



WEST COMMERCIAL STREET MULTI-MODAL CORRIDOR STUDY

PORTLAND, ME | JANUARY 2016



A background image showing a wide street with a dedicated bike lane on the right side, marked with white paint and a bicycle symbol. A brick building with a chimney is visible on the right side of the street, and trees with autumn foliage are in the background.

ACKNOWLEDGEMENTS

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WEST COMMERCIAL STREET MULTI-MODAL CORRIDOR STUDY AREA



*West Commercial Street Multi-modal
Corridor Vision – to safely accommodate
all modes of transportation while sustaining
marine-industrial uses and promoting mixed-
use development along an important gateway
corridor into Portland's waterfront.*



1. INTRODUCTION

As Portland's economy and culture change in the 21st century, so will its streets. Residents of the city have expressed ongoing interest in streets and roadway corridors that provide options for all modes of transportation, not just cars and trucks. At the same time, Portlanders want to maintain a strong working waterfront that retains jobs, industries and a character that defines the City as a port community. As such, the West Commercial Street Multi-modal Corridor Study seeks to strike a balance between the needs for improved walking and bicycling facilities with the ongoing needs of the existing and proposed marine industrial uses along the corridor. This includes employee parking, wide driveways, truck staging (i.e. temporary parking), and loading and unloading activities, frequently requiring the use of a forklift.

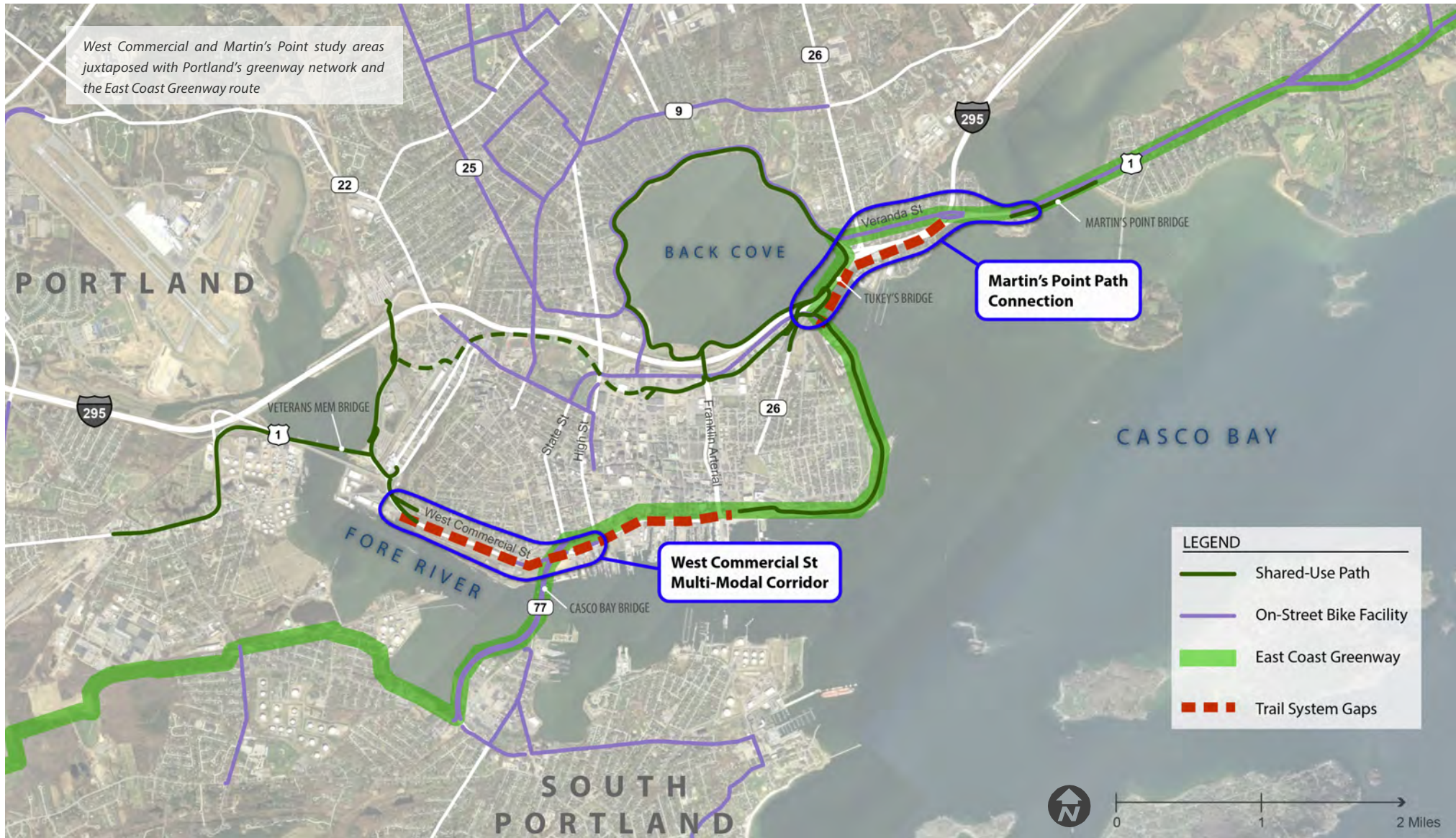
The recommendations found in this study include a series of improvements that can be implemented in the short, medium or long term, depending on available funding. Short term improvements typically involve restriping of the roadway or more-intensive projects that have already secured funding and

will be ready for implementation in the next year or two. Medium term improvements are those that include relocating existing crosswalks or projects that will require far more stakeholder outreach than was performed for this study. Long term projects are those that will need to be coordinated with future redevelopment projects, currently unfunded trail projects or those that involve more-expensive roadwork, such as changing existing curb lines.

When most or all of the recommendations are implemented in the future, West Commercial Street will remain a critical corridor for regional travel for cars, trucks, bicycles and pedestrians.¹ The roadway will retain one travel lane in each direction with either dedicated left turn lanes or a two-way left turn median in most stretches. On street bicycle lanes will be included along most of the corridor with shared lane markings providing the transitions to/from Cassidy Point to the west and the Old Port at the east end of the corridor. A shared use path will extend from the current

¹ There are currently no METRO bus routes along West Commercial Street

REGIONAL CONTEXT



West Commercial Street Multi-Modal Corridor Study

terminus of the Fore River Trail to the Old Port and provide a walking and bicycling facility for a wide variety of users, include beginner bicyclists and families. New and relocated crosswalks are recommended to assist with pedestrian safety and connectivity from one side of West Commercial to the other (especially as redevelopment project come on line). Combined, these roadway elements will encourage motorists to drive within the posted speed limit, something not always adhered to today. Finally, accommodation of truck travel, turn movements, temporary parking, and loading/unloading will remain a key feature along West Commercial. This report's recommendations aspire to provide a more-defined area for trucks, bringing a level of predictability that will enhance access and safety for all users.

In summary, the key recommendations in this study include:

- A shared use path along the northerly edge of the length of the corridor, with segments defined for short term implementation and others for long term
- Continuation of one travel lane in each direction with left turn lanes as needed
- Striped bike lanes along the length of the corridor, with some portions buffered where space is available
- Continuation of truck parking and staging west of the Beach Street intersection
- Integration with industrial development, including current expansion of the IMT freight yard and New Yard boat repair facilities
- New crosswalks and flush or raised median islands in areas with current demand
- Flexible shoulder space in the Holyoke Wharf area for parking, truck staging and loading/unloading

2. EXISTING CONDITIONS

The West Commercial Street study area is a roughly one-mile long corridor that extends from the intersections of Cassidy Point Drive to High Street. The west half of the corridor provides a critical regional traffic connection from I-295 to the Casco Bay Bridge and vice-versa. This study was completed concurrently with one in the Martin's Point area of Portland by the same consultant team. Together, the recommendations within each report offer the opportunity to close significant gaps in the region's greenway system and improve overall connectivity for pedestrian and bicycle travel throughout the city.

West Commercial Street itself between Cassidy Point and High Street is a primarily commercial corridor with a heavy emphasis on Marine Industrial uses on the waterfront (south) side. That includes the busy International Marine Terminal (IMT), which is in process of expansion to parcels on the west side of the Casco Bay Bridge. This expansion includes a future large cold storage facility that is expected to increase truck traffic on West Commercial in the coming years. Other uses include fishing wharves, seafood processing and distribution, bait processing and distribution, boat repair and storage yards, marine supply businesses and various retail establishments, primarily on the land side (north) of West Commercial. Besides the IMT expansion, there are three other development proposals including 1) a mixed-use development project on property owned by J.B Brown on the west end of the corridor, 2) a new boat yard and storage facility across West Commercial from the Star Match building and 3) a marine retail project on the parcel owned by Portland Yacht Services. Facilitating the ongoing IMT expansion includes the relocation of freight rail and Maine DOT's new signalized intersection at Beech Street which includes new curb cut access to the waterfront area. Also planned for this area is a "Haul Road" that would provide a truck bypass route from the Cassidy Point Drive intersection directly to the IMT. If implemented, the Haul Road would allow a significant percentage of trucks to avoid the congestion at the West Commercial/Beech Street signal.

EXISTING CONDITIONS



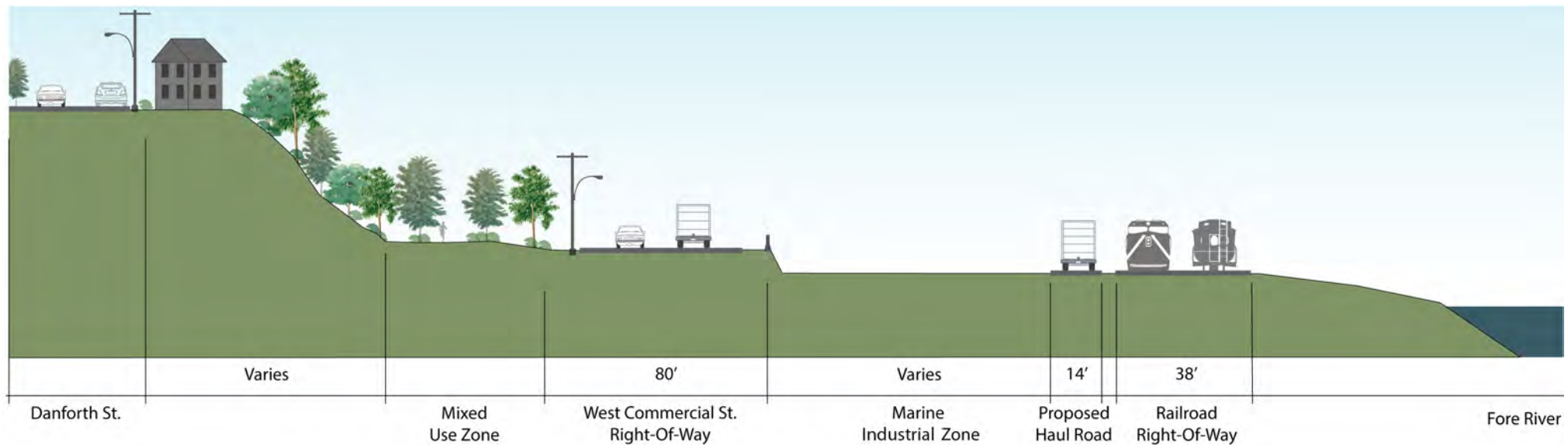
West Commercial Street Multi-Modal Corridor Study

Overlooking the corridor is the West End residential neighborhood high on a bluff above West Commercial. The only street connections between the two areas are Beach, Park and High streets. There is also a sloping path through Harbor View Memorial Park from the intersection of Brackett and York down to West Commercial Street. A crosswalk provides a walking route directly to the IMT, but the wide roadway, heavy truck presence and traffic speeds can make this a difficult crossing for pedestrians. Other options to cross West Commercial include the existing crosswalk at Cassidy Point Drive, the new signalized crossing at Beech Street, and a crosswalk and refuge island recently installed at High Street.

The environment for active transportation—walking and bicycling—along West Commercial is currently marginal. The north side of the street includes a relatively continuous sidewalk from the Star Match building to High Street and beyond into the

Old Port. A portion of the sidewalk that is part of Maine DOT's recent reconstruction project is designed as a shared use path (8'-10' in width), which ultimately will connect to the Fore River Trail to the west. On the south side of the street, there have been incremental extensions of the sidewalk in the Old Port area that now reach Becky's Diner at High Street. West of Becky's, there are no designated pedestrian facilities within the right of way. Bicycling along the West Commercial corridor can be challenging due to traffic volumes and speeds, along with the high levels of truck traffic. Some portions of the roadway west of the Casco Bay Bridge or adjacent to Harbor View Park include a modest shoulder, but in other areas, a bicyclist must share the lane with traffic. Between the IMT and High street, eastbound bikes sometimes have the opportunity to use the undefined shoulder/parking area on the south side of the street, but truck staging and loading/unloading activities add challenges to the route.

Cross section graphic of West Commercial Street west of the Star Match building



MARINE INDUSTRY

The Commercial Street and West Commercial Street corridor holds a unique place in the City of Portland amid the regional marine economy. As the interface between the City and the piers and wharfs of Portland Harbor, Commercial Street serves as both an urban main street, and the functional interface with Portland’s treasured harbor. These multiple purposes present potential conflicts and challenges for transportation planning unique to mixed use industrial waterfronts. Increasingly, Commercial Street is becoming a tourist attraction, placing further strains and complexity on the infrastructure. While the street evolves, one must always consider that certain elements are fixed. Piers can’t move, water-dependent industries can’t relocate, and water-constrained properties can’t expand. The fisheries and other marine businesses that dominate the waterside of Commercial Street have no alternative locations within which to operate. For Commercial Street, a “Complete street” needs to accommodate the unique transportation needs of marine industries. While truck staging and loading may not be typical activities for urban streets, these activities are character defining features of Commercial Street. The broad right of way, as much as 100 feet, results from the 1850’s recognition that the street needs to accommodate the loading, staging, and complex transportation needs of the piers and wharfs. In identifying a context sensitive solution for updating the harbor, Commercial Street and West Commercial Street require a detailed understanding of both roadways and water-bourne transportation. This report embraces the marine industrial character of the context while expanding opportunities for pedestrian and bicycle transportation.

West Commercial Street’s right of way varies from one end of the corridor to the other. The 80 foot wide section of the right of way narrows to only 50 feet east of the curve adjacent to the Beech Street intersection. East of the primary entry drive to the IMT, the right of way widens to 100 feet which continues into the Old Port. Within the entire study area, there is a single lane of traffic in each direction with designated left turn lanes or two-way left turn lanes along many stretches. There is no curb-side parking on the north side except in front of the Star Match building. Within the 100 foot wide portion of West Commercial, the area between the travel lanes and waterfront piers is a haphazard mix of head-in parking, truck layovers, staging areas and active loading and unloading operations. While this activity is vital to the economic viability of the marine-based businesses between the Old Port and the IMT, it creates challenges for walking and bicycling (and occasionally driving) along West Commercial Street. One of the most significant on-going challenges for the corridor is developing a policy and infrastructure plan to find the right balance between these competing interests.

WEST COMMERCIAL STREET TRAFFIC VOLUMES

West of Beach St.		East of Beach St.	
Eastbound, 4:00 - 6:00 PM	Westbound, 4:00 - 6:00 PM	Eastbound, 4:00 - 6:00 PM	Westbound, 4:00 - 6:00 PM
781	1510	426	1789

Two-hour PM peak traffic volumes along West Commercial Street recorded on Wednesday, January 29, 2014



Portions of the north sidewalk along West Commercial were recently widened for shared use by pedestrians and bicyclists



Truck parking and loading/unloading operations can make walking along the south side of West Commercial difficult



Eastbound bicycle travel along West Commercial Street can be a challenge due to the many layers of parked cars and trucks

3. PURPOSE AND NEED

The purpose of the West Commercial Street Multi-Modal Corridor Study is to recommend a configuration for the corridor that safely accommodates all modes of transportation and improves bicycle and pedestrian connections through the corridor. Special attention will be paid to supporting the current mixed-use environment and currently proposed projects such as the IMT expansion and other mixed-use development proposals. Because of the adjacent industrial, fishing and marine-based commercial uses, particular emphasis is placed on accommodation of truck traffic and temporary staging. The recommended cross sections found further on in this report include: travel lanes, turn lanes, on-road bicycle facilities, a wide sidewalk/shared-use path along the north side, crosswalks, on-street parking and other streetscape amenities such as landscaping and enhanced lighting. From an urban design perspective, changes proposed along the corridor are intended to create an enhanced gateway to Portland's waterfront from the west.

Goals:

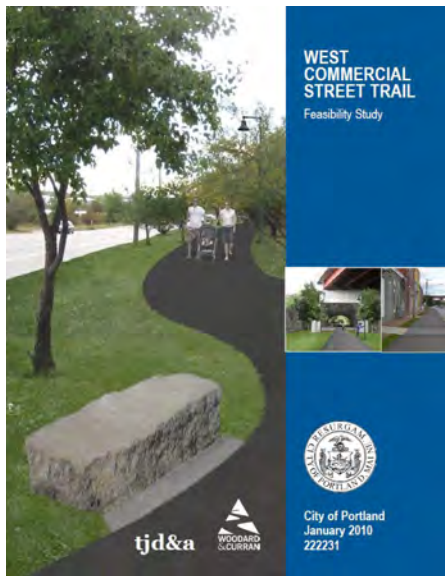
- Balance truck access and staging with pedestrian and bicycle safety and mobility
- Build on IMT expansion plans to leverage current investments to achieve a road and trail system serving current and future uses along the corridor
- Utilize West Commercial Street to efficiently serve divergent land uses and the widest number of roadway users
- Enhance the physical and operational nature of West Commercial to serve the mixed land uses and create an attractive gateway to Portland's waterfront.

Needs:

- Reduce the current high vehicle speeds
- Create better-defined areas for truck parking, staging, and loading/unloading
- Extend the shared-use path from the Veterans Memorial Bridge to the Old Port
- Provide on-road bicycle facilities with buffers to truck traffic or parked cars, where possible
- Enhance pedestrian accessibility along and across West Commercial Street



The undefined spaces along West Commercial Street will be designated for travel lanes, truck staging, loading/unloading or bike lanes in the future



4. PAST PLANNING

The West Commercial Street Corridor is currently defined by marine-based commercial/industrial uses and transportation infrastructure that prioritizes motor vehicles. Plans previously completed have identified options to improve non-motorized circulation in the corridor while maintaining efficient movement cars and trucks. The most relevant recent report is the West Commercial Street Trail Feasibility Study, published by the City of Portland.

The 2010 Study sought to determine preliminary alignment options and cost estimates for the West Commercial Street Trail. The trail was envisioned to be a paved, multi-use recreational trail travelling from the intersection of Veterans Bridge and the

Fore River Parkway to Harbor View Park. Two options were presented in the plan, an “Off-road” and an “On-road” option. For the City, local advocates and the general public, the initially-preferred option was the Off-road alignment. Due to property acquisition requirements for the off-road option, however, the On-road option was also developed. Planning level cost estimates were provided for both options.



The 2010 Study’s “On-Road” option included a pathway attached to the existing sidewalk in front of the Star Match Building.

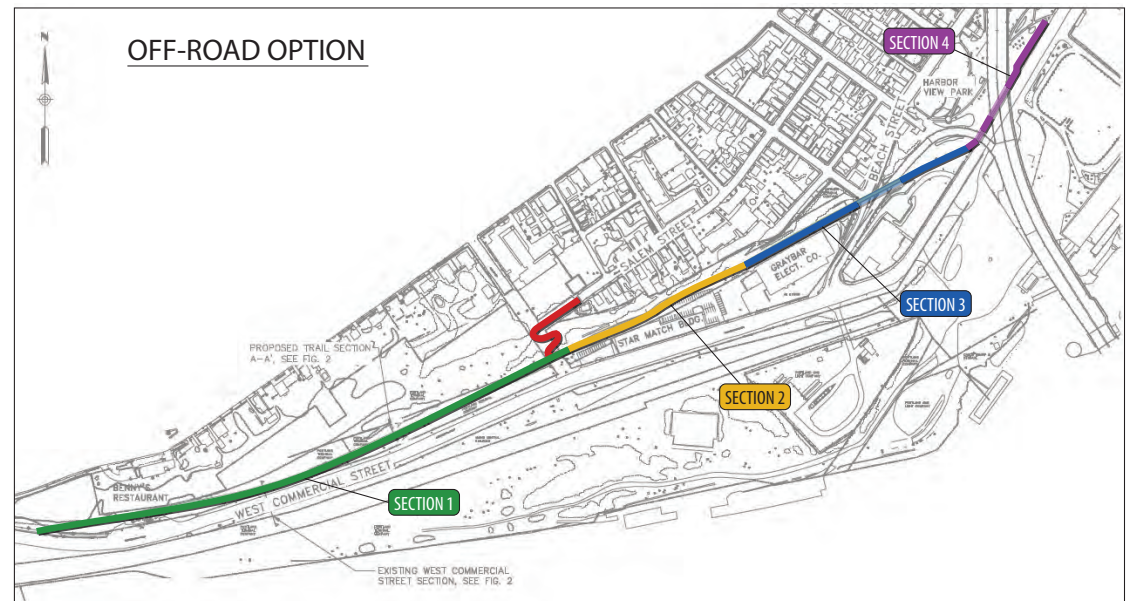
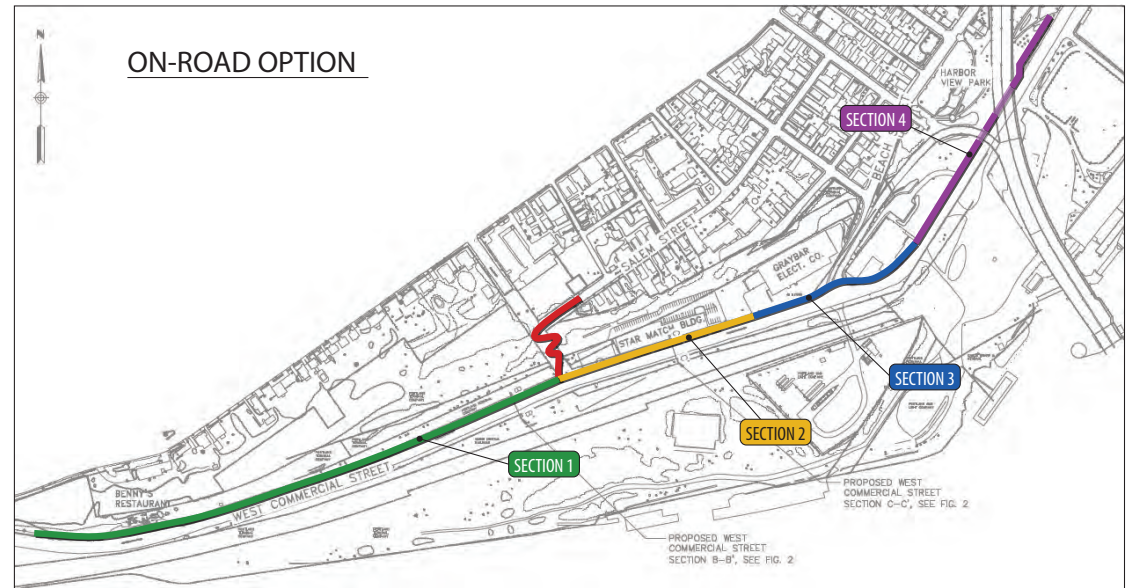
The Off-road alignment was divided into three section for planning and cost estimating purposes. The first section at the western end of the corridor utilized an old railroad bed and City Right-of-Way, and few hurdles for this section were identified. Section 2 also followed former railroad corridor, but is routed behind the Star Match building and would require negotiations with property owners and the relocation of existing parking spaces. Section 3 was to be routed behind the Graybar Electric Building, also using the rail corridor, and utilize an existing tunnel below Beach Street to ultimately connect with West Commercial. All three sections for the off-road alignment would require drainage work due to a retaining wall that was constructed long ago, which has resulted in the formation of wetlands at the base of the wall.

The alternative On-road option consisted of a paved 12’ wide trail that would be routed entirely within the public Right-of-Way on the north side of West Commercial Street. This option was divided into four sections for planning and cost estimating purposes. In Section 1, existing head-in parking spaced would be converted to parallel parking spaced to provide space for a 12’ asphalt trail on the north side of the street. A five foot vegetated buffer was proposed to separate the trail from motor vehicle traffic. To further provide a sense of physical separation and increase safety, a wooden guardrail was recommended in the vegetated buffer. In Section 2, a 12’ trail would be constructed adjacent to the existing brick sidewalk within the area that is currently a very wide parking lane. Parallel parking would be provided adjacent to the trail. Section 3 involves improving the West Commercial/ Beach Street intersection for non-motorized circulation, which at the time provided no pedestrian accommodations, making it a potentially hazardous crossing for trail users. Pedestrian signal phasing and reduced curb radii to minimize crossing distances

were recommended to improve safety. Near Section 3, a spur trail was recommended to link the West Commercial Street Trail to Salem Street. Due to steep grades, the spur would require switch-backs as it traverses the hill towards Salem Street. Section 4 would parallel the existing brick sidewalk that terminates at Harbor View Memorial Park. The trail width would be reduced to 6'-7' due to the limitations of the existing sidewalk.

In either option, the Study recommended on-street bike lanes on both sides of West Commercial Street for the length of corridor. This would provide a choice for more-experienced riders and bike commuters wishing to move at a faster speed and/or avoid mingling with pedestrians and runners on the trail.

Elements of both the "On-road" and "Off-road" options have been incorporated into this study. As described in the recommendations chapter, the alignment for the on-road option has remained, with a portion of the off-road option -- from the Star Match Building through the tunnel, back to the West Commercial -- added as a long term connection.



5. COMMUNITY ENGAGEMENT

Public outreach for the West Commercial Street Multi-modal Corridor Study was combined with the concurrent study for the shared use path connection between Tukey's Bridge and the Martin's Point Bridge. As such, the Public Outreach program was designed to reach out to the public in a variety of venues and in different parts of the City of Portland. Because West Commercial Street is the site of a major commercial and marine industrial activity and expansion, feedback from businesses was a priority. At the same time, input from bicycle and pedestrians was also key as noted below.

Feedback on the commercial needs of West Commercial Street was primarily drawn from three small group meetings generated by invitations sent directly to the business owners/managers and developers working in the study area. Two meetings at Becky's Diner, a pair of public workshops, a bicycle and pedestrian follow-up meeting and specific questions posted on www.portlandstudies.org also elicited feedback from the general public and active transportation advocates. In chronological order, the meetings included:

1. COMMERCIAL BUSINESS AND PROPERTY OWNERS MEETING

Becky's Diner, May 8, 2015

The May 8th meeting was an open input session with numerous businesses and property owners present. The group's consensus was that strong roadway infrastructure would be a good fit for West Commercial and that as a gateway to the city, it should be "done right" and look nice. The group also agreed that traffic should be slowed down throughout the entire corridor. Additional issues discussed included the challenge of access on

and off of Commercial Street, the importance of keeping parking spaces, the need to define and keep staging areas for trucks, and the challenge of trucks blocking access to the wharfs. Collectively, attendees posted their opinions related to the opportunities for improvements and the ongoing challenges onto a large map of the study area. The graphic on the following page summarizes the points made.



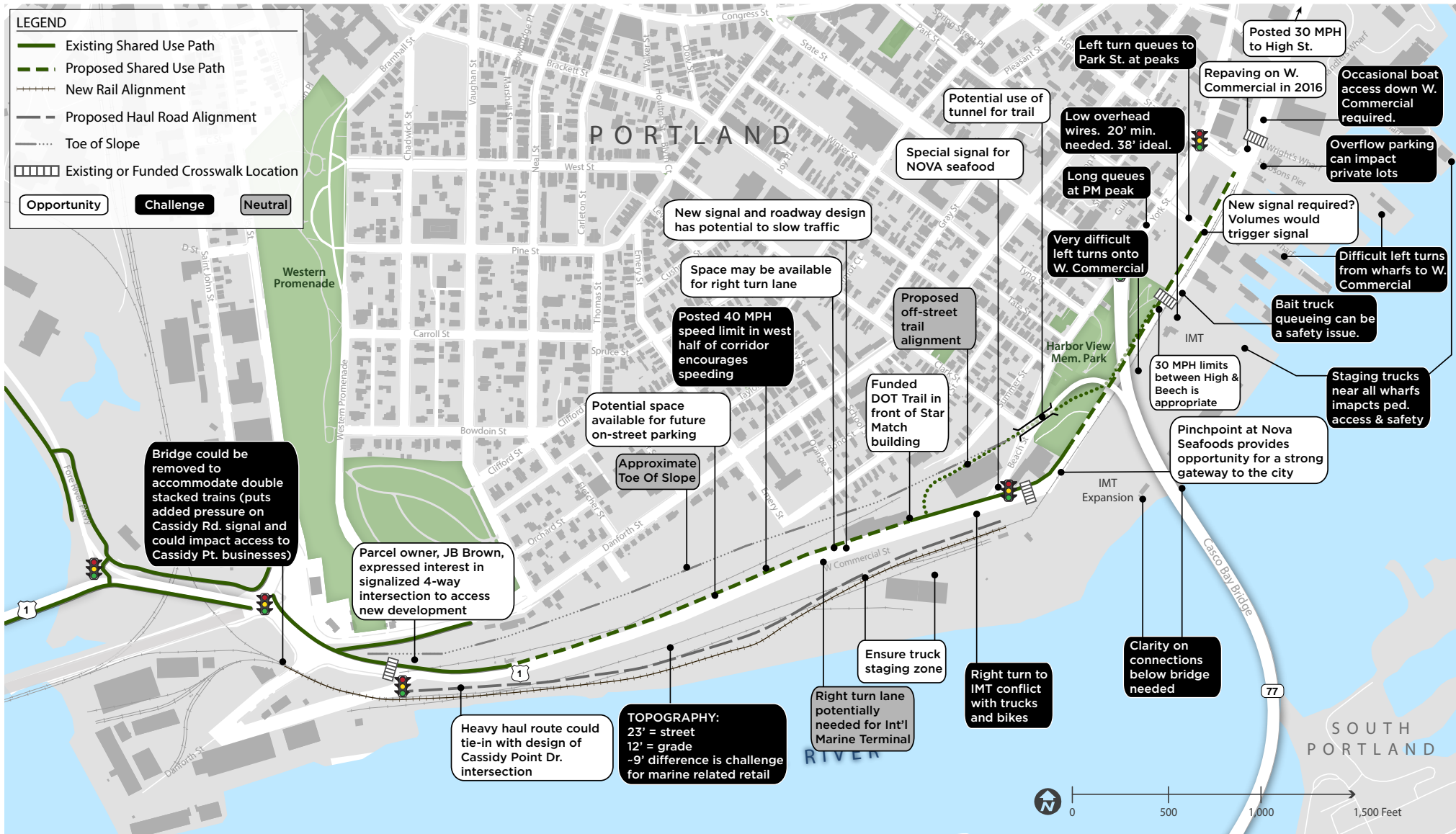
Some of the attendees of the first meeting with West Commercial business and property owners at Becky's Diner on May 8

2. PUBLIC WORKSHOP #1

State of Maine Room, City Hall, June 11, 2015

The first of two public workshops was held at City Hall on June 11. After a summary presentation by the consultant, attendees had the opportunity to visit stations in order to provide comments on both the West Commercial Multi-modal Corridor study area and the Martin's Point Path study area. West Commercial-related

STAKEHOLDERS' OPPORTUNITIES AND CHALLENGES



West Commercial Street Multi-Modal Corridor Study

comments by the range of community members included the desire for continuous bike lanes (including a potential cycle track), the need to control speeding, concern about maintaining viable business operations on West Commercial and suggestions to add “Bikes May Use Full Lane” and other signs at the intersection conflict zones such as the Beach/West Commercial intersection.

3. FOLLOW-UP MEETING WITH COMMERCIAL BUSINESS AND PROPERTY OWNERS:

Becky’s Diner, August 27, 2015

At this meeting, a series of draft recommendations were presented by the consultant team. Comments included a desire for the study recommendations to plan for future traffic growth in order to not constrain the future and cause traffic capacity issues. There were also concerns about snow removal from West Commercial and truck access to the wharfs. Some disagreed with the inclusion of bike lanes and the location of new crosswalks due to the perceived negative impact to truck traffic and loading/unloading operations.

4. STAKEHOLDER MEETING:

GPCOG, August 27, 2015

This meeting included attendance by representatives from the City, PACTS, MaineDOT, the Federal Highway Administration and a group of bicycle, pedestrian and neighborhood advocates. After a presentation of the preliminary recommendations along West Commercial and in the Martin’s Point area, discussion focused on the pros and cons of where to put bike lane buffers (adjacent to trucks or next to parked cars), the importance of sidewalks along the water side of West Commercial, and the pros and cons of bike

facility improvements on Veranda Street versus the longer-term plan for a path connection along the I-295 and Route 1 corridor.

5. PUBLIC WORKSHOP #2:

Merrill Rehearsal Hall, September 17, 2015

At the last of the two public workshops at Merrill Hall, attendees weighed in on the draft recommendations made by the consultant team. While there was a level of enthusiasm about the overall recommendations for both the West Commercial corridor and for the Martin’s Point path, some concerns emerged about the details. In particular, a few bicyclists would like to see more bike lane buffers from parked cars to avoid doors and back-in angled parking in front of Holyoke Wharf to minimize conflicts with bicyclists. Also, some thought the tree-lined median gateway might look too “suburban”, and that both stormwater treatment should be added, along with for scenic overlooks to the waterfront.

6. CENTRAL WATERFRONT PIER AND BUSINESS OWNER MEETING:

Becky’s Diner, Oct. 26, 2015

At this meeting, attendees were united in the opinion that sidewalks, crosswalks, and bike lanes were unnecessary along West Commercial Street and could potentially be unsafe, due to the incompatibility of walking/biking within the industrial activity, truck loading, and forklift activity. Participants suggested that walkers and bicyclists should be directed away from this section of Commercial Street by use of signage and encourage to use the sidewalk/future path on the north side. Attendees were also equally united on the need for truck loading/unloading to occur within the street right of way with the minimum necessary

width needed for two truck lanes between the head in parking and the travel lane. Instead of bike lanes in the eastbound direction, the group preferred shared use between bikes and east-bound vehicles in the travel lane.

7. COMMENTS FROM WWW.PORTLANDSTUDIES.ORG

Ongoing

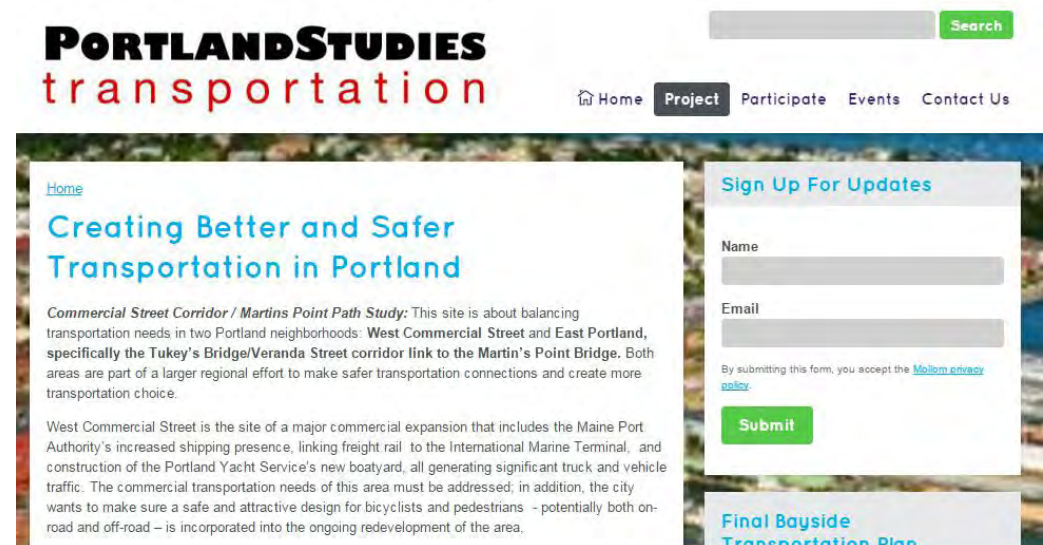
Immediately after the June 11 Public Workshop, two questions were posted onto the portlandstudies.org site: 1) How can all road users be accommodated on the west side of the study area? and 2) Where should sidewalks, if at all, be located on the eastern side of the study area?

The feedback related to the western cross section was mixed, but there was an overall preference for sidewalks on both sides of the road and keeping travel lanes fairly wide due to the amount of truck traffic. There was also a general desire to make the gateway treatment fairly significant, to slow traffic down and to better protect bicyclists from both truck traffic and from opening doors of parked cars. Related to the sidewalk question, most had the opinion that maximum bike and pedestrian accessibility would be best and that sidewalks should be on both sides of West Commercial Street between the Old Port and the IMT. Crosswalks where sidewalks might not be possible were also recommended.

8. CITY STAFF OUTREACH TO MARINE INDUSTRY

In contrast to the on-line feedback, City Staff's interaction with pier owners and marine operators in the easterly portion of the study area exposed significant resistance to extending bicycle and pedestrian infrastructure along the roadway interface at Hobson's Wharf, Berlin Mills Wharf, Holyoke Wharf, Sturdivant's Wharf, and

Deake's Wharf. Viewed by many industrial occupants as the last vestige of the true "working waterfront," resistance to increased bicycle and pedestrian activity broke down into two arguments: 1) that truck loading movements were incompatible with non-vehicular traffic; and 2) increased pedestrian facilities contributed to "gentrification" of an important industrial enclave. While not every industrial occupant held the same degree of resistance to change, the strong opposition to sidewalks and bike lanes on the south side of the easterly extent of the corridor should not be understated. These industrial users acutely expressed the absolute opinion that expansion of non-marine uses within this enclave is an existential threat to their future (given that there are no other comparable marine industrial alternatives either within Portland Harbor or elsewhere).



Throughout the study, the community could learn about and submit comments for the project through the PortlandStudies.org website

RECOMMENDATIONS MAP



PROJECT RECOMMENDATIONS

PROJECT

1

OVERVIEW

The following section includes project recommendations for the West Commercial Street corridor. The recommendations incorporate the consultant team's field investigations, along with ideas and comments from the pair of community workshops, meetings with West Commercial Street stakeholders and feedback from the City of Portland, PACTS and MaineDOT. The recommendations are conceptual in nature and ultimately will require additional study and higher-level engineering before moving forward. Where noted, some of the recommended projects have been carried forward from previous planning efforts and include a committed funding source (typically MaineDOT with matching funds from the City of Portland). The numbered projects are colored to indicate the estimated time frame for implementation: short-term (1-2 years), medium-term (3-5 years) and long-term (>5 years). Planning-level cost estimates are included, along with the assumed jurisdictional lead.



TIMEFRAME: Short term

LEAD AGENCY(IES): MDOT + City of Portland (with funding provided by both)

COST ESTIMATE: \$185,000

NEW CURB CUTS AND PARKING ACCESS TO BENNY'S*

To accommodate the state-funded, shared use path between the Fore River Trail and the Beech Street intersection, changes must be made to the roadside parking area that serves Benny's Famous Fried Clams restaurant. Currently, vehicles can access the head-in parking spaces via a 250 foot long driveway opening. This creates an unacceptably-large conflict zone along a shared use path. To accommodate path users safety and the parking needs for Benny's, smaller parking lots on one or both sides of the restaurant building will be needed. Each parking lot will be accessed from a single curb cut and all parking circulation will occur outside of the West Commercial Street ROW. In this scenario, the outdoor seating areas could be relocated to the front of Benny's, between the shared use path and the building.

**Project is currently planned and funded by MaineDOT, with match provided by the City of Portland*



DRAFT

PROJECT RECOMMENDATIONS

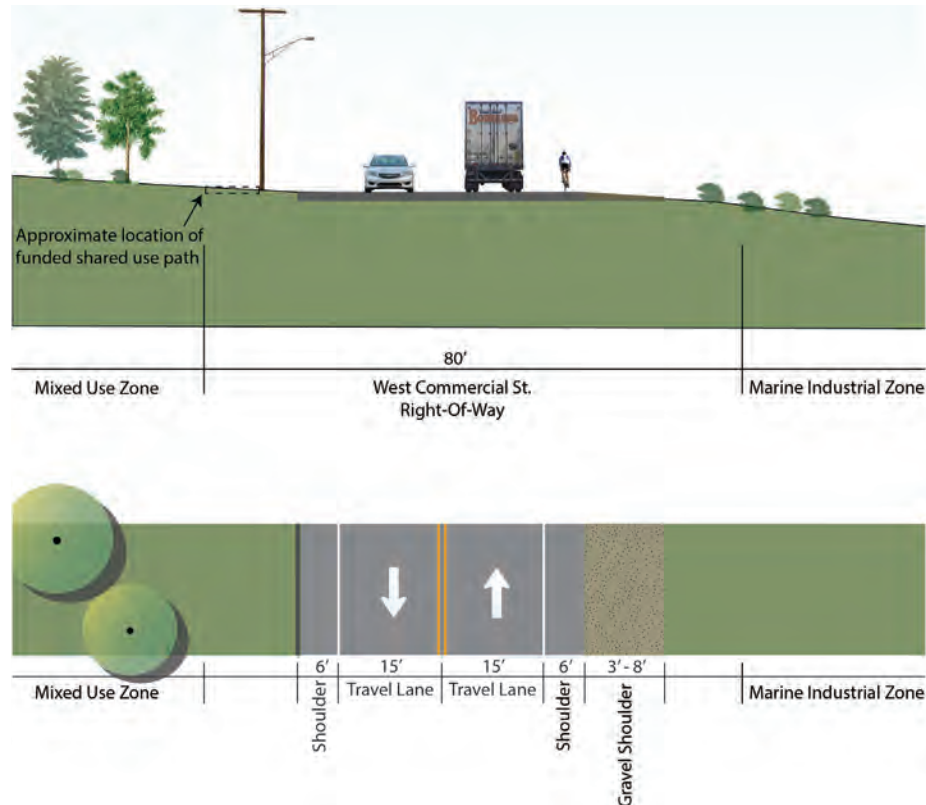
PROJECT

2

INSTALL SHARED-USE PATH BETWEEN BENNY'S AND STAR MATCH BUILDING

A shared use path will run within the West Commercial Street ROW for an approximately 2000' stretch. The 10' wide path will be separated from the roadway by a minimum five foot buffer featuring tinted concrete or unit pavers or bricks with intermittent trees set in grates. (A cost-saving option is to use a 5' wide grassy esplanade to separate the path from the roadway.) This relatively-urban treatment will help prepare the north edge of West Commercial Street to accommodate future mixed use development. On the western half of the project area, the change in grade will require a small retaining wall along the north edge of the path (corresponds with the approximate property line). This project is currently funded by the Maine Department of Transportation (with match funding provided by the City of Portland) and is planned for implementation in the next two years.

EXISTING CONDITIONS

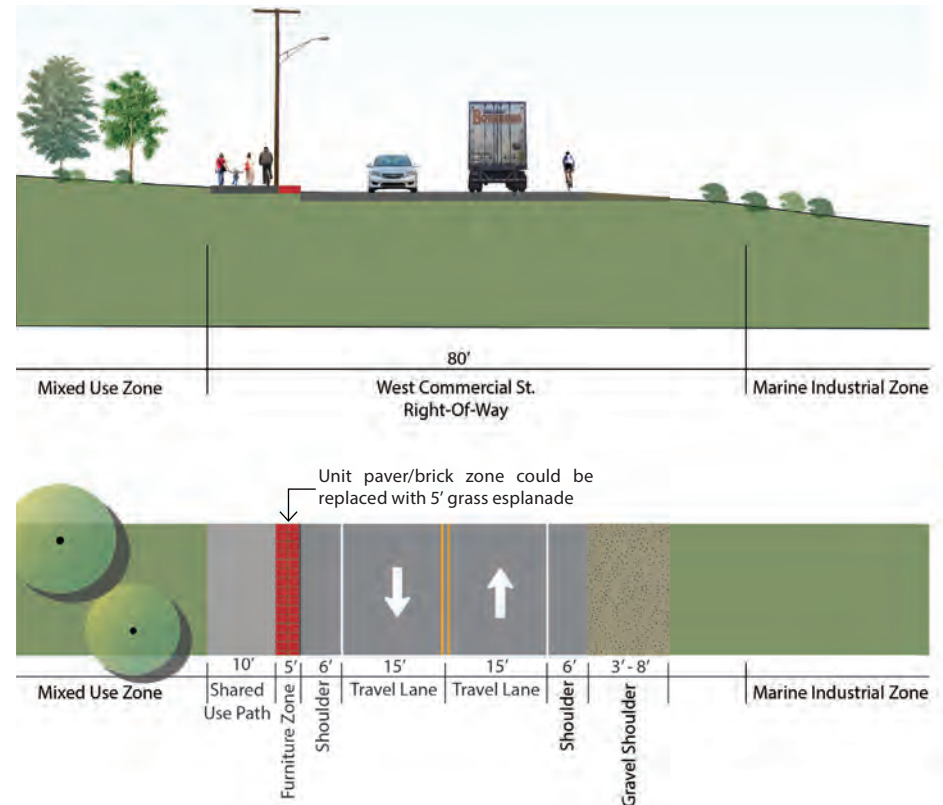


TIMEFRAME: Short term

LEAD AGENCY(IES): MDOT + City of Portland (with funding provided by both)

COST ESTIMATE: \$615,000 (grass strip)
\$805,000 (5' brick strip)

PROPOSED

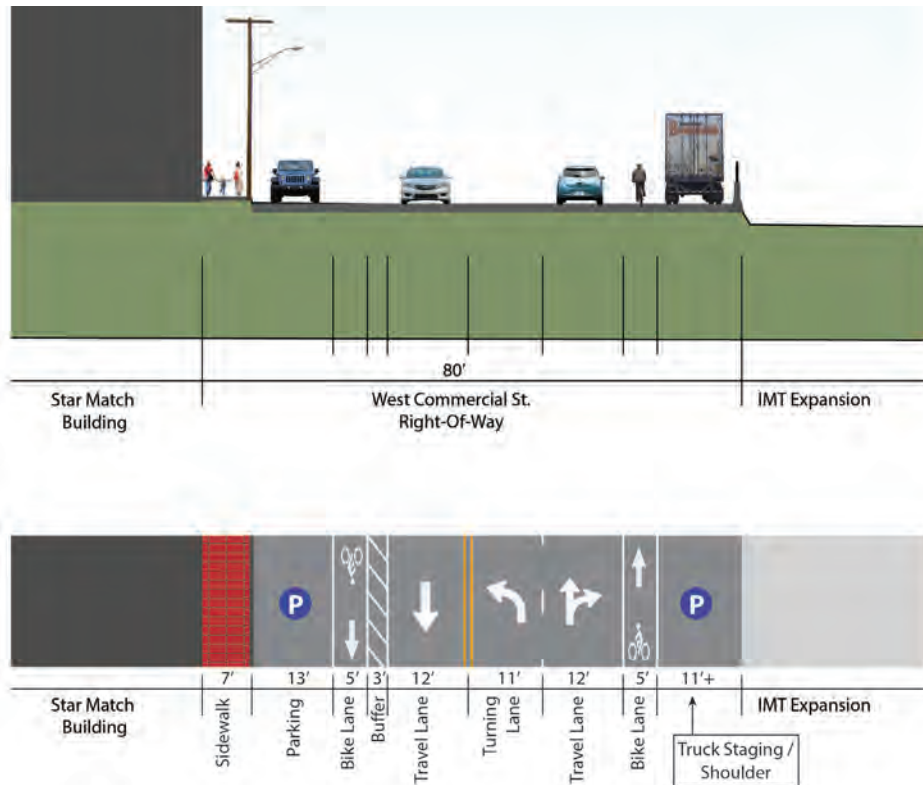


PROJECT RECOMMENDATIONS

EXPAND SIDEWALK TO INCLUDE SHARED-USE PATH IN FRONT OF STAR MATCH BUILDING*

Current conditions in front of the Star Match building include a 7' brick sidewalk, 13' wide parking lane, 5' bike lane with 3' buffer and a 12' wide travel lanes. To maintain pedestrian access into and out of the multiple business entries, the current sidewalk should be maintained and the shared use path extended out into the street. This necessitates restriping the roadway with 11' wide travel lanes, a 9' parking lane and a bike lane without a buffer. That provides the necessary space for a shared use path of 10' in width. In the final design for this configuration, the cross slope of the path will need to be carefully considered to ensure appropriate drainage and placement of the utility poles. This project is currently funded by the Maine Department of Transportation (with match funding provided by the City of Portland) and is planned for implementation in the next two years.

EXISTING CONDITIONS



*Project is currently planned and funded by MaineDOT, with match provided by the City of Portland

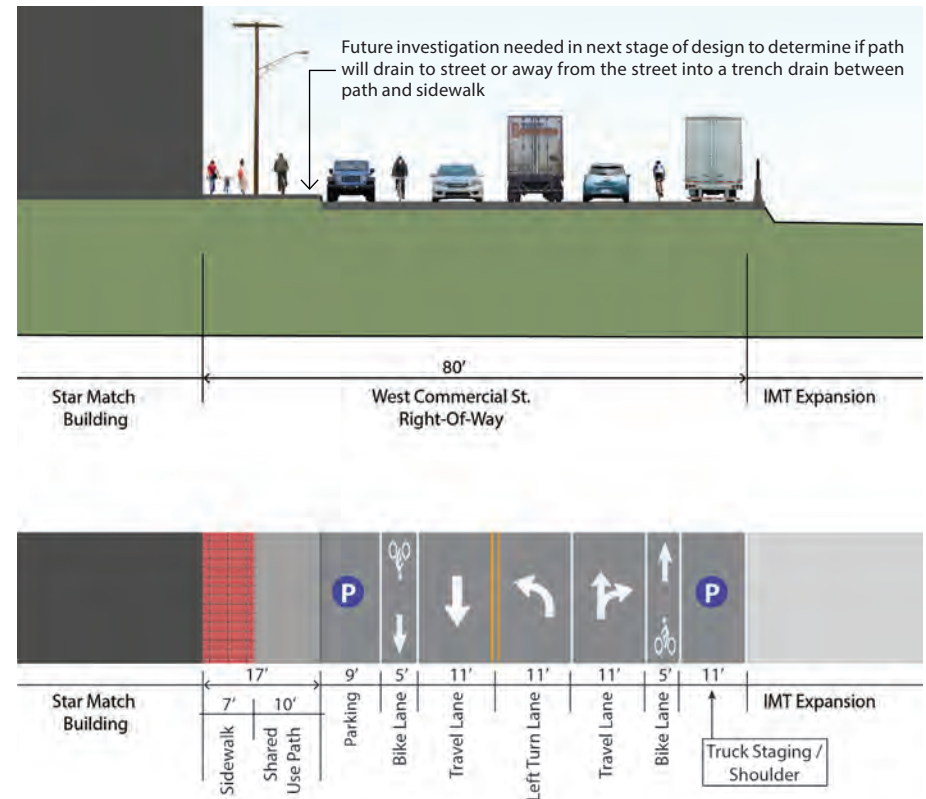


TIMEFRAME: Short term

LEAD AGENCY(IES): MDOT + City of Portland (with funding provided by both)

COST ESTIMATE: \$310,000

PROPOSED



DRAFT

PROJECT RECOMMENDATIONS

PROJECT

4

WITHIN 50' RIGHT-OF-WAY ZONE, INCLUDE 11' TRAVEL LANES AND BIKE LANES

The portion of the West Commercial Street ROW between the east end of the recent reconstruction project and the IMT entry drive is only 50' wide. In this stretch, the travel lanes and/or center turn lane are unnecessarily wide. In order to extend the new bike lanes in the rebuilt section of the road, the travel lanes and/or center turn lane should be narrowed to 11'-12' to accommodate 5' bike lanes within the 50' wide ROW zone. Immediately to the west, the recent IMT roadway reconstruction project features 12' wide travel lanes. As West Commercial Street bends around the Nova Seafood building, this will require a modest taper to accommodate the recommended 11' wide lanes. The bike lanes remain 5' wide through both areas however. Within this project, the shared use path would be accommodated on the existing north sidewalk, to be widened in the long term (see Project 12). It should also be noted that the striping effort should be implemented in coordination with MDOT's repaving project between the IMT and Franklin Street.

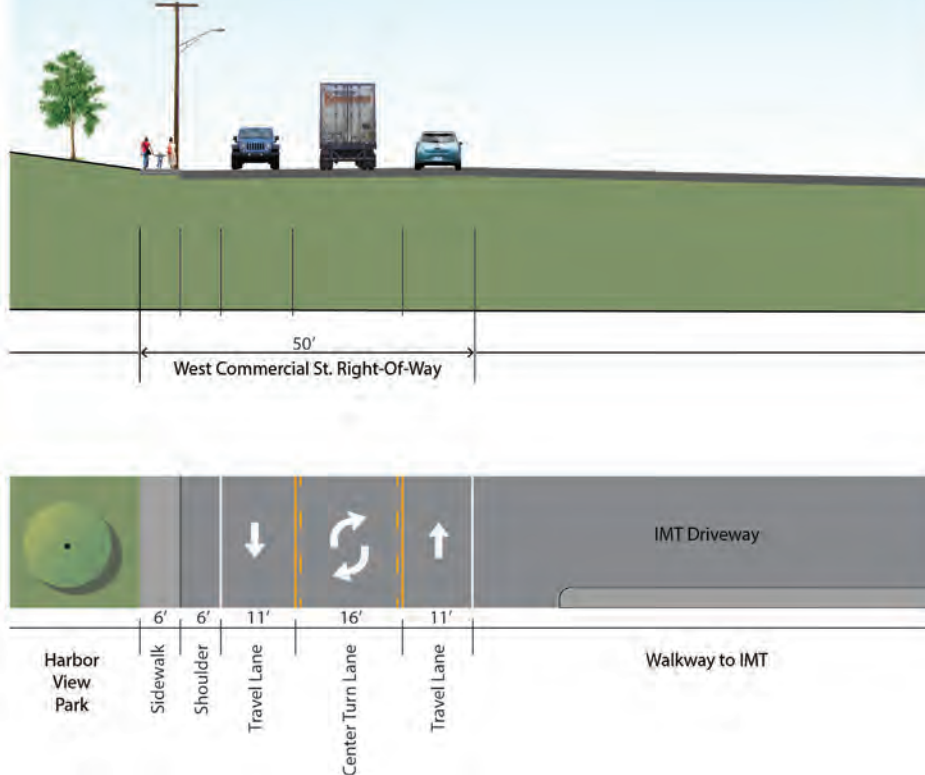


TIMEFRAME: Short term

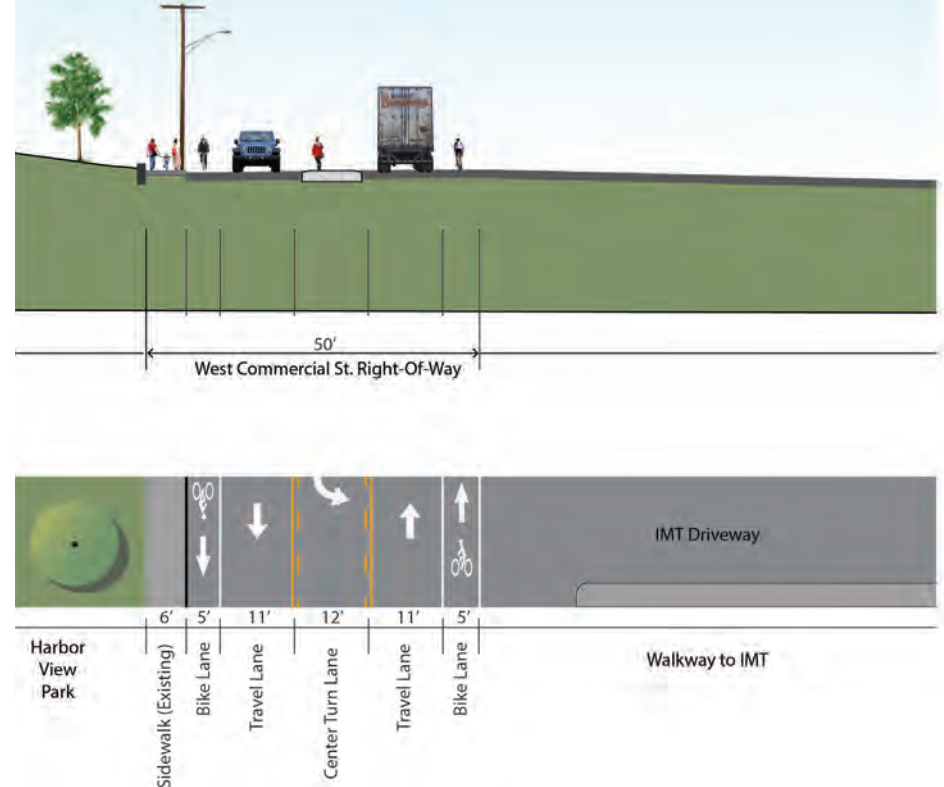
LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$215,000

EXISTING CONDITIONS



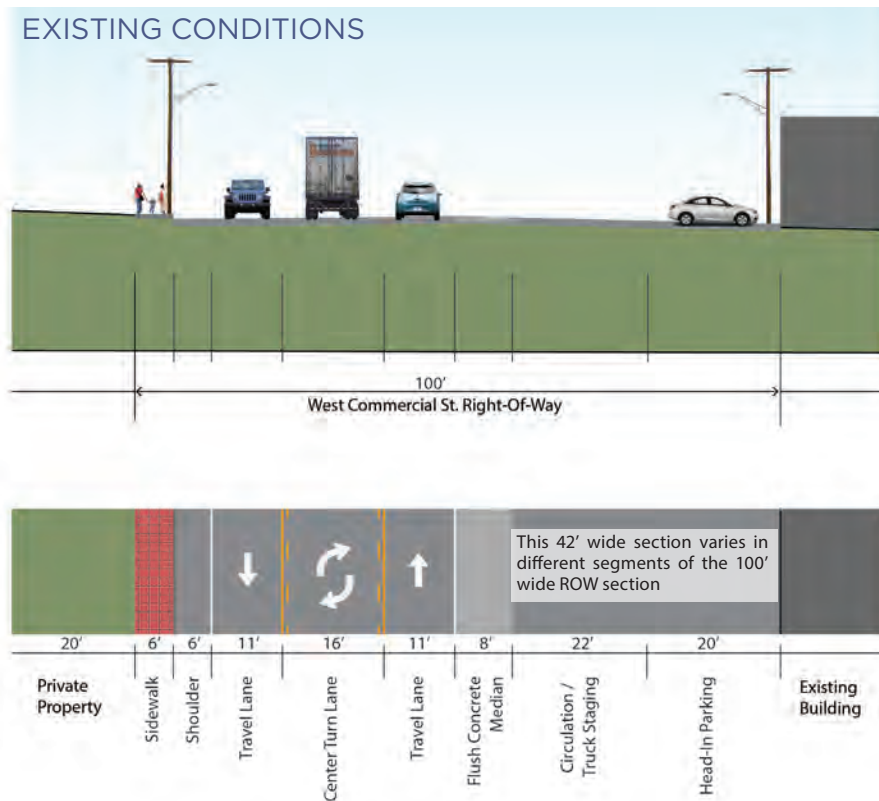
PROPOSED



PROJECT RECOMMENDATIONS

WITHIN 100' RIGHT-OF-WAY ZONE, INCLUDE 11' TRAVEL LANES, BIKE LANES (TO HIGH ST.) AND A WIDE SHOULDER

The 100' wide portion of the West Commercial Street ROW between the IMT entry drive and High Street contains a wide zone on the south side used for truck parking and loading and unloading activities. To provide bicycle access and a more ordered environment, this study recommends the restriping of the roadway to provide 11' travel and center-median turn lanes, buffered bike lanes,¹ and a 38' wide shoulder on the south side. The shoulder area is intended to support the adjacent marine commercial businesses that rely on a wide roadway for employee parking, truck staging, and loading/unloading by hand or by forklift. Through striping and curb stops, all vehicles should be discouraged from using a 6' zone adjacent to the waterside buildings to ensure minimal pedestrian access and snow storage. In this short term project, the shared use path would be accommodated on the existing north sidewalk and widened in the long term (see project 13).



¹ The bike lane should extend to at least High St, with future study needed to determine the appropriate bike facility to the east.

DRAFT

PROJECT

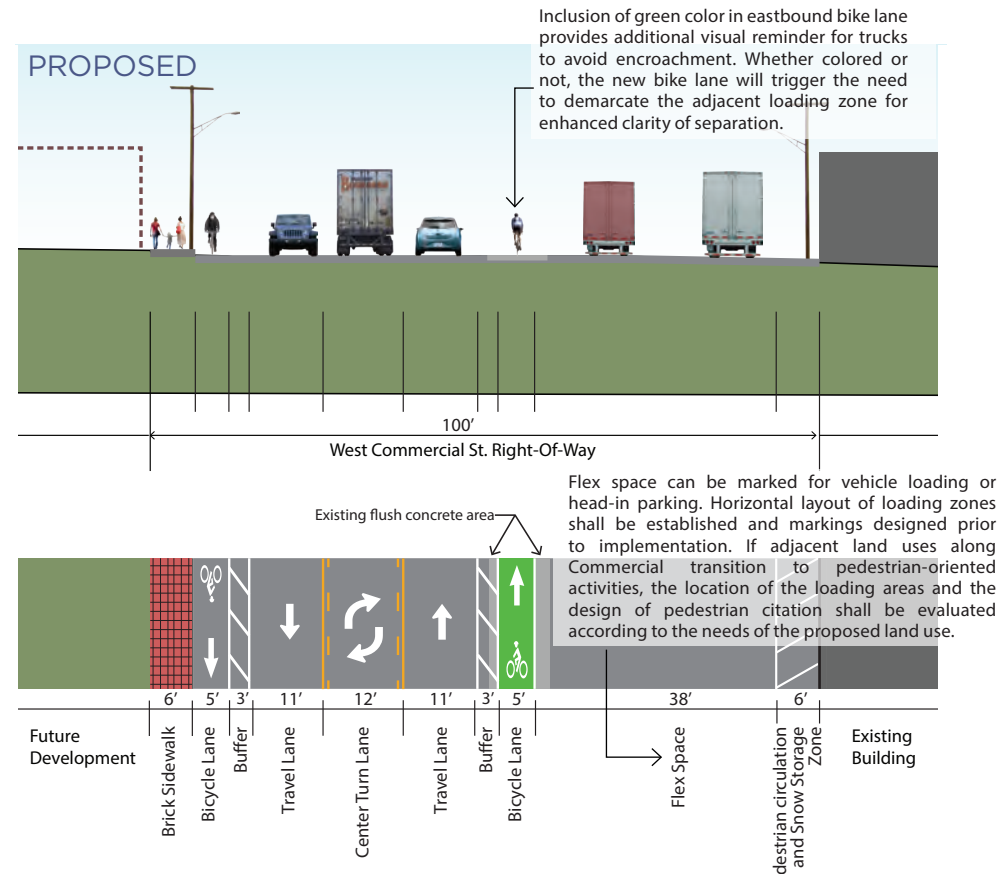
5



TIMEFRAME: Short term

LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$450,000



DRAFT

PROJECT RECOMMENDATIONS

PROJECT

6

WIDEN ROADWAY TO INSTALL CENTER TURN LANE, BIKE LANES AND PARKING AND/OR TRUCK STAGING ON BOTH SIDES

Subsequent to the installation of the shared use path in Project #2, West Commercial Street should be widened to accommodate a two-way left turn lane (for access to ongoing redevelopment on both sides of the road), bike lanes, car parking on the landside and truck parking/staging on the waterside of the road. To minimize the risk of bicyclists colliding with open car doors, a 3' striped buffer should be included between the bike lane and the landside parking lane, where turnover is much higher than the truck parking on the opposite side.

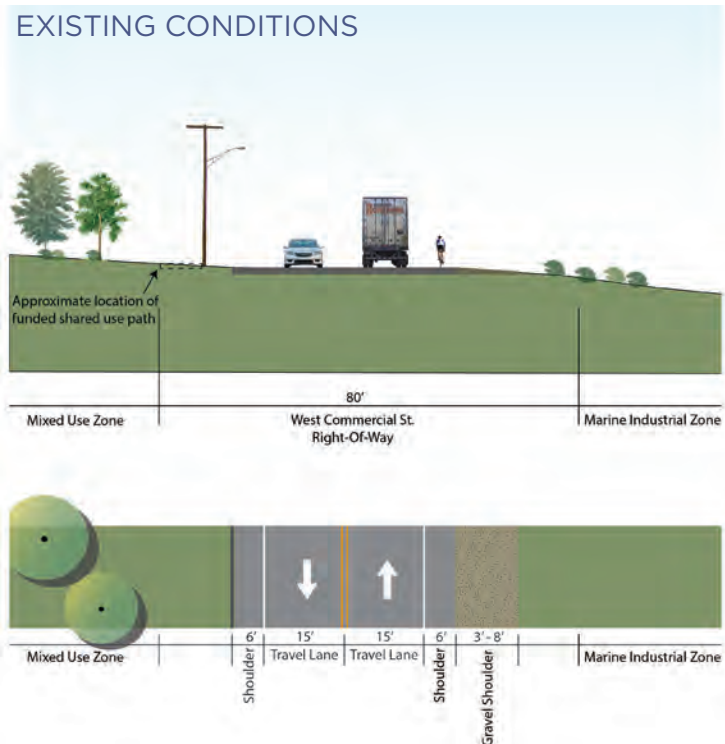


TIMEFRAME: Medium term

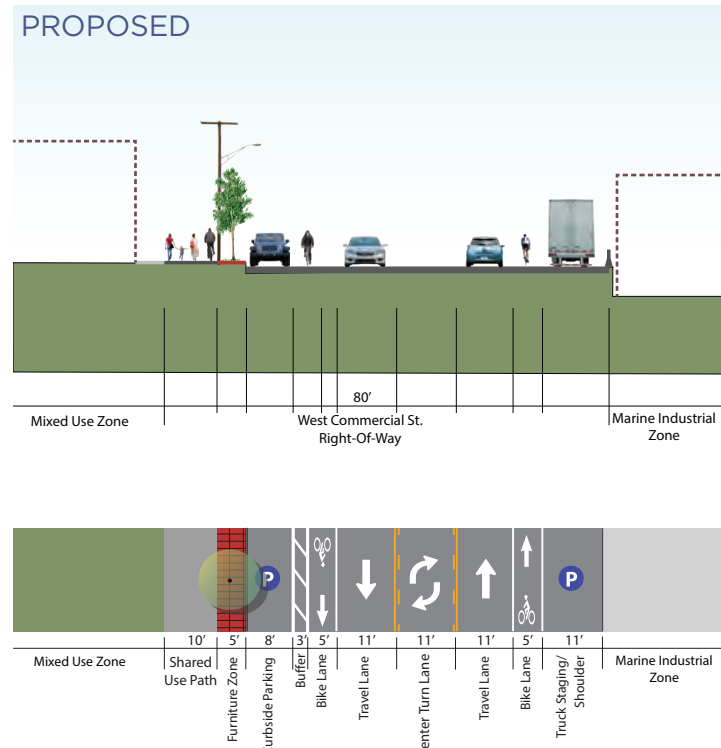
LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$1,530,000

EXISTING CONDITIONS



PROPOSED

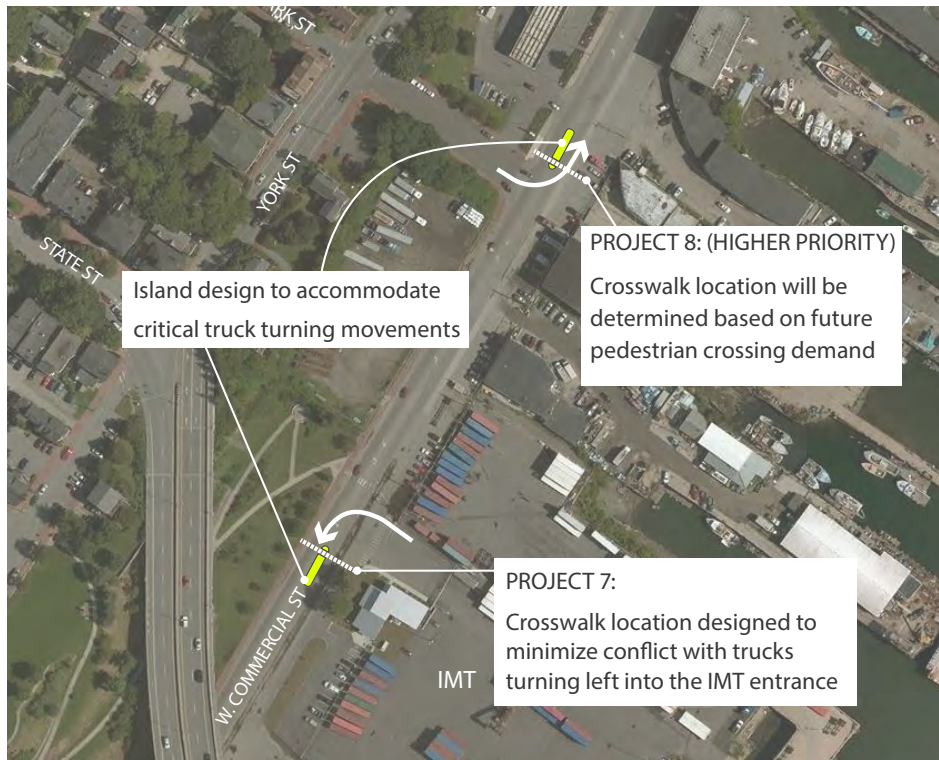


PROJECT RECOMMENDATIONS

RELOCATE EXISTING CROSSWALK TO WEST SIDE OF IMT DRIVEWAY

Currently, there is a marked crosswalk from the end of the Harbor View Memorial Park walking path to the east side of the IMT entry drive. The two problems with this configuration are that the crosswalk conflicts with left turn movements into the IMT and that there is no receiving sidewalk on the IMT side of the crossing. To remedy these two conditions, the relocation of the crosswalk to west side of the entry drive is recommended. The new position will align with the sidewalk along the entry drive and be free and clear of left turning trucks. Because of the median in this area, there is also the possibility of placing a textured, flush median in the center of the crosswalk, which can act as a pedestrian refuge between the two directions of motor vehicle traffic without interrupting truck turns and allowing occasional oversized and special freight movements.

PROJECT 7 + 8 DIAGRAM:



PROJECT

7



TIMEFRAME: Medium term

LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$30,000



Approximate location of proposed crosswalk
(view looking west with IMT at left)



Example of a crosswalk with flush median
on Brattle St. in Cambridge, MA

INSTALL NEW CROSSWALK AND RAISED MEDIAN ISLAND AT PARK STREET (EAST SIDE)

Currently, there are no designated pedestrian crossings between the IMT entry drive and the new crosswalk at High Street. However, there is clearly demand for pedestrian crossing as employees from the piers and wharfs of the Central Waterfront access shopping, services and housing along the north side of Commercial Street and the West End neighborhood. As such, a new crosswalk and potential raised median island is recommended to the east of the Park Street intersection (raised median is pending demonstration of compatability with special freight transport needs). This crosswalk location will also be needed to provide a transition option for east-bound bicyclists on the shared use path into the shared lane environment of the Old Port (see Project 11). Therefore, of the two crosswalk projects recommended in this portion of West Commercial, Project 8 should be considered the higher priority for implementation.



TIMEFRAME: Medium term

LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$33,000



Approximate location of proposed crosswalk (view looking east)

PROJECT RECOMMENDATIONS

INSTALL NEW TRAFFIC SIGNAL*

In coordination with the ongoing study along High Street and with the recent sidewalk and crosswalk improvements near the intersection with West Commercial Street, a new traffic signal is recommended. It will better facilitate left turns onto High Street from West Commercial and vice versa. When installed, this signal will need to be optimized in coordination with other traffic signals in the area.



TIMEFRAME: Medium term

LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$225,000



**Project is currently planned but not funded*

DRAFT

PROJECT RECOMMENDATIONS

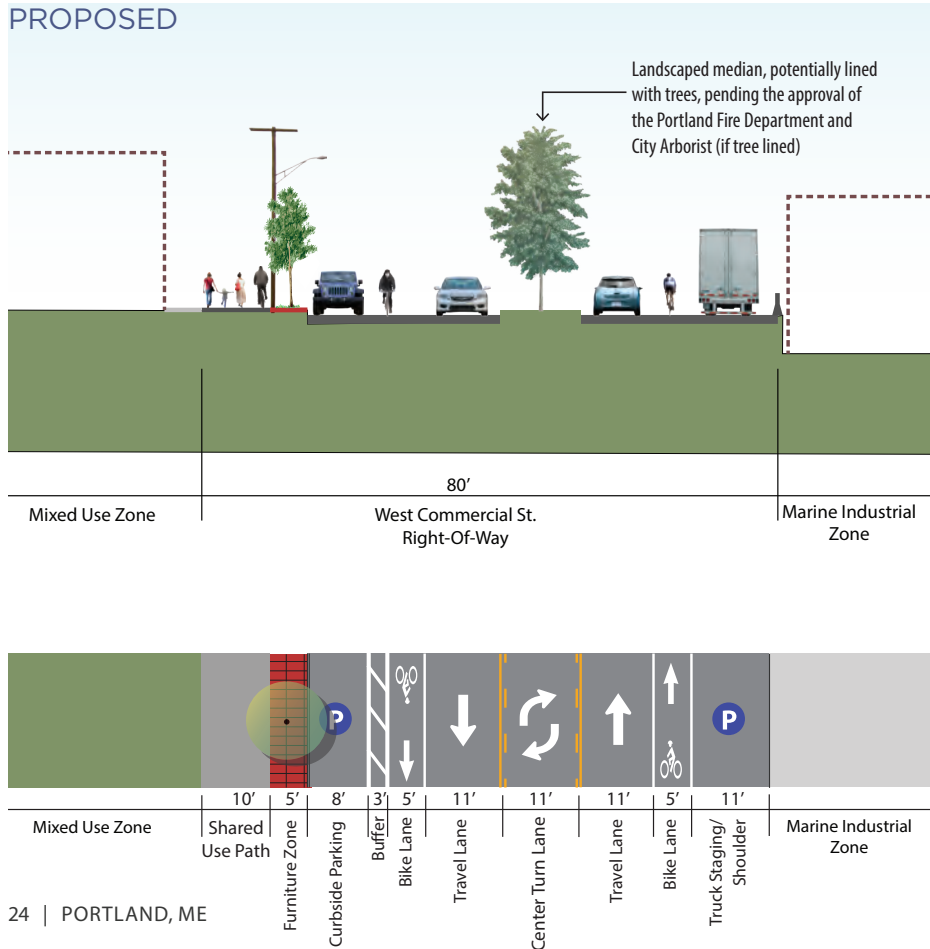
PROJECT

10

INCORPORATE LANDSCAPED MEDIAN WITH FUTURE APPROVAL FROM THE PORTLAND FIRE DEPARTMENT

Pending approval by the Portland Fire department, this study recommends the inclusion of a landscaped median in areas where there is no need for left turn pockets. The project should be developed in conjunction with a long term stormwater mitigation/CSO project currently being planned along West Commercial Street. The location and layout of the median will be designed to allow for flexible use of the corridor for occasional special freight movements between marine facilities, including oversized trailers carrying large vessels for service. With consultation from the City Arborist, a row of trees within the median should be considered as well. With or without trees, the median is designed to provide a “green” gateway into the Port area from the west and encourage drivers to stay within the posted 40 mph speed limit.

PROPOSED



TIMEFRAME: Long term

LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$1,640,000

At the current time, there are various development proposals for properties along West Commercial Street, to the west of the Star Match buildings. Proposed for the mixed use zone on the north side of the road is an office building by J.B. Brown & Sons, and on the south side a marine retail/commercial building proposed by Canal Landing LLC. To accommodate pedestrian traffic in and around those two buildings and other future projects, new sidewalks and crosswalks should be evaluated as part of the development review process.



PROJECT RECOMMENDATIONS

DEVELOP SHARED-USE PATH ALONG FORMER RAIL R.O.W. AND THROUGH TUNNEL

As described in an earlier chapter, the 2010 West Commercial Street Trail Study included an option for a trail alignment along the former railroad corridor that parallels West Commercial Street to the north. That alignment includes passage through the existing tunnel that would be enhanced with new lighting and other improvements to accommodate the shared use path. In the long term, this study recommends that a portion of the 2010 Trail Study's "Off-road" option be implemented from the east side of the Star Match building to Harbor View Park, utilizing the existing tunnel. This option would allow path users—especially beginner bicyclists and those riding with children—to avoid the busy crossing of the Beach Street intersection and the path's visual blind spot as it passes the Nova Seafood building.



TIMEFRAME: Long term

LEAD AGENCY(IES): City of Portland (and property owners)

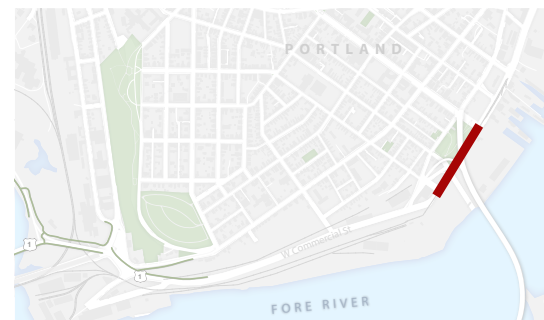
COST ESTIMATE: \$175,000



The former rail tunnel below the Beach Street on-ramp provides an opportunity to route the shared use path in the long term

EXPAND SIDEWALK INTO PARK TO CREATE A 13' PATH

Unlike the shared use path recommendations in Projects 2 and 3 that have an existing funding source, there is currently no funding for the extension of the shared use path beyond the Nova Seafood building. In the long term, the sidewalk along the edge of Harbor View Memorial Park should be widened to 13' in width, enough to accommodate a 3' zone adjacent to the curb for the utility poles and a 10' clear zone for pedestrians, runners and bicyclists. Because the West Commercial Street ROW is only 50' adjacent to the IMT area, there is no opportunity to move the curb line further out into the street. Instead, the additional width for the path must come from Harbor View Memorial Park. Widening the sidewalk by 7' to the north will require a cheek wall or small retaining wall due to the modest slope within the park.

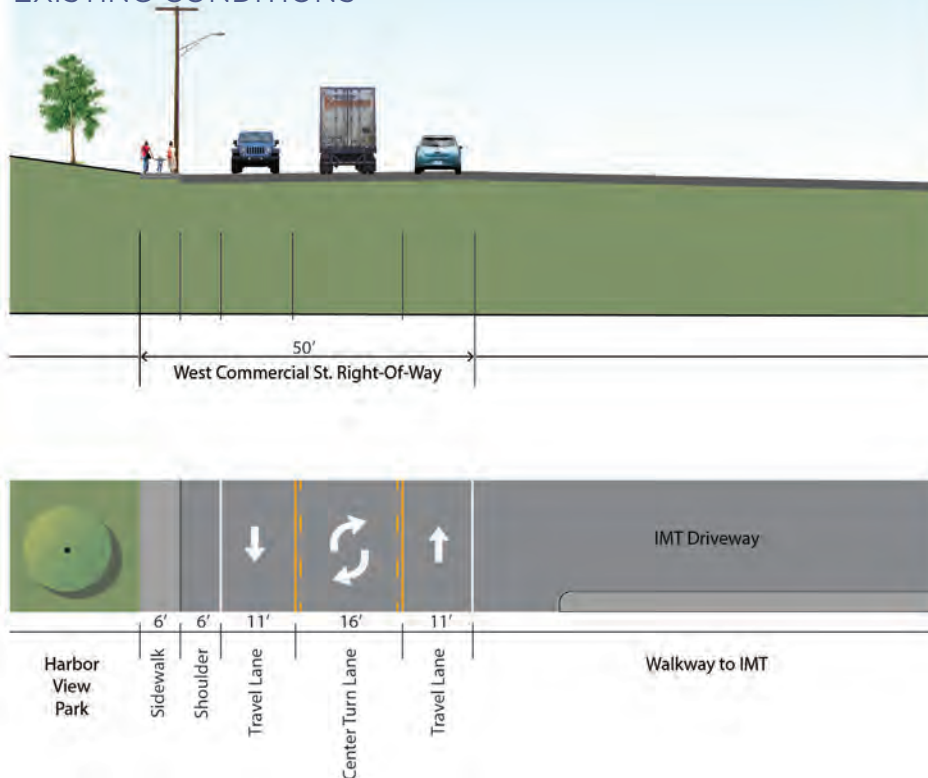


TIMEFRAME: Long term

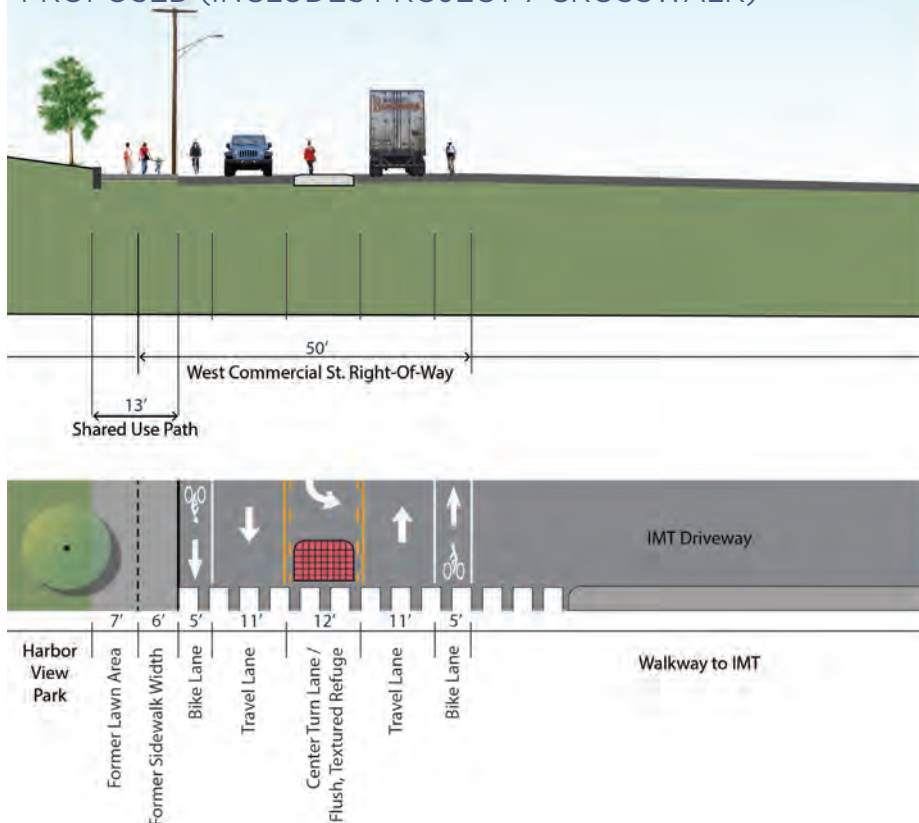
LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$302,000

EXISTING CONDITIONS



PROPOSED (INCLUDES PROJECT 7 CROSSWALK)

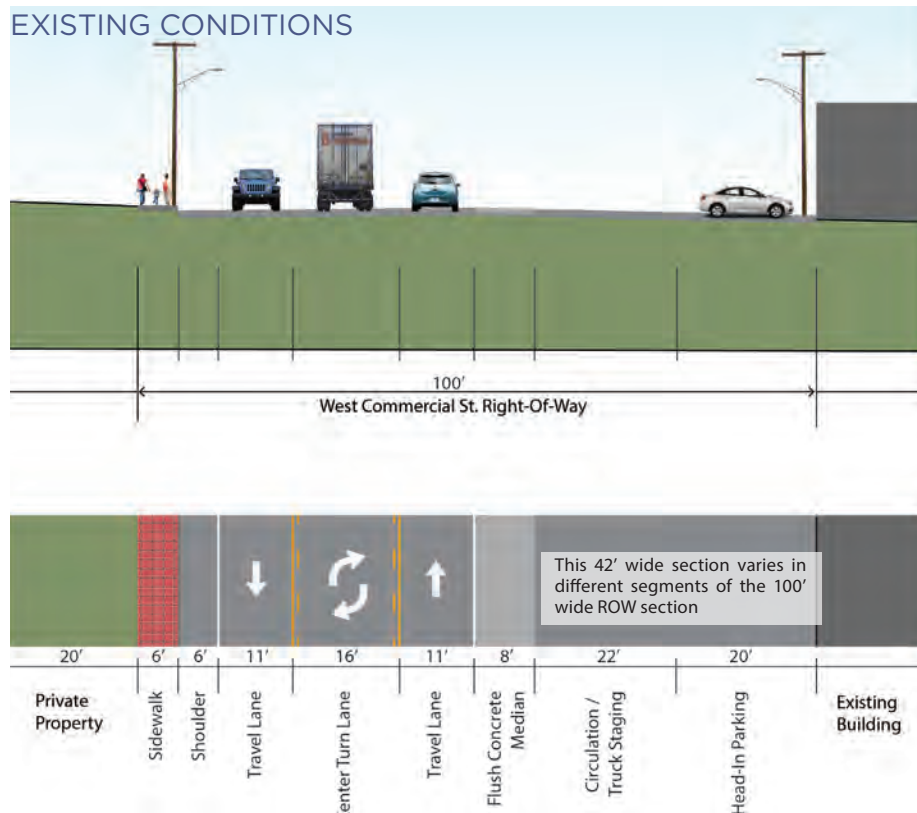


PROJECT RECOMMENDATIONS

WIDEN SIDEWALK INTO ROADWAY TO CREATE 13' PATH FROM EDGE OF PARK TO HIGH STREET

As the proposed shared use path described in Project 12 continues east beyond Harbor View Park to High Street, there is more flexibility to use portions of West Commercial Street, since the ROW is 100' in the area adjacent to Holyoke Wharf and other wharfs of the Central Waterfront. Also, the adjacent development parcel offers fewer opportunities to accommodate the additional 7' needed for the path, relative to the public park to the west. As such, this Study recommends utilizing the space within West Commercial Street to accommodate the 13' wide shared use path. To accomplish this, West Commercial would need to be re-stripped without the bike lane buffers to provide the additional space for the wider path. Utility poles along the north side of the street would need to be relocated accordingly as well. An additional option for consideration is to negotiate a 7' easement on the adjacent properties from Harbor View Park to High Street (the east end of the study area) which would avoid changes to the lane striping shown in Project 6.

EXISTING CONDITIONS

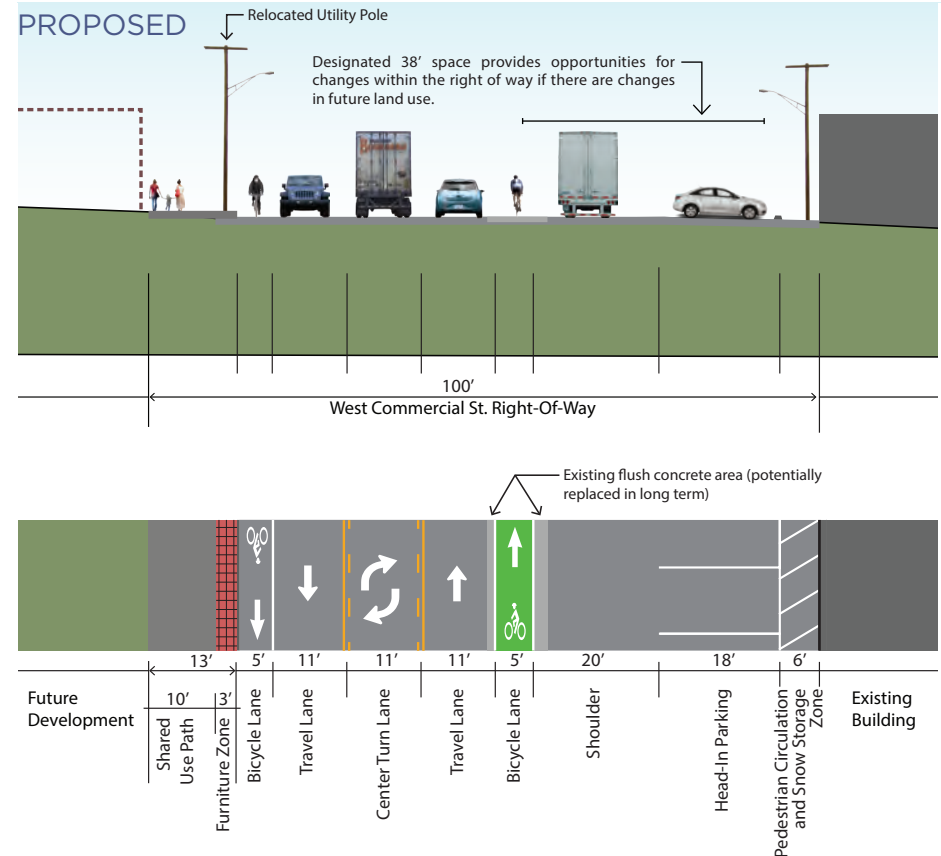


TIMEFRAME: Long term

LEAD AGENCY(IES): MDOT + City of Portland

COST ESTIMATE: \$280,000

PROPOSED



SUMMARY OF PROJECT RECOMMENDATIONS

West Commercial St Multi-Modal Corridor

MAP #	PROJECT TYPE	SEGMENT LOCATION	SEGMENT DESCRIPTION	TIMELINE	COST ESTIMATE	CURRENT FUNDING	LEAD AGENCY(IES)
1	Parking lot reconstruction	Benny's	Reconstruct curb cuts and parking access to accommodate shared use path	Short term	\$185,000	MaineDOT w/ City match	MaineDOT and City of Portland
2	Shared use path	From Benny's to west edge of Star Match building	Utilize existing ROW to incorporate paved shared-use path	Short term	\$615,000 (grass strip) \$805,000 (5' brick strip)	MaineDOT w/ City match	MaineDOT and City of Portland
3	Shared use path	In front of the Star Match building	Expand sidewalk to include shared use path in front of Star Match building only (east of Star Match, shared use path recently completed)	Short term	\$310,000	MaineDOT w/ City match	MaineDOT and City of Portland
4	Striping	From east end of recent MaineDOT project to the IMT driveway area	Within 50' wide portion of right of way, stripe 11' wide travel lanes and bike lanes	Short term	\$215,000	None	MaineDOT and City of Portland
5	Striping	From IMT driveway area to High Street (Hoyloke Wharf area)	Within 100' wide portion of right of way, stripe 11' wide travel lanes, buffered bike lanes (to Maple Street), in-street loading areas and/or head-in parking and a wide shoulder	Short term	\$450,000	None	MaineDOT and City of Portland
MEDIUM TERM PROJECTS							
6	Roadway Reconstruction	From Benny's to the west edge of the Star Match building	Widen roadway to install center turn lane, bike lanes and parking and/or truck staging on both sides	Medium term	\$1,530,000	None	MaineDOT and City of Portland
7	Crosswalk	Adjacent to IMT driveway	Relocate existing crosswalk to west side of IMT driveway and add flush, textured median island	Medium term	\$30,000	None	MaineDOT and City of Portland
8	Crosswalk	At Park Street intersection	Just east of the Park Street intersection with West Commercial Street, install new crosswalk and flush or raised median pending demonstration of compatibility with special freight transport needs	Medium term	\$33,000	None	MaineDOT and City of Portland
9	Traffic signal	At High Street intersection	Install new traffic signal	Medium term	\$225,000	Planned but not funded	MaineDOT and City of Portland
LONG TERM PROJECTS							
10	Sidewalk, crosswalk and median	From Benny's to the west edge of the Star Match building	Incorporate landscaped median (pending approval by Portland Fire Chief) in conjunction with new development projects along the north side of West Commercial Street	Long term	\$1,640,000	None	MaineDOT and City of Portland
11	Shared use path	Former RR corridor From east edge of Star Match building to its intersection with W. Commercial	Develop a share-use path along the former railroad right of way through the tunnel to the intersection with West Commercial Street	Long term	\$175,000	None	City of Portland; private property owner
12	Shared use path	Along the length of Harbor View Memorial Park	Expand existing 6' wide sidewalk into Harbor View Memorial Park to create a 13' wide shared use path from east end of the recent MaineDOT project to the northeast edge of the park	Long term	\$302,000	None	MaineDOT and City of Portland
13	Shared use path	From northeast edge of Harbor View Memorial Park to High Street	Widen existing 6' sidewalk to create a 13' wide shared use path from the northeast end of Harbor View Memorial Park to High Street intersection	Long term	\$280,000	None	MaineDOT and City of Portland

APPENDIX

1. Cost Estimate Worksheets

2. Public Engagement

General Cost Assumptions

	Unit	Cost
Paint		
4" white or yellow pavement marking line	LF	\$ 0.70
12" Solid white pavement marking line	LF	\$ 2.50
White or Yellow pavement and curb marking	SY	\$3.50
Green Paint	SF	\$ 1.50
Pavement		
Top coat - should be 3/4" - 9.5mm	Ton	\$ 180.00
Shimming - should be 1/2" - 9.5 mm	Ton	\$ 150.00
Bituminous Tack Coat, Applied	G	\$ 13.00
12.5" HMA base/intermediate	Ton	\$ 130.00
12.5" HMA	Ton	\$ 150.00
Earthwork		
Common excavation	CY	\$ 20.00
Aggregate Subbase Course - Gravel	CY	\$ 28.00
Catch Basins		
Portland Type	EA	\$4,100
Pipe	LF	\$100
Man hole	EA	\$4,000
Curb		
Type 3	LF	\$18

Sections where a new layer of pavement was placed for new striping:

1/2" Layer of Shim (top coat)	\$ 0.46
3/4" Layer of Pavement (9.5 mm)	\$ 0.83
Bituminous Tack Coat	\$ 1.08
Shim pavement cost per SF	\$ 2.37

Widening Costs:

Subbase - 19" depth	\$ 1.64
12.5" HMA - 5" depth - base/intermediate	\$ 3.97
12.5" HMA - 2" depth	\$ 1.83
Tack Coat	\$ 1.08
Common Ex - 26" deep	\$ 1.60
Widening cost per SF	\$ 10.14

Relocate Catch Basin

Switch existing to man hole and add new connection	\$10,000
--	----------

Path Cost:

Striping Costs:

Through	\$ 4.67
Left/Right	\$ 6.22
Shared	\$ 10.89
Bike	\$ 2.33
Green Backing	\$ 6.67

Project ID: 1 - New Curb Cuts and Parking Access to Benny's

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Removal of existing parking lot	SF	6,000	\$ 10	\$ 60,000	Assumed 200' x 30' in width (existing parking)
Place of new parking lot (HMA)	TON	60	\$ 90	\$ 5,400	Assumed 4" depth
Subbase for parking lot design	CY	230	\$ 60	\$ 13,800	Assumed 8" depth
Placement of new multi-use path	SY	280	\$ 50	\$ 14,000	Assumed 250' length
Loam, Seed, and Mulch		1	\$ 2,000	\$ 2,000	A small amount of landscaping is assumed between the road and the path
Curb	LS	300	\$ 35	\$ 10,500	conservative - assumed some curb to be replaced, etc. A small amount of restriping is assumed as part of this project (parking lot/road repair)
Pavement markings	LF	800	\$ 0.75	\$ 600	
Maintenance of Traffic	LS	3%	\$ 106,300	\$ 3,189	3% mobilization is assumed
Mobilization	LS	6%	\$ 109,489	\$ 6,569.34	6% mobilization is assumed
Contingency	LS	25%	\$ 116,058	\$ 29,015	Assumed to be 25% of the construction total
Construction Total				\$ 145,073	Construction Total
Design Engineering		15%	\$ 145,073	\$ 21,760.94	Assumed to be 15% of the construction total
Construction Engineering		10%	\$ 145,073	\$ 14,507.29	Assumed to be 10% of the construction total
Total				\$ 181,341	

Project ID: 2 - Benny's to Star Match

Scope Assumptions: The intent of this project is to add a 10' wide multi-use path with a 5' buffer to the northerly side of West Commercial St

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Clearing and Grubbing	ACRE	0.5	\$ 15,000	\$ 7,500	Rough Assumption
Common Excavation	CY	3,167	\$ 18	\$ 57,006	Large cut section, estimated 3 ft deep, 15 ft wide, 1900 ft long Saw cut and other work required to existing road for placement of path is
Bituminous Sidewalk	SY	2,222	\$ 50	\$ 111,111	considered incidental to this item
Brick Pavers with sand base	SY	1,111	\$ 100	\$ 111,111	Assumed to be 5' wide, 2000 feet long
Curb	LF	2,000	\$ 35	\$ 70,000	Rough length of section
Street Furniture	LS	1	\$ 5,000	\$ 5,000	Estimated cost of benches and planters along the path Rough guestimate of possible drainage required - further design required
Drainage Improvements	LS	1	\$ 25,000	\$ 25,000	for more exact information
Retaining Wall	SF	1,900	\$ 40	\$ 76,000	Guestimate 3' tall for 1/3 of the length of the segment
Loam, Seed, and Mulch	LS	1	\$ 3,000	\$ 3,000	Landscape the esplanade Assume trees cost roughly \$300 and that there will be 20 trees in the
Trees	LS	1	\$ 6,000	\$ 6,000	project area
Maintenance of Traffic	LS	3%	\$ 471,728	\$ 14,152	3% mobilization is assumed
Mobilization	LS	6%	\$ 485,880	\$ 29,152.80	6% mobilization is assumed
Contingency	LS	25%	\$ 515,033	\$ 128,758	Assumed to be 25% of the construction total
Construction Total				\$ 643,791	Construction Total
Design Engineering		15%	\$ 643,791	\$ 96,568.66	Assumed to be 15% of the construction total
Construction Engineering		10%	\$ 643,791	\$ 64,379.11	Assumed to be 10% of the construction total
Total				\$ 804,739	

Project ID: 3 - From Star Match to Beech Street

Scope Assumptions: The intent of this project is to remove the shoulder in favor of a shared use path and add bike lanes and other striping. The new brick sidewalk is to remain and totals 700 LF in length (bit sidewalk to be 10 ft in width). The curb will be removed and reset next to the new bituminous sidewalk.

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Bituminous sidewalk	SY	778	\$ 50	\$ 38,889	10 ft wide, 700 ft long
Assume replace curb	LF	700	\$ 35	\$ 24,500	Assume the whole length
New Top Coat	SF	44,100	\$ 2.50	\$ 110,250	700 LF x 63 LF
Pavement Markings	LF	4,200	\$ 0.75	\$ 3,150	6 lines, 700 LF
Pavement Markings - arrows, etc.	EA	10	\$ 10	\$ 100	Doesn't appear to be many in front of star match - a few assumed
Maintenance of Traffic	LS	3%	\$ 176,789	\$ 5,304	3% mobilization is assumed
Mobilization	LS	6%	\$ 182,193	\$ 10,931.55	6% mobilization is assumed
Contingency	LS	25%	\$ 193,124	\$ 48,281	Assumed to be 25% of the construction total
Construction Total				\$ 241,405	Construction Total
Design Engineering		15%	\$ 241,405	\$ 36,210.77	Assumed to be 15% of the construction total
Construction Engineering		10%	\$ 241,405	\$ 24,140.51	Assumed to be 10% of the construction total
Total				\$ 301,756	

Project ID: 4 - Bridge to Maple Street

Scope Assumptions: The intent of this project is to restripe the existing roadway and add a 1" top coat

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
New Top Coat	SF	55,000	\$ 2.50	\$ 137,500	Assume 50 ft wide x 1100 LF
Pavement Symbols	EA	15	\$ 10.00	\$ 150	Assume 8 sets of arrows, some bike lane markings
Pavement Markings	LS	5,500	\$ 0.75	\$ 4,125	5 lanes x 1100 LF
Maintenance of traffic	LS	3%	\$ 141,775	\$ 4,253	3% mobilization is assumed
Mobilization	LS	6%	\$ 146,028	\$ 8,761.70	6% mobilization is assumed
Contingency	LS	25%	\$ 154,790	\$ 38,697	Assumed to be 25% of the construction total
Construction Total				\$ 193,487	Construction Total
Design Engineering		5%	\$ 193,487	\$ 9,674.37	Assumed to be 15% of the construction total
Construction Engineering		5%	\$ 193,487	\$ 9,674.37	Assumed to be 10% of the construction total
Total				\$ 212,836	

Project ID: 5 - West Commercial at Holyoke Wharf

Scope Assumptions: The intent of this project is to restripe the existing roadway, assume a 1" top coat

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Bike symbols	SF	6,000	\$ 1.50	\$ 9,000	Entire length of the section - assume paint only, 1200 LF x 5 LF
New Top Coat	SF	112,800	\$ 2.50	\$ 282,000	94 LF wide x 1200 LF long
Pavement Marking Symbols	EA	40	\$ 10.00	\$ 400	Guestimate 40 symbols
Pavement Markings	LF	12,000	\$ 0.75	\$ 9,000	Say 8 strips x 1200 LF and add two more strips @ 1200 LF for buffers
Maintenance of Traffic	LS	3%	\$ 300,400	\$ 9,012	3% mobilization is assumed
Mobilization	LS	6%	\$ 309,412	\$ 18,564.72	6% mobilization is assumed
Contingency	LS	25%	\$ 327,977	\$ 81,994	Assumed to be 25% of the construction total
Construction Total				\$ 409,971	Construction Total
Design Engineering		5%	\$ 409,971	\$ 20,498.55	Assumed to be 5% of the construction total
Construction Engineering		5%	\$ 409,971	\$ 20,498.55	Assumed to be 5% of the construction total
Total				\$ 450,968	

Project ID: 6 - West Commercial from Cassidy Point to Star Match

Scope Assumptions: The intent of this section is to widen the road add a new top coat and restripe

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Widening SF		53,200	\$ 11	\$ 585,200	Assumed 28 LF wide x 1900 LF long
New pavement SF		123,500	\$ 2.50	\$ 308,750	Assume entire width to be conservative- 65LF x 1900 LF long
Pavement Bike Symbols EA		40	\$ 10.00	\$ 400	Guestimate 40 symbols
Striping LF		15,200	\$ 0.75	\$ 11,400	Assume 8 strips (call hatching 1 stripe) x 1900 LF
Maintenance of Traffic LS		3%	\$ 585,200	\$ 17,556	3% mobilization is assumed
Mobilization LS		6%	\$ 923,306	\$ 55,398.36	6% mobilization is assumed
Contingency LS		25%	\$ 978,704	\$ 244,676	Assumed to be 25% of the construction total
Construction Total				\$ 1,223,380	Construction Total
Design Engineering		15%	\$ 1,223,380	\$ 183,507.07	Assumed to be 5% of the construction total
Construction Engineering		10%	\$ 1,223,380	\$ 122,338.05	Assumed to be 5% of the construction total
Total				\$ 1,529,226	

Project ID: 7 - Relocate Crosswalk to IMT Driveway

Scope Assumptions: Relocate the existing crosswalk to the IMT driveway

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Flush median island	LS	1	\$ 7,500	\$ 7,500	Flush island
Sidewalk Ramp	EA	2	\$ 3,500	\$ 7,000	Includes ramp and dwt's but no ped signals
Reconstruct existing ramp location	EA	1	\$ 2,000	\$ 2,000	Repair the existing ramp area that is to be relocated
Pavement markings	SF	256	\$ 3.50	\$ 896	Call it 64LF to cross, strips every 2 LF, 2LF x 8 LF in length; 16 stripes
Maintenance of Traffic	LS	3%	\$ 17,396	\$ 522	3% mobilization is assumed
Mobilization	LS	6%	\$ 17,918	\$ 1,075.07	6% mobilization is assumed
Contingency	LS	25%	\$ 18,993	\$ 4,748	Assumed to be 25% of the construction total
Construction Total				\$ 23,741	Construction Total
Design Engineering		15%	\$ 23,741	\$ 3,561.18	Assumed to be 15% of the construction total
Construction Engineering		10%	\$ 23,741	\$ 2,374.12	Assumed to be 10% of the construction total
Total				\$ 29,676	

Project ID: 8 - New crosswalk and median

Scope Assumptions: Place new crosswalk and add one raised median island

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Sidewalk ramp	LS	2	\$ 3,500	\$ 7,000	Includes ramp and dwt's but no signals
Raised islands	EA	1	\$ 12,000	\$ 12,000	For truck movements
Pavement markings	SY	44	\$ 3.50	\$ 156	estimate 25 strips, 2ft wide x 8 ft long
Maintenance of Traffic	LS	3%	\$ 19,156	\$ 575	3% mobilization is assumed
Mobilization	LS	6%	\$ 19,730	\$ 1,183.81	6% mobilization is assumed
Contingency	LS	25%	\$ 20,914	\$ 5,229	Assumed to be 25% of the construction total
Construction Total				\$ 26,143	Construction Total
Design Engineering		15%	\$ 26,143	\$ 3,921.38	Assumed to be 15% of the construction total
Construction Engineering		10%	\$ 26,143	\$ 2,614.25	Assumed to be 10% of the construction total
Total				\$ 32,678	

Project ID: 9 - Traffic Signal

Scope Assumptions: Add proposed traffic signal

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Traffic Signal	EA	1	\$ 150,000	\$ 150,000	Includes ramp and dw't's but no signals
Maintenance of traffic	LS	3%	\$ 150,000	\$ 4,500	3% mobilization is assumed
Mobilization	LS	6%	\$ 154,500	\$ 9,270.00	6% mobilization is assumed
Contingency	LS	25%	\$ 163,770	\$ 40,943	Assumed to be 25% of the construction total
Construction Total				\$ 204,713	Construction Total
Design Engineering		5%	\$ 204,713	\$ 10,235.63	Assumed to be 15% of the construction total
Construction Engineering		5%	\$ 204,713	\$ 10,235.63	Assumed to be 10% of the construction total
Total				\$ 225,184	

Project ID: 10 - New sidewalks and crosswalks

Scope: Landscaped median where no turn pockets are required.

	Unit	Item	Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	-	No utility relocation costs are included in this total
Landscaped raised median	LF	960	\$	1,000	\$ 960,000	Estimate 40% of median dedicated to turn pockets - 1600 LF and 10 LF wide
Pavement markings	LF	3,200	\$	0.75	\$ 2,400	say two stripes the entire length - 1600 LF
Maintenance of traffic	LS	3%	\$	962,400	\$ 28,872	3% mobilization is assumed
Mobilization	LS	6%	\$	991,272	\$ 59,476.32	6% mobilization is assumed
Contingency	LS	25%	\$	1,050,748	\$ 262,687	Assumed to be 25% of the construction total
Construction Total					\$ 1,313,435	Construction Total
Design Engineering		15%	\$	1,313,435	\$ 197,015.31	Assumed to be 15% of the construction total
Construction Engineering		10%	\$	1,313,435	\$ 131,343.54	Assumed to be 10% of the construction total
Total					\$ 1,641,794	

Project ID: 11 - Off street path, assume lighting in the tunnel

Scope Assumptions: Add 2 new crosswalks with ramps, no pedestrian signals assumed

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Bituminous Sidewalk	SY	1,250	\$ 50	\$ 62,500	
Lighting	LS	10	\$ 3,500	\$ 35,000	assume some lighting under the bridge
Crossings	EA	2	\$ 3,500	\$ 7,000	detectable warning tiles etc.
Pavement markings	SY	44	\$ 3.50	\$ 156	Say 100 LF of crossing, 25 stripes, 2LF x 8 LF
Maintenance of traffic	LS	1%	\$ 104,656	\$ 1,047	3% mobilization is assumed
Mobilization	LS	6%	\$ 105,702	\$ 6,342.13	6% mobilization is assumed
Contingency	LS	25%	\$ 112,044	\$ 28,011	Assumed to be 25% of the construction total
Construction Total				\$ 140,055	Construction Total
Design Engineering		15%	\$ 140,055	\$ 21,008.29	Assumed to be 15% of the construction total
Construction Engineering		10%	\$ 140,055	\$ 14,005.53	Assumed to be 10% of the construction total
Total				\$ 175,069	

Project ID: 12 - Shared Use Path along Harbor View

Scope Assumptions: Add 2 new crosswalks with ramps, no pedestrian signals assumed

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Bituminous Sidewalk	SY	1,333	\$ 50	\$ 66,667	Assume path length of 1500' x 8'
Small cheek wall	SF	2,850	\$ 40	\$ 114,000	Guestimate 3 ft tall, 1/2 the length of the stretch
Maintenance of traffic	LS	1%	\$ 180,667	\$ 1,807	3% mobilization is assumed
Mobilization	LS	6%	\$ 182,473	\$ 10,948.40	6% mobilization is assumed
Contingency	LS	25%	\$ 193,422	\$ 48,355	Assumed to be 25% of the construction total
Construction Total				\$ 241,777	Construction Total
Design Engineering		15%	\$ 241,777	\$ 36,266.58	Assumed to be 15% of the construction total
Construction Engineering		10%	\$ 241,777	\$ 24,177.72	Assumed to be 10% of the construction total
Total				\$ 302,221	

Project ID: 13 - Striping and Widening Path

Scope Assumptions: Striping, rip up 3' of brick sidewalk and replace with 10' of bituminous pavement

	Unit	Item Total	Unit \$	Total	Notes
Environmental Evaluation	LS	-	-	-	No environmental evaluation is assumed at this time
Right of Way Acquisition	LS	-	-	-	No right of way is assumed to be needed at this time
Utility Relocation	LS	-	-	-	No utility relocation costs are included in this total
Bituminous Sidewalk	SY	556	\$ 50	\$ 27,778	500 LF x 10 LF wide
Remove existing brick sidewalk	SY	278	\$ 20	\$ 5,556	Probably should try to use brick somewhere else on the project
Street furniture	LS	1	\$ 3,000	\$ 3,000	Assume some street furniture will be placed
Furniture zone pavers	SY	167	\$ 100	\$ 16,667	3 LF wide x 500 LF long
repave	SF	43,500	\$ 2.50	\$ 108,750	87 LF wide x 500 LF long
striping	LF	4,000	\$ 0.75	\$ 3,000	call 8 lanes due to parking and bumper x 500 LF
Maintenance of traffic	LS	3%	\$ 164,750	\$ 4,943	3% mobilization is assumed
Mobilization	LS	6%	\$ 169,693	\$ 10,181.55	6% mobilization is assumed
Contingency	LS	25%	\$ 179,874	\$ 44,969	Assumed to be 25% of the construction total
Construction Total				\$ 224,843	Construction Total
Design Engineering		15%	\$ 224,843	\$ 33,726.38	Assumed to be 15% of the construction total
Construction Engineering		10%	\$ 224,843	\$ 22,484.26	Assumed to be 10% of the construction total
Total				\$ 281,053	