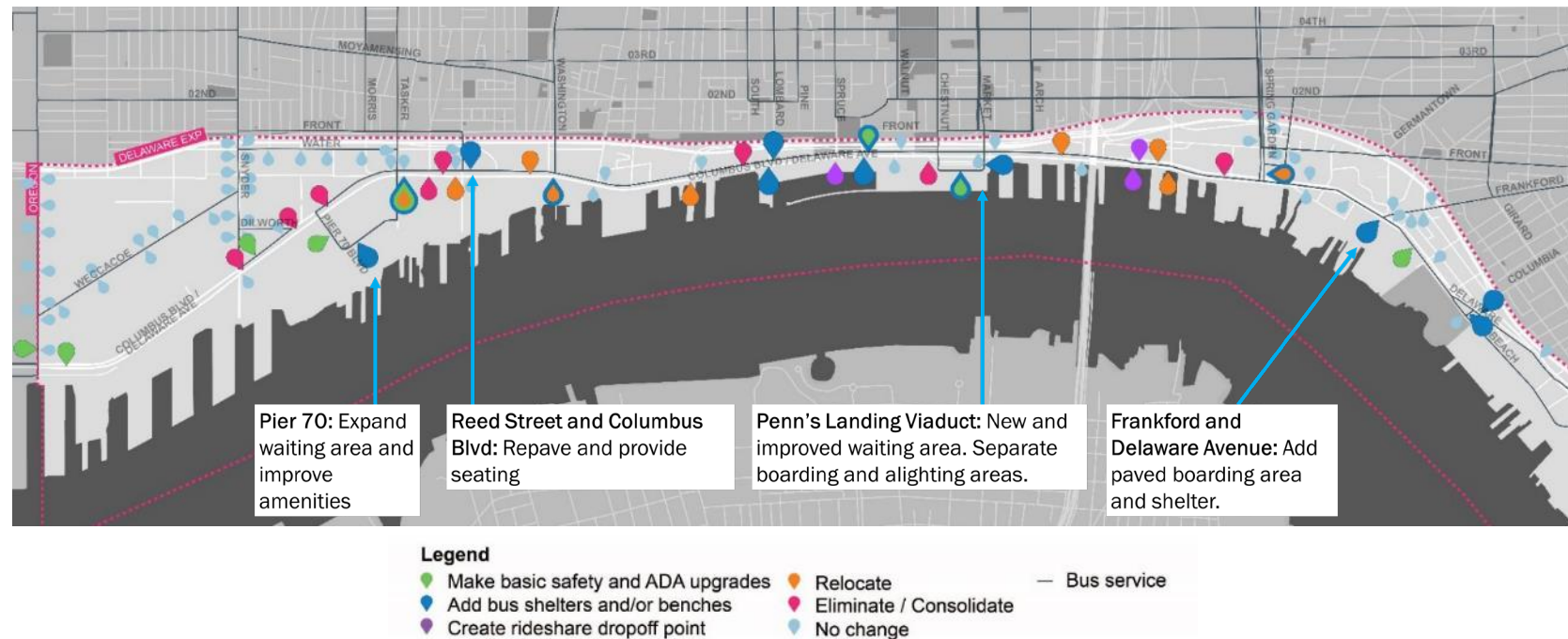
- **Oregon Avenue and Columbus Boulevard** | Eastbound and southbound bus stops require a loading area. Construct paved loading zone to ADA specifications.
- **Snyder Avenue and Columbus Boulevard** | The southbound bus stop does not have a sidewalk adjacent to it; another bus stop on the same street section is located on a roadway median with no pedestrian crossing. Construct a loading area at the first bus stop and consolidate the second stop into the first location.
- **Pier 70 Boulevard and Columbus Boulevard** | Either construct loading area or relocate stop to location that can accommodate loading area. Southbound bus stop is obstructed by poles and overgrown vegetation. There is no loading area or sidewalk for the eastbound bus stop just within the shopping center.
- **Tasker Street and Columbus Boulevard** | Need for concrete sidewalk or loading area at the westbound bus stop.
- **Penn's Landing Road and Columbus Boulevard** | The loading area of the southbound bus stop is obstructed by trees and the northbound bus stop does not have a level landing or waiting area. Relocate the bus stop farther south to the nearest level, adequately sized area.
- **Spring Garden Street and Delaware Avenue** | The southbound bus stop waiting and loading areas are within a gas station driveway. Consider relocating the stop.

- **Ellen Street and Delaware Avenue** | The bus stop waiting area and loading area are obstructed by overgrown vegetation. Trim the weeds in the sidewalk cracks to ensure there is a stable, firm surface for the loading and waiting areas. Trim the overhead branches to ensure a minimum of nine-foot clearance.
- **Sugarhouse Drive and Delaware Avenue** | Add a paved loading pad for the northbound bus stop.
- **Columbia Avenue and Delaware Avenue** | The southbound bus stop sign was not relocated after construction; relocate the bus stop to the newly constructed sidewalk area adjacent to Delaware Avenue.

Table 7 | Summary of Bus Stop Recommendations

Type	Description and Corrective Action	Location along the Delaware Avenue Corridor
Safety and accessibility standards	Cracked, unlevel, and impeded sidewalks. Boarding areas that are too small or non-existent. Ensure paved boarding areas that are uncracked and level, a minimum paved and level landing area of five feet wide by eight feet deep, and unimpeded and accessible to adjacent sidewalks.	<ul style="list-style-type: none"> ■ Oregon Avenue ■ Snyder Avenue ■ Pier 70 Boulevard ■ Tasker Street ■ Penn's Landing Road ■ Spring Garden Street ■ Ellen Street ■ Sugarhouse Drive ■ Columbia Avenue
Shade, shelter, seating	Key bus stops lack shelters or seating.	<ul style="list-style-type: none"> ■ Pier 70 ■ Reed Street ■ Washington Avenue ■ Lombard Street ■ Locust Street ■ Dock Street (Shelter present; add benches) ■ Market Street Bridge ■ Spring Garden Street ■ Frankford Avenue ■ Columbia Avenue ■ Beach Street
Informational signage	Integrate informational signage into bus stops, such as live wait time clocks, simple bus schedules, lists of connections, and increased information about available transit apps.	<ul style="list-style-type: none"> ■ All stops
Public art	Tie bus stop improvements to public art investments recommended in the Waterfront Arts Plan to create recognizable transit beacons.	<ul style="list-style-type: none"> ■ Bus stops near major destinations; see those recommended for shelters above

Figure 23 | Summary Map of Bus Stop Recommendations



Add shade, shelter, seating to bus stops.

PERIOD: NEAR-TERM

Among visitors who did not take transit to the waterfront, 28 percent said that they are not familiar with the system or believe it is too difficult to use.³ One part of increasing the bus system's ease of use will be improving the experience of waiting for or alighting from buses at the waterfront. Stop amenities are funded and maintained by either the City of Philadelphia through its Street Furniture

Contract or sponsoring organizations like the Delaware River Waterfront Corporation.

One approach is for DRWC to prioritize the installation of shelters and/or benches at bus stops with crosstown connections that are close to major waterfront destinations and at bus stops that are close to large current or anticipated resident populations. Current wait times at some bus stops along the Delaware Avenue corridor extend up to 60-minutes. Currently, out of all of the bus stops along Delaware Avenue and Columbus Boulevard, only two feature shelters, one of which includes benches. Elsewhere, visitors must

³ Intercept Survey of Waterfront Users, *Delaware River Waterfront Corporation*, Fielded May 1 - Sept 9, 2019.

wait extended periods standing and exposed to sun and rain. In general, shelters should be prioritized for higher-ridership stops. Benches are beneficial when a shelter is not provided and bus headways are longer than 15-minutes.

Possible locations for shelters:

- Pier 70
- Reed Street
- Washington Avenue
- Lombard Street
- Locust Street
- Dock Street (shelter present; add benches)
- Market Street Bridge
- Spring Garden Street
- Frankford Avenue
- Columbia Avenue
- Beach Street

Build dynamic information into bus stop design to increase users' comfort while waiting for or alighting from buses.

PERIOD: NEAR-TERM

For waiting users, live wait time clocks, simple bus schedules, lists of connections, and increased information about available transit apps will increase the sense of ease and confidence in the bus system. For those alighting at the waterfront, wayfinding signage and maps at bus stops will help quickly orient and direct bus riders, decreasing the time they might spend trying to orient themselves and helping them navigate to (or from) major waterfront destinations.

Tie bus stop improvements to public art investments recommended in the Waterfront Arts Plan to create recognizable transit beacons.

PERIOD: NEAR-TERM

Public art can help reorient waterfront visitors' perceptions of bus transit from the mode of last resort to a well-regarded and valued option. This can be done by exploring opportunities to further customize SEPTA's new standard bus shelter, designed by local architecture firm, Digsau (FIGURE 24). These improvements can especially focus on stops with crosstown connection points close to major waterfront destinations and at stops near sizable current or anticipated future resident populations.

Another strategy is to encourage developers to include artful elements in close proximity to the transit stops as part of public realm improvements coupled with their projects.

Figure 24 | An example of City of Philadelphia's new standard bus shelter



Support the creation of a dedicated waterfront transit center at the Pier 70 transit hub to better serve SEPTA employees and passengers and to increase the reliability of waterfront routes.

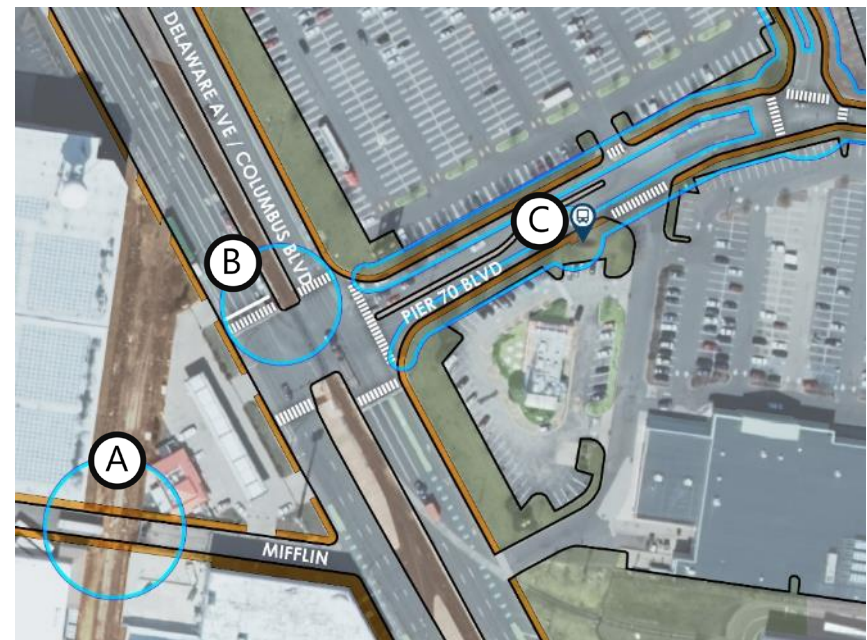
PERIOD: MID-TERM

In 2019 SEPTA and DVRPC completed a study to explore the feasibility of developing a new South Philadelphia Transportation Center with the goal of improving service operations. One of the three sites under consideration is Pier 70 on the Delaware River waterfront, adjacent to the Delaware River Trail. If selected and implemented, a portion of the large parking area near Walmart and DRWC's Pier 68 would be repurposed as a transit hub that could accommodate bus layovers as well as space that SEPTA operators and passengers could use. Should this site be selected, accompanying pedestrian improvements will be necessary to ensure safe access of transit riders through the auto-oriented parking lot to the new bus station.

Ensure safe pedestrian access to the new transit center. The proposed transit center location and the surrounding shopping center is difficult and dangerous to access on foot (FIGURE 26). The center's sidewalk network is incomplete, and necessary crossings do not feature painted crosswalks or "Yield to Pedestrians" signage. Additionally, walking routes from the adjacent neighborhood are unclear, obstructed, and unattractive. Improved accommodations within and leading to the new transit center will encourage greater transit use and help integrate this auto-oriented location into the city fabric. FIGURE 25 illustrates several proposals for improved connectivity to the potential waterfront transit center:

- Mifflin Street railroad crossing opened and improved for pedestrians to simplify the route from neighborhoods to Pier 70 area.
- Crosswalk installed on the northern leg of the intersection with bus stop at gas station removed/relocated.
- Sidewalk network continued into the shopping center with accompanying crosswalks for pedestrian safety.

Figure 25 | Map of Recommended Pedestrian Access Improvements at Pier 70 Blvd



- A** Mifflin Street opened to simplify pedestrian route from neighborhoods to Pier 70 area
- B** Crosswalk installed on northern leg of intersection, bus stop removed
- C** Sidewalks continued into shopping center, including paved bus stop loading zone and crosswalks

Figure 26 | Map of Existing Pedestrian Access at Pier 70 Blvd






No crosswalk on north side of Columbus Blvd



No sidewalk at bus stop



Mifflin Street ends in a fence at railroad; no direct pedestrian path from neighborhood to shopping center

 Pedestrian route
  Route does not reach destinations
  No pedestrian facilities

3.3.2. Pedestrian Safety and Experience

Ensure sidewalks meet safety and accessibility standards.

PERIOD: NEAR TO LONG-TERM

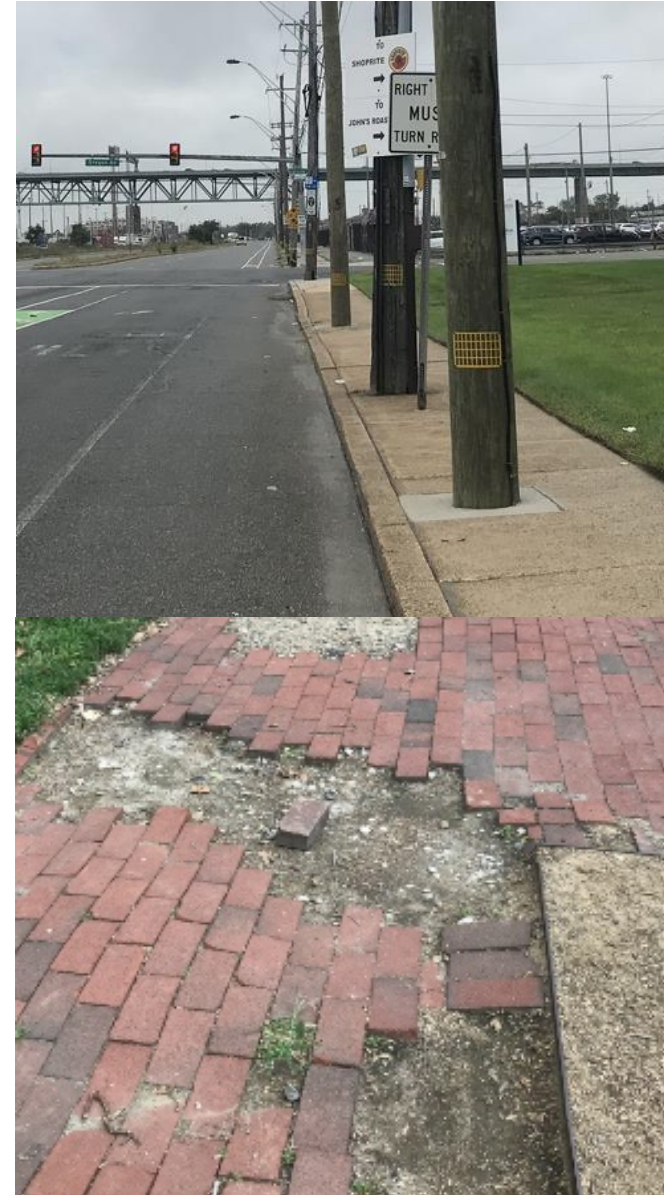
For enhanced pedestrian safety and navigability, a concerted effort should be undertaken to upgrade sidewalks along the length of the waterfront. Sidewalks should be uncracked, level, and unobstructed by utility poles, signal poles, and other large objects. The usable area (“walking zone”) should be at least six feet wide (or half of the sidewalk width), and, where possible, they should include trees and other elements that protect and separate pedestrians from street traffic. The sidewalk network should also be continuous along all of the Delaware Avenue corridor.

While the City's budget does not dedicate funding to sidewalks, agencies city-wide often look for opportunities to integrate improvements into ongoing or upcoming projects. DRWC has an opportunity to add resources and capacity to the effort in coordination with the waterfront trail design, with upcoming repaving and repainting by the Streets Department, working with property owners, and along its own properties. Segments along the waterfront trail (between Washington Avenue and Spring Garden Street on the east side of Columbus Boulevard) will be rebuilt with trail construction.

Obstructions exist at all intersections, though priority should be given to the following locations:

- **Oregon Avenue and Columbus Boulevard** | signal and utility poles obstruct the sidewalk on the northwest corner; sidewalk lacks adequate buffer from road.
- **Tasker Street and Columbus Boulevard** | light pole obstructs the pedestrian path within the sidewalk on the northwest corner.

Figure 29 | Examples of degraded and obstructed sidewalks along Columbus Boulevard



- **Washington Avenue and Columbus Boulevard** | The brick sidewalk is severely warped on the east side of the north leg.

Improve crosswalks along Delaware Avenue and Columbus Boulevard to increase pedestrian safety and comfort.

PERIOD: NEAR-TERM

The first priority for improving crosswalks along the Delaware Avenue corridor should be to repaint degraded crosswalks, add crosswalks and/or missing curb cuts at intersection crossings that lack them, and fill any potholes within crosswalks. Crossing Delaware Avenue and Columbus Boulevard's many lanes of traffic can be a daunting task for pedestrians coming from the dense, narrow streets of the city. DRWC's Connector Street Program aims to improve access to the waterfront through targeted public realm improvements along key corridors. As this program continues, it is essential that the last step of the journey along those connector streets – across Columbus Boulevard – be easy and safe.

Well-maintained crosswalks and curb cuts are the most fundamental signal to drivers that pedestrians may be present and

to pedestrians that this the safe and proper location to cross. For disabled pedestrians, these accommodations are of even greater importance, as missing curb cuts, potholes, and unmarked crossings may create significant danger or prohibit crossing entirely.

Additional tasks of importance at crosswalks include ensuring that all crosswalks are well-lit and feature functioning pedestrian countdown clocks, which warn pedestrians when lights will change. Most intersections along the Delaware Avenue corridor lack lighting on all corners and medians, and several of the crossings along the Delaware Avenue corridor do not have pedestrian countdown clocks (pedestrian change intervals greater than seven seconds should include a countdown timer display and appropriate pedestrian push button signage). Lighting and signals will not only increase pedestrians' comfort and confidence in crossings, but they will prevent dangerous situations by ensuring pedestrians are well-aware of the proper time to cross and drivers are well-aware when pedestrians are present after dark.

The locations in which the above issues are most critical are outlined in [TABLE 8](#).

Table 8 | Summary of Crosswalk Recommendations - *Connector Streets are **bolded*** (Following Page)

Type	Description and Corrective Action	Location along the Delaware Avenue corridor
Crosswalks (First priority)	Severely degraded or missing crosswalks, some missing curb cuts. Repaint or add markings and add curb cuts where necessary.	<ul style="list-style-type: none"> ■ Oregon Avenue.: Northern crossings and Northbound southern crossing lack markings ■ Pier 70 Blvd.: Eastbound approach lacks markings; others are in poor condition ■ Snyder Avenue: Southern crossings lack markings; others are in poor condition ■ Tasker Street.: Southern crossings lack markings ■ Reed Street: Crosswalks faded in all directions. ■ I-95 NB Off-Ramp (Just north of Reed St): No crosswalk on northern side of intersection ■ Washington Avenue: Southwest crossing lacks curb ramps; markings are in poor condition ■ Christian Street: Crosswalks faded and damaged in all directions ■ I-95 SB Off-Ramp: Eastbound approach lacks markings ■ Lombard Circle: Crosswalks faded in all directions. ■ Dock Street: Crosswalks faded in all directions. ■ Spring Garden Street: Crosswalks faded in all directions. ■ Sugarhouse Casino Entrance (Just north of Shackamaxon): Northern crossings lack markings
Crosswalks (Second priority)	Crosswalks in fair or poor condition. Repaint markings.	<ul style="list-style-type: none"> ■ Queen Street ■ Spruce Street ■ Race Street ■ Frankford Avenue ■ Columbia Avenue
Potholes	Pothole present in crosswalk. Repave crossing.	<ul style="list-style-type: none"> ■ Snyder Avenue: eastbound and northbound approaches
Lighting	Inadequate pedestrian lighting. Install additional crosswalk lighting on all corners and on medians.	<ul style="list-style-type: none"> ■ All intersections
Pedestrian Signal	Pedestrian signal is missing or not fully operational.	<ul style="list-style-type: none"> ■ Oregon Avenue ■ Pier 70 Boulevard ■ Tasker Street ■ Reed Street ■ I-95 NB Off-Ramp (Not fully functioning) ■ Christian Street (Not fully functioning) ■ Penn's Landing Road (Not fully functioning) ■ North Penn Street (Not fully functioning)

Other Roadway Deficiencies Identified in Road Safety and Operations Assessment.

PERIOD: NEAR-TERM

As part of the existing conditions assessment, the study team conducted an audit of conditions along the Delaware Avenue corridor from Oregon Avenue in the south to Columbia Avenue in the north. A full report has been prepared that documents issues along the corridor⁴. Excluding crosswalks and sidewalk issues discussed above, the issues cited in **TABLE 9** were identified.

Table 9 | Roadway Deficiencies (excluding recommendations related to bus stops, sidewalks, and crosswalks)

Type	Description and Corrective Action	Location along the Delaware Avenue corridor
Signage	Faded or non-reflective highway signs were found at all 24 intersections within the study area. Signage should be replaced to improve pedestrian and driver safety.	■ All Intersections
Signage	NO PEDESTRIAN CROSSING sign improperly placed southwest corner, likely due to it being rotated from its original position. Begin to yield sign is also obstructed.	■ Snyder Avenue
Barrier	Concrete jersey barrier is present in the roadway and obstructs part of the crosswalk on the east-side of the intersection. Barrier is a fixed object hazard and should be removed as it does not appear to be serving any function presently.	■ Snyder Avenue ■ Washington Avenue
Signage	BEGIN YIELD TO BIKES sign missing where turn lane intersection bicycle lane.	■ Pier 70 Boulevard ■ Washington Avenue
Lane marking	No bicycle lane transition at right turn lane.	■ Christian Street

⁴ See *Roadway Safety and Operations Audit*. Prepared by Gannett Fleming, Inc, October 2018.

Invest in connector streets.**PERIOD: NEAR-TERM AND MID-TERM**

DRWC has been steadily rolling out improvements to key connector streets linking the waterfront to adjacent neighborhoods on the other side of I-95. These connections are critical not just for pedestrians but also transit users accessing the waterfront from nearby transit. DRWC, its partners, and private developers should continue investments in these streets. Design of the Washington Avenue and Frankford Avenue connectors are underway. Reed Street, Tasker Street, and Morris Street all need additional physical improvements to improve pedestrian access to nearby transit and/or neighborhoods.

Install landscaping, public art, and lighting in current or future high-density transit usage areas that may feel isolated or uninviting.**PERIOD: NEAR- AND MID-TERM**

Significant stretches of waterfront streetscape feature blank walls, fences, or lots. While increased development and active uses may come in the future, near-term remedies like landscaping, art, and lighting will begin the shift towards a more inviting and urban streetscape where visitors feel comfortable using and walking from transit stops.

In the near-term, investments leading to the existing bus stop on the Market Street viaduct above Penn's Landing could include signage, public art, seating, plantings, and a new bus shelter. With the ample sidewalk and views of the Ben Franklin Bridge and Delaware River, there is an opportunity to create a place where people want to linger rather than traverse as quickly as possible, much as the improvements along the Market Street bridge over the Schuylkill (FIGURE 27) accomplished.

The Market Street bridge is a key location for such placemaking improvements along the route between the 2nd Street MFL station and the waterfront (FIGURE 28). The bridge is a primary pedestrian route from Center City to the waterfront and hosts major bus stops. However, the pedestrian environment on the bridge is currently exposed to wind, sun, and rain and is uninviting, with few amenities and elements of visual interest that point to the proximity of the River. Improvements will strengthen the connection between the waterfront and Center City for transit users and pedestrians.

Another location for placemaking improvements is the trolley loop at Frankford Avenue.

Figure 27 | Low-Cost Investments in Placemaking Near 30th Street Station



Figure 28 | Illustration of Potential Form that Placemaking Could Take at Market Street Viaduct Transit Stop



3.3.3. Rideshare Safety and Efficiency

Designate rideshare pick-up/drop-off points on the Delaware Avenue corridor near major destinations using distinctive signage and idling areas. Integrate amenities for waiting passengers, including benches and/or shelters, as well as public art and planters.

PERIOD: NEAR-TERM

Taxis and rideshare vehicles are essential pieces of the waterfront transportation ecosystem: they reduce the number of visitors arriving in personal automobiles and thus reduce demand for parking. However, they can create dangerous situations when they pull over along busy streets, where they expose pedestrians to traffic and block bicycle lanes, buses, or automobile travel lanes.

To increase safety and reduce conflicts between modes, taxis and rideshare vehicles need designated safe locations to pull over and drop off users (FIGURE 29). Designated pick-up and drop-off areas will improve the traffic flow and increase safety for multiple modes, especially during special events when the number of travelers spikes. To avoid conflicts between modes, these areas should not be located adjacent to bus stops.

Possible designated rideshare locations are:

- Morgan's Pier / Vine Street
- Spruce Street Harbor Park / Spruce Street
- Cherry Street Pier / Race Street

Partner with rideshare apps to establish "suggested locations" using geo-fencing for pick-up and drop-off to which nearby trips will default either at all times or during high volume times.

PERIOD: NEAR-TERM

The automated nature of rideshare vehicle routes offers the opportunity to more reliably direct drop-off and pick-up points to safe locations. At high-traffic locations or during peak times, predetermined drop-off and/or pick-up points might be chosen to which apps will default for local trips, as is currently done at airports. These locations would have to be established in partnership with the City of Philadelphia, PennDOT, and rideshare apps.

Figure 29 | Examples of Rideshare Drop Points



3.3.4. Bicycle Safety and Convenience

Locate Indego Bike Share stations along the Delaware Avenue corridor at high use transit locations.

PERIOD: NEAR-TERM

Several major waterfront destinations lack co-located bike share stations. Additional stations will encourage waterfront visitors to choose alternatives to cars if they can arrive or depart closer to their destination. Priority locations to support transit include Penn's Landing at Market Street and the Frankford Avenue loop.

Provide addition bicycle parking at major waterfront destinations.

PERIOD: NEAR-TERM

The supply of bicycle parking should accommodate peak usage at major destinations to ensure that traveling to the waterfront by bike will be an easy option. Bicycle parking can be tied to ongoing Waterfront Arts public art investments, such as the example in [FIGURE 30](#). Incorporating art into bicycle rack design will help improve their visibility and increase the profile of cycling to and along the waterfront.

Figure 30 | Example of Incorporating Art into Bike Rack Design



Ensure a safe, clearly marked route for bicycles along the Delaware Avenue corridor by continuing to construct the Delaware River Trail and improving on-street bicycle lanes.

PERIOD: NEAR-TERM

The Delaware River Trail will help to improve conditions for cyclists along the length of the Central Delaware River waterfront by providing users a protected bicycle path separated from car traffic. DRWC is presently finalizing work on the central segment of the trail, which will extend from Washington Avenue to Spring Garden Street.

The existing bicycle lanes along Columbus Boulevard will remain and continue to provide an important cycling route through the corridor. Ongoing maintenance is needed of the bicycle lane, including repainting, clearing of debris, and proper signage.

Ongoing maintenance is needed along existing portions of the Delaware River trail. The study team identified overgrown vegetation along portions of the path that pose a hazard for cyclists.

Finally, DRWC should look to incorporating horizontal wayfinding along the trail to help riders navigate to transit and bike share stations ([FIGURE 31](#)). Painted or inset wayfinding on the trail itself will stand out from other signage for bicyclists and help them navigate while they ride, while not contributing to visual clutter or obstructing views to the river.

Figure 31 | Horizontal Wayfinding at Lonsdale Quay in Vancouver



3.3.5. Wayfinding

To encourage visitors to travel on foot, by bike, or by transit, the waterfront must become more user-friendly. No matter where visitors are on the waterfront, they should know the correct direction to walk to reach their destination and the approximate time it will take them to get there. Moreover, they should know what other major destinations are nearby and whether there are any useful transit options in the area.

Navigating the long expanse of the Delaware River waterfront can be daunting. Currently, the environment along the Delaware Avenue corridor is cluttered with many different types of

wayfinding signage (FIGURE 32), much of which is oriented to automobiles, some of which features outdated or confusing destination language, and some of which is obstructed by vegetation, utility and signal poles, and other barriers. Additionally, there is no signage with detailed information on local transit options, schedules, and routes. To provide pedestrians, bikers, and transit users with a more user-friendly waterfront experience, the area's wayfinding signage should be improved – the signage that matters should be emphasized, the signage that is unhelpful should be revised or removed, and new signage should be introduced across the entire area that communicates key information in a simple and attractive way.

Figure 32 | Current Waterfront Wayfinding Signage Types



Where possible, remove unnecessary, outdated, or redundant signage.

PERIOD: NEAR-TERM

The wayfinding signage that currently exists along the waterfront is often not relevant or confusing for pedestrians. Many of these signs are oriented to automobiles; they may feature destinations that are not local (such as “Sports Complex” or, near Spruce Street, “Penn Treaty Park”) without any indication of those destinations’ distances. Signs welcoming travelers to Penn’s Landing as far north as Spring Garden Street may be confusing for pedestrians who are still a significant walk from the heart of that area. As a precursor to introducing updated pedestrian-friendly wayfinding signage, older signs should be assessed for their usefulness and, where possible, revised, relocated, or removed. For the location and content of current wayfinding signage, see [FIGURE 33](#).

Ensure that signs are unobstructed by vegetation, utility and signal poles, or other barriers.

PERIOD: NEAR-TERM

Many of the existing signs on the waterfront are obstructed by vegetation or signal poles. In order to ensure that relevant signage is useful to waterfront visitors, these signs must either be uncovered or moved to better locations. Vegetation should be pruned to uncover signs, but trees should not be removed.

Locations with excess vegetation along the Delaware Avenue corridor:

- Cherry Street Pier
- I-95 SB Off-Ramp
- I-95 NB On-Ramp
- Spruce Street
- Dock Street
- Penn’s Landing Road

- Race Street
- Summer Street
- Vine Street
- Callowhill Street
- Noble Street
- Spring Garden Street
- North Penn Street
- Ellen Street
- Sugarhouse Drive
- Columbia Avenue

Design a unified, pedestrian-oriented wayfinding signage system.

PERIOD: MID-TERM

Much of the design and content of current waterfront wayfinding signage does not cater to today’s pedestrian visitors. Introducing a new, unified and pedestrian-oriented wayfinding signage system will allow DRWC to make sure the information presented is useful and the way it is displayed is user-friendly. Additionally, a unified design will make it easier for pedestrians to recognize signage with the most relevant wayfinding information, no matter where on the waterfront they find themselves.

New signs should be placed at arrival points along the entire walkable length of the waterfront ([FIGURE 35](#)), including along connector streets, at bus stops (especially crosstown connections), at micro-transit drop points, and at the three MFL stations that serve the area (i.e., 2nd Street, Spring Garden, and Girard Stations). Pedestrian wayfinding signage is currently clustered towards the center of the waterfront, closest to Market Street and Spruce Street Harbor Park. Expanding the reach of such signage will increase a

broader populations' comfort walking to, from, and along the waterfront and help direct people to nearby transit resources.

Signs should provide information on how long it will take to walk to waterfront destinations on both the front and back of signposts at a readable height for pedestrians. They should always feature the

closest destinations on foot, as well as newer destinations, such as Spruce Street Harbor Park, that are not featured on current signage. Signs should also include nearby transit options, including MFL stations and bus lines, and, where possible, additional information on those lines' routes and schedules. Examples of effective pedestrian signage can be seen in [FIGURE 34](#).

Figure 33 | Map of Current Wayfinding Signage Along Columbus Boulevard / Delaware Avenue

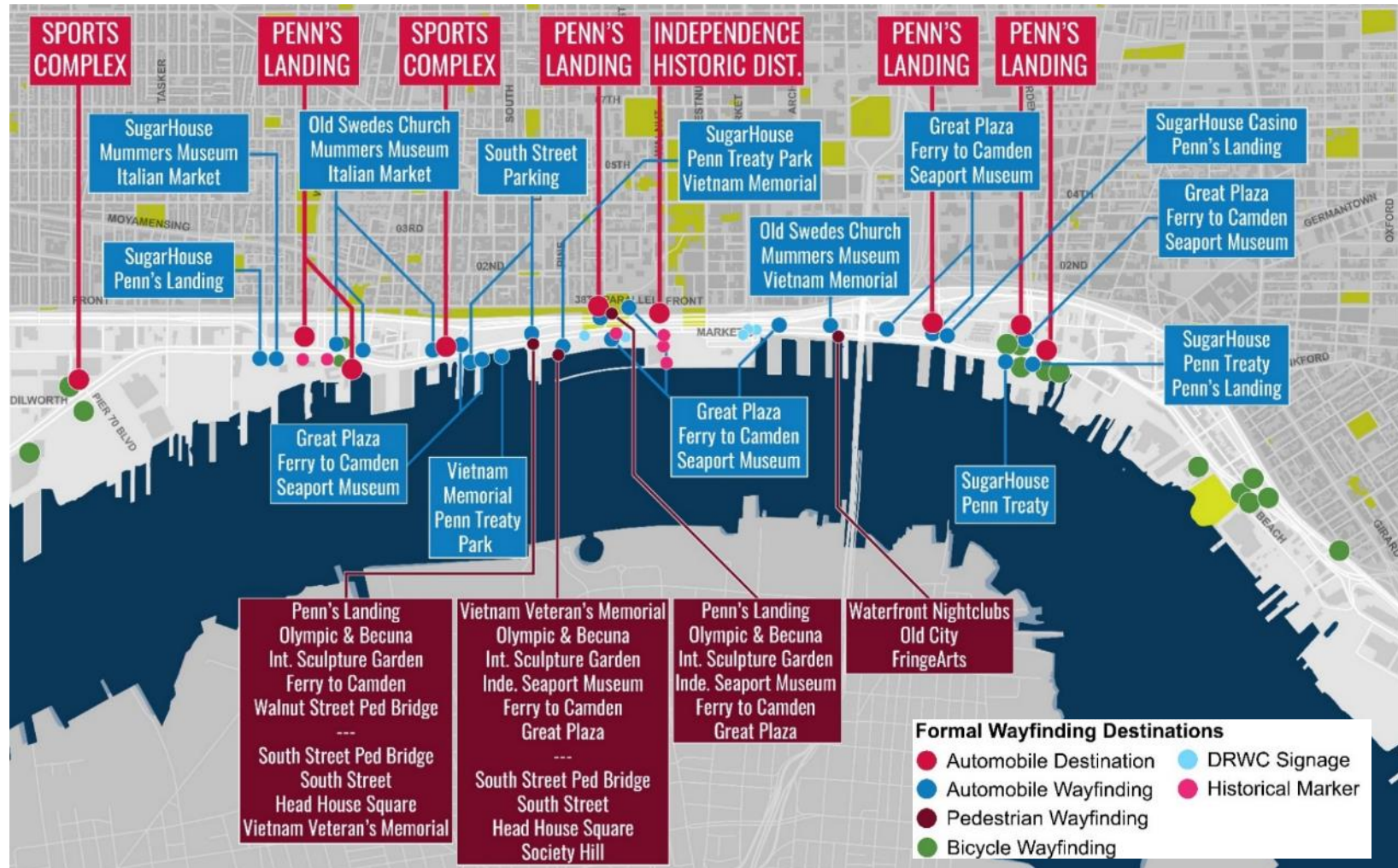


Figure 34 | Examples of Effective Pedestrian Wayfinding Signage at Detroit's Esplanade on Woodward Avenue (Left), Chicago's Bloomingdale Trail (Middle), and artist Bundith Phunsombatlert's 2014 installation at New York's Flushing Meadows Park (Right).



Figure 35 | Map of Key Areas, Connector Streets, and Locations for Pedestrian Wayfinding Signage

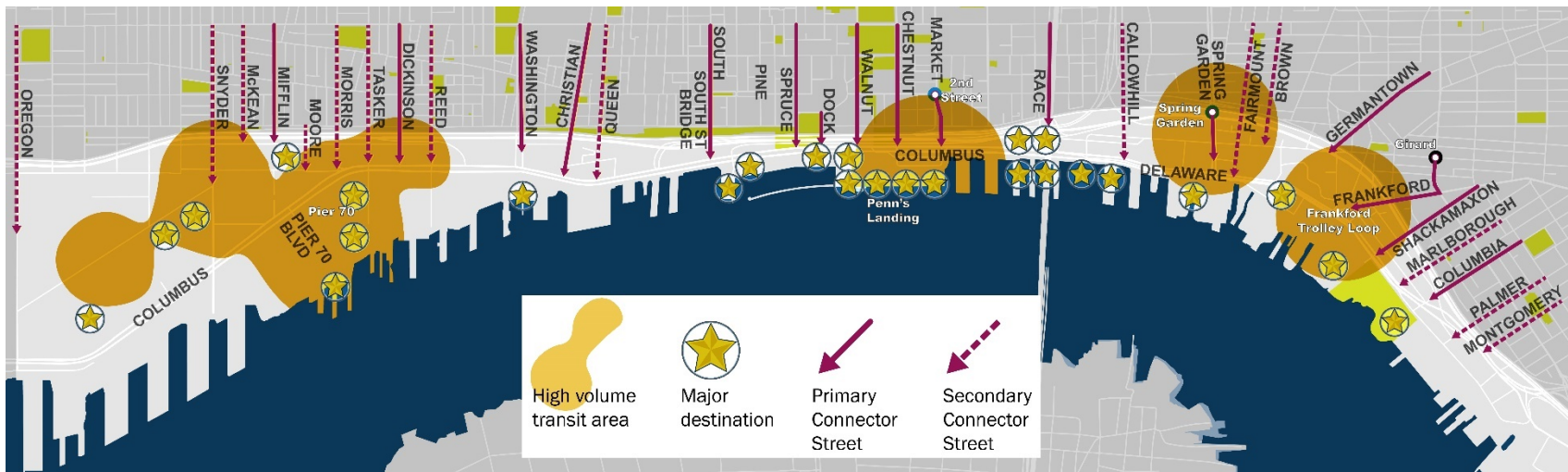


Figure 36 | Rendering of the Cap with Key Connection Point to Columbus Boulevard Circled



3.3.6. Penn's Landing Cap and Related Investments

Ensure that connections from the I-95 cap between Walnut and Chestnut Streets meet Columbus Boulevard and that the design otherwise integrates recommendations from this plan.

PERIOD: MID-TERM

Efforts to transform the central section of Columbus Boulevard into a pedestrian-friendly, urban street will depend in part on how welcoming the street level remains after the construction of the cap. The cap will dramatically improve pedestrian access to the waterfront. It should also seek to improve pedestrian access to Delaware Avenue and Columbus Boulevard. Easy, attractive connections should be made from the street level to the cap, and efforts should be made to ensure that street life is maintained or improved.

As design and construction moves forward, partners should work to integrate recommendations from this plan into that project (FIGURE 36).

As part of the reconstruction of the Chestnut-Market Connector viaduct, create a permanent enhanced bus stop at Penn's Landing.

PERIOD: MID-TERM

The viaduct is a valuable transit connection from Chestnut and Market Street to the waterfront. This stop will be many users' first glimpse of the waterfront upon their arrival and the place that they wait to depart. It should feature a shelter, landscaping, signage, and artwork.

This may require refining the site plan for Penn's Landing to accommodate the viaduct, which provides a critical transit connection. In the near-term, define the necessary changes to the location and dimension of the viaduct such that the transit connection can be preserved along with the future redevelopment of Penn's Landing.

Further Build-Out the I-95 Cap

PERIOD: LONG-TERM

New or extended caps over I-95 could further reduce the interstate's barrier to waterfront access. While no caps beyond the Penn's Landing park are presently planned for, additional opportunities may arise to lengthen the cap as I-95 is reconstructed through central Philadelphia.

3.3.7. Policy Initiatives

Work with Philadelphia City Planning Commission (PCPC) to leverage zoning and other land-use regulations to promote transit-supportive development

PERIOD: NEAR-TERM

To support quality transit options, development on the waterfront must bring new users to the transit system. Low density development privileges automobile use and robs public transit of the

larger concentrations of residents that it needs to provide the best service. Ensuring that higher density, pedestrian-oriented development comes to the waterfront will help integrate the area with the rest of the city and support quality transit options.

Convening a working group between DRWC and PCPC can be a way to explore how existing land use regulations can be adjusted to incentivize development densities envisioned by the Master Plan.

Parking maximums or the removal of parking minimums could ensure that new development is not overwhelmingly automobile oriented, but rather that it will fit in with the city's urban fabric and encourage new residents to take advantage of public transit.

New development can also support transit use by creating an active and inviting sidewalk for travelers on foot. Developers might be encouraged by new incentives to design a deeper sidewalk/setback, making room for an active urban street wall and a sidewalk that is buffered from traffic. Explore incentives that will speed up the pedestrianization of Columbus Boulevard, pushing developers to help create a more friendly, urban streetscape.

Work with PCPC to reclassify the entire corridor as an Urban Arterial street as defined in the Philadelphia Streets Department's Complete Streets Handbook.

PERIOD: NEAR-TERM

This study recommends that DRWC advocate for the reclassification of segments of Columbus Boulevard that are classified as "Auto Oriented Commercial/Industrial" to "Urban Arterial," consistent with rest of Columbus Boulevard and Delaware Avenue. Designations are tied to design guidelines in the City's Complete Streets Handbook. Redesignating all of Columbus Boulevard as an Urban Arterial will ensure that the city's general design recommendations for all segments are to provide better accommodations for pedestrians and bicyclists if and when major developments move forward. Note,

however, that it may make sense to retain the current classification close to the Port operations.

Along the entire the Delaware Avenue corridor, when streets or sidewalks are reconstructed, design standards should be implemented as outlined in the Philadelphia Streets Department's Complete Streets Handbook. These standards may include widening the sidewalk along areas of the Delaware Avenue corridor where it is particularly narrow, increasing the size of the bicycle lane, adding bumpouts, and other improvements.

Locations that should be reclassified as "Urban Arterial:"

- Columbus Boulevard between Washington and Snyder is classified as "Auto Oriented Commercial / Industrial"; though there are at least three major mixed-use developments proposed between Washington and Tasker; and
- The single block between Shackamaxon to Marlborough is also classified as "Auto Oriented Commercial/Industrial."

Explore either expanding the City's Transit Oriented Development (TOD) Overlay at Spring Garden Station to 1,000 feet or reclassifying the transit station's entrances to the edge of the I-95 overpass to further encourage resident densities that will support transit on the waterfront.

PERIOD: NEAR-TERM

The City's TOD Overlay encourages compact urban growth patterns, opportunities for increased transportation mode choice, reduced reliance on the automobile, and a safe and pleasant pedestrian environment. Spring Garden is one of four stations in Philadelphia with a TOD designation at present, but its physical condition is markedly different from the other TOD-designated stations at 46th Street, Allegheny, and Erie-Torresdale Avenue, due to the 280-foot expanse of I-95, which consumes a significant portion of the TOD-designated area, thus reducing the potential of the TOD designation.

Within 500 feet, the current TOD Overlay distance, of transit station entrances at Spring Garden Station there are 82 properties. Increasing the overlay to cover 1,000 feet will add 330 additional properties, some of them key sites poised for redevelopment. Expanding the TOD district to include properties within 1,000 feet of

the TOD designation, encouraging greater densities along the waterfront to support transit ([FIGURE 37](#)).

Figure 37 | Map of Spring Garden Station TOD Overlay at 500 feet, 1000 feet, and 500 feet from entrance points if they were defined as the edge of the I-95 overpass



the station – or even properties within 500 feet of the edge of the highway overpass – would greatly enhance the possible impact of

3.4 Marketing and Transportation Demand Management

One impediment to greater transit usage along the waterfront is the lack of information on - and public awareness of - existing transit options. The public meetings and survey feedback illustrate a perception that the waterfront is hard to get to by transit. While certain portions of the corridor certainly are, places like Penn's Landing are served by several high frequency bus routes and the Market Frankford Line. Nineteen percent of waterfront visitors participating in DRWC's 2018 intercept survey stated they chose not to use transit because of a lack of familiarity with the system. Over 30 percent of people responding to an online survey about waterfront travel described accessing the waterfront by transit as "difficult" or "impossible."

Visitors are not the only group which underutilize transit resources. Over half of residents in the Census Tract that encompasses the corridor from Reed Street to Penn Treaty Park drive to work. Residents of affluent Society Hill are 46 percent more likely to commute by transit than residents living just across I-95 along the waterfront.

Investments in existing transit service and public realm improvements will not achieve their full potential if the public is unfamiliar or uncomfortable with using public transportation. Transportation Demand Management (TDM) is an umbrella term for a range of strategies that help shift trips from private automobiles to modes like transit, bicycling, and walking. The following section outlines what DRWC and its partners can do to strengthen TDM along the waterfront to support the other recommendations of this study.

3.4.1. Build on Existing TDM Programs in Philadelphia

Implement a Coordinated Marketing Campaign with SEPTA to promote transit usage along the waterfront

PERIOD: NEAR- AND MID-TERM

In conjunction with any improvements to waterfront SEPTA service, DRWC should partner with the transit agency on advertising these improvements and waterfront transit access overall. New or improved transit service can be promoted aboard buses and trains, on bus shelters, at DRWC-managed public spaces, and among major property owners along the corridor.

The Route 49 promotion campaign provides a template for how DRWC can cooperate with SEPTA on marketing service improvements (FIGURE 38). The 49 is a new route connecting Strawberry Mansion, Fairmount, Grays Ferry, and Brewerytown to University City. The University City District (UCD) worked with SEPTA to promote the new service, which launched as a pilot in 2019.

Figure 38 | Marketing Material for SEPTA's new Route 49 service



Increase the awareness of existing city-wide TDM programs among waterfront residents and employers

PERIOD: NEAR-TERM

There are already several TDM programs available in the City of Philadelphia that encourage the public to shift trips from cars to other modes. Some programs with relevance to the waterfront include:

- **RideECO** is a commuter voucher program run by DVRPC. The program allows workers and employees to set aside pre-tax dollars toward public transit fares. Employers can also offer their workers up to \$20 in qualified transportation fringe benefits for bicycle commuters.
- **Share-A-Ride** is a regional service run by the Clean Air Council that helps match commuters with existing carpools and vanpools. Eligible newly establish carpools or vanpools are eligible for a \$100 gas card.
- **Emergency Ride Home** is a free program that reimburses commuters using transit or carpools/vanpools who, due to unexpected events, cannot get to their place of work, car, or home by their usual means. Users who register for the program are eligible for up to a \$50 per use / \$100 per year reimbursement for rental car or livery service (e.g., taxi, ride-hailing) expenses.
- **On-Site Outreach and Assistance** is provided to employers at no cost by the Clean Air Council. Staff can hold seminars, provide promotional material, and work with employers to develop custom commute strategies.
- **Bicycle Rack Installation** assistance is another service provided by the Clean Air Council. The organization will guide property owners through the permitting process, assist with design requirements, and subsidize up to 50% of the cost of new racks.

Outreach and marketing of TDM programs is critical along the waterfront as many employers and residents may not be aware of these existing programs. The Clean Air Council leads TDM efforts in various parts of Philadelphia. The Center City District and University City District have established Transportation Management Associations (TMAs) that help supplement the work done by the Clean Air Council within their more limited service areas. TMAs are dedicated non-profit organizations that provide transportation and/or TDM services for a specific area. Other partners, like the Navy Yard, have worked with the Council to provide more targeted outreach to their local employers without establishing their own TMA.

DRWC could extend the reach of TDM outreach by implementing one of two options:

- Create an in-house TDM program with dedicated part-time or full-time staff. DRWC could implement TDM informally or create a TMA for the waterfront.
- Enter into a partnership with the Clean Air Council to expand TDM outreach along the waterfront. DRWC could support this effort either financially or by providing staff time and in-kind contributions.
- Outreach should focus on two user groups: employers, notably large commercial and retail employers along the corridor like Walmart, Sugarhouse Casino, and Hilton; and, large residential developments including existing townhouse communities and apartment buildings.

Outreach should focus on two user groups: employers, notably large commercial and retail employers along the corridor like Walmart, Sugarhouse Casino, and Hilton; and, large residential developments including existing townhouse communities and apartment buildings.

3.4.2. Special Event Management

Establish a TDM Checklist for special events at the waterfront

PERIOD: NEAR-TERM

Travel demand to the waterfront is highly irregular, with major events like the New Year's Eve Fireworks attracting large numbers of infrequent visitors. DRWC's online travel survey showed that while fewer people drive to the waterfront during special events, those trips are largely shifted to ride-hailing services and taxis instead of public transit, bicycling, and walking. To shift a greater share of trips away from cars, DRWC should create a checklist of requirements for major events. This will assist in promoting alternative transportation options:

- Send transportation options/information with ticket purchase confirmations.
- Include free SEPTA trip as part of the private of event tickets.
- Provide custom travel guides, such as a one-page document that provides a map and transportation options near the waterfront.
- Promote transportation via website, social media, and special event promotion communications.
- Provide bike valet for events.
- Provide bike corrals to support the use of bikeshare (Indego).
- Work with Indego bikeshare to develop one free ride event codes that encourage travel by bike to the waterfront.

3.4.3. Tourist/Visitor Outreach

Tourists and visitors represent a major segment of travelers to the Delaware River waterfront. They also represent an especially challenging group of users to interact with as they only infrequently come to the waterfront and therefore do not have an established

travel routine. There are a few strategies DRWC can help implement to increase the usage of transit among visitors.

Coordinate with local hotels and tourism organizations like Visit Philadelphia to promote transit usage to the waterfront

PERIOD: NEAR-TERM

DRWC should engage the organizations that provide visitors information about destinations and travel options. Hotels, Visit Philadelphia, and the Philadelphia Convention and Visitors Bureau (PCVB) are all potential channels to reach visitors. DRWC can consult with and provide materials to these organizations. DRWC should even consider conducting transit tours with members of PCVB and hotel concierge staff to build relations with partners and educate them on transit options along the waterfront.

Provide a SEPTA Fare Point-of-Sale at the Waterfront

PERIOD: NEAR-TERM

DRWC could work with SEPTA to sell transit fares at key waterfront destinations, starting with Penn's Landing. Visitors and tourists are more likely than residents to be unsure about where and how to pay for SEPTA fares. A lack of familiarity with the transit system can lead visitors to rely on alternative modes like Uber or Lyft. To make obtaining SEPTA fares easier, DRWC should work with SEPTA to establish a sales point along the waterfront. While MFL stations already feature Ticket Vending Machines (TVMs) and staffed booths, bus riders without a pass or SEPTA Key must pay onboard. DRWC could fund the installation of a TVM at the Market Street viaduct or become an authorized re-seller of SEPTA fare products at a high traffic location like Spruce Street Harbor Park. In the very near-term, DRWC could work with SEPTA to bring temporary point-of-sale units to the waterfront during large events, such as the units used at the stadiums during major events.

3.4.4. Coordinate with Residential Developments

Establish a Coordinated Shuttle Service

PERIOD: NEAR-TERM

Several property owners along the waterfront, such as the Residences at Dockside and Waterfront Square, operate their own private shuttle services for their tenants. Instead of having multiple overlapping shuttle services, DRWC can assist tenants in pooling their resources together into a shared shuttle service that would link participating properties to destinations like the MFL. A coordinated shuttle service could result in a shuttle with a greater span or frequency than the numerous services already provided by major properties.

Work with Residential Complexes to Provide Free or Discounted SEPTA Passes to Tenants

PERIOD: NEAR-TERM

An alternative or complement to private shuttle service would be free or discounted SEPTA passes for tenants. As no individual property can provide its residents the level of service or network that SEPTA offers, providing residents discounted access to SEPTA would increase the car-free mobility of tenants over existing shuttle services.

Figure 39 | SEPTA Mobile Fare Kiosks



CHAPTER 4. IMPLEMENTATION PLAN

Improving waterfront transit service and access will be no simple task. The recommendations outlined in this study will require additional public involvement, stakeholder coordination, and funding before they can be fully realized. Aspects of this plan are dependent on external developments such as SEPTA's planned Comprehensive Bus Network Redesign and the construction of a new cap park at Penn's Landing. Instead of transforming transit overnight, DRWC and its partners will have to take an incremental approach to improving conditions for transit riders along the waterfront. This implementation plan outlines the necessary steps, dependencies, and points-of-responsibility for the recommendations of this study. The implementation plan is intended to be a living document and will require updating over time to ensure momentum is maintained in achieving the study's (and the Master Plan's) vision.

4.1 Phasing

Due to the level of uncertainty around timing, the recommendations are not assigned a specific year of implementation but instead a phase. Recommendations are grouped into phases based on factors such as the timing of project dependencies, complexity to implement, and availability of funding. The three time frames are:

- **Near-Term (next three years)** | These are recommendations where implementation can start almost immediately. Many of the items included in this phase fall under the responsibility of DRWC.
- **Mid-Term (three to eight years)** | This phase represents recommendations that will require additional coordination and funding to realize. Many of the items in this phase are dependent on external factors, such as SEPTA's Comprehensive Bus Network Redesign and the reconstruction of Penn's Landing.

- **Long-Term (9+ Years)** | These recommendations are not presently feasible and/or would require major investments and additional study. While items in this time frame may seem so far away as to not matter, major transformative investments take decades to be realized. The construction of the Penn's Landing cap is a great example of the importance of long-term planning. While the cap was first proposed in its current form in the 2011 Master Plan, it will not be completed until the first half of the 2020s.

4.2 Partners

Implementing the recommendations of this study will require DRWC to work closely with several regional partners. Many of these recommendations fall outside the jurisdiction of DRWC. In many cases, multiple organizations are responsible for individual aspects of a recommendation. For example, relocating bus stops would require coordination with SEPTA, which operates transit service, and the City of Philadelphia which maintains and permits bus stops. The following lists the partners who will be directly involved with implementing recommendations of this study:



Except for the RiverLink ferry and seasonal PHLASH bus, SEPTA operates all public transit serving the waterfront. SEPTA will be responsible for approving and implementing any future transit service changes. Even cost-neutral adjustments to bus service will draw on agency resources for public engagement and service planning.



City of

Philadelphia

The City is a key stakeholder across several components of this study. The **Streets Department** and **Office of Transportation and Infrastructure Systems (OTIS)** manage the roadway right-of-way. Changes to bus stops, striping, curb-side uses, new signage, and additional street furniture all require coordination with and approval from the Streets Department. OTIS is also a key partner for transit service improvements within Philadelphia and has worked closely with SEPTA on past initiatives like Direct Bus Service.

The **Department of Planning and Development** is responsible for overseeing land use regulations such as zoning within the City. Any changes to the existing street designation or underlying zoning would require their involvement. Further, the Art Commission would approve any signage or public art installed along the waterfront.

Other City departments also may play a role in implementation.



pennsylvania

DEPARTMENT OF TRANSPORTATION

PennDOT is responsible for much of the transportation infrastructure along the corridor, including the Delaware Avenue corridor and I-95. Any changes to the roadway, from re-paving to a major reconstruction, fall under the jurisdiction of PennDOT.



Clean Air Council

The Clean Air Council provides TDM services across the City of Philadelphia. DRWC could leverage their existing expertise and programs to enhance waterfront TDM.

dvrpc
REGIONAL
PLANNING COMMISSION

As the region's Metropolitan Planning Organization (MPO), DVRPC plays a key role in transportation planning. Any major investments in infrastructure along the corridor will likely involve DVRPC. The organization also manages grant programs that support planning initiatives and TDM.

In addition to the organizations listed above, there are a wide range of other partners who will play a supporting role in realizing the recommendations in this study. Any changes to transit service or investment in infrastructure will require public consultation. DRWC will work closely with community partners, including neighborhood organizations, local city and state representatives, and civic groups such as the Central Delaware Advocacy Group (CDAG).

4.3 Funding

Funding is a major constraint to implementing the recommendations of this study. Many of DRWC's partners must contend with tight operating budgets and limited resources to invest in programs and infrastructure. Furthermore, improvements to transit along the waterfront compete with other investment needs across the city and region. Recognizing these limitations, DRWC has focused the near-term recommendations on things that require limited additional resources to implement. Many of the longer-term investments will require more significant public investment that may take years to materialize. The following lists funding strategies to support investments:

- **Cost Neutral Enhancements** | Some of the study's recommendations are revenue neutral. The study team worked with SEPTA to identify savings that can offset the cost of increasing waterfront transit service. In other cases, recommendations piggyback on ongoing or planning investments without significantly carrying an additional cost.
- **DRWC Revenue** | DRWC generates revenue through concessionary rents, land development, and parking fees. While all the organization's current revenue is allocated to existing programs, some of the recommendations in this study could be supported by any future revenue growth.
- **City of Philadelphia Contributions** | The City of Philadelphia is an important funding partner on a wide range of projects along the waterfront. It often supports projects by providing the necessary local match on state or federal grants. DRWC recognizes that City funding is highly constrained.
- **State and Federal Funding** | State and federal funding are an important component of larger infrastructure investments like the Penn's Landing Cap. A major investment in transit, such as a waterfront light rail line, would likely require federal funding support. The Federal Transit Administration funds these projects through competitive grant programs like Small and New Starts. Ongoing maintenance and roadway construction are funded through state and federal funding and dispersed by PennDOT. All federal funding requires a local match.
- **Private Giving** | Private donations are a critical for supporting investments along the waterfront. As the City has limited resources to devote to waterfront projects, foundation support and private giving help to fill the funding gap. Organizations like the William Penn Foundation and Pew Charitable Trust have supported past projects such as Race Street Pier. The Knight Foundation is a funding partner for the Penn's Landing Cap project.
- **Advertising and Private Sponsorship** | Advertising and sponsorship is another source of funding. On-street advertising is utilized to generate revenue for a range of public amenities such as bus stops, bike share, and wi-fi hotspots. For example, the City has a contract with the company Intersection to install and maintain bus shelters in exchange for shelter advertising revenue. Sponsorships are also increasingly common; Univest sponsors the Spruce Street Harbor Park and Independence Blue Cross sponsors the RiverRink.
- **Developer or Property Owner Contributions** | Property owners and developers can also support the recommendations of this study through various means:
 - Voluntary contributions and coordination.
 - Formation of a Business Improvement District with the power to levy fees on property owners.
 - Congestion mitigation measures enacted as part of the site plan review process. Major developments may be required to make improvements to adjacent sidewalk, streets, and signals.
 - Community Benefit Agreements (CBAs) where private developers contribute funds to DRWC to help mitigate the impact of the project. Unlike mitigation measures that come out of the site plan review process, CBAs are arrangements between the developer and non-governmental entities. Funding is not improvement specific but instead can support wider infrastructure and operational investments.

4.4 Governance and Oversight

The recommendations of this study cover a long timeframe and involve many partners and stakeholders. A defined governance structure is important to maintain lines of communication and responsibility. The Waterfront Transit Study envisions DRWC taking a leadership role by serving four key functions:

- **Leading implementation** of any recommendations that fall under the jurisdiction and control of DRWC.
- **Coordinating with partner organizations** to maintain momentum around any recommendations that fall outside DRWC's jurisdiction.
- **Advocating for ongoing improvements** to waterfront transit access and service.
- **Communicating a vision** for how the Delaware Avenue corridor can transform into a multi-modal urban boulevard.

As highlighted in [SECTION 4.5](#), each recommendation is assigned a party with primary responsibility for implementation. Regularly scheduled coordination meetings will be important in maintaining open lines of communication and gathering feedback. The implementation plan is envisioned as a living document and DRWC will update it based on stakeholder and public.

4.4.1. Partner Coordination

This study recommends that public agency partners meet quarterly to discuss progress in implementing our recommendations. There are several regularly scheduled meetings that bring together partners and it likely would be most effective to fold coordination on waterfront transit into one of these forums. The best candidate is the **Delaware Avenue Stakeholder Group**, which is hosted by DVRPC and includes PennDOT, DRWC, SEPTA, and the City of Philadelphia.

4.4.2. Community Engagement

Successfully realizing the vision of this study will require ongoing engagement with the community and key decisionmakers. Public support is essential to building the momentum necessary to acquire new funding for transportation improvements along the waterfront. DRWC has several options for regularly scheduled public consultation:

- Incorporate public engagement for this study into ongoing outreach conducted by PennDOT for the I-95 reconstruction. The stakeholders attending these meetings would likely also be interested in progress on this implementing this study.
- Partner with the Central Delaware Advocacy Group (CDAG) to include updates on implementation process at CDAG meetings.
- Host a semi-annual open house dedicated to waterfront transportation.

4.5 Matrix of Recommendations

TABLE 10 summarizes all the recommendations of this study, the implementation timeframe, and parties responsible for leading and supporting implementation. The matrix is sorted by timeframe and alphabetically by project type.

Table 10 | Implementation Matrix

Type	Action	Responsible Party(ies)		Details	Timeframe		
		Lead Partner	Supporting Partner		Near-Term	Mid-Term	Long-Term
					2019 to 2021	2022 to 2026	2027 and later
Bicycle	Extend waterfront trail	DRWC	Streets Department, PennDOT	Initiate construction of Central Delaware segment of the waterfront trail.			
Bicycle	Expand bicycle parking	DRWC	OTIS	Expand bicycle parking along the waterfront, notably at busy destinations.			
Bicycle	Expand Indego	OTIS	DRWC	Add additional Indego stations at waterfront destinations. High priority locations include Penn's Landing at Market Street and Frankford Avenue loop.			
Bus Service	Route 25 frequency increase	SEPTA	DRWC	Eliminate short-turn trips on the Route 25 after the AM Peak. Improve the base headway during the midday, evening, and weekends to every 20-minutes.			
Bus Service	Route G schedule adjustment	SEPTA	DRWC	Add service on the pattern to Columbus Commons by eliminating low-ridership trips on the pattern to the Food Distribution Center			
Bus Stops	Bus stop consolidation and relocation	SEPTA	DRWC, OTIS, Streets Department	Streamline the location of bus stops. Relocate bus stops that are in locations that conflict with curb cuts or are inconvenient to access. Eliminate stops with very low ridership or lacking in a nearby pair in the other travel direction.			
Bus Stops	Invest in bus stop ADA and amenity upgrades	DRWC, Streets Department	OTIS, SEPTA	Ensure all bus stops meet basic ADA standards. Add shelters and seating in locations where warranted by ridership.			

Type	Action	Responsible Party(ies)		Details	Timeframe		
		Lead Partner	Supporting Partner		Near-Term	Mid-Term	Long-Term
					2019 to 2021	2022 to 2026	2027 and later
Ferry Service	RiverLink ferry service increase	DRWC	Cooper's Ferry Partnership	Expand operating season of RiverLink ferry and add additional morning and late-night trips. Introduce new ticketing options for one-way and commuter trips.			
Ferry Service	Detailed ferry assessment	DRWC	DVRPC, DRPA, Cooper's Ferry Partnership	Conduct any necessary planning and conceptual design for year-round ferry service.			
Land Use	Refine site plan for Penn's Landing to accommodate Chestnut-Market connector	DRWC	PennDOT, OTIS, Streets	Define necessary changes to location and dimension of the Market Street viaduct to accommodate future redevelopment of Penn's Landing.			
Land Use	Update street designation for Delaware Avenue / Columbus Boulevard	PCPC	DRWC, Streets Department	Change designation of all of Delaware Avenue and Columbus Boulevard to Urban Arterial or Walkable Commercial Corridor from existing Auto-Oriented Commercial/Industrial.			
Land Use	Update TOD overlay to cover larger area of waterfront at Spring Garden	PCPC	DRWC	Extend TOD overlay at Spring Garden station to account for I-95 occupying most of the overlay area today.			
Land Use	Optimize land use regulation for TOD	PCPC, DRWC		Convene working group between DRWC and City Planning to explore how existing land use regulations can be adjusted to incentivize development densities envisioned by the Master Plan.			
Pedestrian	Repair faded or missing crosswalks	PennDOT, Streets Dept.	DRWC	DRWC to coordinate with PennDOT and Streets Department to ensure that upcoming repaving of the Delaware Avenue corridor includes necessary bicycle and pedestrian markings. The work should repair faded or missing crosswalks along corridor.			

Type	Action	Responsible Party(ies)		Details	Timeframe		
		Lead Partner	Supporting Partner		Near-Term	Mid-Term	Long-Term
					2019 to 2021	2022 to 2026	2027 and later
Pedestrian	Invest in connector streets	DRWC	Streets Department	Continue roll-out of waterfront connector streets, notably Washington Avenue connector. Initiate design work on Reed Street connector.			
Penn's Landing Cap	Prepare for service impacts related to Penn's Landing Cap construction	SEPTA, PennDOT	DRWC	SEPTA and PennDOT should coordinate to minimize disruption caused by the Penn's Landing cap, notably any closure to the Market Street viaduct. Ensure a timely reopening of viaduct.			
Penn's Landing Cap	Ensure final design incorporates pedestrian circulation for transit users	PennDOT	SEPTA, DRWC, Streets Department	Ensure final design includes pedestrian access for transit users transferring between Columbus Boulevard and transit services along Market, Chestnut, and Walnut Streets.			
Placemaking	Create pop-up improvements to Penn's Landing bus hub	DRWC, Streets Department	SEPTA	Make temporary improvements to bus stops on the Market Street viaduct at Penn's Landing, including new shelters, signage, public art, seating, and landscaping.			
Placemaking	Make pop-up improvements to passenger area at Frankford loop.	DRWC	SEPTA, Streets Department.	Implement new landscaping, seating, and public art at Frankford loop as part of the Frankford Avenue Connector project.			
Placemaking	Increase maintenance of landscaping and hard surfaces along corridor	DRWC, PennDOT	Streets Department	Increase maintenance of landscaping, roadway, and hardscape along corridor. Examples include trimming overgrown plants and trees, repairing broken curbs, and filling in potholes			
Placemaking	Remove highway barriers along corridor	PennDOT, Streets Department	DRWC	Remove instances of concrete barriers and guard rails along Columbus Boulevard and Delaware Avenue that do not currently serve a function.			
Ridesharing	Establish policies to better regulate ridesharing pick-up and drop-off	City of Philadelphia (multiple agencies and legislation)	DRWC, SEPTA	Establish an enforceable regulatory framework for managing where ridesharing services pick-up and drop-off passengers to reduce conflicts between ridesharing services and other modes.			

Type	Action	Responsible Party(ies)		Details	Timeframe		
		Lead Partner	Supporting Partner		Near-Term	Mid-Term	Long-Term
					2019 to 2021	2022 to 2026	2027 and later
Ridesharing	Designate ridesharing drop-off and pick-up zones	DRWC	OTIS, Streets Department	Designate ridesharing drop-off and pick-up zones at high-traffic locations			
Shuttle Bus	Conduct pilot of special event shuttle to waterfront	DRWC	OTIS, Visit Philadelphia	During major waterfront events, pilot a chartered shuttle service to Market Street east to facilitate connections to PATCO and Regional Rail.			
TDM	Employer and residential TDM outreach	DRWC	Clean Air Council	Conduct education campaign with waterfront employers and residents about public transit options. Publicize existing regional transit incentives. Create additional incentives to encourage participation and generate buzz.			
TDM	Transit to the Waterfront Marketing Campaign	DRWC, SEPTA		Market accessibility of transit. Coordinate with improvements to the Route 25 and new wayfinding.			
TDM	Foster partners with tourism organizations	DRWC	Clean Air Council	Work with tourism organizations to push out information on the accessibility of the waterfront by transit, walking, and biking.			
TDM	Hotel-focused transit outreach	DRWC		Conduct direct outreach with hotels, including guided tours with concierge staff.			
TDM	Coordinated shuttle service	Properties with private shuttles	DRWC	Work with property owners with existing private shuttles to consolidate service into an expanded waterfront shuttle. Alternatively reallocate resources from waterfront shuttle to discounted or free SEPTA passes for tenants to encourage use of the Route 25.			
TDM	TDM checklist for special events	DRWC	Clean Air Council	Create a TDM checklist for special events with a focus on accommodating additional travel demand and discourage driving.			
TDM	Ferry and Park promotion	DRWC	Clean Air Council	Market the use of Ferry to connect drivers to the waterfront.			
TDM	Waterfront SEPTA ticket sales point	DRWC	SEPTA	Fund a SEPTA ticket vending machine at Penn's Landing.			

Type	Action	Responsible Party(ies)		Details	Timeframe		
		Lead Partner	Supporting Partner		Near-Term	Mid-Term	Long-Term
					2019 to 2021	2022 to 2026	2027 and later
Wayfinding	New framework for unified waterfront wayfinding	DRWC	Streets Department, OTIS, DPD, Riverfront North Partnership	Unify the existing disjointed wayfinding with a unified design that utilizes consistent terminology for waterfront destinations.			
Wayfinding	Transit-focused wayfinding	DRWC	Streets Department, OTIS, DPD	Implement pedestrian-scale wayfinding to transit. Provide good signage to direct people to or from nearby transit.			
Wayfinding	Signage maintenance	DRWC, Streets Department	OTIS	Address signage maintenance issues, including obstructed, vandalized, faded, or damaged wayfinding signage along corridor			
Wayfinding	Supplementary signage at bus stops	DRWC	SEPTA	Add supplementary signage at bus stops to increase their visibility to pedestrians.			
Bus Service	Conduct incremental improvements to Delaware Avenue bus service as warranted by new development	SEPTA & DRWC		Monitor new development to make incremental improvements in bus service as needed.			
Bus Service	Extend Route 40 and improve service frequencies	SEPTA	DRWC	As part of the CBNR, extend the Route 40 from its current terminus to the terminus of the Route 12 at Dock Street and Columbus Boulevard. Improve peak headways to eight-minutes.			
Bus Service	Incremental bus priority improvements	Streets Dept., PennDOT	SEPTA	As opportunities arise, add bus priority treatments along corridor such as TSP, and queue jump or bus lanes.			
Ferry Service	North-south ferry service along the Central Delaware River	DRWC		If deemed feasible, implement multi-stop ferry service from Penn Treaty Park to Columbus Commons. Service could utilize water taxis during low-ridership periods.			

Type	Action	Responsible Party(ies)		Details	Timeframe		
		Lead Partner	Supporting Partner		Near-Term	Mid-Term	Long-Term
					2019 to 2021	2022 to 2026	2027 and later
Pedestrian	Lighting and street trees	DRWC, Streets Department	PennDOT, OTIS	Add pedestrian-scale lighting along corridor and connector streets. Add additional street trees to provide shade and protection from the elements.			
Pedestrian	Improve sidewalks along corridor	Streets Dept., Private Developers	PCPC, OTIS, DRWC, PennDOT.	Phase in reconstruction of sidewalks to meet Urban Arterial or Walkable Commercial Corridor standards listed in the Complete Streets manual. Widen sidewalks to a minimum of six feet clear space, with lighting, street furniture, and street trees. Reconstruction of sidewalks along certain segments will depend on redevelopment of adjacent properties.			
Placemaking	Permanent enhanced bus stop at Market Street	DRWC	SEPTA, PennDOT, Streets Department	As part of the reconstruction of the Market Street viaduct, create a permanent enhanced bus stop at Penn's Landing. Include landscaping, signage, artwork, and shelters.			
Transit Center	Pier 70 transit center	SEPTA, Streets Department	DRWC, DVRPC, PCPC	Construction a permanent transit center at Pier 70 to accommodate the multiple bus routes the terminate at Columbus Commons			
High Capacity Transit	Planning, design, and engineering of waterfront light rail, streetcar, or BRT	DVRPC	DRWC, SEPTA, PennDOT, Streets Department, PCPC, OTIS, FTA	Initiate necessary planning, design, and engineering of waterfront transit corridor. Alternatives analysis will determine preferred mode and final alignment. Further explore acquisition of Belt Line right-of-way.			
High Capacity Transit	Dedicated transit corridor	PennDOT, Streets Department	DRWC, SEPTA, OTIS DVRPC, DRPA, FTA	Reconstruction of Columbus Boulevard and Delaware Avenue into urban boulevard with median-running transit.			
Ferry Service	High-speed commuter ferry	DRWC	DRPA, DVRPC	Establish a ferry connecting the Central Delaware River waterfront and Camden to the Navy Yard (with possible extension to Philadelphia International Airport). Construct necessary dock infrastructure and procure new high-speed ferry boats.			

Type	Action	Responsible Party(ies)		Details	Timeframe		
		Lead Partner	Supporting Partner		Near-Term	Mid-Term	Long-Term
					2019 to 2021	2022 to 2026	2027 and later
Placemaking	Extend I-95 Cap	PennDOT	Streets Department, DRWC, PCPC, OTIS	Extend the cap over I-95 to include the entire sunken corridor through Center City.			

4.6 Performance Monitoring

This study represents just the first step in improving public transit access to the waterfront. Ongoing performance monitoring will be important to help determine the effectiveness of the recommendations outlined in this plan. Based on performance, DRWC and its stakeholders can modify their approach to maximize the impact of investments in waterfront transit. There are a wide range of metrics that could be used to track progress but ultimately metrics should reflect the goals established at the start of the planning process. **TABLE 11** lists basic metrics DRWC can use to assess the progress and impact of plan implementation.

Table 11 | Performance Measures

Study Goal	Measures	Data Source
Improve transit access to the waterfront for Philadelphians and visitors	Frequency and span of service on waterfront transit routes	SEPTA schedule data; GTFS data
	Area within a one-seat ride of the waterfront	
	Area within a two-seat ride of the waterfront	
Make walking, biking, and transit the preferred mode of transportation to the waterfront	Walk, bicycle, and transit mode share to the waterfront	Annual waterfront intercept survey.
	Measurement of TDM engagement (e.g., website hits, hotels contacted)	DRWC to track as part of all TDM efforts.
Placemaking	Commute mode share of waterfront residents	U.S. Census, American Community Survey
	Metrics related to new development, including units per acre and parking per unit	Site plan of projects initiated after completion of this study
Sustainability	Productivity of waterfront transit service (boardings per hour)	SEPTA ridership data
	Proposed measures above also reflect environmental and return on investment objectives	

4.7 Next Steps

The Waterfront Transit Plan envisions that improving transit access along the Central Delaware River waterfront will be an incremental process. DRWC and its partners can start implementing some of the recommendations right away. Programmatic improvements, such as targeted waterfront TDM strategies, can be led by DRWC with limited dependencies by outside partners.

None of the recommendations in this plan can happen overnight. Even straightforward changes to bus service require time and resources to plan and implement. DRWC and its partners all face resource constraints that limit their capacity to move forward recommendations. As part of the governance and oversight structure proposed by the plan, DRWC should select a subset of priority recommendations to accomplish in each quarter and year. Progress can be documented through quarterly stakeholder groups and communicated to the public. Immediate action items include:

- Formalize waterfront transit governance and oversight structure, notably quarterly forum to discuss progress on implementing the study.
- Begin pursuing potential funding opportunities as they arise.
- Identify a subset of near-term recommendations that will become “first step” projects that can be initiated in 2019.

CHAPTER 5. CONCLUSION

This study aims to make Philadelphia's Central Delaware River waterfront more accessible to the public through tangible, feasible, and incremental improvements to public transit service and access. In the past decades, the Delaware River waterfront has been an underutilized and underappreciated asset, with the main physical obstacle of Interstate 95 insulating Philadelphia from its riverfront. The waterfront's primary arteries, Delaware Avenue and Columbus Boulevard, have often been treated as alternative routes for I-95, limiting the potential and livability of the waterfront. Philadelphia is now reengaging with its waterfront through urban and public spaces such as Spruce Street Harbor and Race Street Pier, and new residential and commercial developments along the corridor. With this renewed interest in the waterfront, it is crucial to identify and improve its transit and pedestrian service now to set the stage for more transformational changes along the corridor in the future.

Past transit planning efforts along the corridor focused on the feasibility of a major infrastructure investment in a light rail or streetcar line. A lack of public resources, coupled with limited demand in the present day, means such an investment is still far off from being realized. It is critical to look at how strategic, surgical changes in the existing transit network can have a more immediate and tangible impact on the waterfront. Improving the existing SEPTA connections and pedestrian experience to waterfront venues and businesses will help solidify and grow a transit and pedestrian culture in the neighborhood. Improved transit service in the short- and mid-terms helps shrink the perceived distance between the waterfront and the rest of Philadelphia, and in turn encourage the type of development envisioned by the waterfront Master Plan. Modest and implementable recommendations today will help establish an infrastructure skeleton for the waterfront to be built into a well-designed, urban-scale corridor.

The study team focused on recommendations that were realistic of stakeholder priorities and abilities, yet implementable. Transit recommendations in the short- and mid-term strive to account for the limitations SEPTA faces in proposing service changes, and also aware of how these recommendations should fit into the larger, impending redesign and its goals. Public realm recommendations are precise, actionable, and realistic. They are mostly small and tactical in nature but can lead to a vastly improved pedestrian experience if implemented fully. TDM policies aim to build off existing programs and change the public awareness and perception of existing transit service.

All of these recommendations emphasize the need for a shift in how agencies, residents and visitors think about Columbus Boulevard and Delaware Avenue – from an inaccessible, automobile-oriented auxiliary highway to an urban boulevard that seamlessly weaves into Philadelphia's existing fabric. The challenges facing this vision, both physical and political, are immense, but not insurmountable. Reframing the waterfront as a neighborhood to be densified and developed through better transit service, pedestrian infrastructure, public branding, and progressive zoning is the key to helping its future.

