

City of Tacoma
East Thea Foss Waterway Transportation
Corridor Study

Final Report

Prepared For:
City of Tacoma
747 Market Street
Tacoma, Washington 98402
Contact: Dana Brown

Prepared By:
Perteet
505 Fifth Avenue, Suite 210
Seattle, Washington 98104
Perteet Project No. 27039.000
Contact: Steve Sindiong

June 2008



Perteet

Civil and Transportation Consultants
2707 Colby Avenue, Suite 900
Everett, WA 98201
425.252.7700 / FAX 425.339.6018

In Association with:
Jacobs
Berk & Associates

THIS PAGE LEFT BLANK INTENTIONALLY

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
PROJECT LOCATION	1
PROJECT VISION	1
EXISTING CONDITIONS	2
FUTURE TRAFFIC CONDITIONS	3
FUTURE TRAFFIC CONDITIONS	3
KEY ISSUES AND NEEDS	3
ALTERNATIVES DEVELOPMENT AND EVALUATION	4
RECOMMENDED IMPROVEMENTS AND PHASING	4
CHAPTER 1 EXISTING CONDITIONS AND BACKGROUND	9
PROJECT VISION	9
PROJECT PURPOSE	9
BACKGROUND	10
PROJECT AREA	10
STUDY METHODOLOGY	12
<i>Project Management and Steering Committee</i>	12
<i>Public Outreach Process</i>	12
RELATED STUDIES AND PLANS	12
<i>Thea Foss Waterway Design and Development Plan</i>	12
<i>Tacoma Dome Area Plan (1994, Updated 2001)</i>	13
<i>Thea Foss Waterway Comprehensive Review</i>	14
<i>Shoreline Master Program Update</i>	14
EXISTING LAND USE	15
PROMINENT LANDOWNERS AND USERS	15
SHORELINE DISTRICT	16
<i>S-8 Shoreline District – Thea Foss Waterway</i>	16
<i>S-9 Shoreline District</i>	17
<i>Shoreline District Amendments</i>	17
EXISTING TRANSPORTATION	17
ROADWAY NETWORK	17
<i>Functional Classificatio</i>	17
EXISTING TRAFFIC CONDITIONS	22
<i>Methodology</i>	22
<i>Signalized Intersection Analysis</i>	22
<i>Unsignalized Intersection Analysis</i>	24
SAFETY	25
<i>Accidents by Type</i>	25
<i>Accidents by Location</i>	26
FREIGHT	28
<i>Truck Freight</i>	28
<i>Rail Freight</i>	29
NONMOTORIZED FACILITIES	31
<i>Pedestrian Facilities</i>	31
<i>Bicycle Facilities</i>	31
PUBLIC TRANSPORTATION	33
<i>Tacoma Dome Station</i>	33
<i>Pierce Transit</i>	34
<i>Sound Transit</i>	36

Other	37
PLANNED TRANSPORTATION FACILITIES	37
FUNDED ROADWAY AND BRIDGE IMPROVEMENTS.....	37
<i>East D Street Overpass – Puyallup Avenue to S 23rd</i>	39
<i>East 11th Street Bridge</i>	39
<i>L Street E Bridge</i>	39
<i>Lincoln Avenue from Portland Avenue to Marc Avenue</i>	39
<i>Puyallup Bridge F16A & F16B Replacement</i>	39
<i>Puyallup River Bridge Rehabilitation</i>	39
<i>Bridge Painting Program</i>	39
<i>Lincoln Avenue Overlay</i>	39
<i>Portland Avenue – E 11th St. to Puyallup Avenue</i>	39
<i>Tacoma / Pierce County HOV Program (WSDOT)</i>	40
FUNDED NONMOTORIZED TRANSPORTATION IMPROVEMENTS	40
<i>Port of Tacoma Bus PLUS</i>	40
<i>Trunk Route Expansion</i>	41
OTHER PLANNED (UNFUNDED) NONMOTORIZED TRANSPORTATION IMPROVEMENT	41
<i>Thea Foss Waterway Design and Development Plan</i>	42
<i>Tacoma Dome Area Plan</i>	42
OTHER PLANNED (UNFUNDED) TRANSIT IMPROVEMENTS	42
<i>Tacoma Dome District Multi-Modal Transportation Center</i>	42
<i>Downtown Tacoma Circulator Route</i>	42
<i>Sound Transit Phase 2 Improvements</i>	43
CHAPTER 2 – FUTURE TRAFFIC CONDITIONS	45
TRAFFIC ANALYSIS METHODOLOGY.....	45
<i>No Murray Morgan Bridge/No SR 509 Slip Ramps</i>	45
<i>Operational Murray Morgan Bridge/SR 509 Slip Ramps</i>	46
UNSIGNALIZED INTERSECTION ANALYSIS	46
CHAPTER 3 – KEY ISSUES AND NEEDS	51
ROADS AND BRIDGES.....	51
<i>Roadway / Bridge Maintenance</i>	51
<i>Congestion</i>	51
<i>Access Issue</i>	52
PARKING ISSUES.....	52
FREIGHT ISSUES.....	52
RAIL ISSUES / CONFLICTS.....	52
NONMOTORIZED ISSUES.....	52
TRANSIT ISSUES	52
EMERGENCY RESPONSE ISSUES	53
IDENTIFIED NEEDS	53
CHAPTER 4 – ALTERNATIVES DEVELOPMENT AND EVALUATION	55
SCENARIO 1: OPERATIONAL MURRAY MORGAN BRIDGE / SR 509 SLIP RAMPS.....	55
<i>Concept A – East D or F Street Extension</i>	57
<i>North of East 15th Street</i>	57
<i>South of East 15th Street</i>	61
<i>Concept B – Use of Existing Streets</i>	64
<i>North of East 15th Street</i>	64
<i>South of East 15th Street</i>	64
SCENARIO 2: NO MURRAY MORGAN BRIDGE / NO SR 509 SLIP RAMPS	67
<i>Concept A – East D or F Street Extension</i>	67

<i>Concept B – Use of Existing Streets</i>	71
PUBLIC WORKSHOP SUMMARY	75
KEY THEMES	75
PARTICIPANT COMMENTS RELATED TO SPECIFIC NEEDS	76
<i>Separation of Traffic</i>	76
<i>Traffic Circulation / Truck Queuing</i>	77
<i>SR 509 Slip Ramps</i>	77
<i>Murray Morgan Bridge</i>	77
<i>Separation of Land Uses</i>	77
<i>Nonmotorized Facilities</i>	78
<i>Vehicle Parking</i>	78
EVALUATION OF DESIGN SOLUTIONS	78
SEPARATION OF TRAFFIC	78
SEPARATION OF LAND USE	78
CORRIDOR OPERATIONS	78
EMERGENCY RESPONSE	78
IMPACTS TO SAFETY	79
NONMOTORIZED ENVIRONMENT	79
OPERATIONAL GEOMETRIC IMPACTS	79
BUSINESS IMPACTS	79
RIGHT OF WAY NEEDS	79
SCENARIO 1: OPERATIONAL MURRAY MORGAN BRIDGE / SR 509 SLIP RAMPS	79
<i>Concept A – East D Street Extension</i>	79
<i>Concept B – Use of Existing Streets</i>	90
SCENARIO 2: NO MURRAY MORGAN BRIDGE / NO SR 509 SLIP RAMPS	91
<i>Concept A – East D Street Extension</i>	91
<i>Concept B – Use of Existing Street</i>	93
CHAPTER 5 – RECOMMENDED IMPROVEMENTS	95
NORTH OF EAST 11 TH STREET	95
EAST 11 TH STREET TO EAST 15 TH STREET	98
<i>Murray Morgan Bridge / East 11th Street</i>	98
<i>East D Street Extension</i>	101
SOUTH OF EAST 15 TH STREET	102
<i>East D Street / East 15th Street</i>	102
<i>SR 509 Slip Ramps</i>	104
DESIGN CONSIDERATIONS	105
<i>Pedestrian Facilities</i>	105
<i>Street Furniture</i>	107
<i>Bicycle Facilities</i>	108
<i>Signage / Wayfinding</i>	109
<i>Transit Improvements</i>	111
<i>Landscape Treatments</i>	113
<i>Driveways</i>	114
CHAPTER 6 – IMPLEMENTATION	115
<i>Opinion of Cost</i>	116

FIGURES

FIGURE 1-1: THEA FOSS STUDY AREA	11
FIGURE 1-2: ARTERIAL CLASSIFICATION AND SIGNAL LOCATIONS	18
FIGURE 1-3: 2007 TRAFFIC CONDITIONS	23
FIGURE 1-4: EAST 26 TH STREET AND PORTLAND AVENUE ACCIDENTS, 2004-2006	27
FIGURE 1-5: EAST PORTLAND AVENUE AT PUYALLUP AVENUE ACCIDENTS, 2004-2006.....	28
FIGURE 1-6: EXISTING FREIGHT OPERATIONS	30
FIGURE 1-7: EXISTING NON-MOTORIZED FACILITIES	32
FIGURE 1-8: EXISTING PUBLIC TRANSPORTATION	35
FIGURE 1-9: FUNDED/PARTIALLY FUNDED TRANSPORTATION IMPROVEMENTS	38
FIGURE 1-10: UNFUNDED PLANNED TRANSPORTATION IMPROVEMENTS	44
FIGURE 2-1: 2025 TRAFFIC CONDITIONS NO BRIDGE AND SLIP RAMPS	48
FIGURE 2-2: 2025 TRAFFIC CONDITIONS BRIDGE AND SLIP RAMPS	49
FIGURE 4-1: STUDY TECHNICAL PROCESS	56
FIGURE 4-2: CONCEPT A TRAFFIC CIRCULATION (BRIDGE AND RAMPS)	58
FIGURE 4-3: SOLUTIONS A-1 AND A-2.....	59
FIGURE 4-4: SOLUTION A-3	60
FIGURE 4-5: SOLUTION A-4	62
FIGURE 4-6: SOLUTION A-5	63
FIGURE 4-7: CONCEPT B TRAFFIC CIRCULATION (BRIDGE AND RAMPS	65
FIGURE 4-8: SOLUTION B-1	66
FIGURE 4-9: CONCEPT A TRAFFIC CIRCULATION (NO BRIDGE / NO RAMPS).....	68
FIGURE 4-10: SOLUTION A-1 AND A-2	69
FIGURE 4-11: SOLUTION A-3	70
FIGURE 4-12: SOLUTION A-4	72
FIGURE 4-13: CONCEPT B TRAFFIC CIRCULATION (NO BRIDGE / NO RAMPS)	73
FIGURE 4-14: SOLUTION B-1	74
FIGURE 5-1: RECOMMENDED IMPROVEMENTS	96
FIGURE 5-2: EAST D STREET (NORTH OF EAST 11 TH STREET) PROPOSED CROSS-SECTION	97
FIGURE 5-3: POTENTIAL NONMOTORIZED CONNECTION TO SHORELINE.....	100
FIGURE 5-4: EAST D STREET EXTENSION PROPOSED CROSS-SECTION.....	101
FIGURE 5-5: EAST D STREET / EAST 15 TH STREET PROPOSED CROSS-SECTION	103
FIGURE 5-7: EXAMPLE OF A CURB BULB WITH SE	107
FIGURE 5-8: EXAMPLE OF A MIDBLOCK CROSSING AND PEDESTRIAN REFUGE	107
FIGURE 5-9: EXAMPLE OF LANDSCAPING AND STREET FURNITURE	108
FIGURE 5-10: SHARED USE PATH AND BOLLARD AT CROSSWALK	109
FIGURE 5-11: EXAMPLE OF TRUCK ROUTE SIGNAGE.....	110
FIGURE 5-12: EXAMPLES OF NONMOTORIZED WAYFINDING	111
FIGURE 5-13: TRANSIT STOP ACCESSIBILITY.....	112
FIGURE 5-14: EXAMPLE OF A RED MAPLE (LEFT) AND BOWHALL MAPLE (RIGHT)	114

TABLES

EXISTING INTERSECTIONS.....	3
TABLE 1-1: ANALYZED INTERSECTIONS.....	22
TABLE 1-2: EXISTING LEVEL-OF SERVICE (SIGNALIZED INTERSECTIONS).....	24
TABLE 1-3: EXISTING LEVEL OF SERVICE (UNSIGNALIZED INTERSECTIONS).....	24
TABLE 1-4: INTERSECTION ACCIDENTS BY ACCIDENT TYPE, 2004 TO 2006	25
TABLE 1-5: MID-BLOCK ACCIDENTS BY ACCIDENT TYPE, 2004 TO 2006.....	26
TABLE 1- 6: PIERCE TRANSIT ROUTES SERVING THEA FOSS PENINSULA	36
TABLE 1-7: SOUND TRANSIT BUS ROUTES SERVING TACOMA DOME STATION.....	37
TABLE 2-1: ANALYZED INTERSECTIONS.....	45
TABLE 2-2: RESULTS OF SIGNALIZED INTERSECTION ANALYSIS (2025 NO BRIDGE/NO RAMPS)	46
TABLE 2-3: RESULTS OF SIGNALIZED INTERSECTION ANALYSIS (2025 BRIDGE / RAMPS)	47
TABLE 2-4: RESULTS OF UNSIGNALIZED INTERSECTION ANALYSIS (2025 BOTH SCENARIOS)	47
TABLE 4-1 PRELIMINARY ASSESSMENT OF DESIGN SOLUTIONS FOR DISCUSSION.....	81
TABLE 4-2 PRELIMINARY ASSESSMENT OF DESIGN SOLUTIONS FOR DISCUSSION - PRELIMINARY SCORING	85
TABLE 5-1: RECOMMENDED IMPROVEMENTS.....	95

THIS PAGE LEFT BLANK INTENTIONALLY

EXECUTIVE SUMMARY

The East Thea Foss Waterway Transportation Corridor Study was commissioned by the Tacoma City Council to address vehicular access, circulation, and compatibility concerns in the East Foss Peninsula area. A project steering committee was formed to help guide the study and to ensure that those affected by the proposed changes herein had representation. The steering committee was comprised of representatives from the Tacoma-Pierce Chamber of Commerce, the Port of Tacoma, the City, and the Foss Waterway Development Authority.

A number of stakeholders were interviewed as part of the study, to assess key issues, needs and potential solutions. Comments were also actively solicited from area businesses and property owners at a design charrette and steering committee meetings. The stakeholders that were interviewed as part of the study included:

- Nathan Childs, Globe Machinery
- Joe Martinac, Jr., J. M. Martinac Shipbuilding Corp.
- Dave McEntee, Simpson Cos.
- Don Meyer, Thea Foss Development Authority
- Clare Petrich, Petrich Marine Dock
- Laura Shane, Globe Machinery
- William Stowell, New Star Energy/Valero LP/Shore Terminal; & Stephen Tan, Cascadia Law Group
- Kevin Trucco, Colonial Fruit & Produce
- Jay Stewart, Port of Tacoma
- Bob Emerson, Port of Tacoma
- Mark Eshleman, Panattoni

To help with the compatible transition between adjacent land uses, this study identifies potential transportation solutions over near term (up to 6 years) and a long term (20-year) periods. While this study looked at two circulation scenarios involving the Murray Morgan bridge, the list of recommended road projects are not subject to decisions regarding its future use.

Project Location

The project study boundaries are the Thea Foss waterway to the west, the Commencement Bay to the north, the Puyallup River to the east, and Puyallup Avenue to the south. During the course of the study, it was determined that the corridor improvement recommendations would focus within the western portion of the study area, and primarily along the East D Street corridor.

Project Vision

To identify possible transportation solutions that are consistent with planning efforts, protect and encourage economic development, and facilitate a smooth transition between co-existing land uses of the East Thea Foss peninsula.

Purpose

The purpose of the East Thea Foss Waterway Transportation Corridor Study is to analyze and develop a transitional transportation corridor system that will improve Access, Circulation, and Functional Separation, as necessary, for the protection and enhancement of existing businesses and to facilitate new economic opportunities in the study area.

Study Assumptions

- No change to existing zoning.
- Recommended road projects are not subject to the Murray Morgan bridge funding decisions.
- Recognize the importance of the transportation links between the downtown and the Peninsula area.
- Recommended transportation improvements are generally within the existing rights-of-way.
- Prepared planning level project cost estimates.
- Emergency service levels would be unchanged.
- The E. 11th Street Bridge over the Puyallup River is approaching its service life.

This study provides transportation and streetscape/aesthetic recommendations for current and future development in the East Thea Foss Peninsula. It examined two circulation scenarios involving the Murray Morgan Bridge and East D Street ramps at SR 509, options as follows:

1. Maximum land uses allowed under current zoning, with fully operational Murray Morgan Bridge, D Street overpass complete, and SR 509 slip ramps to East D Street.
2. Maximum land uses allowed under current zoning, with vehicle restricted operation of the Murray Morgan Bridge, East D Street overpass complete, and no SR 509 slip ramps to East D Street.

This report includes six chapters:

1. Existing Conditions
2. Future Traffic Conditions
3. Key Issues and Needs
4. Alternatives Development and Evaluation
5. Recommended Improvements
6. Implementation Strategy and Planning Level Costs

Existing Conditions

In order to understand existing conditions and planned improvements, a review of existing plans and documents was conducted. The existing conditions analysis includes a review of transportation improvements currently planned or considered, the existing land use and transportation network, including the roadway network, existing (2007) traffic operations, accident history, freight, nonmotorized facilities, and public transportation.

Future Traffic Conditions

An evaluation of future traffic conditions was conducted for four existing intersections for the year 2025 under the No Murray Morgan Bridge/No SR 509 Slip Ramps development scenario. Two additional proposed intersections were examined under the Operational Murray Morgan bridge/SR 509 Slip Ramps development scenario for the year 2025. The two proposed intersections are at East D Street and a proposed EB SR 509 on- ramp, and at East D Street and a proposed WB SR 509 off-ramp.

The purpose of conducting a no bridge/no ramp analysis was to determine if the existing capacity would adequately serve the planned future growth. The findings for arterial level-of service indicate that the existing arterial capacity would adequately serve the future land use and resulting trip generation. However, the very congested Portland Avenue segment between Puyallup Ave and the I-5 interchange is not included and is being addressed as part of the City's work with the Washington State Department of Transportation and its I-5 HOV project.

The analysis was performed for the PM peak period turning movements for the two future development scenarios as follows:

	Intersection	Traffic Control	2025 No Bridge/ No Ramps	2025 Bridge / Ramps
1.	Portland Avenue and Puyallup Avenue/Eells Street	Signalized	Yes	Yes
2.	East D Street and Puyallup Avenue	Signalized	Yes	Yes
3.	E 11 th Place and St. Paul Avenue	Unsignalized	Yes	Yes
4.	E 11 th Street and St. Paul Avenue	Unsignalized	Yes	Yes
5.	East D Street and SR 509 EB On Ramp	Unsignalized	No	Yes
6.	East D Street and SR 509 WB Off Ramp	Unsignalized	No	Yes

Key Issues and Needs

A number of stakeholders were interviewed as part of the study, to assess key issues, needs and potential solutions. The primary needs identified by stakeholders include:

- Area wide need for roadway maintenance (potholes and at rail crossings)
- Current and future accommodation/buffering of heavy truck activity and general purpose.
- Widen roads where trucks block roads, such as East D Street
- Improve (repave) East F Street
- Work with WSDOT to build Slip Ramps at East D Street / SR 509
- Work with WSDOT to bring the Murray Morgan bridge back into service
- Improve connection from East 11th Street to East D Street / East 15th Street
- Reduce congestion at Portland Avenue at Interstate 5
- Improve pedestrian linkages, especially near the waterway
- Improve public transportation to better serve commuters
- Increase opportunities for underutilized parcels to be used for redevelopment to increase economic activity

Alternatives Development and Evaluation

Potential improvements were identified based on future conditions, the project vision, and consultation with the Steering Committee and stakeholders. Because the study boundary encompassed a large area, the Steering Committee recommended that the recommended improvements be focused on the west side of the peninsula near East D Street. This area had the greatest need for buffering between industrial and commercial/retail/residential uses. In particular, the Committee recommended that improvements be focused on three primary area wide needs:

- Traffic Access/Circulation & Functional Separation
- Transitions between mixed-use and industrial use
- Maintain/improve arterials to support existing businesses and to help spur new private investments

Traffic access and circulation concepts/projects were developed for both future (2025) development scenarios (No Murray Morgan Bridge / No SR 509 slip ramps; Operational Murray Morgan Bridge / SR 509 slip ramps). The improvements were reviewed by the Steering Committee and presented to the public at a September 27, 2007 workshop. The preliminary results were presented to the steering committee for refinement and the development of a preferred project list.

This study assumed that the level of service for emergency service (primarily for ambulatory service) worsens with options that remove the Murray Morgan Bridge. A detailed travel time analysis was not completed for emergency service because at the time of the study, the bridge was closed. A travel time analysis to address emergency service levels using traffic modeling data from this study.

Public Opinion

A public workshop was held on September 27, 2007 to provide an overview of potential transportation improvements, and allow for comment and suggested improvements. The results of the public workshop showed:

- Varied views on separating industrial and mixed-use traffic
- Overall support for slip ramps at SR 509 / East D Street
- Support for St. Paul Ave/E. F Street at East 11th Street intersection improvement
- Varied opinions on East D Street designs
- Business opposition to restriction industrial traffic on East D Street north of E. 11th Street

Description of Recommended Improvements

After the public workshop, a steering committee workshop was held to review the results of the public workshop, alternatives analysis and identify preferred solutions. The committee recommended that improvements for two future options be developed; with an operational

Murray Morgan bridge, and without the Murray Morgan bridge. The recommended improvements shown below are not subject to a Murray Morgan bridge closure.

The City's 6-Year Capital Improvement Plan should be updated to include these projects as funding allows. They are shown in the Recommended Improvements Map that follows.

East 11th Street / East F Street Realignment (Map Reference E)

Design, acquire associated right-of-way, and construct intersection realignment. The design of this improvement is tied to any improvements to the west, and associated decisions regarding the Murray Morgan Bridge. Include necessary car and truck signage as needed as part of this project.

Strictly Enforce the City's Adopted Weight Limit Code

The implementation of the traffic separation design recommended here will require the City of Tacoma to enforce the designated industrial and non-industrial routes. Other agencies in the region have adopted a truck route classification system so that these routes can be enforced. The City should determine which approach best meets its needs for the future.

East F Street Reconstruction (Map Reference F)

Include a reconstruction of East F Street (north of East 11th Street) in the City's overlay program.

East D Street / East Puyallup Avenue (Map Reference A)

Adjust the traffic signal phasing at East D Street at Puyallup Avenue to allow a permissive left turn operation.

East D Street / East 15th Street Improvements (Map Reference C)

The East D Street / East 15th Street improvements would complete the improvements already underway as part of the East D Street grade separation project. This phase would design and construct improvements to East D / East 15th Street north of the grade separation project, including illumination, a widened sidewalk on west side, southbound parking lane, 14' travel lanes, landscaped median and other landscaping, pedestrian crossings, and potential transit improvements (to be coordinated with Pierce Transit). Coordinate with adjacent property owners to determine new driveway locations, driveway consolidation, pedestrian improvements and potential truck staging area. A wayfinding program should also be undertaken by the City and coordinated with other agencies (including the Port of Tacoma and Foss Waterway Development Authority) to design wayfinding elements and determine specific locations.

East D Street (North of East 11th Street) Improvements (Map Reference G)

Design and construct improvements to East D Street north of East 11th Street, including illumination, installation of a sidewalk on the west side of the roadway, a southbound parking lane, and two 14' travel lanes.

SR 509 Slip Ramps (Map Reference B)

Coordinate with WSDOT for the design, right-of-way acquisition and construction of a half single point urban interchange and associated signalization at East D Street / SR 509. The improvement would also include channelization improvements along East D Street, and associated signage.

Recommended Improvements and Planning Level Costs

Map Ref.	Location	Recommendation	Cost Estimate
Both Options			
A	East D / Puyallup Ave.	Adjust traffic signal phasing (Grade Separation improvement complete and open).	\$2,000
B	East D / SR 509	Construct Half Single Point Urban Interchange at East D St. / SR 509 (Ramps to and from the east) and signal.	\$10,962,000
C	East D / East 15th Streets	Improve East 15th St. / East D St. to include 10' sidewalk on west side, SB parking lane, 14' SB lane, 12' landscaped median/turn pocket, 14' NB lane. Access management/driveway consolidation where needed. Also improve pedestrian crossings at designated locations. Relocate transit stops/shelters to crosswalk locations.	\$4,771,000
D	East D St. Extension (Private Road) ²	Extension is on private land and would require the relocation of BNSF rail spur. Extend East D St. south of East 11th St. to link to East 15th St. (10' sidewalk on west side, SB parking lane, 2 - 11' travel lanes, 6' sidewalk on east side) ³ .	\$3,354,000
E	East 11th / East F St.	Realign intersection at East 11th St. and East F St.	\$682,000
F	East F St.	Reconstruct East F Street north of East 11th St.	\$1,621,000
G	East D St. (North of E. 11th St.)	Widen East D St. north of East 11th St. (SB parking lane and 2 - 14' lanes, 10' sidewalk on west side.	\$1,760,000
Operational Murray Morgan Bridge			
H	East 10th St.	Add new east-west street (East 10th St.) between East D and East F Streets to include one 14' lane each direction and 6' sidewalk on south side.	\$620,000
No Murray Morgan Bridge			
I	East 11th St.	Extend East 11th St. west to tie into East D St.; Multi-use trail on north side linking to future shoreline esplanade and sidewalk on south side.	\$846,000
Total with Operational Murray Morgan Bridge			\$23,772,000¹
Total with Murray Morgan Bridge closed			\$23,998,000¹

Note 1: The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements, or Bridge removal.

Note 2: The recommendation of this planned Private Road does irrevocably commit the property owner to build the road.

Note3: The roadway cross-section was developed for cost purposes only.

East D Street Extension (Map Reference D)

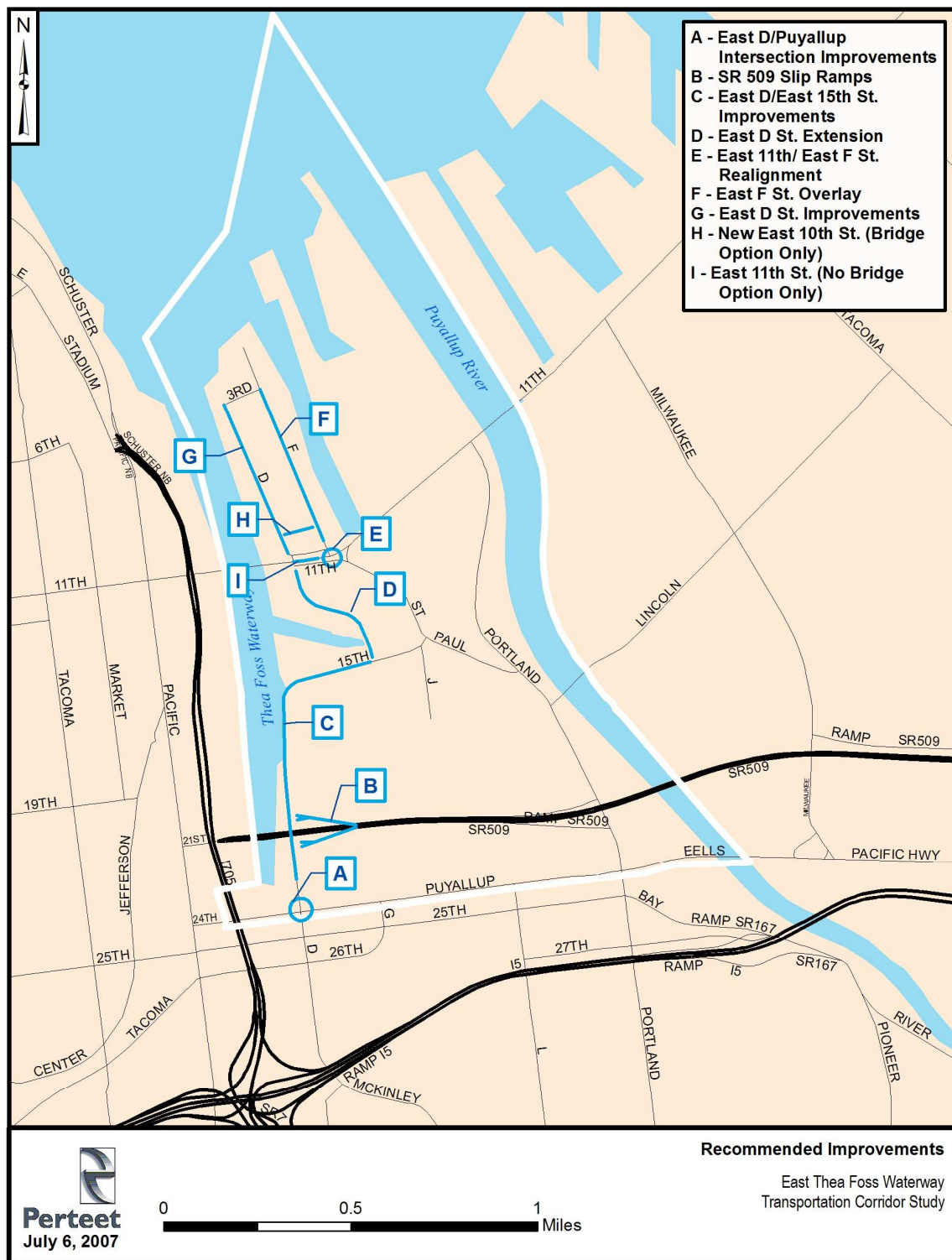
Complete agreement with BNSF regarding relocation of rail spur to the East F Street right of way. Design, acquire associated right-of-way, and construct an East D Street extension between NE 15th Street and NE 11th Street, to include illumination, sidewalks, southbound parking lane and two 11' travel lanes. The new road would be built on private land, and would commit the property owner to construct the road.

East 11th Street Improvement with closed Murray Morgan Bridge (Map Reference I)

Design and construct an East 11th Street improvement between East D Street and East F Street. The project would include associated sidewalk and a shared use path to connect to a future shoreline esplanade.

East 10th Street with maintained Murray Morgan Bridge (Map Reference H)

Design, acquire right-of-way, and construct a new east-west street (East 10th Street) between East D and East F Street. The roadway would include one 14' lane in each direction and a sidewalk on at least one side. This project would be implemented if the Murray Morgan bridge is funded for upgrade.



Recommended Implementation Strategy

The City should work with its partners and other agencies to implement three priority projects:

1. Begin needed street and rail crossing maintenance.
2. Improve the East 11th Street at East F Street/St Paul intersection.
3. Move forward with SR 509 ramp feasibility with WSDOT and BNSF.

Other Implementation Strategies include:

- Develop a plan to classify heavy truck arterials and implement heavy truck arterial design standards.
- Determine if a shared cost approach (Local Improvement District or other approach) would be acceptable to study area businesses and property owners.
- As funding allows, adopt the recommended projects into the City's Six-Year Transportation Program 2008 amendment.
- Add all unfunded capital projects to the 2008 Comprehensive Plan/Transportation Element/Project list.

Factors Affecting Implementation

- Competing interests for limited funding.
- Economic conditions.
- Availability of grant funding.
- Varied opinions on separating traffic.

Recommended Next Steps

- Incorporate appropriate sections of this traffic study into the S-8 Shoreline Master Plan Regulations.
- Implement the recommended three priority projects identified above.
- Participating entities need to take study recommendations back to their boards/commissions.
- Increase coordination of advanced facility planning between the City and the Port of Tacoma.
- Facilitate partnerships to share infrastructure costs to maintain existing uses and to increase economic development in the study area.

CHAPTER 1 – EXISTING CONDITIONS AND BACKGROUND

This chapter provides a summary of the existing conditions within the project study area, and includes a summary of the following components:

- Related Studies and plans
- Existing Land Use
- Existing Transportation facilities and operations
- Planned Transportation Improvements
- Key Issues and Needs identified through a Public Stakeholder Outreach process

Project Vision

The East Thea Foss Waterway Transportation Corridor Study vision is to identify possible transportation solutions for the East Thea Foss Peninsula that are consistent with, and facilitate a smooth transition and compatibility between co-existing land uses, inform land use planning efforts and encourage economic development of the East Thea Foss Peninsula.

Project Purpose

The project proposes to provide planning services to prepare a transportation corridor study for the East Thea Foss Peninsula within the City of Tacoma.

The study provides transportation and streetscape/aesthetic recommendations for current and future development in the East Thea Foss Peninsula, based on two long term scenario options as identified below:

1. Maximum land uses allowed under current zoning, with fully operational Murray Morgan bridge, D Street overpass, SR 509 slip ramps to D Street, and unchanged emergency response times.
2. Maximum land uses allowed under current zoning, with restricted or not operational Murray Morgan bridge, D Street overpass, no SR 509 slip ramps to D Street, and actual or calculated emergency response times.

The components of the study include:

- Public Outreach element to identify stakeholder issues, needs, future plans, and potential solutions.
- Analysis of existing and future (year 2025) transportation conditions, including the analysis of the two future transportation network scenarios with a maximum land use buildout.

- Identification and recommendation for multi-modal transportation improvements needed to provide access to the distinct land use areas within the peninsula.
- Recommendations for transportation improvements that help provide a functional separation between incompatible land use areas.

BACKGROUND

Project Area

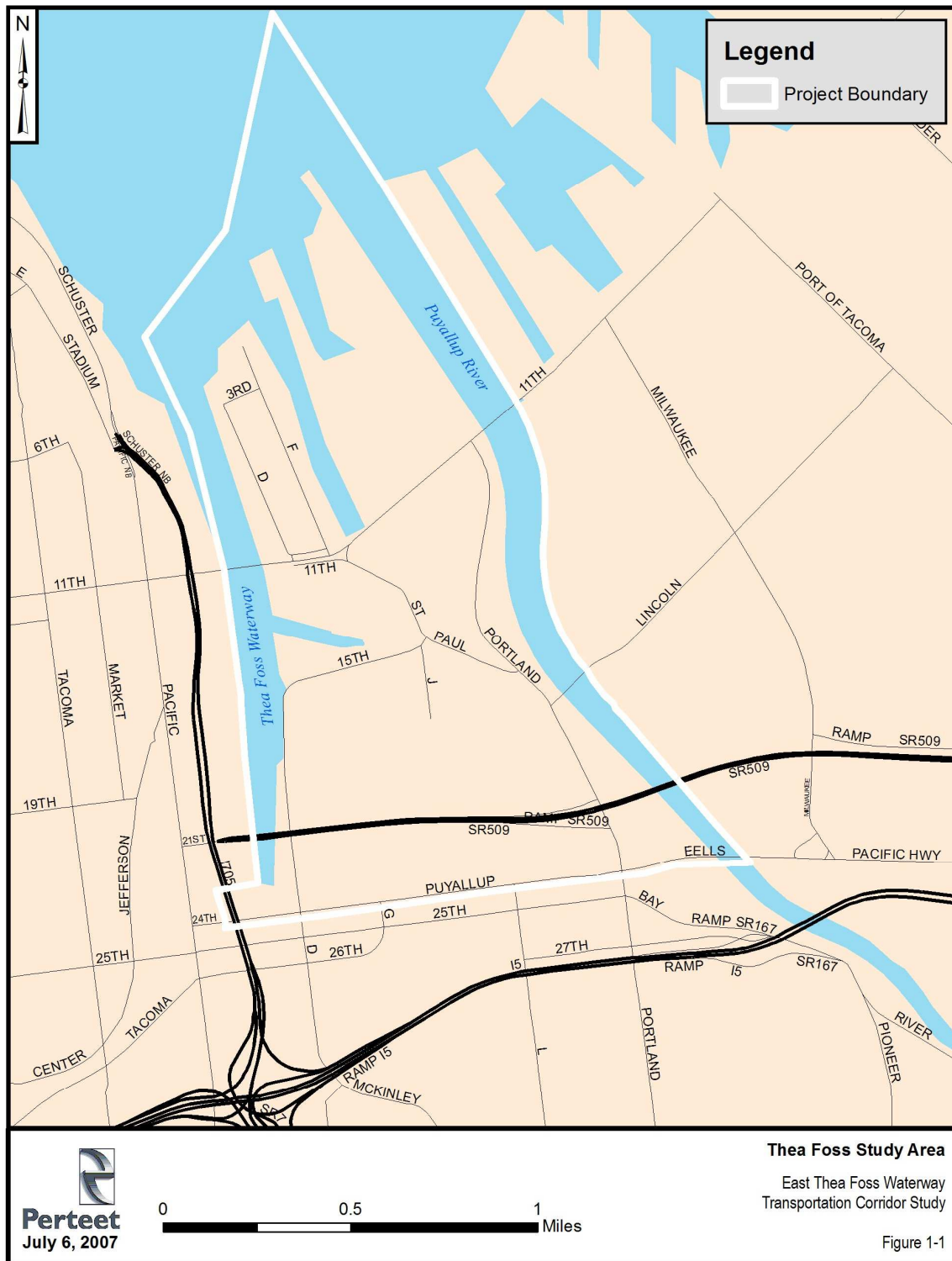
The project study boundaries are the Thea Foss Waterway to the west, Commencement Bay to the north, the Puyallup River to the east, and Puyallup Avenue to the south.

The study area includes a number of zoning districts. The City's shoreline district, which follows the shoreline around the peninsula and approximately 200 feet inward, is currently zoned to allow for a mixture of uses within it, including residential uses to the south of East 11th Street. North of the BNSF/UP railroad, other interior zones include Port Maritime and Heavy Industrial. South of the railroad, zones include light industrial (primarily east of G Street), and Urban Center Mixed Use (west of G Street).

Most of the study area is within a larger Industrial/Manufacturing Center designated in the City's Comprehensive Plan. South of the study area (south of Puyallup Avenue and west of East L Street) is designated as a larger Mixed Use Center that also includes downtown Tacoma.



The East Thea Foss Peninsula as seen from Downtown Tacoma



Study Methodology

Project Management and Steering Committee

The Study was conducted and managed by the City of Tacoma, Department of Public Works, and included a steering committee, comprised of representatives from the City of Tacoma (Public Works, and Community and Economic Development Department), the Tacoma/Pierce County Chamber of Commerce, the Port of Tacoma, and the Foss Waterway Development Authority. The Steering Committee was responsible for providing overall guidance and review of issues and alternatives as the project proceeded. Some of the key responsibilities of the Steering Committee included:

- Agreement on the project goals, vision and purpose
- Agreement on Alternatives for Evaluation
- Formation of the stakeholder and outreach lists
- Identification of key issues
- Guidance on the development of transportation improvements
- Review of technical memorandums, including existing conditions, alternatives analysis and implementation plan.
- Selection of improvements for implementation

Public Outreach Process

A public outreach process for the study included interviews with approximately twelve key stakeholders early on, to gauge key issues, needs and potential solutions. These stakeholders represent a variety of interests, including representatives of local businesses and industries, the Port of Tacoma, the City of Tacoma and the Thea Foss Development Authority.

A public design workshop was conducted as part of the study, following the assessment of existing conditions, to provide an overview of the issues identified by stakeholders, receive additional comments, and to identify potential solutions to solve near and long term problems.

Related Studies and Plans

A number of previous or ongoing studies have identified goals, policies and recommendations for portions of the study area. The Thea Foss Waterway and Development Plan includes goals that allow for preserving the working waterfront character of the east side of the waterway, while allowing a phased development of mixed use, maritime activities and a public esplanade. The Tacoma Dome Area Plan envisions enhancing the connection between the Tacoma Dome and downtown, and redeveloping the area west of East G Street with uses that support downtown such as entertainment, hotels, and offices, while retaining industrial uses east of East G Street.

Thea Foss Waterway Design and Development Plan

The Thea Foss Waterway Design and Development Plan, amended by the City of Tacoma in 2005, is an element of the City's long range Comprehensive Plan, and the Master Program for Shoreline Development. It establishes public policy and design guidelines for all new public and private developments surrounding the Thea Foss Waterway. One of the key goals is to promote

public access and enjoyment of the shoreline through the development of an esplanade along the shoreline, and improved connections to other parts of the City. On the east side of the Thea Foss Waterway, the plan recommends retaining the working waterfront character while encouraging newer, mixed uses, as well as residential uses south of 11th Street. Some of the key transportation related recommendations for the east side of the Thea Foss Waterway include:

- The establishment of public view/water access corridors, which include pedestrian and bicycle amenities such as seating and bicycle racks.
- Public improvements to D Street that enhance access and orientation to the waterfront, including landscaped islands at major intersections (such as the east side of the Murray Morgan Bridge).
- Streetscape improvements along D Street including sidewalks, street furniture, lighting and landscaping.
- The use of an east approach of the Murray Morgan Bridge as a gateway to downtown.
- Development of an esplanade with signage along eastern shoreline, so long as it doesn't interfere with existing industrial uses – detour around those uses to ensure continuity.
- Improvement of pedestrian facilities along D Street between the Tacoma Dome and Thea Foss Waterway.
- Grade separate East D Street over the railroad (Currently under construction).
- Consideration of slip ramps from SR 509 to D Street.

Tacoma Dome Area Plan (1994, Updated 2001)

The Tacoma Dome Area Plan was prepared by the City of Tacoma, and has been adopted into the City's Comprehensive Plan. The study boundaries included Interstate 5 to the south, Portland Avenue to the east, the Burlington Northern Santa Fe (BNSF) / Union Pacific (UP) railroad to the north, and Interstate 705 (I-705) to the west. The study is a long range (10 to 20 years) plan that provides recommendations for land use, transportation and design guidelines for the Tacoma Dome area. One of the goals of the study is to attract mixed uses within the area and a pedestrian friendly transportation system. Some of the key land use recommendations identified in the plan include:

- Concentration of development in core area between I-705 and East G Street.
- Hotel and entertainment uses focused between East D Street and East G Street.
- Concentration of industrial uses east of G Street.
- Revitalize Puyallup Avenue with streetscape enhancements to attract large, auto oriented retail uses.
- Concentration of uses that support the University of Washington, including office, flex/tech and housing, north of East 25th Street, and west of East D Street.

Key near term (3 to 10 years) transportation improvement recommendations include:

- Completion of East D Street Grade Separation over railroad (Under Construction).
- Extend East C Street from East 26th Street to Wiley Avenue to reduce vehicle/pedestrian conflicts on East D Street.

- Narrow East D Street to two lanes, remove parking and provide bicycle and pedestrian improvements between Wiley and 25th Street (Completed).
- Improve Tacoma Dome event circulation including variable message signs at I-5 and ramps to East 26th Street.
- Improve truck and freight access through signage and wayfinding.
- Removal of parking near truck turning radii, including on freeways.
- Upgrade pedestrian facilities in the core area, including C Street, 26th Street and Puyallup Avenue.
- Construct a pedestrian bridge to connect the Freighthouse Square area with the Tacoma Dome at an E Street alignment.
- Co-locate Amtrak with Sounder at the Sounder station.
- Develop a parking management plan for the Tacoma Dome area.

Key long term (10 to 23 years) transportation improvement recommendations include:

- Upgrade pedestrian amenities along other key streets not already constructed.
- Build a secondary pedestrian bridge at C Street over the railyard and Dock Street to connect the Thea Foss waterway with the core area
- Add slip ramps from SR 509 (to and from the east) to East D Street to help improve event traffic.

Thea Foss Waterway Comprehensive Review

The Tacoma Planning Commission recommended and the City Council directed that a comprehensive review of the Thea Foss Waterway development planning be undertaken to address land use compatibilities, future development and uses, design standards, transportation needs, environmental concerns, economic viability and other issues.

This project will begin with the review and analysis of existing policies, strategies and regulations for the waterway area, as documented in the Thea Foss Waterway Design and Development Plan, which is an element of the Comprehensive Plan. This project will be closely coordinated with the Shoreline Master Program Update Effort.

Shoreline Master Program Update

The City of Tacoma is conducting a phased update to the Tacoma Shoreline Master Program. Phase 1 of the update is focused on amendments addressing protection of critical areas within the shoreline districts; the remainder of the comprehensive update will be completed during Phase 2.

In 2003, the Department of Ecology (DOE) issued new guidelines to assist local governments in meeting the State requirement to conduct a comprehensive review and amendment of a Master Program for Shoreline Development. The guidelines outline procedural steps and substantive requirements that must be met. Tacoma's update to its Shoreline Master Program is an extensive overhaul of the program requiring the City to re-evaluate all shoreline policies, designations and

regulations and must be based upon scientific and technical information to assure no “net loss of shoreline ecological functions” while providing for appropriate uses within shoreline areas. The Tacoma Shoreline Master Program includes goals, policies and development regulations for all shoreline areas including Commencement Bay and its waterways, the Narrows, and Wapato Lake.

This project is being coordinated with the Thea Foss Waterway Comprehensive Review effort and it may serve as the transportation element of that land use study.

EXISTING LAND USE

The East Thea Foss peninsula is designated as a part of a regional Manufacturing/ Industrial Center by the Puget Sound Regional Council (PSRC). Existing land uses include a range of manufacturing and industrial uses, warehousing, and shipping uses. Parcels in the northern part of the peninsula are typically large with a fewer number of landowners. The area north of Puyallup Avenue includes three zoning classifications, including the Shoreline District (defined in greater detail below), Heavy Industrial, and Port Maritime/Industrial zones.

In the southern part of the peninsula, the Tacoma Dome and associated businesses dominate the land uses. The area to the south of Puyallup Avenue includes two zoning classifications, including Urban Center/Mixed Use (primarily west of East G Street), and Light Industrial, east of East G Street. The Tacoma Dome is home to regional sports and entertainment events. Associated retail and commercial uses are found near the Tacoma Dome. Freighthouse Square houses many small retail and restaurant businesses, as well as the light rail and commuter rail stations. Parcels in the southern part of the Waterway are smaller, with a larger number of landowners.

Prominent Landowners and Users

There are several landowners of large parcels or users within the East Thea Foss Waterway. Below is a list of key landowners and businesses that are located on the peninsula.

- Martinac
- Petrich Marine
- Johnny’s Dock
- Valero LP
- Simpson Tacoma Kraft Mill
- Globe Machinery
- SUPERVALU
- SUPERVALU, International
- Panattoni
- Burlington Northern Santa Fe Railroads
- Colonial Fruit and Produce
- Thea Foss Development Authority
- Port of Tacoma
- Conoco Phillips
- Stellar
- Port Maritime & Industrial
- NW Detention Center
- Amtrak
- Freighthouse Square
- Tacoma Dome
- USF Reddaway

Shoreline District

The East Thea Foss peninsula is impacted by the Shoreline District, which effects the west, north and east edges of the peninsula, including the Thea Foss Waterway to the west, Commencement Bay to the north, and the Puyallup River to the east. The Shoreline District extends 200 feet inward from the ordinary high water mark, and requires additional development review to ensure compatibility with the natural shoreline processes.

The Thea Foss Waterway is in the S-8 Shoreline District, and the Puyallup River is in the S-9 Shoreline District.

S-8 Shoreline District – Thea Foss Waterway

The S-8 Shoreline District is an urban designation regulated by the City's Shoreline Management Program. The S-8 Shoreline District includes the east and west sides of the Thea Foss Waterway, and the Wheeler Osgood Waterway between Dock Street and D Street, extending 200 feet landward of the ordinary high water mark of the waterways.

The intent of the S-8 Shoreline District is to improve the environmental quality of the Thea Foss Waterway, provide public access to the Waterway, and encourage the development of mixed-use pedestrian-oriented development, water-oriented commercial uses, public parks, residences, and waterborne transportation. The S-8 District also intends to allow the continuation of existing industrial and terminal uses in their current form.

Most water-related commercial, public, maritime and incidental uses such as bulkheads or docks are permitted, either outright or through the Substantial Development Permit process. Other uses permitted include environmental remediation, habitat improvement, and water-oriented recreation and park uses.

Some uses are permitted in certain areas within the Thea Foss Waterway. Hotels and motels as well as residential uses are permitted south of East 11th Street. New water-dependent or related industrial uses are permitted north of East 15th Street.

The provision of commercial and mixed use land uses adjacent industrial land uses can create transportation conflicts, especially along East D Street. Impacts associated with industrial and freight uses (such as truck queuing) can result in conflicts with users accessing the commercial facilities to the west.



The Shoreline District offers scenic views to Downtown Tacoma

S-9 Shoreline District

The S-9 Shoreline District is an urban designation regulated by the City's Shoreline Management Program. The S-9 Shoreline District is bounded by the east and west banks of the Puyallup River, the Gog-le-hi-te wetland, East 11th Street, and the Tacoma City limits where it crosses the Puyallup River, plus 200 feet extending landward of the ordinary high water mark. Clear Creek is also included in the S-9 District, where it has tidal influence.

The intent of the S-9 District is to allow recreational development of the riverfront while allowing industrial development of upland areas. Preservation of Clear Creek and associated wetlands is a key goal. The Puyallup River is a shoreline of statewide significance, requiring primary consideration of the impacts to the river.

Most water-related commercial, industrial, port, and recreational uses are permitted outright or through the Substantial Development Permit process. There are additional restrictions on uses allowed near Clear Creek. Residential uses are not permitted. Environmental remediation, habitat improvement, and educational facilities are also permitted.

Shoreline District Amendments

The City is currently conducting a planning study to examine changes to the allowed uses and regulatory requirements in the S-8 Shoreline District that are outside the scope of the Transportation Corridor Study. However, these studies share some aspects and will have impacts on one another.

EXISTING TRANSPORTATION

Roadway Network

The existing roadway onto the East Thea Foss peninsula is indicative of an industrial area, with a limited number of streets providing restricted access to large properties, with streets designed solely for vehicle traffic.

North of the BNSF railroad tracks, there are a limited number of access points onto the peninsula. From the south, the access points are East D Street and Portland Avenue; from the west, the SR 509 bridge and East 11th Street Bridge; and from the East, the Lincoln Avenue Bridge, SR 509 Bridge and East 11th Street Bridge.

Functional Classification

The following map (**Figure 1-2**) displays the functional classifications for the East Thea Foss Waterway street system. The City of Tacoma uses four roadway classifications, including, Principal Arterial, Minor Arterial, Collector Arterial, and Local Access.

The classifications differ by the number of travel lanes, the traffic control devices provided, and the posted speed limits.



Principle Arterials

Principal arterials include East 11th Street, Portland Avenue and Puyallup Avenue.

East 11th Street

East 11th Street accesses the study area from the Murray Morgan bridge to the west, continuing east where it crosses the Puyallup River toward the Tacoma Tideflats area. To the east of the Murray Morgan bridge, East 11th Street is a four to five lane roadway. At the time that this study began, the Murray Morgan bridge carried about 4,600 vehicles daily and just two of its four lanes were accessible. The bridge use was also weight restricted to 10 tons. In October, 2007, the State closed the bridge due to safety concerns.

Opened in 1913, the Murray Morgan bridge is on the local, state, and national historic registers, as it is the only lift span bridge of its type. The bridge played a key role in the development of Thea Foss peninsula. In 2002, WSDOT determined bridge was deteriorated and should be removed due to seismic, safety, and operational issues. The Federal Highway Administration (FHWA) considers the bridge to be structurally deficient. The bridge is rated (score of 2 out of a possible score of 100) among the lowest scores in the State. Bridges with low scores are those that are the most in need of repair or replacement. A low score doesn't necessarily mean that the bridge is unsafe. In 2003, the Tacoma City Council passed a resolution to save the bridge as a result of a local citizens "Save Our Bridge" campaign.

In 2004, the State authorized the transfer of the bridge to the City along with \$27 million to restore historic portions of the central bridge. A restoration feasibility study was completed in 2004. The study determined that the full replacement was estimated at \$135 million, and full rehabilitation would be approximately \$80 million. More recent estimates indicate a full bridge replacement cost of \$160 million.

The City, Port of Tacoma and Pierce County support funding for the bridge, and the City is seeking additional State and Federal funding toward restoration.

The City's Capital Improvement Program (CIP) includes the rehabilitation of the East 11th Street Bridge over the Puyallup River. Currently the design and investigation phase is funded through 2007. The construction is currently unfunded.

Portland Avenue

Portland Avenue accesses the project site from the south at Interstate 5, and continues north where it intersects with Puyallup Avenue and SR 509. From there, it continues north along the west side of the Puyallup River, ending at the north end of the peninsula near the Simpson Tacoma Kraft Mill. Ramps to and from Interstate 5 are located at East 27th Street and East 28th Street. At SR 509, there are ramps to and from the west. Portland Avenue is six to seven lanes (including center left turn lane) between Interstate 5 and Puyallup Avenue, and four lanes between Puyallup Avenue and SR 509. The road widens again to five lanes (including center left turn lane) between SR 509 and St. Paul Avenue. Between St. Paul Avenue and East 11th Street, it is four lanes and then narrows to two lanes north of East 11th Street.

Portland Avenue between Interstate 5 and SR 509 is also classified as a Connecting Corridor in the City's Comprehensive Plan (Transportation element). Connecting Corridors are major transportation routes consisting of freeways, highways, principal arterial streets and transit routes that provide access into and out of the City, act as travelways connecting centers, both local and regional, and/or support high levels of transit service.¹

Puyallup Avenue

Puyallup Avenue traverses the southern boundary of the study area in an east-west direction. It begins west of the project site at South Holgate Street, and continues east, under Interstate 705. East of Portland Avenue, Puyallup Avenue becomes Eells Street and continues east over the Puyallup River. Puyallup Avenue is a five lane roadway (including center left turn lane) from the west side of the study area, to Portland Avenue. East of Portland Avenue, it narrows to three lanes (one lane westbound and two lanes eastbound).

Puyallup Avenue (east of East L Street) is also classified as a Connecting Corridor, in the City of Tacoma's Comprehensive Plan.

Minor Arterials

Minor arterials include D Street, East 15th Street and St. Paul Avenue.

East D Street

East D Street traverses the study area in a north-south direction, beginning as McKinley Way at the south where it crosses Interstate 5. It becomes East D Street north of Interstate 5 and continues north adjacent the west side of the Tacoma Dome. It intersects with East 26th Street, Puyallup Avenue and East 23rd Street, where it continues north under SR 509. North of East 18th Street, it turns to the east, becoming East 15th Street.

Beginning at the south side of the study area, East D Street has two lanes and then widens to three lanes near the Tacoma Dome. It continues as three lanes to Puyallup Avenue. North of Puyallup Avenue the road narrows to two lanes.

A grade separation project currently under construction will allow East D Street to cross over the BNSF railroad between SR 509 and Puyallup Avenue. The north touchdown will be 200 feet south of SR 509. The south touchdown will



East D Street is being reconstructed as a grade separated roadway over the BNSF Railroad

¹ Tacoma Comprehensive Plan, Transportation Element (2004), Amended 2007.

be at the intersection of Puyallup Avenue. East D Street serves as a major corridor for rail and truck freight and for people wanting to access the revitalized Thea Foss Waterway. Once completed, the East D Street Overpass will separate train and motor vehicle traffic by raising the roadway over the railroad tracks. The overpass will provide for realignment of the railroad tracks to ease the curve around the end of the Thea Foss Waterway—allowing train traffic to move at a higher speed. Vehicle traffic, which includes trucks carrying freight, no longer will need to wait for the trains that presently close off D Street to traffic. The project will include five travel lanes, bike lanes on both sides and sidewalks. The sidewalks will allow for a pedestrian connection between the Dome District and the Thea Foss Waterway esplanade and parks. This project is scheduled to be completed by the end of 2007.

East 15th Street

15th Street traverses in an east-west direction, from its beginning (where East D Street ends), and continues east to St. Paul Avenue. East 15th Street is a two lane roadway its entire length.

St. Paul Avenue

St. Paul Avenue traverses in a northwest to southeast direction. It begins at the north at East 11th Street near East F Street, and continues southeast, where it intersects with East 15th Street, and continues to Portland Avenue. St. Paul Avenue is a two lane roadway between East 11th Street and Portland Avenue.

Freeways

There are two freeways that traverse through the project area, including Interstate 5, and SR 509. In addition, Interstate 705 parallels the western study boundary, providing access to downtown Tacoma.

Interstate 5

Interstate 5 is just south of the Puyallup Avenue boundary of the study area. It traverses in an east-west direction. From the east, Interstate 5 crosses the Puyallup River. Just west of the river, there is a westbound on-ramp from SR 167 (Bay Street) and an eastbound off-ramp to SR 167. In this same vicinity is a westbound off-ramp and westbound on-ramp at East 27th Street/Portland Avenue. An eastbound off-ramp and eastbound on-ramp to Interstate 5 is also accessed from Portland Avenue/East 28th Street. This interchange is the primary access point to the East Thea Foss peninsula from Interstate 5.

Interstate 5 continues west, and there is an interchange with Interstate 705/SR 7 near the western side of the study area. While not funded, the City's Comprehensive Plan identifies a future HOV Direct Access to the Tacoma Dome Area at East F Street.

SR 509

SR 509 traverses the study area in an east-west direction. It is located north of the BNSF railroad. From the east, SR 509 crosses the Puyallup River. The bridge over the Puyallup River is considered by the FHWA to be structurally deficient. The State is negotiating with the Burlington Northern Santa Fe (BNSF) Railroad to replace one span of the bridge. At Portland

Avenue, there is an on-ramp and off-ramp to and from the west. SR 509 continues to the west where it interchanges with Interstate 705 west of the Thea Foss Waterway.

While not funded, the City of Tacoma's Comprehensive Plan identifies slip ramps to and from the east at East D Street.

Existing Traffic Conditions

This section summarizes the traffic analysis of existing conditions for three intersections in the Thea Foss peninsula. The intersections that have been considered in this study are listed in **Table 1-1**.

Table 1-1: Analyzed Intersections

	Intersection	Traffic Control
1.	Portland Avenue and Puyallup Avenue/Eells Street	Signalized
2.	East D Street and Puyallup Avenue	Signalized
3a.	E 11 th Street and St. Paul Avenue	Stop Sign
3b.	E 11 th Place and St. Paul Avenue	Stop Sign

Methodology

The existing PM peak period (taken between 4:00 and 6:00 PM) turning movements were collected on July 19, 2007 at two intersections, including; a) Portland Avenue and Puyallup Avenue/Eells Street, and b) E 11th Street and St. Paul Avenue. Current counts were not taken at East D Street and Puyallup Avenue due to the ongoing construction of the grade separation project. As a result, the north leg of East D Street at Puyallup Avenue has been closed to traffic. At this intersection, counts from 1999 were compared with average daily traffic (ADT) volumes conducted in 2006. They were then factored at a rate of 2 percent to achieve a 2007 count, which would assume the grade separation project being completed. The existing traffic count data at Puyallup Avenue and Portland Avenue was collected after the East D Street construction project had started. However, the following analysis reflects the existing operating conditions without any closures due to construction. Therefore, the existing traffic count data at the intersection of Portland Avenue and Puyallup Avenue has been adjusted to reflect that. 2007 traffic volumes and levels of service are shown in **Figure 1-3**.

Level of service (LOS) is a qualitative measure of the operating conditions experienced at intersections when subjected to varying traffic volumes. The study has considered the existing PM Peak Hour traffic conditions (year 2007). The analysis was performed using Synchro Professional version 6 software package and the Measures of Effectiveness were reported based on the 2000 edition of *Highway Capacity Manual (HCM 2000)*.

Signalized Intersection Analysis

Both the intersections of Portland Avenue at Puyallup Avenue/Eells Street and Puyallup Avenue at East D Street operate at an acceptable level of service (LOS = D or better) under existing traffic conditions, as shown in **Table 1-2**. LOS for signalized intersections is based on the average delay for all vehicles entering the intersection.

Table 1-2: Existing Level-of Service (Signalized Intersections)

Intersection	Time Of Day	2007 Existing Conditions	
		Delay*	LOS
Portland Ave. and Puyallup Ave./Eells St.	PM	23.3	C
East D St. and Puyallup Ave.	PM	19.8	B

*Intersection Delay is in seconds per vehicle.

Unsignalized Intersection Analysis

According to the HCM 2000, the level of service for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. The level of service is not defined for the intersection as a whole. **Table 1-3** summarizes the results of the unsignalized intersection analysis, showing control delay for the major street and approach delay for the minor streets.

It is to be noted that left-turns are not permitted from St. Paul Avenue onto East 11th Street. However, 51 vehicles were observed to be making the prohibited left-turn in the PM peak hour. Adequate regulatory signs and improved channelization need to be posted to prevent this turn.

Table 1-3: Existing Level of Service (Unsignalized Intersections)

Intersection	Time of Day	Control Delay (Major Street)	Approach Delay (Minor Street)	2007 Existing Conditions	
				Delay*	LOS
E 11 th St. and St. Paul Ave.	PM		Northbound	10.6	B
11 th Pl and St. Paul Ave.	PM	Eastbound (Left-turn)		7.6	A
			Southbound	9.7	A

Safety

Accidents by Type

Accident information for intersections and mid-block sections within or near the study area were analyzed using three years of data from 2004 through 2006 provided by the City of Tacoma. **Tables 1-4 and 1-5** show intersection and midblock accidents respectively, by accident type.

Approach turn accidents are the most common type of accident at intersections, followed by right angle/broadside accidents. Approach turn accidents occur when a left-turning vehicle fails to yield to an on-coming vehicle. The majority of both the approach turn accidents occurred at the intersection of East 26th Street and East Portland Avenue.

Right-angle/Broadside accidents are typically seen at intersections where conflicting traffic interacts. They typically occur at intersections where cars run red lights and at mid-block locations. This occurs when left turning traffic exiting or entering mid-block driveways must cross-conflicting traffic. The majority of right angle/broadside accidents occurred at the intersection of East 26th Street and East Portland Avenue.

At midblock locations, rear-end accidents are the most common type of accident. Rear-end accidents typically occur where congestion causes queues to form, where sight distance is a problem, or where traffic slows unexpectedly to make a right or left turn. This type of accident is associated with signalized corridors with heavy congestion. The location with the highest number of midblock accidents was near East Portland Avenue at East Lincoln Avenue. Half of the accidents at this location were rear end collisions.

Sideswipe accidents tend to occur when vehicles must change lanes in a short distance across heavy traffic. They can also occur when midblock access points, such as business driveways or u-turns are not signed or appear unexpectedly.

Table 1-4: Intersection Accidents by Accident Type, 2004 to 2006

	Rear End		Approach Turn		Right Angle/ Broadside	Sideswipe/ Lane Change	Parked Vehicle/ Fixed Object	Head On	Backing	Other	Pedestrian	Total	Fatalities	Injuries
	N/S and S/N	E/W and W/E	N/S and S/N	E/W and W/E										
E. 26th St. at E. Portland Ave.	1	1	15	3	14	1	0	0	0	0	1	36	0	20
E. D St. at E. Puyallup Ave.	0	3	0	1	8	1	1	0	0	0	0	14	0	8
E. G St. at E. Puyallup Ave.	0	3	0	0	0	0	1	0	0	0	1	5	0	3
E. L St. at E. Puyallup Ave.	0	0	0	0	0	1	0	0	0	0	0	1	0	0
E. M St. at E. Puyallup Ave.	0	0	2	1	0	0	0	0	0	0	0	3	0	3
E. McKinley Ave. at E. Puyallup Ave.	0	0	1	0	0	0	0	0	0	0	0	1	0	0
E. 15th St. at E. St. Paul Ave.	0	0	0	0	0	1	0	0	1	0	0	2	0	0
E. St. Paul Ave. at E. 11th St.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. Portland Ave. at E. Puyallup Ave.	4	5	5	2	6	3	1	0	0	0	0	26	0	20
E. Portland Ave. at E. Lincoln Ave.	2	4	0	0	1	0	0	0	1	0	0	8	0	2
E. Portland Ave. at E. St. Paul Ave.	0	1	0	0	0	0	0	1	0	0	0	2	0	0
TOTAL	7	17	23	7	29	7	3	1	2	0	2	98	0	56

Locations of pedestrian accidents are of particular concern, however, there were only two pedestrian accidents during the three year period, located at East 26th Street/East Portland Avenue, and at East G Street at Puyallup Avenue.

There were no records of bicycle / vehicle accidents at any of the intersections or midblock locations during the accident study period.

Table 1-5: Mid-Block Accidents by Accident Type, 2004 to 2006

	Rear End		Approach Turn		Right Angle/ Broadside	Sideswipe/ Lane Change	Parked Vehicle/ Fixed Object	Head On	Backing	Other	Pedestrian	Total	Fatalities	Injuries
	N/S and S/N	E/W and W/E	N/S and S/N	E/W and W/E										
E. 26th St. at E. Portland Ave.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. D St. at E. Puyallup Ave.	0	3	0	0	0	0	1	0	0	0	0	4	0	0
E. G St. at E. Puyallup Ave.	0	1	0	0	0	0	1	0	0	0	0	2	0	0
E. K St.at E. Puyallup Ave.	0	1	1	0	0	0	0	0	0	0	0	2	0	1
E. L St. at E. Puyallup Ave.	0	2	0	0	0	0	1	0	1	0	0	4	0	0
E. M St. at E. Puyallup Ave.	0	4	0	0	1	1	0	0	0	0	0	6	0	2
E. McKinley Ave. at E. Puyallup Ave.	0	0	0	0	0	0	2	0	0	0	0	2	0	0
E. 15th St. at E. St. Paul Ave.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E. St. Paul Ave. at E. 11th St.	0	0	0	0	0	0	1	0	0	0	0	1	0	1
E. Portland Ave. at E. Puyallup Ave.	2	1	0	0	0	1	0	0	0	0	0	4	0	0
E. Portland Ave. at E. Lincoln Ave.	3	1	1	1	2	0	0	0	0	0	0	8	0	3
E. Portland Ave. at E. St. Paul Ave.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	5	13	2	1	3	2	6	0	1	0	0	33	0	7

Accidents by Location

Nearly two-thirds (63 percent) of the intersection accidents that occurred within the study area were at two intersections, including East 26th Street at Portland Avenue, and at Portland Avenue at Puyallup Avenue.

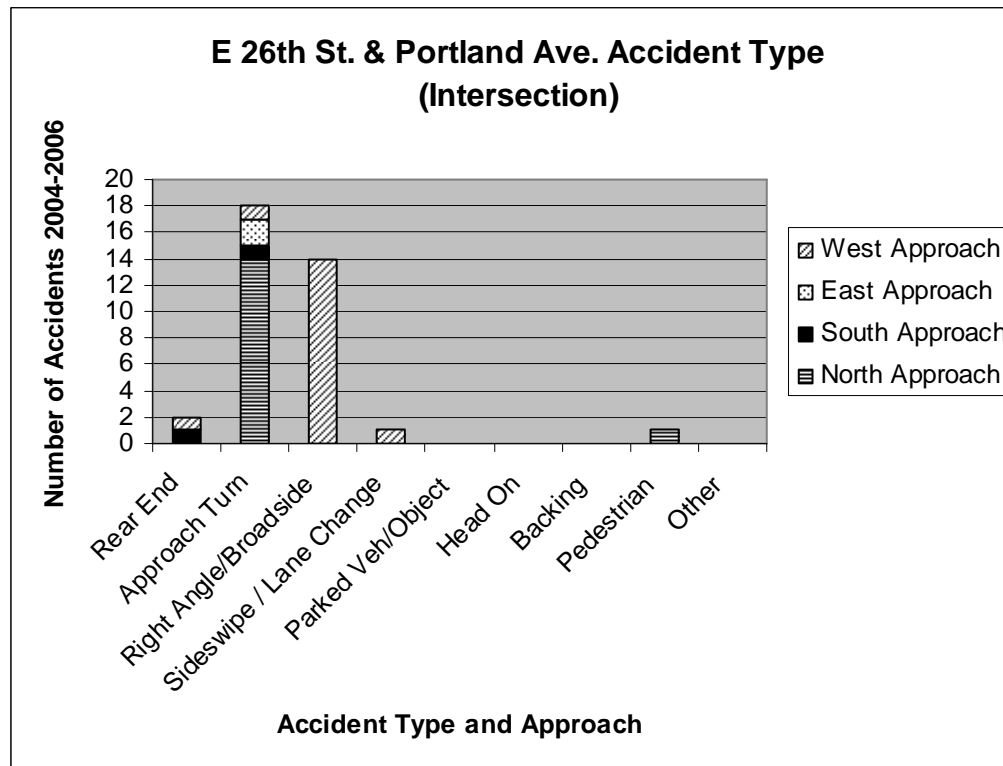
East 26th Street at Portland Avenue

Although it is located outside the study area, the intersection with the greatest number of accidents (36 accidents) during this three year time period occurred at East 26th Street at East Portland Avenue. It also had the second highest number of accidents throughout the entire City during this time period. The intersection is stop controlled on the east/west (East 26th Street) approaches. Portland Avenue is seven lanes including a center left turn lane, while East 26th Street is two lanes. The majority of accidents are approach turn accidents, with most of these accidents being a result of northbound vehicles making left turns to East 26th Street. Many of these vehicles are turning onto East 26th Street to eventually access Puyallup Avenue.

The second highest type of accident at this location is right-angle accidents. All of these accidents were a result of vehicles traveling westbound on East 26th Street trying to cross Portland Avenue and being hit by vehicles traveling either northbound, or southbound on Portland Avenue.

This intersection may warrant a signal (with a protected left turn phase) to reduce the number of accidents. At the time of this analysis, traffic volumes for East 26th Street were not available to determine if a signal is warranted at this location.

Figure 1-4: East 26th Street and Portland Avenue Accidents, 2004-2006



East Portland Avenue at East Puyallup Avenue

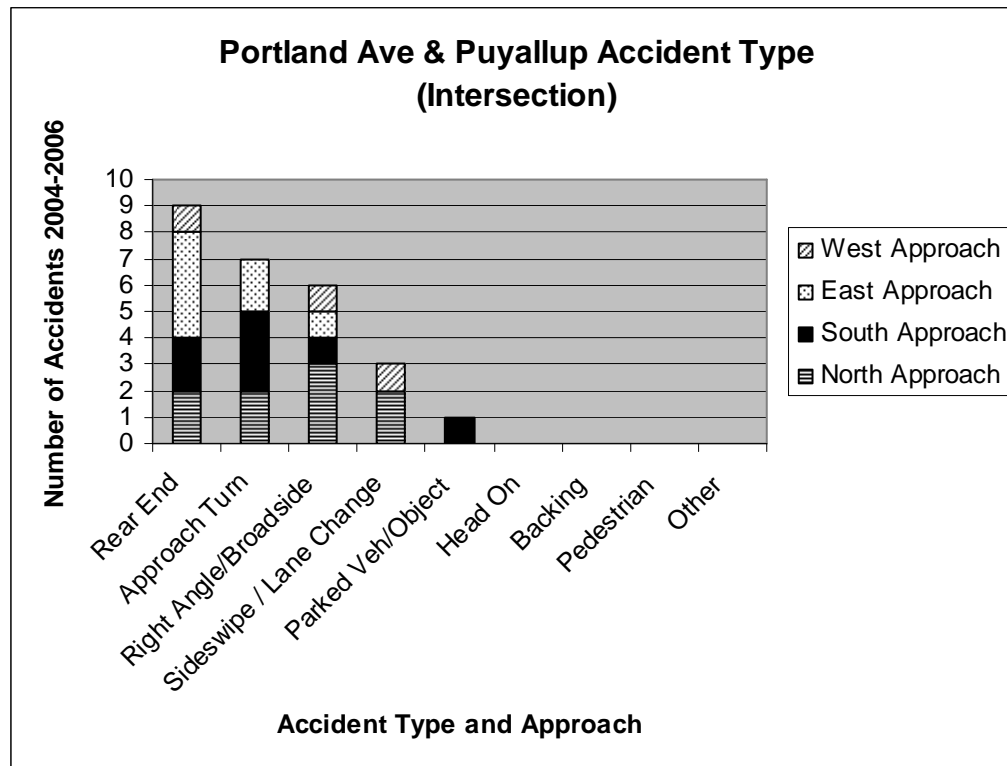
East Portland Avenue at East Puyallup Avenue also had a significant number of intersection accidents (26 accidents) during this timeframe. However, the types of accidents were fairly evenly distributed between approach turn, right angle/broadside and rear end collisions.

The intersection is signal controlled at all approaches. In the northbound direction (Portland Avenue) there are two through lanes and a free right turn lane. No left turn lane is provided, as there is an offramp south of the intersection from the right side that loops under Puyallup Avenue and merges with westbound Puyallup Avenue. In the southbound, westbound, and eastbound directions, there are two through lanes, a free right turn lane, and a left turn lane.

The majority of accidents are rear end collisions, and most of the collisions involve vehicles traveling in the eastbound direction. The second highest number of accidents were approach turn accidents, and almost half of these were vehicles in the southbound direction making left turns to eastbound Puyallup Avenue.

There were also a number of right-angle/broadside accidents, of which half of them involved vehicles traveling northbound and being hit by vehicles going either east or westbound on Puyallup Avenue.

Figure 1-5: East Portland Avenue at Puyallup Avenue Accidents, 2004-2006



Freight

Truck Freight

There are a number of truck corridors identified by the Port of Tacoma, that serve the Thea Foss peninsula. Portland Avenue, which is accessed from Interstate 5, is identified as a major truck corridor serving the peninsula.

Industrial access roads branch off of Portland Avenue, including Puyallup Avenue and Portland Avenue. Other industrial access roads include East 11th Street (between East F Street and Portland Avenue), East D Street (between Puyallup Avenue and East 26th Street), and East 26th Street (west of East D Street).

A number of roads are identified as Foss Waterway Access Roads, including Puyallup Avenue (west of East D Street), East D Street, East 15th Street, and St. Paul Avenue.

Freight related business on the peninsula consists of warehousing/distribution centers, lumber, and transload facilities. Some of the major entities generating both truck and employee traffic are Supervalu Inc., Simpson Tacoma Kraft Company, and USF Reddaway Inc.

Port of Tacoma container terminals on the Blair-Puyallup (Central Peninsula) also generate truck traffic. The majority of the traffic that access the Central Peninsula container terminals use East Portland Avenue from I-5 and then use Lincoln Avenue to cross the Puyallup River. East 11th Street is not used for Port container truck traffic.

Figure 1-6 shows the locations of the existing truck routes within the study area.

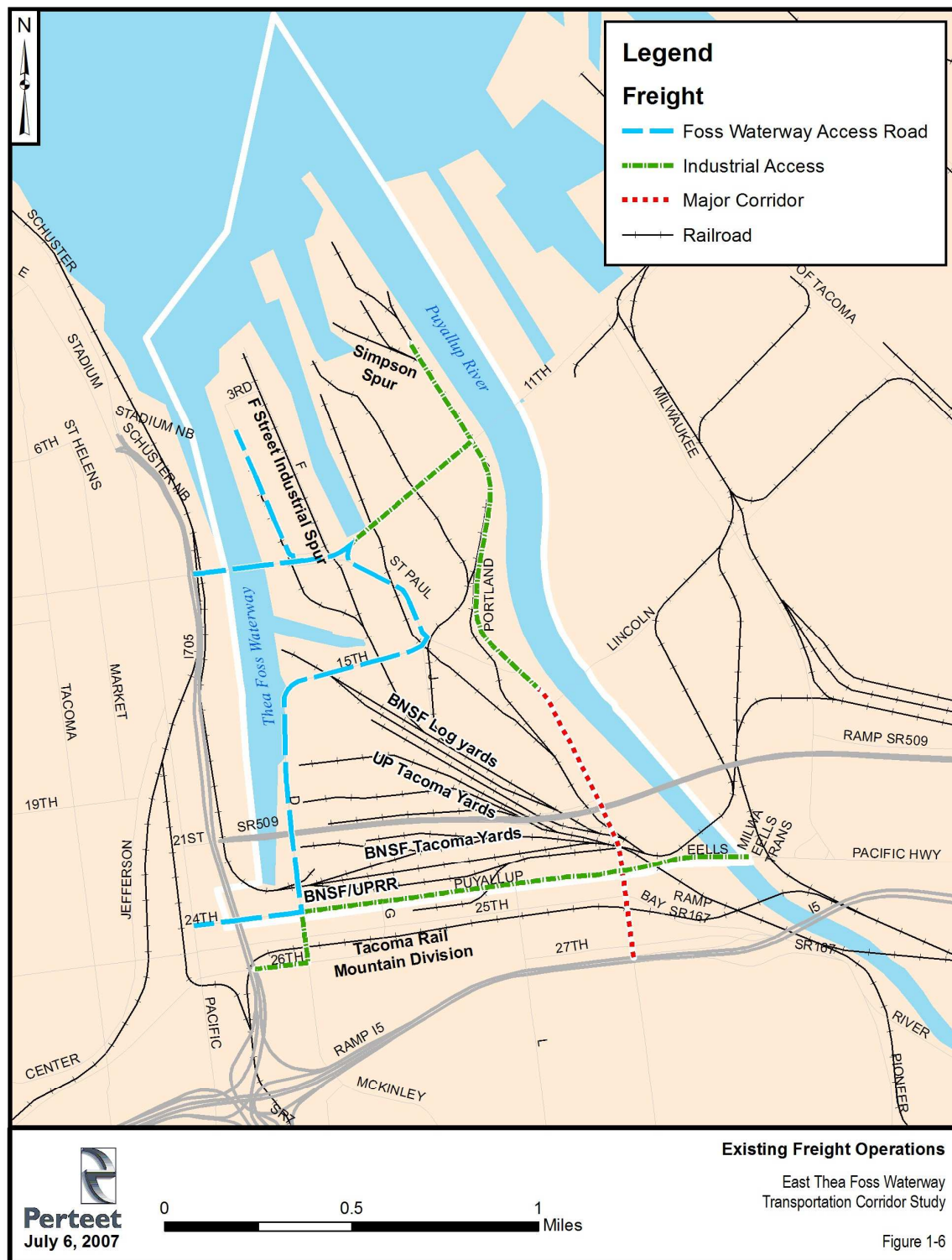
Rail Freight

Two mainline carriers, the Burlington Northern Santa Fe (BNSF) Railroad, and the Union Pacific Railroad Company (UPRR) operate an active rail line between Puyallup Avenue and SR 509. This rail line is used by both freight trains as well as Amtrak. BNSF and UPRR railyards branch off of the main rail line near Puyallup/Portland Avenues and traverse to the north of SR 509 to reach the various warehouses and industries within the industrial area.

BNSF provides freight transportation services to the Tacoma Industrial Tideflats from its main BNSF Tacoma Yard and BNSF Log Yard. The BNSF Tacoma Yard is located just east of East D Street and north of Puyallup Avenue. Freight trains are assembled and disassembled at this yard. A mix of grain cars, intermodal container cars, petroleum tank cars, automobile carriers, and local freight cars are cycled through the facility. There is an at-grade crossing at East D Street where the mainline enters the yard. Traffic is stopped on East D Street while trains enter the yard at this crossing, and also while switching and classification operations are performed. This at-grade crossing is currently under construction to become grade separated. The completion of the D Street grade separation project will eliminate the rail blockages and traffic delays that were previously common along East D Street. Potential future slip ramps from SR-509 to East D Street would impact a BNSF container loading ramp on the north side of SR-509.

The BNSF Log Yard is located north of SR-509, south of East 15th Street, and east of the Supervalu property. This yard is used for storage and switching for local businesses. This yard has a tail track that crosses East 15th Street on the north end which is used for switching strings of cars within the yard. When the tail track is used, traffic is blocked on East 15th Street. However, most of the switching occurs on the south end of the yard which minimizes impacts to East 15th Street. The BNSF Log yard has an industrial spur that crosses East 15th Street and East 11th Street to serve businesses along East D and F Streets. The spur that serves East D Street is currently used approximately three times per evening. A second industrial spur from the Log yard serves the Reddaway Inc. and Simpson properties. This spur crosses St. Paul Avenue and East 11th Street. These spurs are used infrequently, but when in use can block traffic for up to 10 minutes creating delays.

The UPRR Tacoma Yard is located parallel to the BNSF Log Yard. This yard has 5 tracks, which are used for storage.



The Tacoma Rail Mountain Division (TRMW) line traverses east-west through the study area between East 25th Street and East 26th Street. To the west of East C Street the line turns south. To the east, it crosses the Puyallup River north of East Bay Street. The rail line is shared by freight users and Sound Transit commuter rail. In 2001 the rail line was used for freight deliveries five days per week with approximately 8 to 10 freight car deliveries per day to the Fredrickson Industrial Area. **Figure 1-6** shows the locations of the existing rail lines and railyards within the study area.

Nonmotorized Facilities

Pedestrian Facilities

As one might expect in a mostly industrialized area, there is a limited amount of existing nonmotorized facilities in the East Thea Foss peninsula. The area with the most extensive sidewalk network is south of SR 509 near the Tacoma Dome and the multi-modal Tacoma Dome Station. While most of this network is outside the study area, it was analyzed to provide an understanding of connectivity to the facilities within the study area. Most streets in this area have sidewalks on at least one side of the street. The more industrial area to the east of East G Street has limited pedestrian facilities, including East 25th Street between East J Street and Portland Avenue, and East 26th Street between East G Street and Portland Avenue.

Several roadways have recently been reconstructed to improve the pedestrian environment. These include East 25th Street between East D Street and East G Street (adjacent the south side of the Tacoma Dome station and north side of Freighthouse Square), the south side of Puyallup Avenue adjacent the north side of the Tacoma Dome Station, and East D Street between East 25th Street and Wiley Avenue, near the Tacoma Dome. The East D Street grade separation project (between Puyallup Avenue and SR 509 will also include enhanced pedestrian facilities.

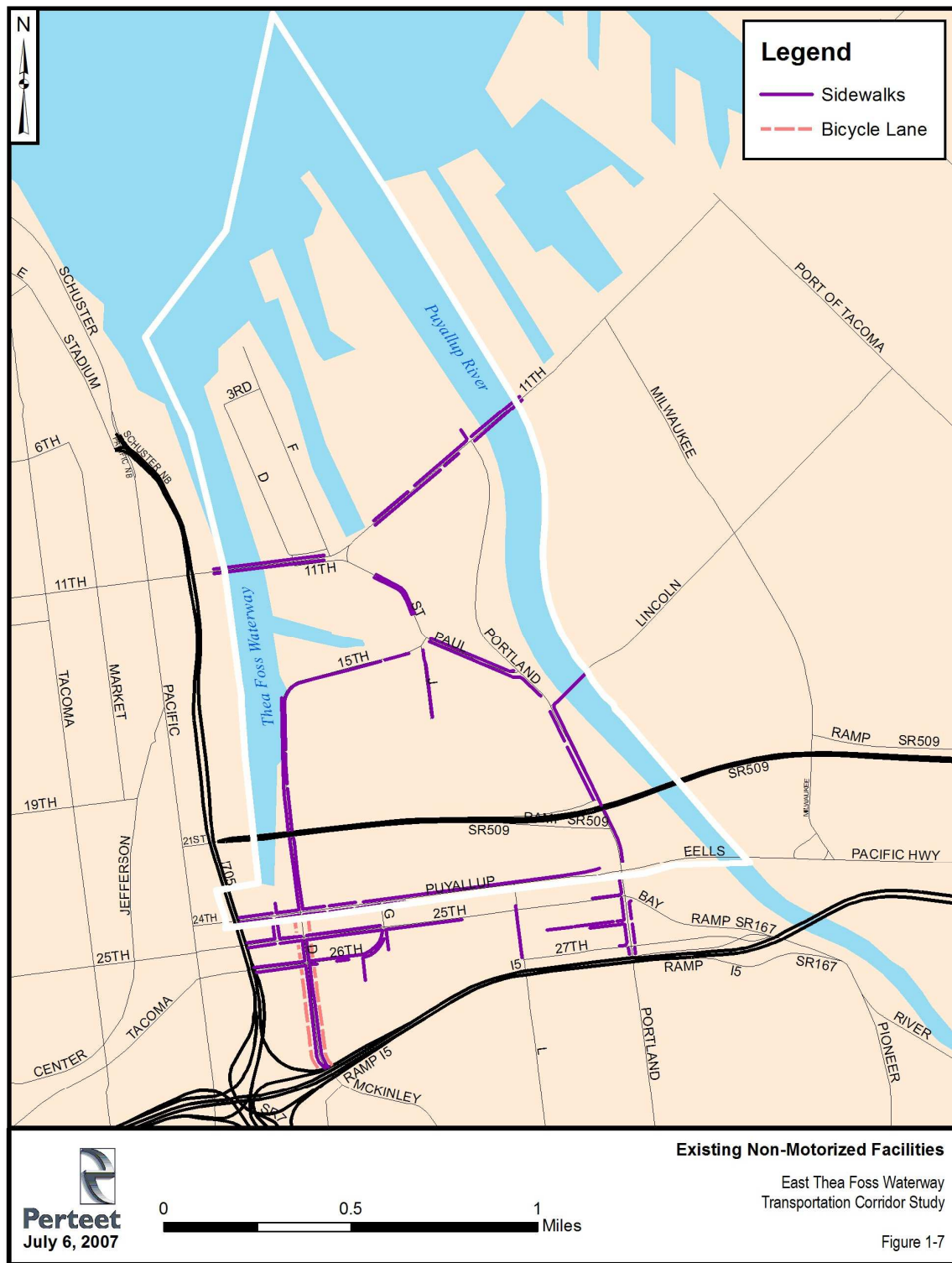
North of SR 509, portions of St. Paul Avenue (north of East 15th Street) are missing sidewalk, as is Portland Avenue between St. Paul Avenue and East 11th Street. There are no sidewalks north of East 11th Street.

Figure 1-7 shows the locations of the existing sidewalks within the study area.

Bicycle Facilities

The only bicycle facilities in the vicinity of the study area are bike lanes on both sides of East D Street between Puyallup Avenue and East Wiley Avenue, as shown in **Figure 1-7**. The East D Street grade separation project, when finished, will extend the bike lanes on East D Street to the north of Puyallup Avenue to SR 509.

According to the City's Comprehensive Plan, Puyallup Avenue and East D Street are the most important bicycle routes for commuters, as they provide connections to adjacent areas such as downtown Tacoma and residential areas to the south of the Thea Foss Peninsula. It should be noted that Puyallup Avenue does not currently have bike lanes.



The Tacoma Comprehensive Plan identifies future bike lanes at the following locations within the study area:

- East 11th Street (connecting between Downtown Tacoma and Tacoma Tideflats)
- St. Paul Avenue (between East 11th Street and Portland Avenue)
- East D Street (from McKinley Way to East 15th Street)
- East L Street (from Puyallup Avenue to Interstate 5)
- East 15th Street (from East D Street to St. Paul Avenue)
- East 23rd Street (to East Dock Street west of Study area)
- Puyallup Avenue
- East 25th Street/East Bay Street

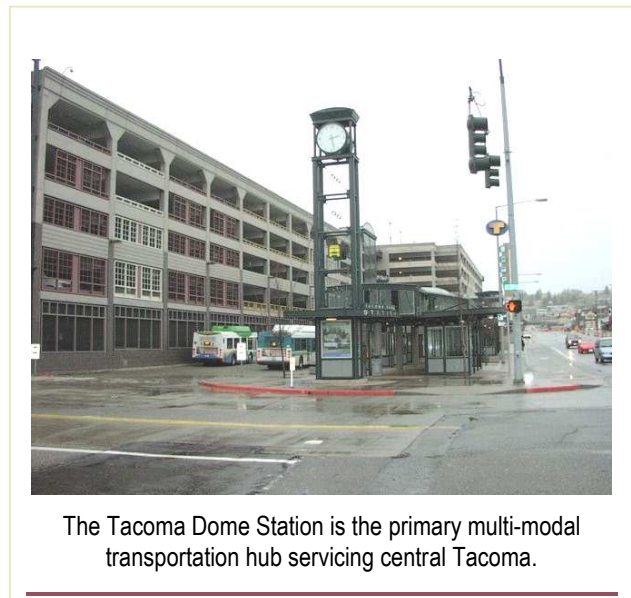
In addition, the Comprehensive Plan identifies the Puyallup River Trail (a multi-use trail) that follows the west side of the Puyallup River between East 11th Street and Lincoln Avenue. At Lincoln Avenue, the trail extends along the Lincoln Avenue bridge, and then turns south along the east side of the Puyallup River.

Public Transportation

The majority of the transit service in the East Thea Foss Waterway is located in its southern portion. The Tacoma Dome Station, located at Freighthouse Square, is a multi-modal facility that includes service by Pierce Transit, Sound Transit, Amtrak, and Greyhound. Service includes local and commuter bus service, light and commuter rail service, and intercity bus and train service. Public transportation facilities and services are shown in **Figure 1-8**.

Tacoma Dome Station

The Tacoma Dome Station is a multi-modal facility located in the southern portion of the East Thea Foss peninsula that serves local transit, commuter rail, and light rail. It is the southern terminus of the Seattle to Tacoma Sounder commuter rail route and the southern end of the Tacoma LINK light rail alignment. The Sounder station is located adjacent to Freighthouse Square off of East 25th Street at East E Street. The LINK station is on East 25th Street at East E Street. A parking garage with 2,400 parking spaces is also located at the Tacoma Dome Station; free parking is provided. The bus transfer station is located on Puyallup Avenue at East F Street.



Sounder commuter rail provides 60-minute service to King Street Station in Seattle making four trips every weekday morning. Reverse service is provided in the afternoon.

Tacoma LINK provides free eight-minute service to the Theatre District in downtown Tacoma. Tacoma LINK runs every ten minutes between 5:20am and 8pm Monday through Friday and 8am to 10pm on Saturday. On Sundays it operates between 10am and 8pm, every ten or twenty minutes.

Pierce Transit

Pierce Transit provides bus service in the East Thea Foss peninsula. Most of the service is provided through the Tacoma Dome Station on Puyallup Avenue. Within the peninsula, ten Pierce Transit bus routes are operated as shown in **Table 1-6**. The only routes that serve the area to the north of Puyallup Avenue are Routes 60 and 65.

Pierce Transit provides service throughout Pierce County providing several types of service that include:

- Trunk routes serve high volume corridors in urbanized areas. They operate seven days a week with fifteen minute headways on weekdays.
- Urban routes serve arterial streets. They operate seven days a week with thirty minute headways on weekdays.
- Suburban routes serve suburban neighborhoods. They operate at least five days a week, with sixty minute headways.
- Bus PLUS routes combine features of fixed route and dial-a-ride services. They provide scheduled service to some locations and give riders the option of reserving a pickup at other locations.
- Express routes connect transit centers and park-and-ride lots with major destinations. Pierce Transit operates some of Sound Transit's commuter routes as well as offering their own commuter routes.
- SHUTTLE service provides service for riders who meet eligibility requirements under the Americans with Disabilities Act (ADA).
- Vanpools provide grouped transportation to employment sites throughout the Puget Sound Region.
- Special Needs Vans provides service to local communities and organizations that have unique travel needs that cannot be met by other Pierce Transit services.



Table 1- 6: Pierce Transit Routes serving Thea Foss Peninsula

Route Number	Destinations	Weekday Hours of Service	Weekday Headways
Route 1	Tacoma Community College, Downtown Tacoma, Parkland, Spanaway, Graham	Limited at Tacoma Dome Station: 5:30am – 7:00am and 5:30pm – 7:00pm	10 – 15 minutes during peak, then 30 minutes
Route 11	Point Defiance Ferry, Downtown Tacoma	5:30am – 12:15am	30 minutes during peak to Tacoma Dome Station, then 60 minutes
Route 13	West Tacoma, Downtown Tacoma	6:00am – 7:30pm	25 minutes
Route 41	Downtown Tacoma, 72 nd Street Transit Center	5:15am – 11:15pm	30 minutes 7am – 6pm, then 60 minutes
Route 60	Downtown Tacoma, Thea Foss Peninsula, Port of Tacoma, Port Industrial Yard	5:30am – 7:30am eastbound, 3:30pm – 5:15pm westbound	30 minutes
Route 65	Downtown Tacoma, Thea Foss Peninsula, Port of Tacoma	5:30am – 7:30 am and 2:20pm eastbound, 3:00pm – 4:00pm westbound	30 minutes
Route 490	Downtown Tacoma, Puyallup	5:45am – 7:15am into Tacoma, 4:00pm – 5:30pm out of Tacoma	30 minutes
Route 500	Downtown Tacoma, Federal Way	5:00am – 11:15pm	30 minutes 6am – 7pm, then 60 minutes
Route 501	Downtown Tacoma, Fife, Milton, Federal Way	5:30am – 9:30pm	30 minutes

Route 603, an Intercity Transit route operated by Pierce Transit, provides express service between the Tacoma Dome Station and Olympia. It operates on weekdays only, between 5:30am and 8:30pm, with twenty to thirty minute headways.

Sound Transit

In addition to Sounder commuter rail service, Sound Transit provides express bus service to the Tacoma Dome Station as shown in **Table 1-7**. Sound Transit operates six bus routes to the Tacoma Dome Station. Sound Transit does not have bus service within the East Thea Foss peninsula north of the Tacoma Dome Station.

Table 1-7: Sound Transit Bus Routes serving Tacoma Dome Station

Route Number	Destinations	Weekday Hours of Service	Weekday Headways
Route 574	SeaTac, Kent/Des Moines, Federal Way, Downtown Tacoma	2:45am – 11:30pm	30 minutes
Route 582	Bonney Lake, Sumner, Puyallup, Downtown Tacoma	5:00am – 9:00am, and 3:00pm – 6:00pm	30 to 60 minutes
Route 586	Downtown Tacoma, Seattle's University District	5:30am – 10:00am northbound, 12:30pm – 6:30pm southbound	30 minutes
Route 590	Downtown Tacoma, Downtown Seattle	4:30am – 10:15am northbound, 5:30am – 6:45pm southbound	20 minutes
Route 591	Lakewood, Downtown Tacoma, Downtown Seattle	Limited runs 4:30am – 8:00am northbound, 6:00am – 7:30pm	Varies
Route 594	Lakewood, Downtown Tacoma, Downtown Seattle	9:30am – 10:30pm northbound, 7:00am – 12:30am southbound	30 minutes

Other

An Amtrak passenger train station is located on the north side of Puyallup Avenue near East J Street. The Amtrak Cascades line between Eugene, Oregon and Vancouver, British Columbia, provides three trains per day in each direction. The Coast Starlight line between Los Angeles, California and Seattle provides one train per day in each direction.

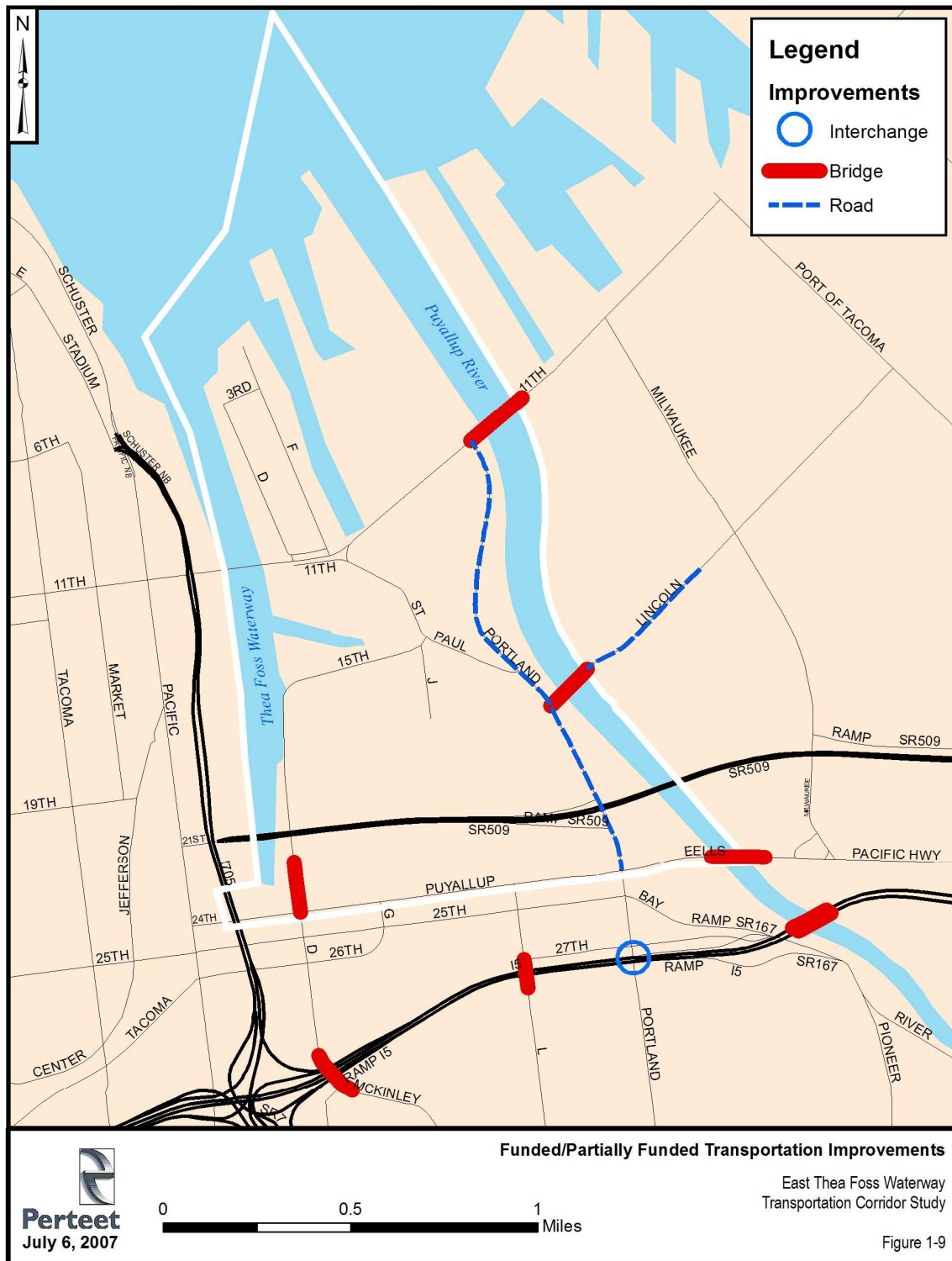
A Greyhound bus station is located on Puyallup Avenue. Greyhound provides interstate and intercity bus service through Tacoma.

PLANNED TRANSPORTATION FACILITIES

The City has in place a Capital Facilities Program that includes a Six Year Capital Improvement Plan (CIP) and a Six Year Transportation Program. Within these six year plans are funded transportation and other capital facilities projects. The funded projects are shown in **Figure 1-9**. The following projects within the East Thea Foss peninsula are funded in the six year plans.

Funded Roadway and Bridge Improvements

The Tacoma Six-Year Transportation Plan covers 2007-2013 and includes the following improvements in the East Thea Foss peninsula.



East D Street Overpass – Puyallup Avenue to S 23rd

This project includes construction of an overpass over the BNSF mainline at the intersection of the railroad tracks and East D Street. This project is currently under construction and is expected to be complete by the end of 2007.

East 11th Street Bridge

This project includes the rehabilitation of the East 11th Street Bridge over the Puyallup River. Currently the design and investigation phase is funded through 2007. The construction is currently unfunded.

L Street E Bridge

This project includes replacing the existing wood bridge with a concrete girder bridge. The project is funded to be constructed in 2007.

Lincoln Avenue from Portland Avenue to Marc Avenue

This project includes upgrading the Lincoln Avenue Bridge and adding nonmotorized facilities. It is funded to be constructed by 2009.

Puyallup Bridge F16A & F16B Replacement

This project includes replacing segments of the Puyallup River Bridge. It is funded to be constructed by 2010.

Puyallup River Bridge Rehabilitation

This project includes rehabilitating the east span of the Eells Street Bridge. The funding for this project has not yet been secured, but is planned to be constructed by 2013.

Bridge Painting Program

This project includes painting the Lincoln Avenue and Puyallup River bridges. This is funded to occur between 2010 and 2012.

Lincoln Avenue Overlay

This project includes an asphalt overlay of Lincoln Avenue between Portland Avenue and Marc Avenue. This project is funded for construction by the end of 2007. A railroad grade separation project is also funded between Marc Avenue and Milwaukee Avenue.

Portland Avenue – E 11th St. to Puyallup Avenue

This project includes an asphalt overlay of Portland Avenue. This project is unfunded but is planned for construction in 2009.

Tacoma / Pierce County HOV Program (WSDOT)

The Washington State Department of Transportation (WSDOT) is currently developing the Tacoma/Pierce County High Occupancy Vehicle (HOV) Program, which is funded through a variety of funding sources. The program includes a series of improvement projects to provide 79 miles of HOV lanes and operational improvements (including improving “weaving” areas and replacement of 19 interchanges and 50 new bridges) to I-5, State Route (SR) 16 and SR 167. The program consists of a total of 22 projects that started in 2001 and continue through 2023. A number of projects are located within the East Thea Foss Waterway Transportation Corridor Study, including:

- I-5 - Puyallup River Bridges, East and Westbound - HOV Lanes Project. This project constructs new bridges and HOV lanes across the Puyallup River, and new southbound offramp to SR 167. This project is currently in the design phase.
- I-5 – Portland Avenue and SR 167 Interchanges, and L Street Bridge Project. This project makes safety and operational improvements by widening three bridges on I-5, rebuilding the interchange of I-5 at Portland Avenue, and replacing the East L Street bridge.
- I-5 – I-705 to Port of Tacoma Road Interchange Project. This project improves the I-705 interchange and widens I-5 for future HOV Lanes, replaces the Pacific Avenue and McKinley Street bridges.

Funded Nonmotorized Transportation Improvements

There are no nonmotorized transportation projects within the East Thea Foss peninsula currently funded in the City’s Six year Transportation Program (2008-2013). The Puyallup River Levee Trail project was initially included in the CIP for construction of a nonmotorized trail from East 11th Street to Portland Avenue, along the Puyallup River. The project has gone through preliminary engineering. An analysis conducted by the Army Corps of Engineers has determined that the project is no longer feasible, and therefore is being removed from the City’s CIP.

Funded Transit Improvements

Pierce Transit has a Draft Transit Development Plan (2007-2012) that includes bus and other improvements to the Pierce Transit service area. The changes that would impact the East Thea Foss Waterway include those described below. The timeframe for implementation of these projects is dependent upon revenue, which is primarily from sales tax revenue.

Port of Tacoma Bus PLUS

In 2007, Pierce Transit plans to end regular fixed route service to the East Thea Foss peninsula. Routes 60 and 65 will end and be replaced with Bus PLUS service. Bus PLUS service combines features of fixed route and dial-a-ride service. Bus PLUS routes serve some fixed locations, and other riders can reserve a pickup at non-fixed points along the route. This allows the route to be more individualized to meet the needs of riders, while also reducing operational costs.

Trunk Route Expansion

Pierce Transit is looking at adding a trunk route through the Tacoma Dome Station in the southern portion of the Waterway. This trunk route is one of three routes being considered. This trunk route would combine Routes 41 and 202, and provide service between Downtown Tacoma, the 72nd Street Transit Center, and Lakewood.

Vanpool Expansion

Pierce Transit plans to add up to eighty vanpool vans systemwide by 2012. This would provide a total 370 vans systemwide. This would allow employees to commute to work by alternative means to the single occupant vehicle. The vanpool program is very popular with employers, with demand outpacing supply in the past. The vanpool expansion will aid employers in the Waterway area with state required commute trip reduction plans.

Other Planned (Unfunded) Roadway and Bridge Improvements

In addition to the funded projects in the six year plans, the City of Tacoma has identified additional roadway or bridge projects for the East Thea Foss peninsula in the Transportation element of the Comprehensive Plan. These are future projects that would be funded as money becomes available, beyond the six year timeframe. The project descriptions for these projects would be further defined as they proceeded through the planning and design phases. Other planned but unfunded projects are shown in **Figure 1-10**. Unfunded roadway and bridge improvements include:

- SR-167 Interchange at I-5. This project would include a limited access roadway from the Port of Tacoma to Puyallup. This is a non-City funded project.
- A new signal at East L Street at Wiley Avenue and East 28th Street
- Puyallup Avenue Bridge Rehabilitation
- I-5 HOV Direct Access to the Tacoma Dome Area at East F Street. This is a non-City funded project.

In addition to these improvements, both the Thea Foss Waterway Design and Development Plan and the Tacoma Dome Area Plan recommend Slip Ramps (to and from the east) at SR-509 and East D Street. The Tacoma Dome Area Plan also recommends an extension of East C Street from East 26th Street to Wiley Avenue to reduce vehicle/pedestrian conflicts on East D Street.

Other Planned (Unfunded) Nonmotorized Transportation

The following projects are listed within the 2004 Transportation Element of the City's Comprehensive Plan. They are currently unfunded and do not have a timeline for construction.

- East 11th Street nonmotorized trail between Broadway Avenue and St. Paul Avenue
- Puyallup Avenue Bicycle Lane between Pacific Avenue and City Limits
- Portland Avenue Bicycle Lane between Lincoln Avenue and East 72nd Street
- East 26th St/River Road East Bicycle Lane between Portland Avenue and City Limits

- East 11th Street Bicycle Lane between St. Paul Avenue and Port of Tacoma Road
- St. Paul Avenue Shared Use Path between East 11th Street and Portland Avenue
- Portland Avenue Shared Use Path between East 11th Street and Puyallup Avenue
- East 25th Street Shared Use Path between Pacific Avenue and East G Street
- SR 509 nonmotorized trail between Marine View Drive and Pacific Avenue. This is a non-City funded project.
- East D Street I-5 Overpass Bicycle Lane. This is a non-City funded project.
- East G Street I-5 Overpass Bicycle Lane. This is a non-City funded project.
- I-5 HOV bicycle and pedestrian access improvements, along and across I-5.

In addition to these improvements, there are a number of nonmotorized improvements that were identified in the Thea Foss Waterway Design and Development Plan, and the Tacoma Dome Area Plan.

Thea Foss Waterway Design and Development Plan

- East D Street pedestrian improvements (Streetscape improvements) and enhanced access to waterfront.
- Multi-use esplanade along eastern shoreline of Thea Foss Waterway (where feasible). Construction of the esplanade is a requirement as part of future development.

Tacoma Dome Area Plan

- Puyallup Avenue streetscape improvements
- East D Street bicycle and pedestrian improvements (between Wiley and 25th Street)
- Improved pedestrian facilities on East C Street, 26th Street and Puyallup Avenue
- Pedestrian bridge between Freighthouse Square and Tacoma Dome (along East E Street)
- Pedestrian bridge at East C Street over rail yard / Dock Street to link Thea Foss waterway with Tacoma Dome area (The City has since decided to provide the pedestrian connection to the waterfront as part of the East D Street grade separation project, rather than a separate East C Street connection).

Other Planned (Unfunded) Transit Improvements

Tacoma Dome District Multi-Modal Transportation Center

This City of Tacoma project, identified in the 2008-13 CIP (although currently unfunded), includes constructing a 3,000 stall parking structure in the Tacoma Dome area to accommodate growth of the multi-modal station. This project is unfunded but is planned for 2009. This project would be constructed in collaboration with Sound Transit and the Pierce Transit. It is also identified in Pierce Transit's 6-Year Transit Development Plan (2007-2012).

Downtown Tacoma Circulator Route

This Pierce Transit project, identified in the Pierce Transit 6-Year Transit Development Plan, would expand Route 26 to link Upper Tacoma with the Tacoma Dome Station and Downtown Tacoma. The route would be time coordinated with LINK to provide transfer opportunities.

Sound Transit Phase 2 Improvements

Sound Transit has a Phase 2 plan that includes regional transit improvements. The improvements that would impact the East Thea Foss Waterway area include significant improvements to the LINK light rail system as well as improvements to the Sounder commuter rail system and Regional Express bus system. A ballot measure that combined the Phase 2 plan with the Regional Transportation Improvement District (RTID) package failed in November 2007, but it is likely that Sound Transit will continue planning for a future expansion.

LINK Light Rail Extension (SeaTac Airport to Tacoma Dome Station)

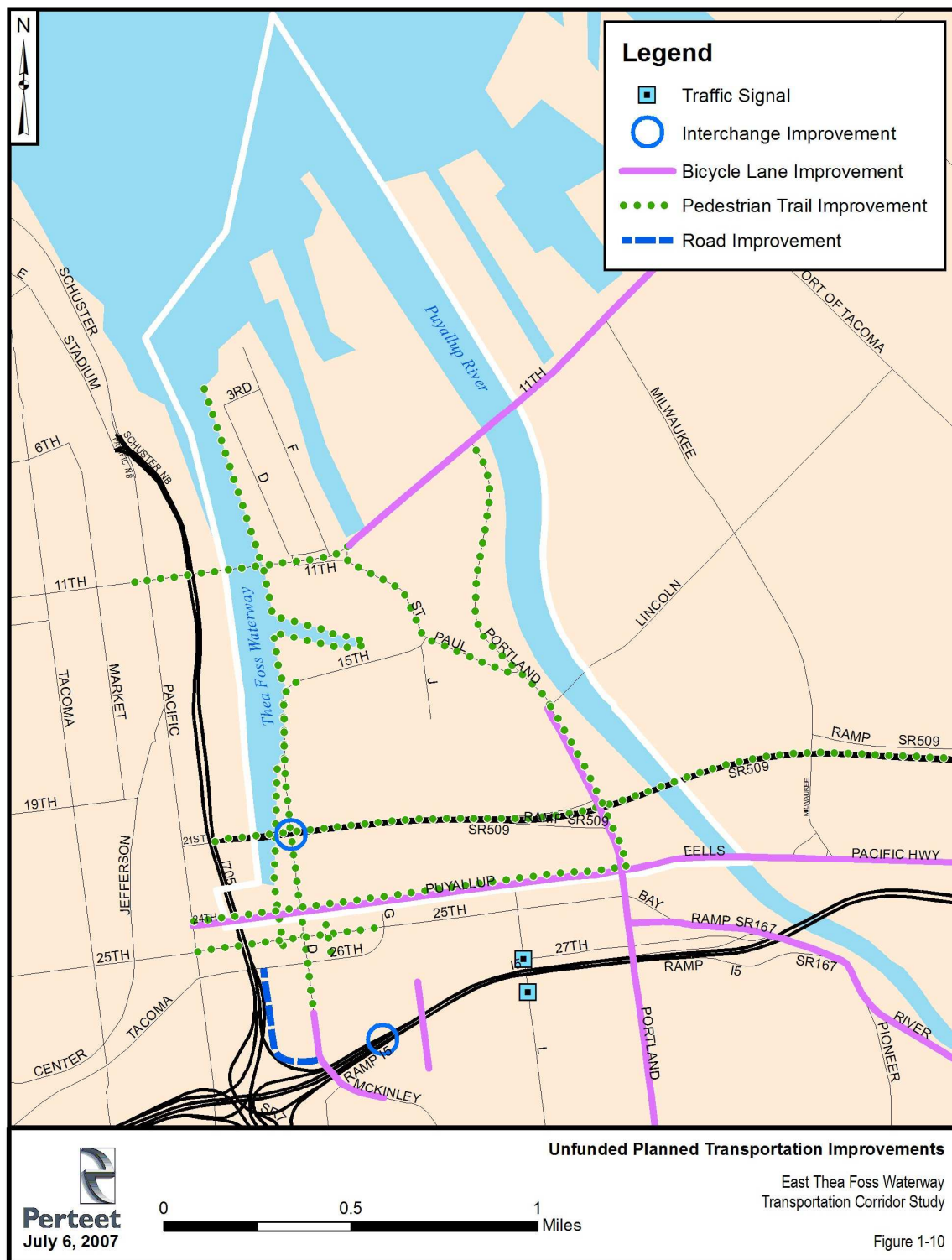
This light rail line would connect the Tacoma LINK light rail and Central LINK light rail segments that are in operation and under construction, respectively. It would provide at grade, elevated or cut and fill link light rail service between SeaTac Airport and the Tacoma Dome Station. This line would provide stations at South 200th Street in SeaTac, at Kent-Des Moines Road in Kent and Des Moines, at the Federal Way Transit Center, at South 348th Street in Federal Way, at the Port of Tacoma near 58th Street, and a new station at the Tacoma Dome Station. Light rail service would provide ten to fifteen minute headways with three to four car trains.

A new Tacoma Dome Link LRT Station would be provided southeast of the existing Tacoma Dome Park-and-Ride garages. This light rail station would serve the nearby employment and commercial areas, the existing Tacoma LINK and Sounder stations as well as the existing adjacent parking garages (total capacity of approximately 2,400 stalls). The project would include:

- New pedestrian bridge connecting the Tacoma Dome Station with the easternmost parking garage
- One track crossover - north of the Port of Tacoma Station
- One track crossover - west of the Tacoma Dome Station
- One tail track in the vicinity of the Tacoma Dome Station with a pocket track in between. The track would be long enough for a 4-car train

Sounder Improvements (Track and Structure Upgrades between Tacoma Dome Station and Reservation Junction). This project would provide track and structure upgrades along a 0.65 mile section from Freighthouse Square to M Street, including replacement of the single-track wooden trestle and bridge. The project elements include:

- Upgrade embankment along G Street Bridge approach
- Track removal along G Street Bridge and Trestle
- Demolish East G Street Bridge and Trestle
- Build two new tracks between East L Street and East G Street
- Build 2 new single crossovers, one in vicinity of Freighthouse Square and the second east of East L Street
- Construct mechanically stabilized earth walls between East K Street and East I Street
- Construct new East G Street steel/concrete trestle
- Construct new East G Street Bridge steel deck girder
- Provide signal upgrades



CHAPTER 2 – FUTURE TRAFFIC CONDITIONS

This chapter summarizes the traffic conditions for four existing intersections and two proposed intersections for the year 2025 for the two future development scenarios (Operational Murray Morgan bridge/SR 509 Slip Ramps, and No Murray Morgan Bridge/No SR 509 Slip Ramps). The intersections that have been considered in the study area are listed in Table 2-1. The two proposed intersections are at East D Street and a proposed EB SR 509 on-ramp, and at East D Street and a proposed WB SR 509 off-ramp. The analysis was performed for the PM peak period turning movements for the two future development scenarios.

Table 2-1: Analyzed Intersections

	Intersection	Traffic Control	2025 No Bridge / No Ramps	2025 Bridge / Ramps
1.	Portland Avenue and Puyallup Avenue/Eells Street	Signalized	Yes	Yes
2.	East D Street and Puyallup Avenue	Signalized	Yes	Yes
3.	E 11 th Place and St. Paul Avenue	Unsignalized	Yes	Yes
4.	E 11 th Street and St. Paul Avenue	Unsignalized	Yes	Yes
5.	East D Street and SR 509 EB On Ramp	Unsignalized	No	Yes
6.	East D Street and SR 509 WB Off Ramp	Unsignalized	No	Yes

Traffic Analysis Methodology

Level of Service (LOS) is a qualitative measure of the operating conditions experienced at intersections when subjected to varying traffic volumes. The study was conducted for the provided design year (2025) volumes. The analysis was performed using Synchro Professional version 6 software package and the Measures of Effectiveness were reported based on the 2000 edition of *Highway Capacity Manual (HCM 2000)*. The acceptable LOS for this analysis is considered to be LOS D.

Signalized Intersection Analysis

No Murray Morgan Bridge/No SR 509 Slip Ramps

The intersection of East Puyallup at East D Street operates at a LOS B under 2025 traffic conditions without the bridge or slip ramps. It is recommended to consider changing the split phasing on the NB and SB approaches of East D Street at Puyallup Avenue to permissive left turn operation. This intersection is currently being redesigned as part of the East D Street grade separation project.

The intersection of Portland Avenue at Puyallup Avenue/Eells Street operates at an acceptable level of service D for the 2025 traffic conditions.

The delay and LOS for signalized intersections under the 2025 No Bridge / No Ramps scenario are shown in **Table 2-2** and **Figure 2-1**.

Table 2-2: Results of Signalized Intersection Analysis (2025 No Bridge/No Ramps)

Intersection	Time Of Day		
		Delay*	LOS
East D St. and Puyallup Ave.	PM	13.9	B
Portland Ave. and Puyallup Ave./Eells St.	PM	44.3	D

*Intersection Delay is in seconds per vehicle.

Operational Murray Morgan Bridge/SR 509 Slip Ramps

The intersection of East Puyallup at East D Street operates at a LOS C under 2025 traffic conditions for with the operational bridge and slip ramps. It is recommended to consider changing the split phasing on the NB and SB approaches of East D Street at Puyallup Avenue to permissive left turn operation. It is recommended that the EB and WB approaches be converted from permissive left turn operation to protected/permissive phasing.

The intersection of Portland Avenue at Puyallup Avenue/Eells Street operates at acceptable level of service D for the 2025 build conditions.

The delay and level of service for signalized intersections under the 2025 Bridge / Ramps scenario are shown in **Table 2-3** and **Figure 2-2**.

Unsignalized Intersection Analysis

According to the HCM 2000, the level of service for a two-way stop controlled (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. The level of service is not defined for the intersection as a whole. **Table 2-4** summarizes the results of the unsignalized intersection analysis for 2025 No Bridge / No Ramps and the Bridge / Ramp scenarios, showing control delay for the major street and approach delay for the minor streets. **Figure 2-1** shows the LOS for the No Bridge / No Ramps scenario, and **Figure 2-2** shows the LOS for the Bridge / Ramps scenario.

It is to be noted that left-turns are not permitted from St. Paul Avenue onto E 11th Street. However, the traffic counts indicate that vehicles are making the prohibited left-turn in the PM peak hour.

Table 2-3: Results of Signalized Intersection Analysis (2025 Bridge / Ramps)

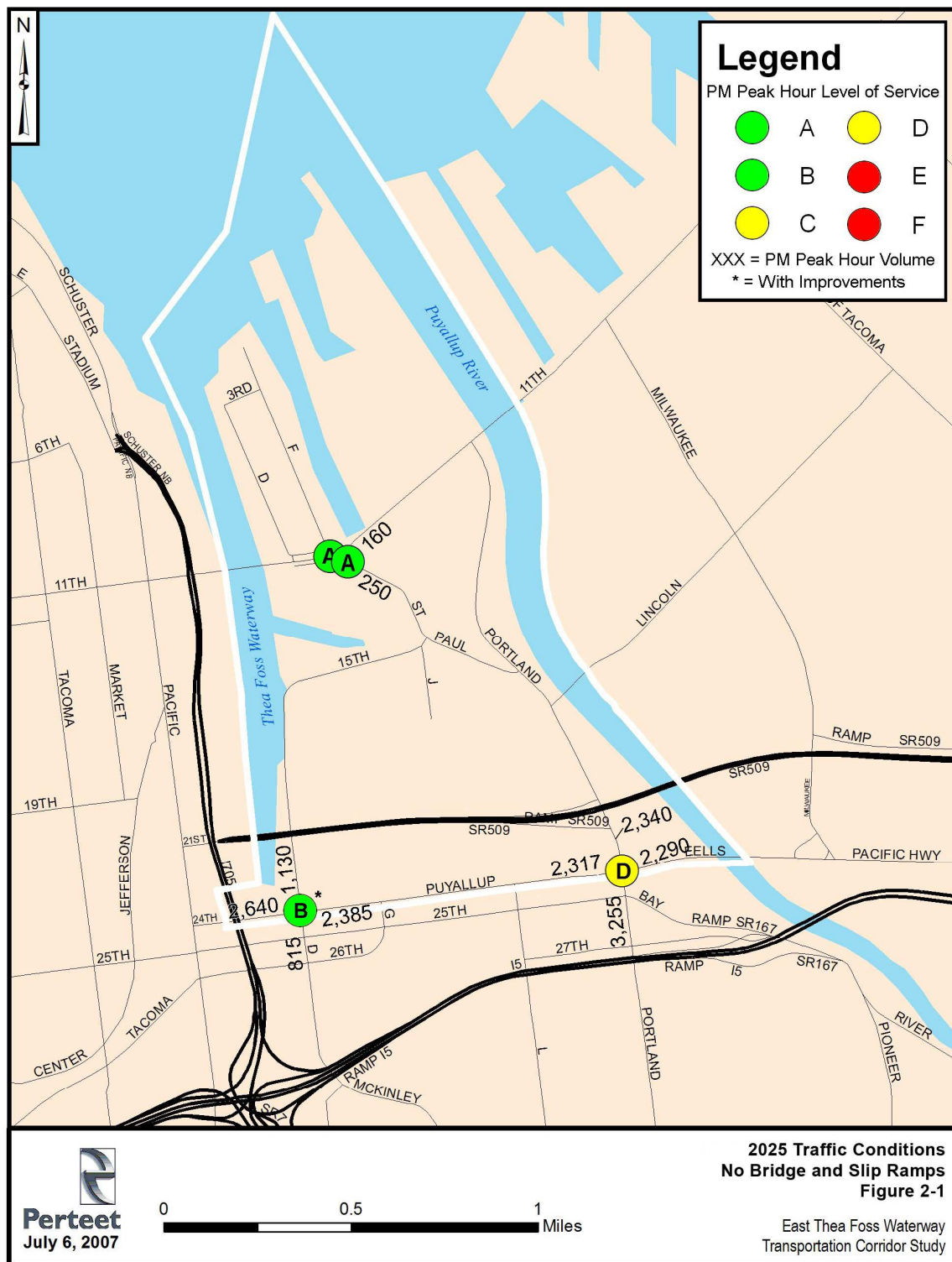
Intersection	Time Of Day		
		Delay*	LOS
East D St. and Puyallup Ave.	PM	24.2	C
Portland Ave. and Puyallup Ave./Eells St.	PM	38.0	D

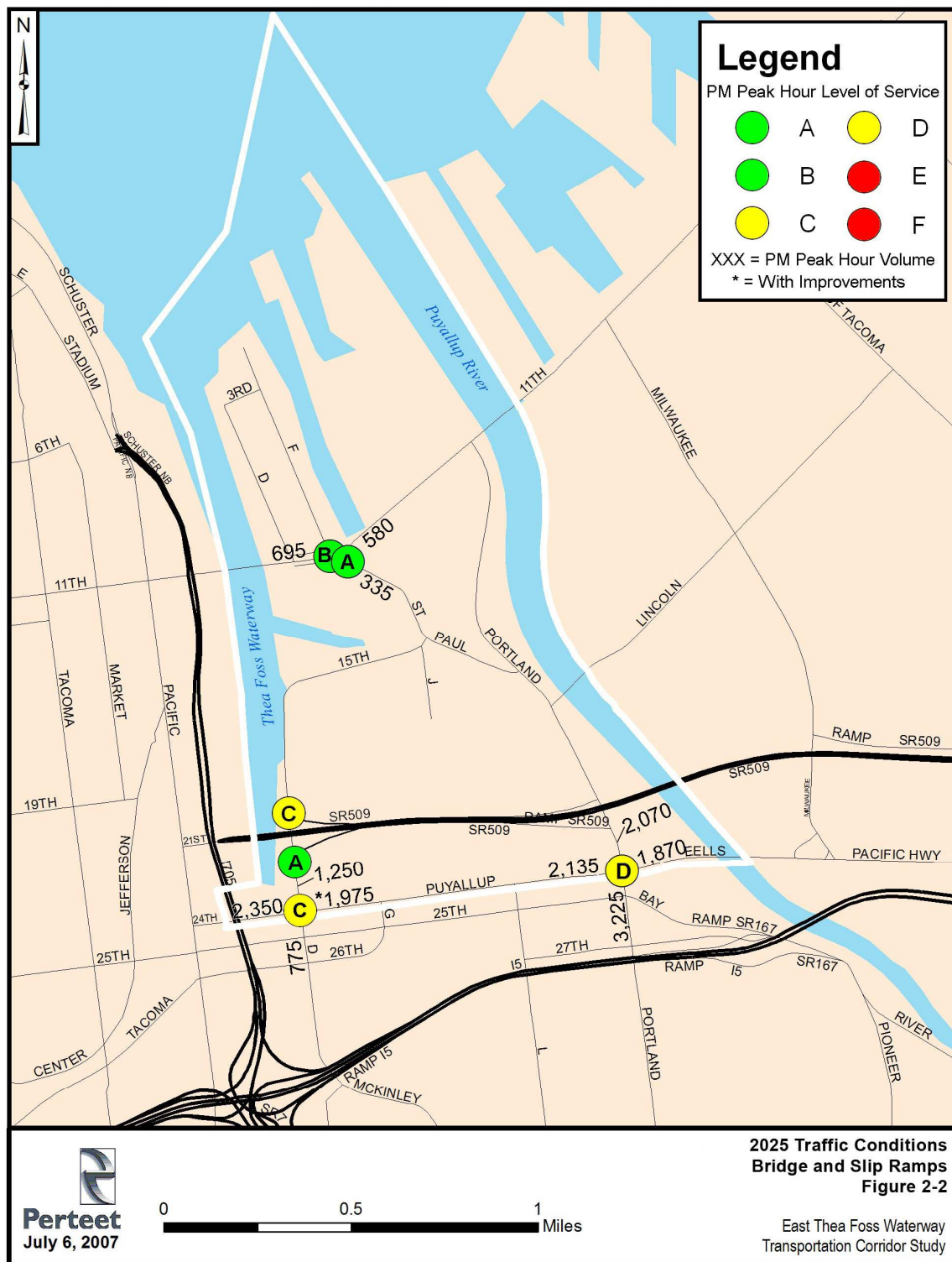
*Intersection Delay is in seconds per vehicle.

Table 2-4: Results of Unsignalized Intersection Analysis (2025 Both Scenarios)

Intersection	Time of Day	Control Delay (Major Street)	Approach Delay (Minor Street)	2025 No Bridge/ No Ramps		2025 Bridge / Ramps	
				Delay*	LOS	Delay*	LOS
E 11 th St. and St. Paul Ave.	PM		Northbound	9.2	A	13	B
11 th Pl and St. Paul Ave.	PM	Eastbound (Left-turn)		7.7	A	7.8	A
			Southbound	10.0	B	11.0	B
WB SR 509 Off Ramp and East D St.	PM		Westbound			15.2	C
EB SR 509 On Ramp and East D St.	PM	Southbound (Left-turn)				9.9	A

*Intersection Delay is in seconds per vehicle





THIS PAGE LEFT BLANK INTENTIONALLY

CHAPTER 3 – KEY ISSUES AND NEEDS

A number of stakeholders were interviewed as part of the study, to assess key issues, needs and potential solutions. As of the completion of this technical memorandum, the following stakeholders were interviewed:

- Nathan Childs, Globe Machinery
- Joe Martinac, Jr., J. M. Martinac Shipbuilding Corp.
- Dave McEntee, Simpson Cos.
- Don Meyer, Thea Foss Development Authority
- Clare Petrich, Petrich Marine Dock
- Laura Shane, Globe Machinery
- William Stowell, New Star Energy/Valero LP/Shore Terminal; & Stephen Tan, Cascadia Law Group
- Kevin Trucco, Colonial Fruit & Produce
- Jay Stewart, Port of Tacoma
- Bob Emerson, Port of Tacoma
- Mark Eshleman, Panattoni

The following section provides a summary of the key issues and needs identified by the stakeholders by category. A more detailed stakeholder interview summary is included in **Appendix A**.

Roads and Bridges

Roadway / Bridge Maintenance

- Roadways need to be repaved, especially Portland Avenue and Puyallup Avenue.
- The Murray Morgan Bridge needs upgraded, included improved pavement.
- Improved maintenance is needed where streets cross railroads.

Congestion

- Freight queues occur on East D Street near Valero, north of 11th Street (they often occupy an entire lane, making it difficult for cars and trucks to get around).
- School buses stop at rail tracks causing backups.
- Some roads should be widened where trucks block, such as at East D Street (North of 11th Street).
- When congestion occurs at Portland Avenue at I-5, the only access to the peninsula is impacted, which especially impacts freight movement.
- Congestion occurs at the Murray Morgan bridge when the bridge is lifted.

Access Issues

- The weight restrictions on the Murray Morgan Bridge restrict truck access to Portland Avenue.
- Additional access points are needed to the peninsula.
- Improved access to East D Street (south of 11th Street) from Murray Morgan bridge is needed to serve the commercial area. A new road is needed west of St. Paul Avenue to better serve East D Street.
- Improved access to East D Street is needed from East 11th Street, to serve East D Street north of 11th Street.

Parking Issues

- There is not enough parking near marina during the peak boating season (Summer).

Freight Issues

- Most freight seems to be by truck, during all periods of the day (24 hours/7 days per week)
- The peak truck freight period tends to be the early morning (5-8am) and afternoon.
- The primary truck freight routes are Portland Avenue, and St. Paul Avenue.
- Freight growth will range from minor, to a doubling of trucks over 20 years.

Rail Issues / Conflicts

- Generally, rail is not seen as a major issue.
- Historically, rail blocked traffic at East D Street, although this is being fixed.
- Rail tracks that cross East 11th Street and St. Paul Avenue can cause traffic delays when trains being built at Simpson.
- The primary concern is that maintenance is needed at rail crossings – the poor conditions have impacts to trucks.

Nonmotorized Issues

- Generally, nonmotorized facilities were not seen as a high priority by businesses, especially industrial uses.
- Some stakeholders felt that nonmotorized improvements are important, especially to provide access to the waterfront, and along East D Street.
- The planned esplanade along water should suffice for the Shoreline District.
- There are not a lot of bicyclists along the peninsula.

Transit Issues

- There was mixed support for transit, as most employees currently drive to work.
- Transit would be supported if it can be made to serve people better, such as more frequent service.

Emergency Response Issues

- Emergency response is generally good, as there is a fire station on the peninsula.
- There is a need for quick response due to the types of uses.
- Will the fire station be closed?

Identified Needs

- Fix the potholes and transitions at railroads.
- Construct ramps at East D Street and SR 509.
- Connect East D Street north of East 15th Street to East 11th Street.
- Improve (repave) East F Street.
- Widen roads such as East D Street.
- Eliminate weight restrictions on the Murray Morgan Bridge.
- Improve pedestrian linkages, especially near the waterway.
- Improve public transportation to better serve commuters.

THIS PAGE LEFT BLANK INTENTIONALLY

CHAPTER 4 – ALTERNATIVES DEVELOPMENT AND EVALUATION

The project technical process is shown in **Figure 4-1**. An initial list of potential improvement projects were identified based on a review of existing conditions, response to the project vision and purpose and a review of stakeholder input (from stakeholder interviews). While the study boundary encompasses a broad area, the Steering Committee recommended that the study focus on improvements / solutions along the west side of the peninsula near East D Street that would help to provide a smooth transition between land uses. In particular, the Committee suggested that improvements should focus on three needs:

- Traffic Circulation
- Separation of Shoreline and Industrial Traffic
- Improved transitions between land uses

An initial set of potential improvements, particularly focused on traffic circulation and separation of traffic was presented to the Steering Committee. It was determined that recommendations for improving transition between land uses (which are more related to landscaping schemes) would be developed after confirmation of a preferred traffic circulation and traffic separation concept is identified.

After a review of improvements by the Steering Committee, the improvements were presented to the public at a public workshop held on September 27, 2007. The workshop allowed participants to identify additional key issues and needs, respond to the preliminary list of improvements, and identify other potential solutions that had not been developed to date. The refined list of improvements were evaluated using established measures of effectiveness. After the preliminary evaluation, the results were presented to the Steering Committee for further review and recommendation of a preferred solution.

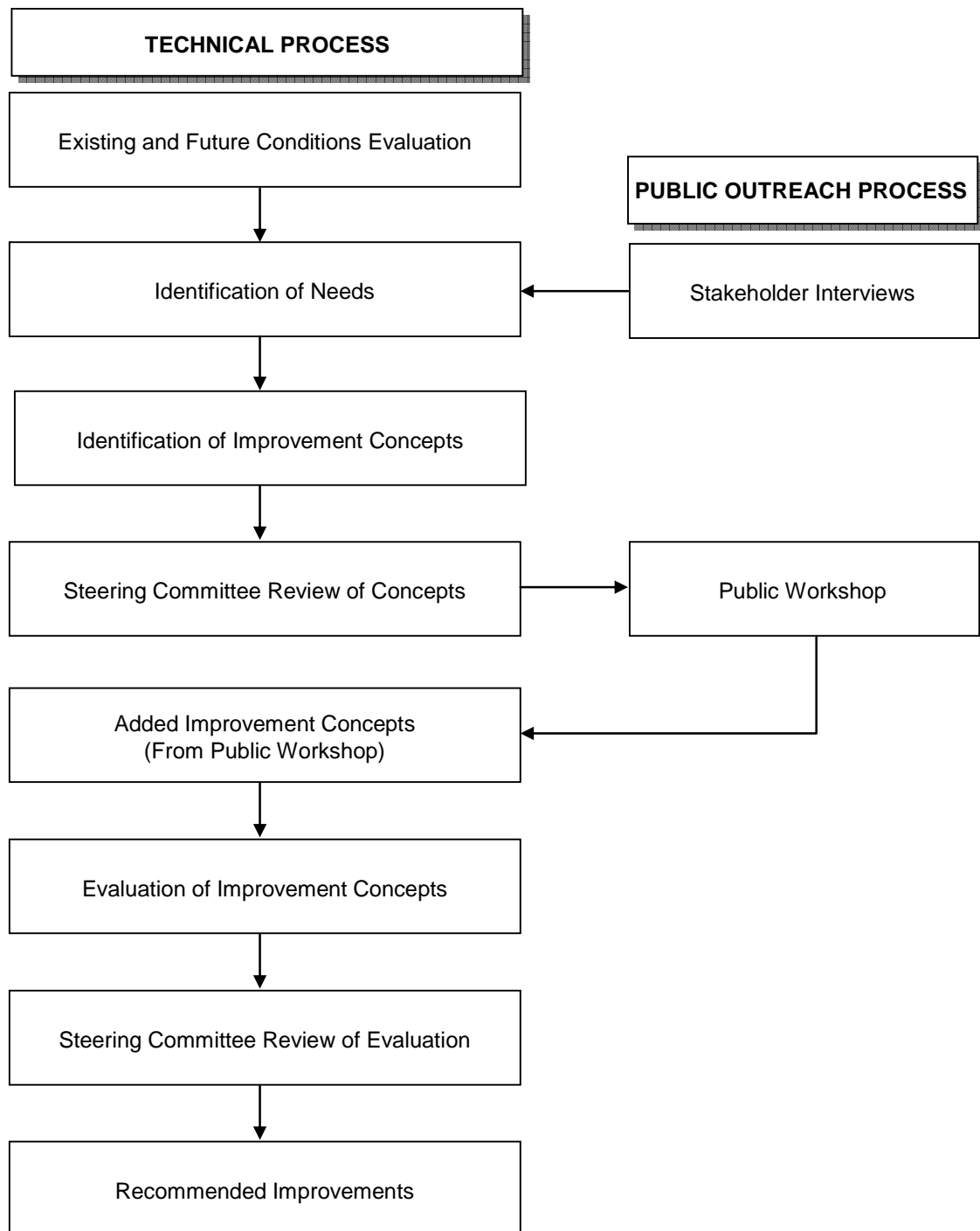
An initial set of potential long term improvement solutions were developed for both future (2025) network scenarios.

Scenario 1: Operational Murray Morgan Bridge / SR 509 Slip Ramps

Two traffic circulation concepts were identified for Scenario 1. For each of these concepts, a number of potential roadway improvement solutions were developed. The traffic circulation options include:

- Concept A – East D or F Street Extension
- Concept B – Use Existing Road Network

Figure 4-1: Study Technical Process



Concept A – East D or F Street Extension

The traffic circulation under this scenario is shown in **Figure 4-2**. Under this concept, East D Street would be the primary road for shoreline and commercial related traffic. East D Street would be extended south of the Murray Morgan bridge to provide a direct connection to East 15th Street. The new roadway would allow closer proximity for commercial/shoreline related traffic to the mixed land uses adjacent to the shoreline.

Industrial traffic could also use East D Street south of East 15th Street, and East 15th Street, but would primarily use Portland Avenue and St. Paul Avenue.

Specific design solutions for this concept were developed. These include:

North of East 15th Street

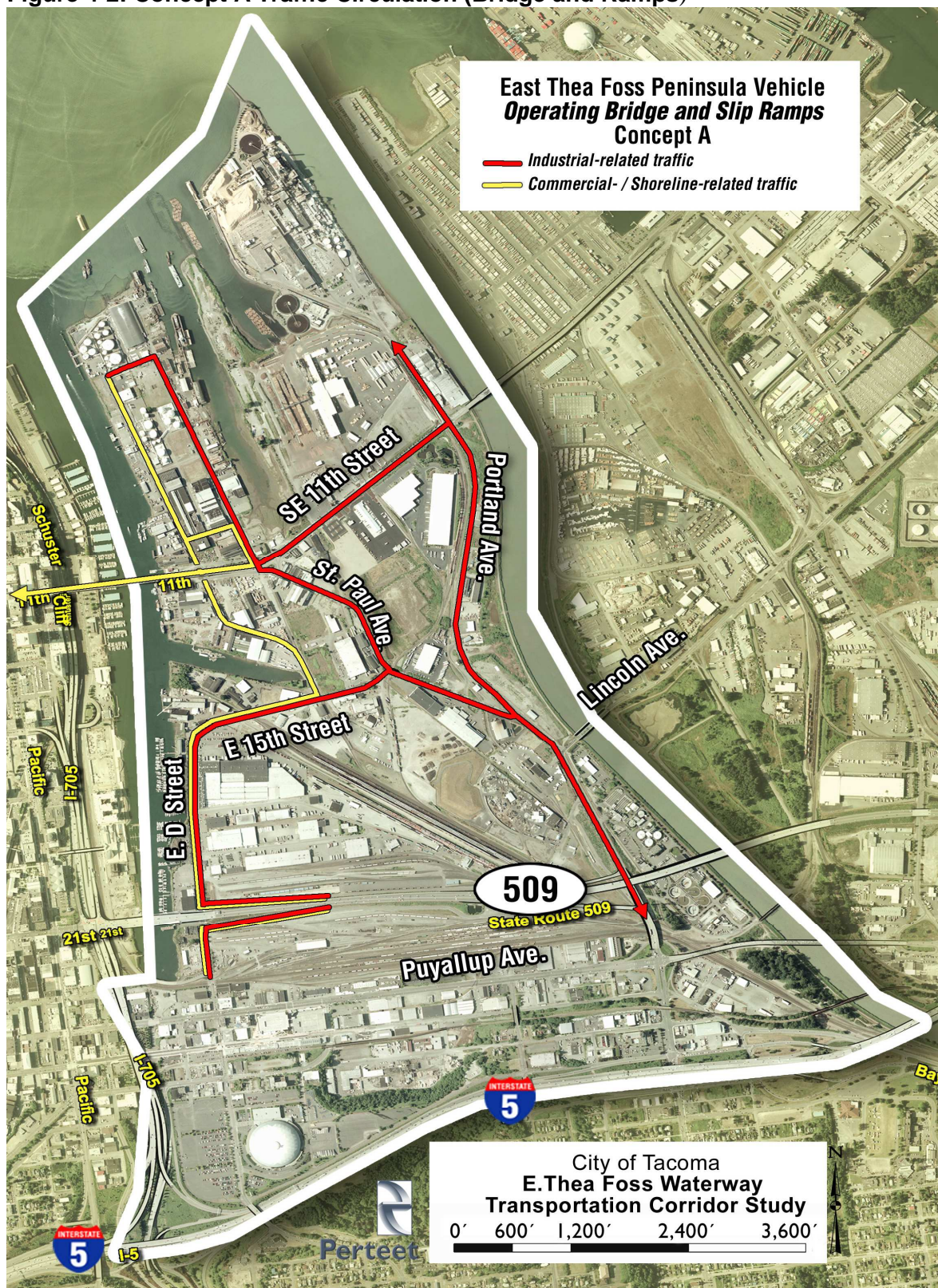
- *Solution A-1: East D Street Extension* – Extend East D Street south of Murray Morgan Bridge, and traverse through a BNSF right-of-way (which is used for a railroad spur) to connect to East 15th Street. The road would be used by shoreline traffic. The primary benefit of this option is that it allows for a total separation between industrial and shoreline traffic in this area. The new road would require right-of-way on land currently used by BNSF for a rail spur. See **Figure 4-3**.
- *Solution A-2: East F Street Extension* – Extend East D Street south of the Murray Morgan Bridge, but traverse southeast, using the East F Street right-of-way before intersecting at East 15th Street. The benefit is similar to Solution A-1 (described above). The road does not come as close to the shoreline as Solution A-1, and may require access through industrial land to access the shoreline. This solution would also require right-of-way on land currently used by BNSF for a rail spur. See **Figure 4-3**.

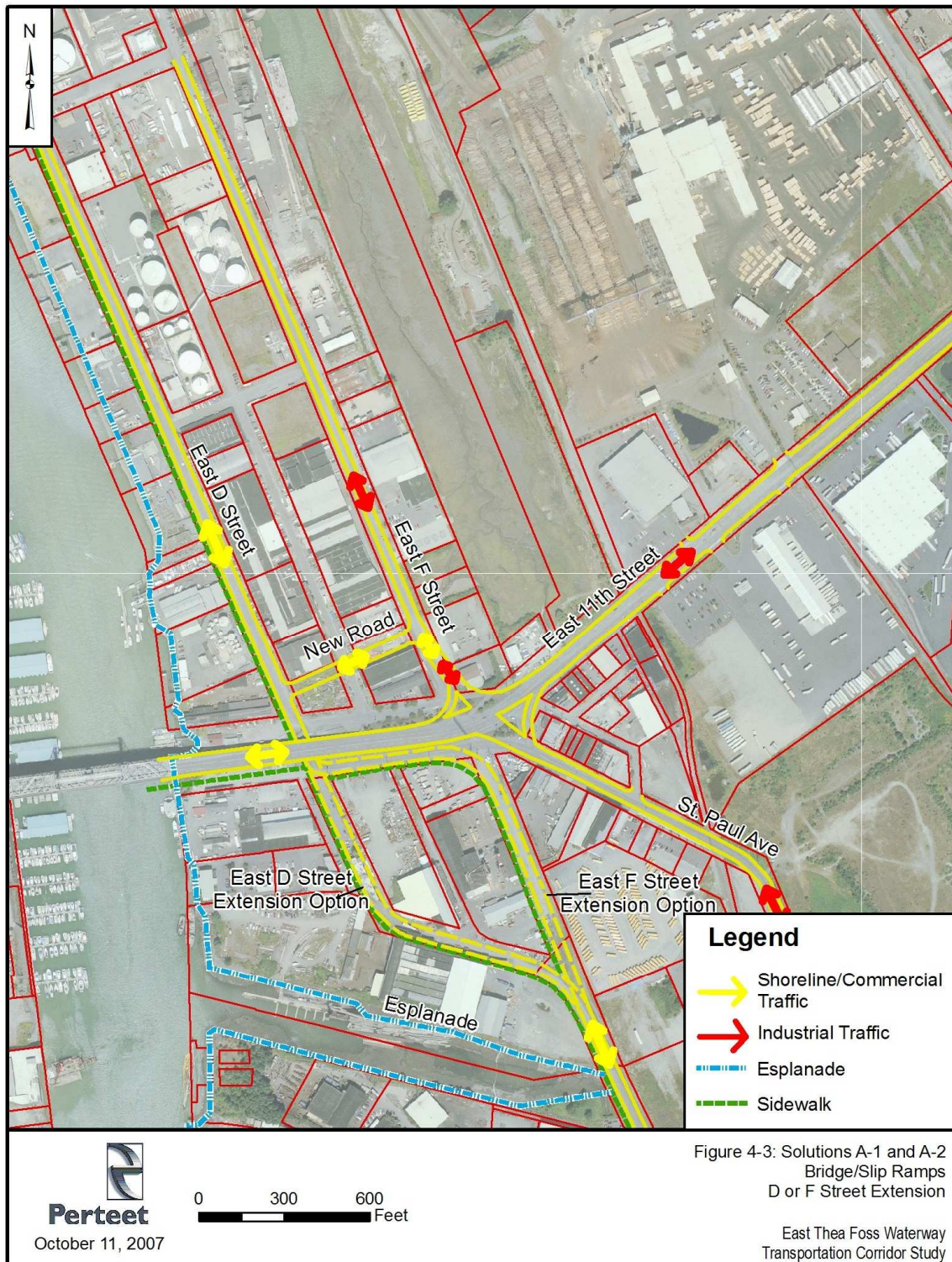
Under both of these solutions, shoreline related traffic going to or from the Murray Morgan bridge would require mixing with industrial traffic. Vehicles destined to East D Street would need to turn north on East F Street. A new road (known as East 10th Street) and associated right-of-way, would be required between East D and East F Streets to provide access to East D Street.

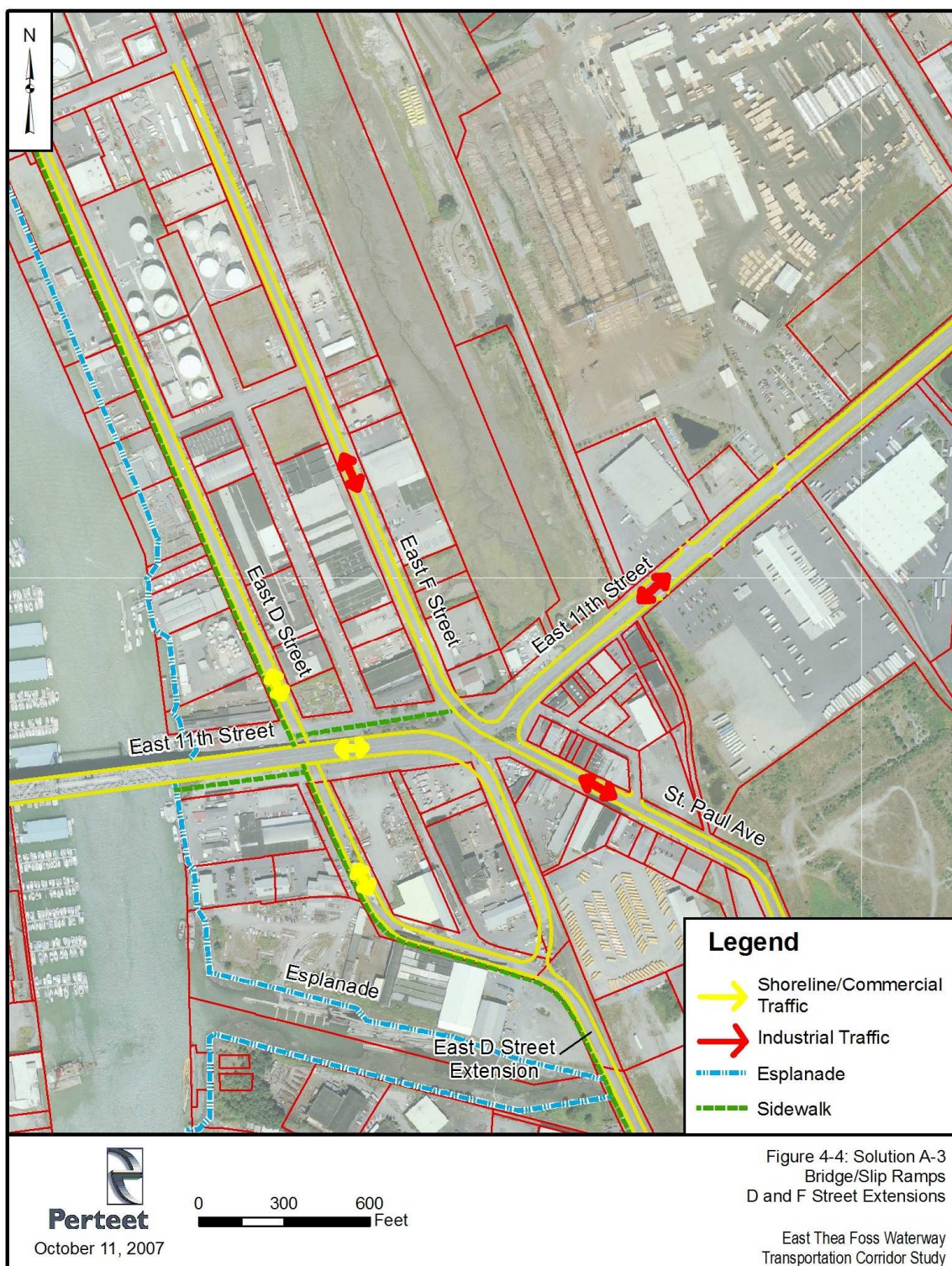
- *Solution A-3: East D and East F Street Extensions* – Extend East D Street as identified under “Solution A-1: East D Street Extension” noted above. However, this option also uses the East F Street right-of-way (currently used by BNSF for a rail spur) to provide a direct connection from the Murray Morgan Bridge to East D Street. This solution would require both the East D and East F Street rights-of-way. A new location for a rail spur would need to be identified. See **Figure 4-4**.

Under all three scenarios, the intersection of East 11th Street and St. Paul Avenue is realigned to provide for easier (less confusing) circulation. This realignment may require additional right-of-way. A more detailed design study would be needed to determine the actual right of way needs.

Figure 4-2: Concept A Traffic Circulation (Bridge and Ramps)

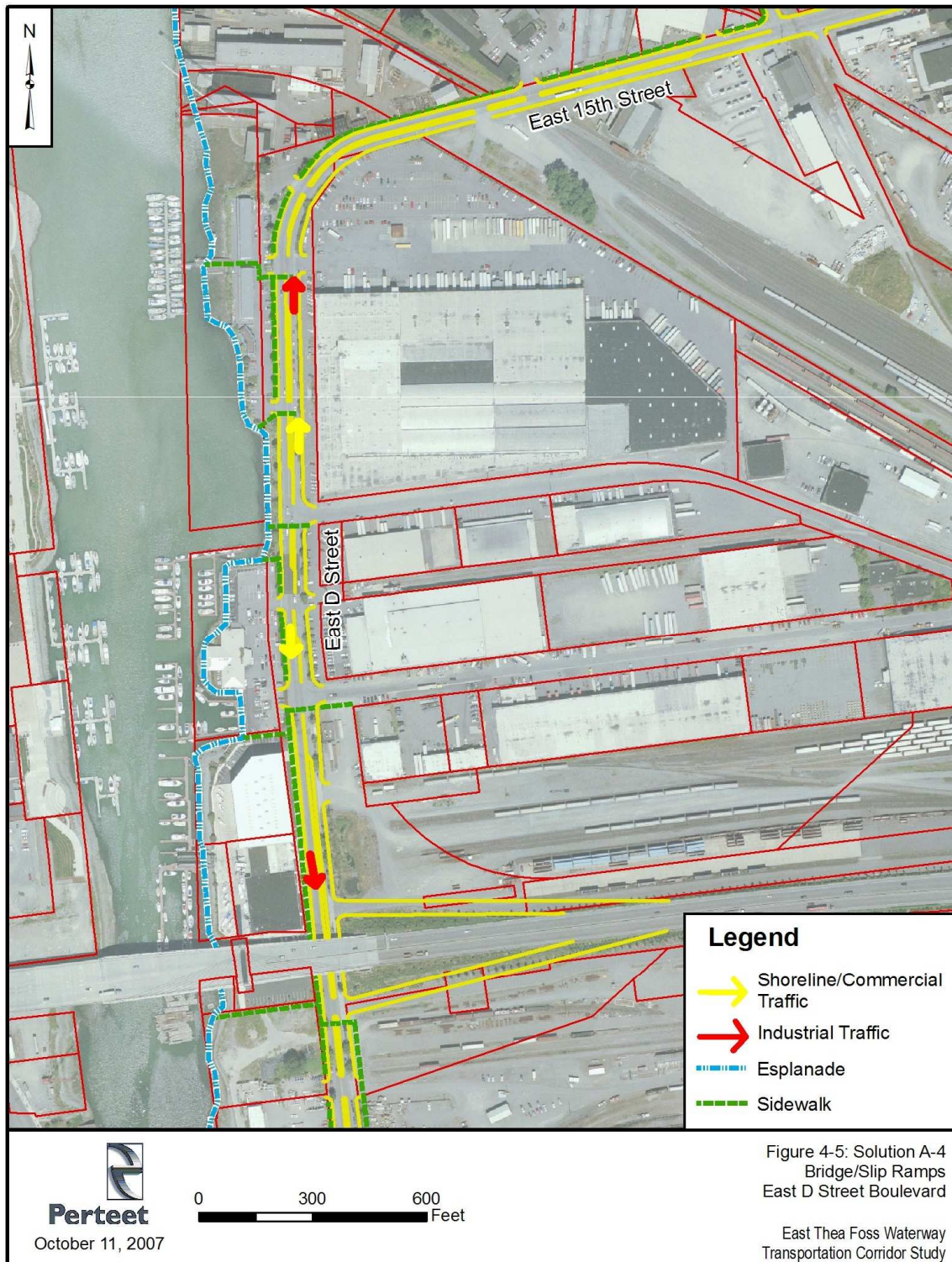


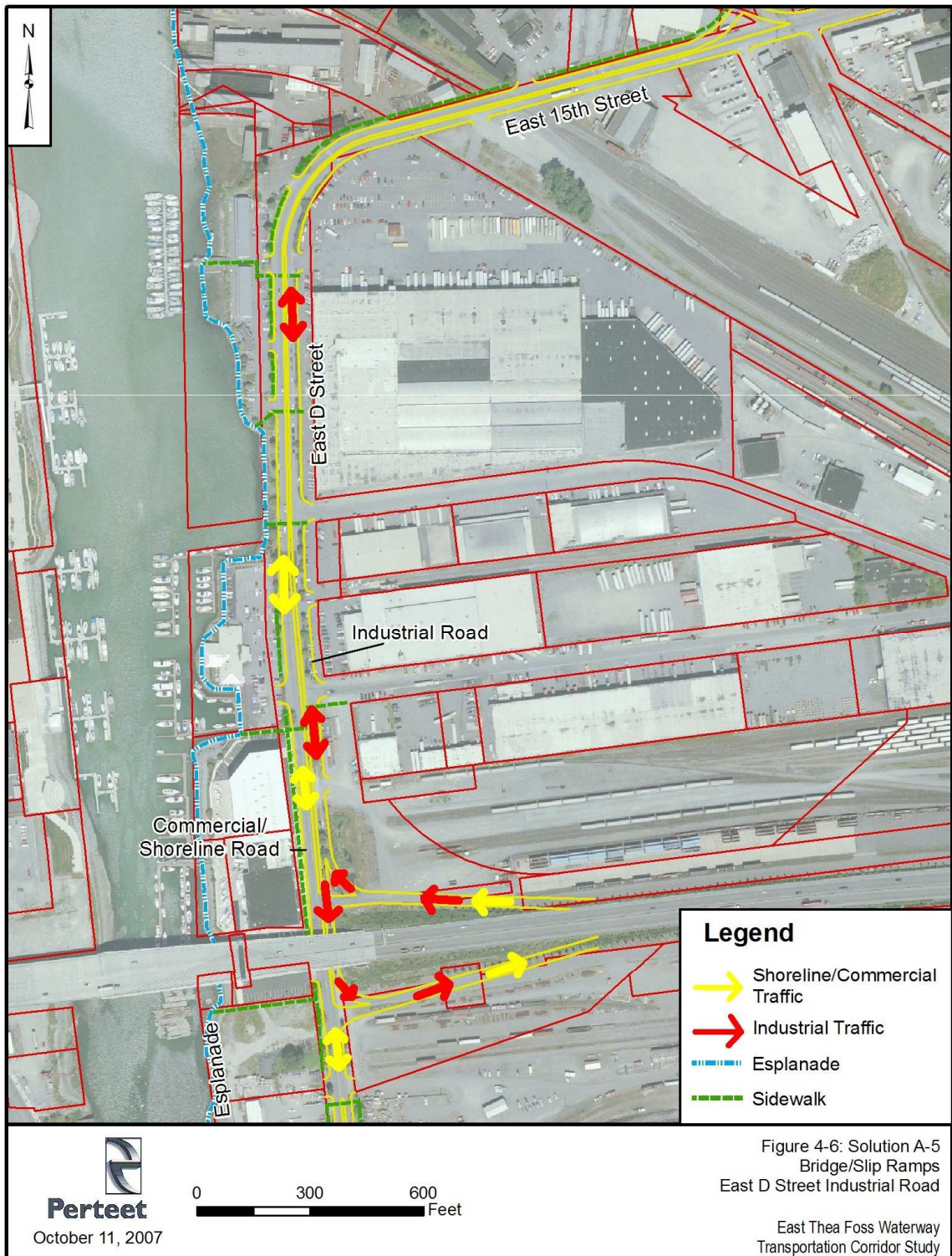




South of East 15th Street

- *Solution A-4: East D Street Boulevard* – Widen East D Street and East 15th Street to include a landscaped median, and provide improved access management. While industrial and shoreline traffic would share the same road, the median and additional landscaping would help to provide a visual buffer between shoreline land uses and industrial uses. Access management would be used to co-locate driveways, control access and improve operations. This design solution has minimal impacts to adjacent properties (Other than where SR 509 slip ramps would require right of way). See **Figure 4-5**
- *Solution A-5: East D Street Industrial Road* – Widen East D Street and East 15th Street to include a separate parallel roadway for industrial related traffic. Each road would have one lane in each direction. The two roads would be separated by landscaping. In order to reduce conflicts, no vehicular crossing would be allowed between the roads. The benefit of this alternative is that it separates industrial and shoreline traffic. This design solution would require more right of way than the boulevard concept, therefore resulting in greater impacts to adjacent properties (such as parking impacts). No impacts to buildings are anticipated. Another constraint is that the industrial road is only linked to the SR 509 slip ramps at the south end, and industrial traffic would be required to go to/from SR 509. In addition, the industrial road is only an option if an East D or East F Street extension were built (see above). This is because it would be operationally challenging to tie two parallel roads together at St. Paul Avenue. See **Figures 4-6**.





Concept B – Use of Existing Streets

The traffic circulation under this concept of Scenario 1 uses existing roads, rather than the addition of new roads designated for shoreline use as shown in **Figure 4-7**. The concept does not extend either East D or East F Streets, and therefore requires shoreline and industrial traffic to share the same corridors.

Specific design solutions for this concept were developed. These include:

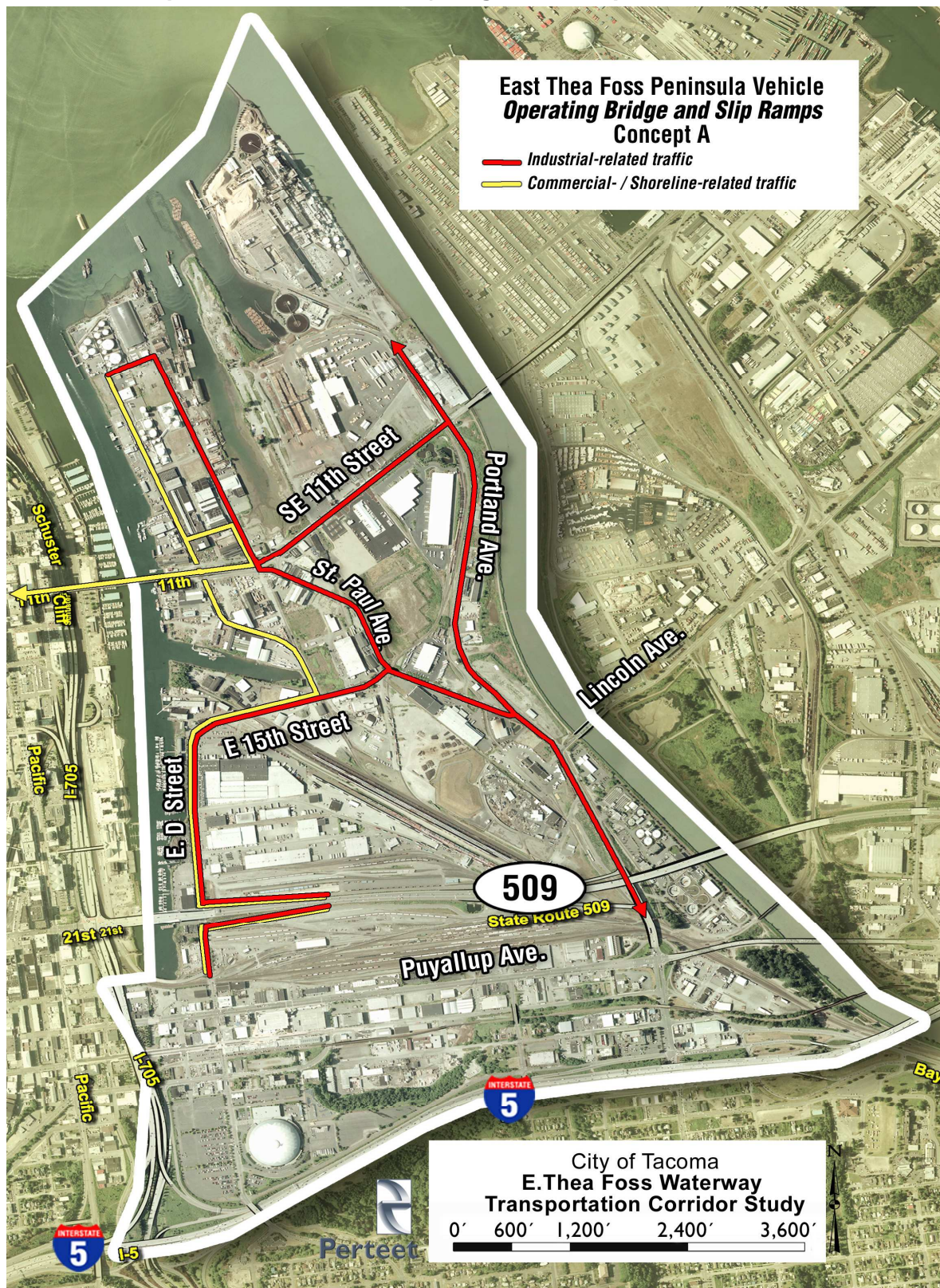
North of East 15th Street

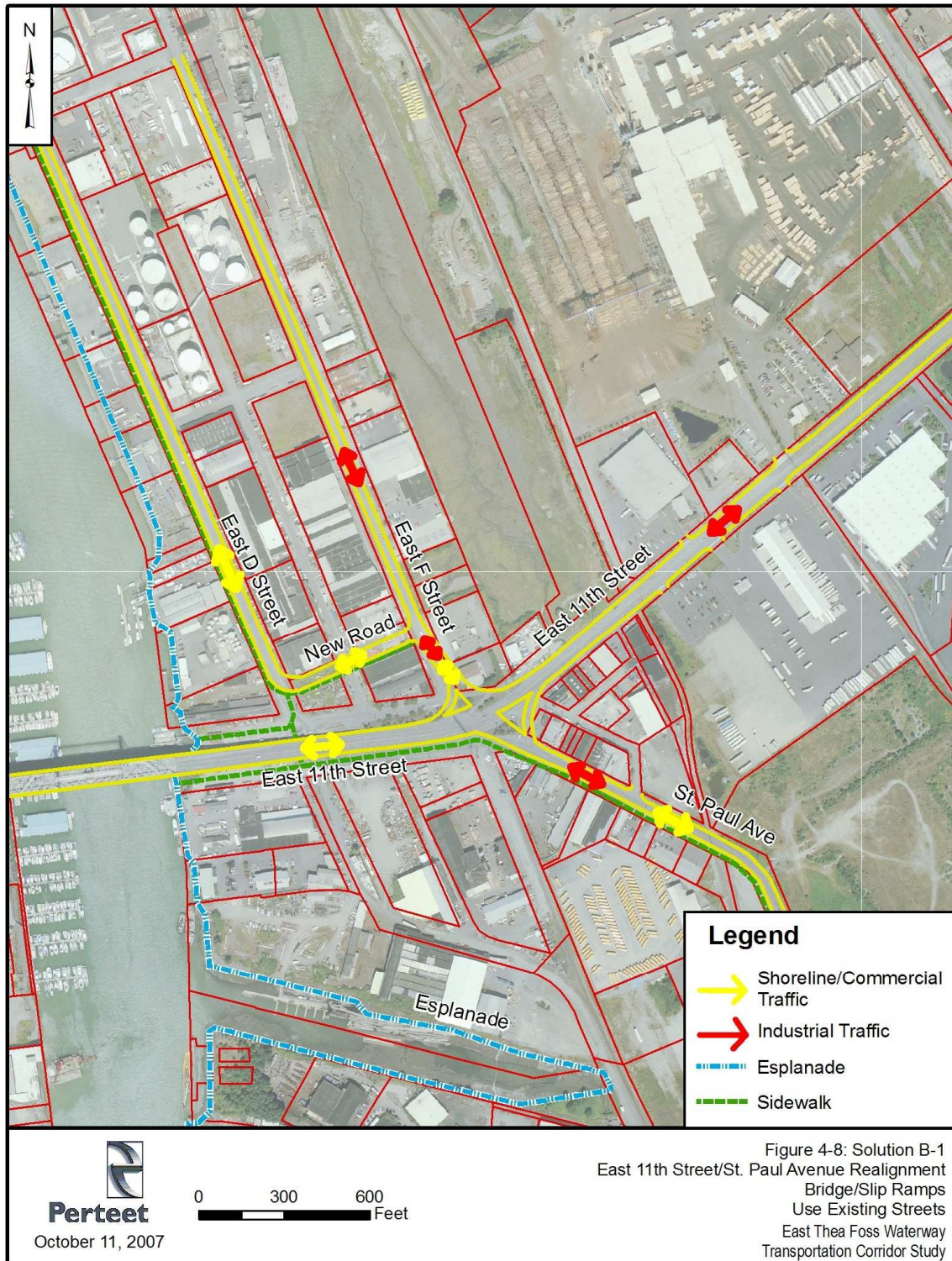
- *Solution B-1: East 11th Street/ St. Paul Avenue Realignment* - Similar to Concept A, the intersection of East 11th Street and St. Paul Avenue are realigned to provide for easier (less confusing) circulation. A new road (East 10th Street) is required between East D and East F Streets (North of East 11th Street) to allow shoreline traffic to access East D Street. This solution requires additional right-of-way for the new East 10th Street, and for the East 11th Street/St. Paul realignment. The primary constraint of this solution is that it still requires the mixing of industrial and shoreline related traffic. Another constraint is that it does not provide close access to the shoreline south of East 11th Street. See **Figure 4-8**.

South of East 15th Street

- *Solution B-2: East D Street Boulevard* – Same as Solution A-4 in Concept A (described previously); See **Figure 4-5**.
- *Solution B-3: East D Street Industrial Road* – Same as Solution A-5 in Concept A (described previously); See **Figure 4-6**.

Figure 4-7: Concept B Traffic Circulation (Bridge and Ramps)





Scenario 2: No Murray Morgan Bridge / No SR 509 Slip Ramps

Two traffic circulation concepts were identified for Scenario 2. For each of these concepts, a number of potential roadway improvement solutions were developed. The traffic circulation options include:

- Concept A – East D or F Street Extension
- Concept B – Use Existing Road Network

Concept A – East D or F Street Extension

This concept is the same as Concept A under Scenario 1, as shown in **Figure 4-9**. It focuses on an extension of East D Street south of the existing bridge, to connect with East 15th Street. East D Street would be used for shoreline related traffic. Industrial traffic would primarily use Portland Avenue and St. Paul Avenue. Industrial traffic could use East D Street (south of East 15th Street) and East 15th Street.

Because the Murray Morgan Bridge is closed or removed in this scenario, there would not be a need for a new road (East 10th Street) between East D and East F Streets. Instead, the existing East 11th Street right of way adjacent the bridge is used to provide access to East D Street.

Design Solutions under Concept A are developed by area:

North of East 15th Street

- *Solution A-1: East D Street Extension* – Extend East D Street south of East 11th Street right-of-way (where Murray Morgan Bridge is removed), to connect to East 15th Street. The road would be used by shoreline traffic. The primary benefit of this solution is that it allows for a total separation between industrial and shoreline traffic within this area. The new road would require right-of-way on land currently used by BNSF for a rail spur. See **Figure 4-10**.
- *Solution A-2: East F Street Extension* – Extend East D Street south of the East 11th Street right-of-way, but traverse southeast, using the East F Street right-of-way before intersecting at East 15th Street. The benefit is similar to the Solution A-1 (described above). The road does not come as close to the shoreline as Solution A-1, and may require access through industrial land to access the shoreline. This solution would also require right-of-way on land currently used by BNSF for a rail spur. See **Figure 4-10**.

Under the two scenarios, the intersection of East 11th Street and St. Paul Avenue would be realigned to provide for easier (less confusing) circulation. This realignment could require additional right-of-way.

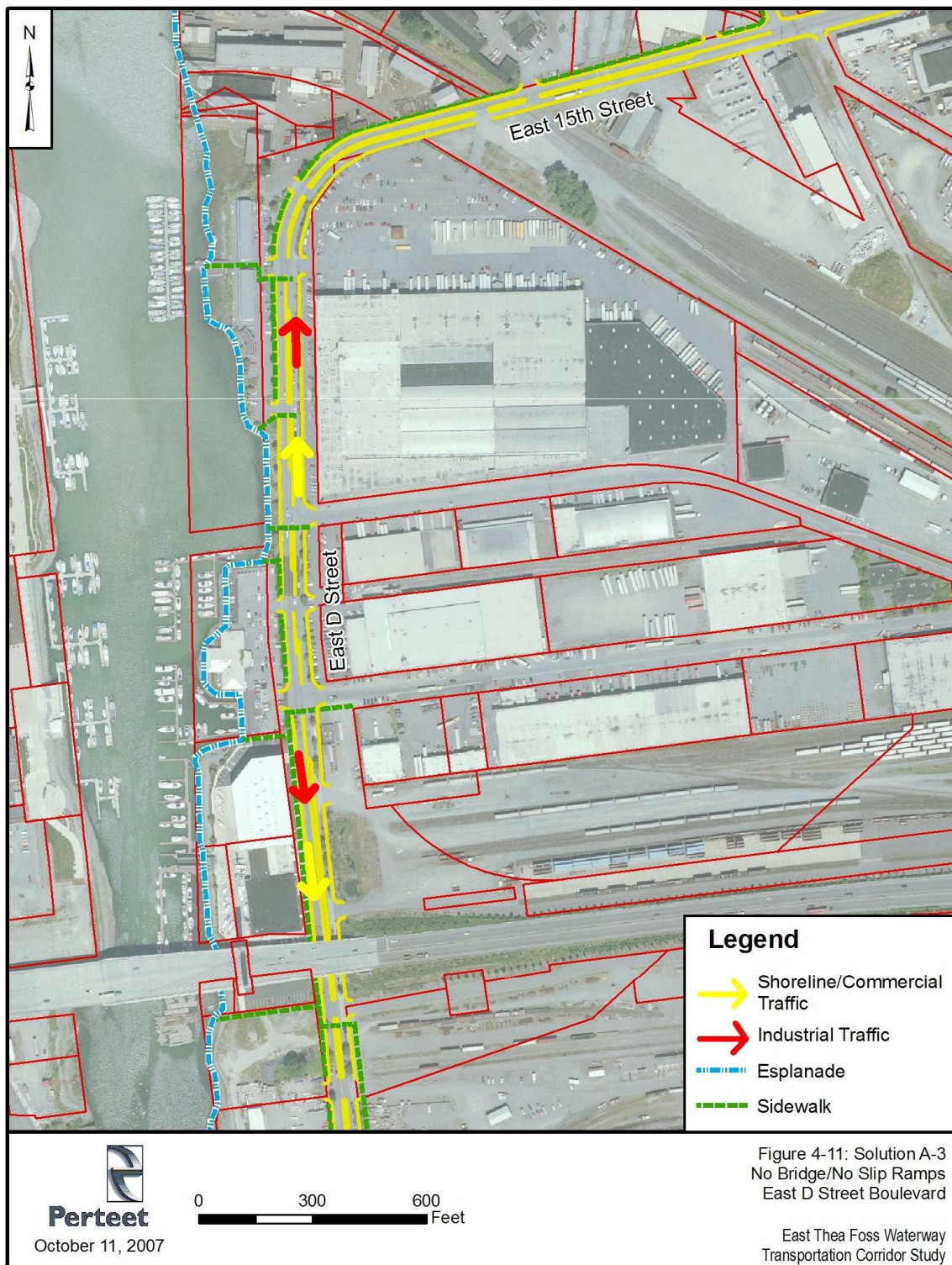
South of East 15th Street

- *Solution A-3: East D Street Boulevard* – Similar to Scenario 1, Concept A, Solution A-4. The only difference is that there are no ramps at SR 509. See **Figure 4-11**.

Figure 4-9: Concept A Traffic Circulation (No Bridge / No Ramps)







- *Solution A-4: East D Street Industrial Road* – Similar to Scenario 1, Concept A, Solution A-5. The only difference is that at the southern end, there are no ramps at SR 509. North of SR 509 the industrial road would need to bend to the southeast, before turning back to the west to intersect with the East D Street primary road. This is required to allow a proper intersection with the primary East D Street, allowing trucks to access the industrial road. This “jughandle” would require significant right-of-way, impacting adjacent businesses and railroad spurs. See **Figure 4-12**.

Concept B – Use of Existing Streets

This concept is the same as concept B in Scenario 1, as shown in **Figure 4-13**. It does not extend either East D or F Streets, and therefore requires shoreline and industrial traffic to share the same corridors.

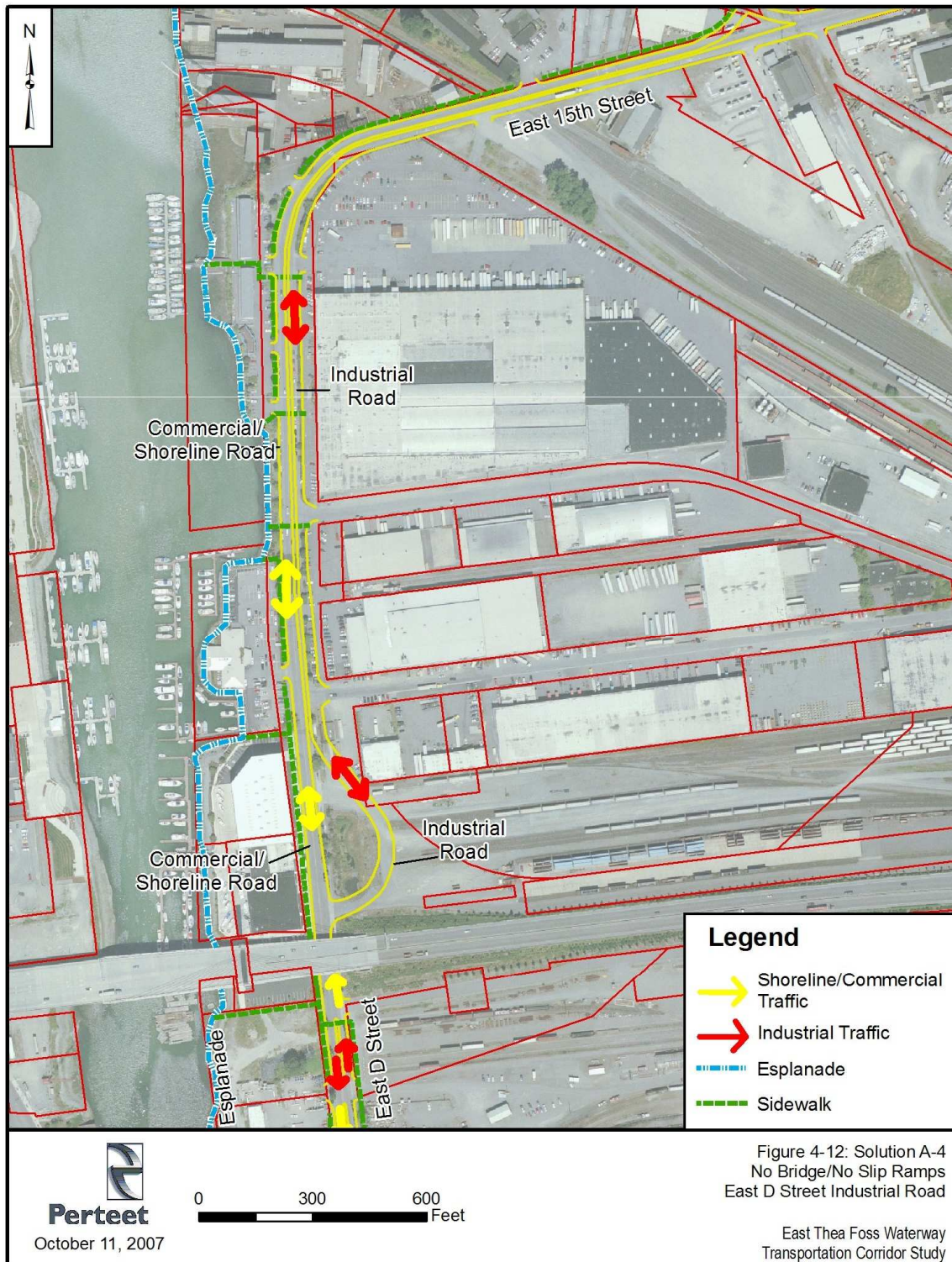
Design Solutions under Concept B are developed by area:

North of East 15th Street

- *Solution B-1: East 11th Street/St. Paul Avenue Realignment* – This intersection would be realigned to provide for easier (less confusing) circulation as shown in **Figure 4-14**. In addition, East 11th Street west of the intersection would directly tie into East D Street. Additional right of way may be required at the 11th Street/St. Paul intersection realignment. The primary constraint is that it requires a mixing of industrial and shoreline related traffic. Another constraint is that it does not provide close access to the shoreline south of East 11th Street.

South of East 15th Street

- *Solution B-2: East D Street Boulevard* – Same as in Scenario 2, Concept A, Solution A-3 (described above); See **Figure 4-11**.
- *Solution B-3: East D Street Industrial Road* – Same as in Scenario 2, Concept A, Solution A-4 (described above); See **Figure 4-12**.

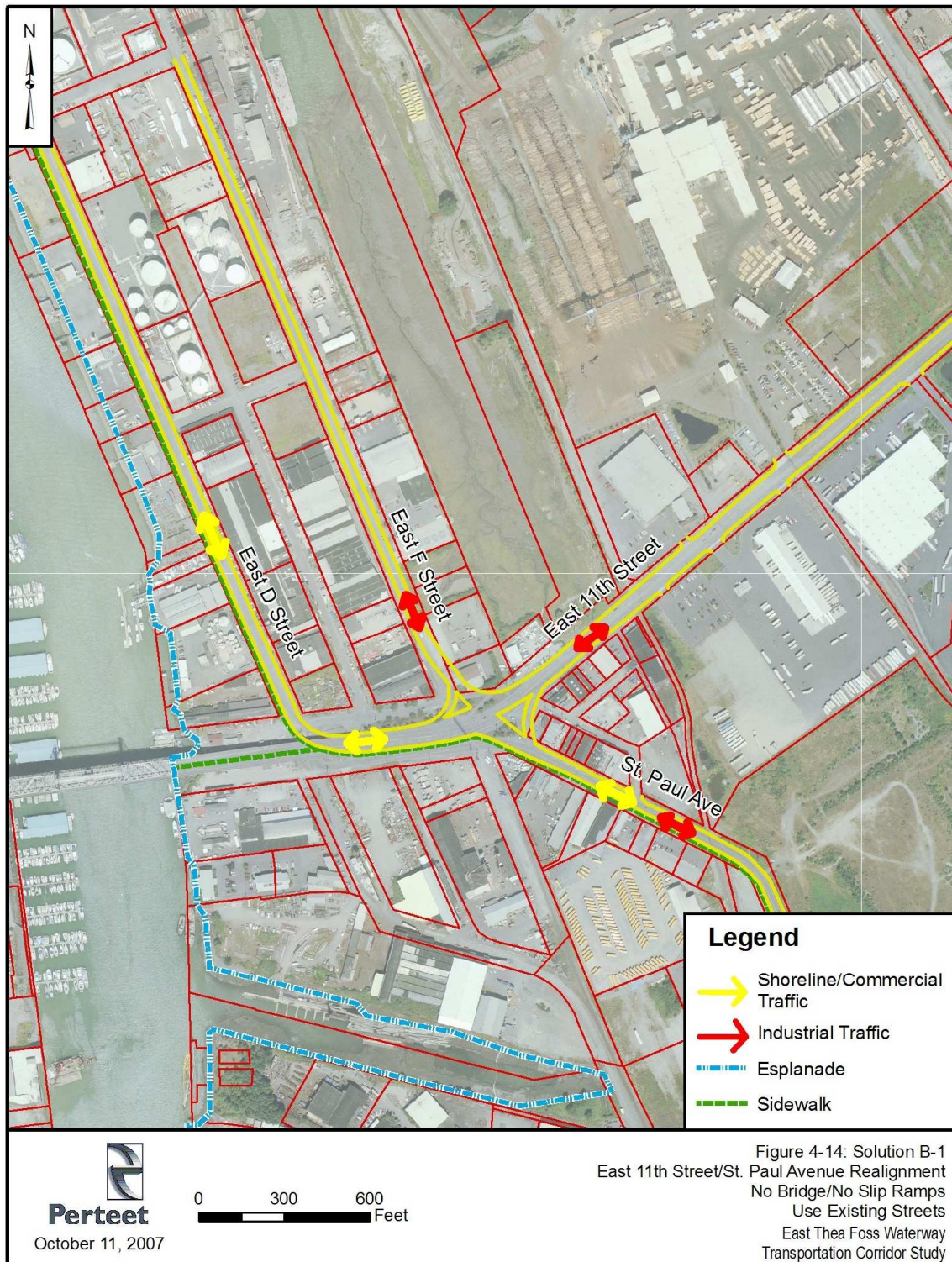


**East Thea Foss Peninsula Vehicle
No Bridge or Slip Ramps
Concept B**

Industrial-related traffic
Commercial- / Shoreline-related traffic

City of Tacoma
E.Thea Foss Waterway
Transportation Corridor Study

0' 600' 1,200' 2,400' 3,600'



PUBLIC WORKSHOP SUMMARY

The City invited the public and key stakeholders to attend a design concepts workshop at the Freighthouse Square on Thursday, September 27, 2007 from 4pm to 6pm. Invitations to the meeting were distributed via email to people who owned businesses, worked, or resided in the Thea Foss Peninsula. Participants included 17 members of the public, five steering committee members and seven consultant team members. After an open house format and description of the design concepts, participants broke into separate discussion groups based on their interest in the North Area or South Area of the Peninsula.

The City asked the attendees to review several draft designs and comment on how well those design concepts worked, what could be improved, and to offer additional design ideas and concepts. At a followup Steering Committee meeting, a number of business representatives met with the committee and project team to express concerns related to design solutions along East D Street north of East 11th Street. This section summarizes that feedback from the workshop and followup meeting with business representatives. A more detailed summary of the workshop can be found in **Appendix B**.

Key Themes

- There were widely varied views regarding the necessity of separating industrial traffic from non-industrial traffic.
- Most participants enthusiastically supported slip ramps.
- Most participants supported maintaining the Murray Morgan Bridge (as it operated at the time of the workshop).
- Participant comments generally reflect a desire for fixing the St. Paul Avenue and East 11th Street interchange which is part of every design concept presented at the workshop.
- There is consensus that something should be done with East D Street, but participants offered no clear perspectives as to whether extension, widening or two parallel roads is preferable.
- Business representatives from the north part of the peninsula strongly opposed any option that would restrict industrial traffic along East D Street north of East 11th Street. It was noted that these businesses will require access from East D Street for the foreseeable future.

Participant Comments related to Specific Needs

Separation of Traffic

There was general support related to the issue of separating industrial and non-industrial traffic, especially because of the truck queuing that occurs along East D Street. Some of the key issues that were raised include:

- Separating traffic would reduce delays due to truck staging / queuing along East D and East 15th Streets.
- It is important to have a functional separation between cars and trucks. Cars and trucks are not compatible.
- Mixed traffic requires wide lanes, which encourages speeding. Separation of traffic would allow for reduced lane widths.
- The use of trucks along East D Street is a deterrent to commercial businesses, and impacts the ability to lease space.
- Medians are a good way to help separate traffic.
- Consider using the parking area in front of SuperValu for truck staging.
- Trucks should be prohibited from going south of SR 509 (along East D Street).
- To the north of East 11th Street should be industrial traffic only. South of East 11th Street, East D Street should be separated for industrial and non-industrial traffic.
- Industrial traffic should be totally separated from East D Street, and focused on Portland Avenue, St. Paul Avenue and East F Street.
- Consider a way for industrial traffic to access Supervalu on another road other than East D Street.
- Consider northbound only industrial traffic on East D Street, and design of roads to allow right turns only for trucks.
- The aesthetics of the road is a big part of meeting the goal of transition from shared to individual traffic.

There was some opposition to the separation of traffic. Some of the key issues that were raised include:

- East D Street north of East 11th Street must be allowed for industrial uses / businesses that rely on trucks to access those facilities.
- Minimize any right-of-way acquisition for improvements to East D Street north of East 11th Street, as it would impact businesses.
- Land uses should be the key determinant in separating industrial and non-industrial traffic.

- There is limited right-of-way along East D Street for a parallel industrial road.
- A separate parallel industrial road doesn't accomplish enough for what the cost would be.
- A parallel industrial road would create operational issues, especially if the road becomes blocked.
- Separating industrial traffic on East D Street would require trucks to get on SR 509. Many trucks need to access I-5 (via Puyallup Avenue and C Street).

Traffic Circulation / Truck Queuing

- Trucks travel too fast, especially in the morning. There are some conflicts between trucks and other uses such as the Youth Marine Foundation.
- Signage should be used / improved to help direct traffic to both industrial and non-industrial uses. Trucks headed to Supervalu often get lost on East 15th Street.
- Trucks should be discouraged from traveling south of SR 509.
- South of Supervalu there is no need for trucks to use East D Street until the SR 509 ramps are built.
- Trucks currently stage along East 15th Street and East D Street to get into SuperValu.
- The intersection at St. Paul and East 11th Street needs improvement.
- The heaviest truck volume occurs on East D Street north of 11th Street.
- Portland Avenue at SR 509 intersection needs improvement due to congestion.

SR 509 Slip Ramps

- Slip ramps at SR 509 are generally supported to alleviate congestion in the Dome District.
- Slip ramps are increasingly important for access south of East 15th Street on the west side.
- Slip ramps are needed for Tacoma Dome events, and for truck access to/from SR 509.
- Consider a Single Point Urban Interchange (SPUI) for SR 509 ramps.
- Consider a westbound off-ramp from SR 509 to north on Portland Avenue.

Murray Morgan Bridge

- It is important to keep the Murray Morgan Bridge open as it is a key link to the peninsula.
- The bridge needs significant repairs.
- Consider keeping the bridge open only for pedestrians and cars, but no trucks.

Separation of Land Uses

- A visual buffer between industrial and non-industrial land uses should not come at the expense of parking.

- There is a concern that additional office space on the west side of East D Street will attract more residential use.

Nonmotorized Facilities

- There has been significantly increased pedestrian traffic activity in the last few years.
- Wide sidewalks are needed along the west side of East D Street.
- Pedestrian facilities are needed along East D Street from the Murray Morgan Bridge to access the Marine Youth Foundation.
- Pedestrian access should be maintained along the Murray Morgan Bridge to provide a connection to downtown Tacoma.
- Sidewalks along the west side of East D Street (north of East 11th Street) should not be at the expense of on street parking. In addition, the sidewalk may not be compatible with the rail line that runs along the west side of East D Street.
- The planned esplanade should be along East D Street just north of SR 509, not on the waterfront, due to a danger zone.
- Bike lanes would be desirable, but should not be created at the expense of on street parking.

Vehicle Parking

- On street parking is necessary for cars along the west side of East D Street north of 11th Street. The Youth Marine Foundation needs more on-street parking for its clients.
- On street parking is important along East D Street near the Marina.

EVALUATION OF DESIGN SOLUTIONS

Each of the design solutions was evaluated from a qualitative perspective, based on feedback from the public workshop, and based on a number of evaluation criteria. The evaluation criteria include:

Separation of Traffic

- Ability to separate industrial and non-industrial traffic

Separation of Land Use

- Ability to provide a buffer between land uses

Corridor Operations

- Ability to improve travel time along the corridor

Emergency Response

- Minimal impact to emergency response times within peninsula
- Minimal impact to emergency response times from outside peninsula

Impacts to safety

- Minimal conflict points

Nonmotorized Environment

- Continuity of pedestrian connections (Ability of pedestrians to walk along and/or across a street).
- Potential for vehicle-to-pedestrian accidents
- Directness of bicycle routes
- Potential for vehicle-to-bicycle accidents

Operational / Geometric Impacts

- Ability to accommodate large trucks (Adequate turning radius)
- Adequate distance for turning movements
- Minimal impacts to traffic operations

Business Impacts

- Ability of trucks to access local businesses
- Minimal impact to the economic viability of adjacent/nearby business, such as property acquisition or aesthetic impacts

Right of Way Needs

- Minimal right-of-way requirements
- Minimal impacts to railroads or railyards, or ability to retain existing service/operations

Table 4-1 describes in more detail the impacts associated with each design solution related to the criteria. **Table 4-2** scores the projects on a scale of 1 to 4 (4 being responds best to the criteria). As seen in **Table 4-2**, under both scenarios, the design solutions that score the highest include the East D Street extension, and the East D Street/East 15th Street boulevard concept.

Scenario 1: Operational Murray Morgan Bridge / SR 509 Slip Ramps

Concept A – East D Street Extension

Solution A-1: East D or F Street Extension

Benefits

- Provides total separation of industrial and non-industrial traffic (other than traffic to/from Murray Morgan bridge destined to East D Street).
- Provides better access to Shoreline District and non-industrial uses.

THIS PAGE LEFT BLANK INTENTIONALLY

Table 4-1 - Preliminary Assessment of Design Solutions for Discussion

	Geographic Areas	Ability to Separate Traffic Uses	Ability Provide Buffer between Land Uses	Improves corridor operations (Travel time)	Emergency Response Times	Improves safety	Non-Motorized environment	Operational / Geometric concerns	Impacts to Businesses	ROW Acquisition
SCENARIO 1 - OPERATIONAL MURRAY MORGAN BRIDGE / SR 509 SLIP RAMPS										
Concept A - East D or F Street Extension										
East D Street Extension	North	Provides total separation between shoreline and industrial traffic (for vehicles coming from south); Shoreline traffic to/from bridge results in some mixing of traffic	Landscaping and access management can provide buffer	Improves travel time for shoreline traffic to/from south; travel from bridge is also improved.	Improves response time to D St. south of E. 11th	Separation between traffic uses improves safety	Sidewalk on East D St. provides good access for pedestrians to commercial/shoreline; Bicycles use Esplanade	Intersection realignment of E. 11th / St. Paul needs further evaluation; Distance between E 11th and new E-W road needs further evaluation	Truck access to some current businesses is impacted; New E-W road north of 11th required which impacts businesses; May impact business at NE Corner of East F St. and East 11th St.	Requires use of BNSF ROW - would need to relocate spur to F St.; ROW needed for new E-W road north of 11th; ROW likely required at NE corner of East F St. and East 11th St.
East F Street Extension	North	Provides total separation between shoreline and industrial traffic (for vehicles coming from south); Shoreline traffic to/from bridge results in some mixing of traffic; Possible mixing of traffic on F St. extension if land use west of F Street remains industrial	Landscaping and access management can provide buffer; F St. extension less able to provide buffer if land use west of F St. remains industrial	Improves travel time for shoreline traffic to/from south; Travel time from bridge is also improved.	Improves response time to D St. south of E. 11th.	Separation between traffic uses and simpler routing improves safety; If land uses west of F St. remain industrial, there could be some mixing of traffic, which impacts safety.	Sidewalk on East F St. provides improved access for pedestrians to commercial/shoreline; May need additional facilities to access shoreline; Bicycles use esplanade	Intersection realignment of E. 11th / St. Paul needs further evaluation; Distance between E 11th and new E-W road needs further evaluation	Minimal impact to businesses on F St.; New E-W road north of 11th required which impacts businesses; May impact business at NE Corner of East F St. and East 11th St.	Requires use of BNSF ROW - would need to relocate spur to D St.; ROW needed for new E-W road north of 11th; ROW likely required at NE corner of East F St. and East 11th St.
East D and East F Street Extensions	North	Provides total separation between shoreline and industrial traffic; Possible mixing of traffic on F St. extension if land use west of F Street remains industrial	Landscaping and access management can provide buffer	Improves travel time for shoreline traffic to/from south; Traffic to/from bridge more direct to D Street	Response time remains unchanged; If an emergency access road is constructed between East F / St. Paul and East D St., access times to East D St. south of E. 11th would be improved.	Separation between traffic uses and simpler routing improves safety; If land uses west of F St. remain industrial, there could be some mixing of traffic, which impacts safety.	Sidewalk on East D St. provide good access for pedestrians to commercial/shoreline; Bicycles use Esplanade	11th Street touchdown/turn to south needs further evaluation	Some minor impacts to businesses west of F Street extension (No building impacts), and adjacent D St. extension	Requires use of BNSF ROW along both D and F Street (New ROW for rail spur would need to be identified), and additional ROW from property west of F Street extension
East D/15th Street Boulevard	South	Does not separate shoreline and industrial traffic; Access mgmt. helps to direct traffic	Boulevard treatment can help to buffer land uses	No change to travel time	Improved access to SR 509; Blvd. treatment allows full access to properties on east side of East D St.	Boulevard treatment/access mgmt improves safety for vehicles and pedestrians.	Sidewalk on E. D St. and designated pedestrian crossings improves pedestrian access; Bicycles use esplanade		Minimal impact to businesses. Slip ramps impact businesses and rail spurs.	ROW required for slip ramps

	Geographic Areas	Ability to Separate Traffic Uses	Ability Provide Buffer between Land Uses	Improves corridor operations (Travel time)	Emergency Response Times	Improves safety	Non-Motorized environment	Operational / Geometric concerns	Impacts to Businesses	ROW Acquisition
East D/15th Street Industrial Road <i>(Only works with East D or East F Street Extensions)</i>	South	Separates shoreline and industrial traffic; however, SB industrial traffic must merge to EB SR 509	Separate road and landscaping helps to buffer land uses	Travel time improved for industrial and shoreline traffic due to separation	Access to industrial property on east side of E. D St. could be complicated due to separation of industrial road.	Separation between traffic uses improves safety; however there are operational concerns at SR 509 slip ramps	Sidewalk on E. D St. and designated pedestrian crossings improves pedestrian access; Parallel road treatment may confuse pedestrians crossing street; Bicycles use esplanade	This design solution does not allow East D Street industrial traffic south of SR 509;SB Industrial road slip ramp to EB SR 509 needs further evaluation	Moderate impact to businesses (parking areas) on east side of Industrial road. Slip ramps impact businesses and rail spurs.	ROW required for slip ramps
Concept B - Use Existing Streets										
East 11th / St. Paul Realignment	North	Does not separate shoreline and industrial traffic; Access mgmt. helps to direct traffic; Does not provide good access to shoreline	Minimal ability to provide buffer between land uses	Minimal improvement to travel time	Response times remain similar to existing conditions.	Intersection improvement at 11th/St. Paul improves safety	Sidewalk or trail along St. Paul improves pedestrian access; Additional facilities through properties may be needed to access shoreline; Bicycles use future planned trail along St. Paul, and esplanade	Intersection realignment of E. 11th / St. Paul needs further evaluation; Distance between E 11th and new E-W road needs further evaluation	Moderate impact to businesses north of 11th St. for new E-W road	Moderate ROW requirements for new E-W road north of 11th Street
East D/15th Street Boulevard	South	Does not separate shoreline and industrial traffic; Access mgmt. helps to direct traffic	Boulevard treatment can help to buffer land uses	No change to travel time	Improved access to SR 509, but vehicles must use St. Paul to access 15th/East D St.	Boulevard treatment/access mgmt improves safety for vehicles and peds.	Sidewalk on E. D St. and designated pedestrian crossings improves pedestrian access; Bicycles use esplanade		Minimal impact to businesses. Slip ramps impact businesses and rail spurs.	ROW required for slip ramps
East D/15th Street Industrial Road <i>(Only works with East D or East F Street Extensions)</i>	South	Separates shoreline and industrial traffic; however, SB industrial traffic must merge to EB SR 509	Separate road and landscaping helps to buffer land uses	Travel time improved for industrial and shoreline traffic due to separation	Vehicles would use current routing; industrial road separation could complicate response times.	Separation between traffic uses improves safety; however there are operational concerns at SR 509 slip ramps	Sidewalk on E. D St. and designated pedestrian crossings improves pedestrian access; Parallel road treatment may confuse pedestrians crossing street; Bicycles use esplanade	This design solution does not allow East D Street industrial traffic south of SR 509;SB Industrial road slip ramp to EB SR 509 needs further evaluation	Moderate impact to businesses (parking areas) on east side of Industrial road. Slip ramps impact businesses and rail spurs.	ROW required for slip ramps

	Geographic Areas	Ability to Separate Traffic Uses	Ability Provide Buffer between Land Uses	Improves corridor operations (Travel time)	Emergency Response Times	Improves safety	Non-Motorized environment	Operational / Geometric concerns	Impacts to Businesses	ROW Acquisition
SCENARIO 2 - NO MURRAY MORGAN BRIDGE / NO SR 509 SLIP RAMPS										
Concept A - East D or F Street Extension										
East D Street Extension	North	Provides total separation between shoreline and industrial traffic	Landscaping and access management can provide buffer	Improves travel time for shoreline traffic	Increases emergency response time to downtown. If an emergency access road is built between East F / St. Paul and East D St., response time to East D St. south of E. 11th would be improved.	Separation between traffic uses and simpler routing improves safety	Sidewalk on East D St. provide good access for pedestrians to commercial/shoreline; Bicycles use esplanade		Truck access to some current businesses is impacted	Requires use of BNSF ROW - would need to relocate spur to F St.
East F Street Extension	North	Provides separation between shoreline and industrial traffic; possible mixing of traffic if land use directly west of F Street remains industrial	Landscaping and access management can provide buffer; F St. extension less able to provide buffer if land use west of F St. remains industrial	Improves travel time for shoreline traffic	Increases emergency response time to downtown. If an emergency access road is built between East F / St. Paul and East D St., response time to East D St. south of E. 11th would be improved.	Separation between traffic uses and simpler routing improves safety; If land uses west of F St. remain industrial, there could be some mixing of traffic, which impacts safety.	Sidewalk on East F St. provides improved access for pedestrians to commercial/shoreline: May need additional facilities to access shoreline; Bicycles use esplanade		Minimal impacts to business	Requires use of BNSF ROW - would need to relocate spur to D St.
East D/15th Street Boulevard	South	Does not separate shoreline and industrial traffic; Access mgmt. helps to direct traffic	Boulevard treatment can help to buffer land uses	No change to travel time west of F Street	Emergency response time remains unchanged	Boulevard treatment/access mgmt improves safety for vehicles and pedestrians.	Sidewalk on E. D/11th improves pedestrian access; Bicycles use esplanade		No impacts to business	Minor ROW requirements
East D/15th Street Industrial Road (Only works with East D or East F Street Extensions)	South	Separates shoreline and industrial traffic	Separate road and landscaping helps to buffer land uses	Travel time improved for industrial and shoreline traffic due to separation	Access to industrial property on east side of E. D St. could be complicated due to separation of industrial road.	Separation between traffic uses improves safety	Sidewalk on E. D/11th St. improves pedestrian access; Parallel road treatment may confuse pedestrians crossing street; Bicycles use esplanade	Industrial road only works with a D/F Street extension; Industrial road "jughandle" needed at south end near SR 509 to tie into Existing road	Some impacts to business parking lots; "Jughandle" impacts business	Significant ROW requirements (where E 11th shoreline road aligns with E. F St. extension, and where "jughandle" would be built

	Geographic Areas	Ability to Separate Traffic Uses	Ability Provide Buffer between Land Uses	Improves corridor operations (Travel time)	Emergency Response Times	Improves safety	Non-Motorized environment	Operational / Geometric concerns	Impacts to Businesses	ROW Acquisition
Concept B - Use Existing Streets										
East D Street / East 11th Street Alignment	North	Only minor separation between shoreline and industrial traffic; Does not provide good access to shoreline	Minimal ability to provide buffer between land uses	Minimal improvement to travel time	Longer response time to downtown, other locations have unchanged response time.	Intersection improvement at 11th/F Street improves safety	Sidewalk or trail along St. Paul improves pedestrian access; Additional facilities through property may be needed to access shoreline; Bicycles use planned trail along St. Paul and esplanade	Intersection realignment of E. 11th / St. Paul needs further evaluation	May impact business at NE Corner of East F St. and East 11th St.	ROW likely required at NE corner of East F St. and East 11th St.
East D/15th Street Boulevard	South	Does not separate shoreline and industrial traffic; Access mgmt. helps to direct traffic	Boulevard treatment can help to buffer land uses	No change to travel time west of F Street	Unchanged response times	Boulevard treatment/access mgmt improves safety for vehicles and pedestrians.	Sidewalk on E. D/11th improves pedestrian access; Bicycles use esplanade		No impacts to business	Minor ROW requirements
East D/15th Street Industrial Road (Only works with East D or East F Street Extensions)	South	Separates shoreline and industrial traffic	Separate road and landscaping helps to buffer land uses	Travel time improved for industrial and shoreline traffic due to separation	Vehicles would use current routing; industrial road separation could complicate response times.	Separation between traffic uses improves safety	Sidewalk on E. D/11th St. improves pedestrian access; Parallel road treatment may confuse pedestrians crossing street; Bicycles use esplanade	Industrial road only works with a D/F Street extension; Industrial road "jughandle" needed at south end near SR 509 to tie into Existing road	Some impacts to business parking lots; "Jughandle" impacts business	Significant ROW requirements (where E 11th shoreline road aligns with E. F St. extension, and where "jughandle" would be built

Table 4-2 - Preliminary Assessment of Design Solutions for Discussion - Preliminary Scoring

	Geographic Areas	Ability to Separate Traffic Uses	Ability Provide Buffer between Land Uses	Improves corridor operations (Travel time)	Emergency Response Times	Improves safety	Non-Motorized environment	Operational / Geometric concerns	Impacts to Businesses	ROW Acquisition	TOTAL
SCENARIO 1 - OPERATIONAL MURRAY MORGAN BRIDGE / SR 509 SLIP RAMPS											
Concept A - East D or F Street Extension											
East D Street Extension	North	3	3	3	4	4	4	2	1	2	26
East F Street Extension	North	2	2	3	4	3	3	2	2	2	23
East D and East F Street Extensions	North	3	3	4	2	3	4	2	2	1	24
East D/15th Street Boulevard	South	2	4	1	4	3	4	4	2	2	26
East D/15th Street Industrial Road <i>(Only works with East D or East F Street Extensions)</i>	South	3	4	3	2	2	2	1	1	2	20
Concept B - Use Existing Streets											
East 11th / St. Paul Realignment	North	1	1	2	2	3	3	2	2	2	18
East D/15th Street Boulevard	South	2	4	1	3	3	4	4	2	2	25
East D/15th Street Industrial Road <i>(Only works with East D or East F Street Extensions)</i>	South	3	4	3	1	2	2	1	1	2	19
SCENARIO 2 - NO MURRAY MORGAN BRIDGE / NO SR 509 SLIP RAMPS											
Concept A - East D or F Street Extension											
East D Street Extension	North	4	3	4	1	4	4	4	2	2	28
East F Street Extension	North	3	2	4	1	3	3	4	3	2	25
East D/15th Street Boulevard	South	2	4	1	2	3	4	4	4	3	27
East D/15th Street Industrial Road <i>(Only works with East D or East F Street Extensions)</i>	South	4	4	3	1	2	2	1	2	1	20

	Geographic Areas	Ability to Separate Traffic Uses	Ability Provide Buffer between Land Uses	Improves corridor operations (Travel time)	Emergency Response Times	Improves safety	Non-Motorized environment	Operational / Geometric concerns	Impacts to Businesses	ROW Acquisition	TOTAL
Concept B - Use Existing Streets											
East D Street / East 11th Street Alignment	North	2	1	2	1	3	3	2	2	3	19
East D/15th Street Boulevard	South	2	4	1	2	3	4	4	4	3	27
East D/15th Street Industrial Road <i>(Only works with East D or East F Street Extensions)</i>	South	4	4	3	1	3	2	1	2	1	21

- Provides improved emergency response / access to East D Street south of East 11th Street (If fire station remains in same proximity as current station).
- Improves traffic safety by separating industrial and non-industrial traffic, and realigning East 11th Street and East F Street.
- Provides good pedestrian access to shoreline.

Constraints

- Requires additional right-of-way for East D Street extension.
- Requires a relocation of existing rail spur along East D Street.
- Requires additional right-of-way for new east-west road (East 10th Street) linking East D and East F Streets (Parcel 8950000960, Gulf Marine, Inc. and Parcel 8950000910, 501 East 11th Street LLC).
- Requires additional right-of-way and impact to fire station #6 to realign East F Street and East 11th Street (Parcel 8950000891, City of Tacoma)
- New East D Street extension likely to impact buildings / business within Parcel 8950001052 (Port of Tacoma).
- Distance between East 11th Street and new east-west road needs further evaluation.

Solution A-2: East D Street Extension using East F Street Right-of-Way

Benefits

- Provides total separation of industrial and non-industrial traffic (other than traffic to/from Murray Morgan bridge destined to East D Street).
- Provides improved emergency response / access to East D Street south of East 11th Street. (If fire station remains in same proximity as current station).
- Improves traffic safety by separating industrial and non-industrial traffic, and realigning East 11th Street and East F Street.
- Unlikely to have any business impacts along East F Street right-of-way (south of East 11th Street).

Constraints

- Extension road is further from shoreline than East D Street right-of-way.
- Vehicular and nonmotorized access to land uses along shoreline would need to mix with industrial uses.
- Requires additional right-of-way for East D Street extension (Parcel 8950000960, Gulf Marine, Inc. and Parcel 8950000910, 501 East 11th Street LLC)..

- Requires a relocation of existing rail spur along East F Street right-of-way.
- Tight turn immediately south of East 11th Street needs further evaluation.
- Requires additional right-of-way for new east-west road (East 10th Street) linking East D and East F Streets (Parcel 8950000960, Gulf Marine, Inc. and Parcel 8950000910, 501 East 11th Street LLC).
- Requires additional right-of-way and impact to fire station #6 to realign East F Street and East 11th Street (Parcel 8950000891, City of Tacoma). Fire station may need to be relocated.
- Distance between East 11th Street and new east-west road needs further evaluation.

Solution A-3: East D Street and East F Street Extensions

Benefits

- Provides total separation of industrial and non-industrial traffic.
- Does not require new east-west road (East 10th Street) between East D and East F Streets.
- Improves traffic safety by separating industrial and non-industrial traffic, and realigning East 11th Street and East F Street.
- Provides good pedestrian access to shoreline.

Constraints

- Requires additional right-of-way for both East D Street and East F Street extension.
- Requires a relocation of existing rail spur along East D and East F Street.
- Requires additional right-of-way and impact to fire station #6 to realign East F Street and East 11th Street (Parcel 8950000891, City of Tacoma). Fire station may need to be relocated.
- If fire station remains in current approximate location, the emergency response time would remain the same. Access to the East D Street extension could be improved if a dedicated emergency response access road were connected between East D Street and East F Street / St. Paul Avenue.
- New East D and East F Street extensions likely to impact buildings / business within Parcel 8950001052 (Port of Tacoma).
- Access to industrial properties to the west of East F Street right-of-way would need to be further evaluated to identify access points.
- Emergency access to St. Paul Avenue is restricted unless a dedicated emergency access road were built between East D Street and St. Paul Avenue (near Murray Morgan bridge).

Solution A-4: East D Street/15th Street Boulevard

Benefits

- Provides separation / buffer between land uses through landscaping / vegetation.
- Does not require an East D Street extension (north of East 15th Street) because boulevard can continue to St. Paul Avenue.
- Does not require as much right-of-way as a separated industrial road (minor right-of-way may be needed from Parcel 8950001652, Supervalu Holdings).
- Uses access management to control traffic operations.
- Has less restrictions for traffic exiting industrial land uses on east side of East D Street.

Constraints

- Does not separate industrial traffic from shoreline traffic (An option would be to have two lanes in each direction, with one lane in each direction as a dedicated truck lane).

Solution A-5: East D Street/15th Street Industrial Road

Benefits

- Provides separation / buffer between land uses through landscaping / vegetation.
- Provides for a total separation between industrial and non-industrial traffic.
- Restricts traffic exiting industrial land uses on east side of East D Street to industrial road only. Traffic would not be allowed to enter non-industrial road due to operation / safety concerns.

Constraints

- Parallel road treatment may introduce safety concerns to pedestrian movements across roads.
- Industrial traffic on industrial road would be restricted from going further south than SR 509. Southbound traffic would be required to enter SR 509 eastbound.
- Emergency access to properties along east side of East D Street (south of East 11th Street) could be complicated due to separation of roadways.
- The industrial road would need to be constructed at the same time as future slip ramps at SR 509. Otherwise, a “jughandle” industrial road configuration would be needed in the interim to allow for a connection to the non-industrial road. An interim road construction project could be viewed as wasteful spending.

- Requires an East D Street extension (north of East 15th Street) for non-industrial road, because parallel roads would not be able to intersect at St. Paul Avenue without significant operational and safety concerns.
- Requires more right-of-way than a boulevard, including Parcel 8950001652, Supervalu Holdings and Parcel 0320041055, Steeler, Inc, Parcel 0320041053, 525 15th Street, LLC, and Parcel 0320041028, Burlington Northern Santa Fe.
- Significant right-of-way would be needed for slip ramps, using Parcel 5215000932 Daishowa America Co. LTD., Parcel 5215000931, Land Recovery, Inc., and Parcels 8950001731/ 8950001730, Burlington Northern Santa Fe.

Concept B – Use of Existing Streets

Solution B-1: East 11th Street / St. Paul Avenue Realignment

Benefits

- Does not require additional right-of-way for new roads, other than new east-west connection (East 10th Street) between East D and East F Streets.

Constraints

- Requires mixing of industrial and non-industrial traffic south of new east-west road.
- Does not provide convenient access (vehicular and nonmotorized) to shoreline district land uses south of East 11th Street.
- Requires additional right-of-way for new east-west road (East 10th Street) linking East D and East F Streets (Parcel 8950000960, Gulf Marine, Inc. and Parcel 8950000910, 501 East 11th Street LLC).
- Requires additional right-of-way and impact to fire station #6 to realign East F Street and East 11th Street (Parcel 8950000891, City of Tacoma). Fire station may need to be relocated.
- Distance between East 11th Street and new East 10th Street needs further evaluation.

Solution B-2: East D Street / 15th Street Boulevard

(Same benefits and constraints as Solution A-4 above)

Solution B-3: East D Street / 15th Street Industrial Road

(Same benefits and constraints as Solution A-5 above)

Scenario 2: No Murray Morgan Bridge / No SR 509 Slip Ramps

Concept A – East D Street Extension

Solution A-1: East D Street Extension

Benefits

- Provides total separation of industrial and non-industrial traffic.
- No east-west street (East 10th Street) is needed between East D and East F Streets.
- Provides better access to Shoreline District and non-industrial uses.
- Improves traffic safety by separating industrial and non-industrial traffic, and realigning East 11th Street and East F Street.
- Provides good pedestrian access to shoreline.

Constraints

- Loss of a direct connection between downtown Tacoma and East Thea Foss (via Murray Morgan bridge) results in further distances and travel time for vehicles and nonmotorized users to northern section of East Thea Foss peninsula.
- Emergency response times would worsen due to the lack of an East 11th Street connection to downtown and hospitals. Emergency response to East D Street south of East 11th Street (from Fire Station #6) could be improved if a dedicated emergency access road were constructed between East D Street and East F Street / St. Paul Avenue.
- Requires additional right-of-way for East D Street extension.
- Requires a relocation of existing rail spur along East D Street.
- Requires additional right-of-way and impact to fire station #6 to realign East F Street and East 11th Street (Parcel 8950000891, City of Tacoma). Fire station may need to be relocated.
- New East D Street extension likely to impact buildings / business within Parcel 8950001052 (Port of Tacoma).

Solution A-2: East D Street Extension using East F Street Right-of-Way

Benefits

- Provides total separation of industrial and non-industrial traffic.
- No east-west street (East 10th Street) is needed between East D and East F Streets.
- Improves traffic safety by separating industrial and non-industrial traffic, and realigning East 11th Street and East F Street.

- Unlikely to have any business impacts along East F Street right-of-way (south of East 11th Street).

Constraints

- Loss of a direct connection between downtown Tacoma and East Thea Foss (via Murray Morgan bridge) results in further distances and travel time for vehicles and nonmotorized users to northern section of East Thea Foss peninsula.
- Emergency response times would worsen, due to the lack of an East 11th Street connection to downtown and hospitals. Emergency response to East D Street south of East 11th Street (from Fire Station #6) could be improved if a dedicated emergency access road were constructed between East D Street and East F Street / St. Paul Avenue.
- Extension road is further from shoreline than East D Street right-of-way.
- Vehicular and nonmotorized access to land uses along shoreline would need to mix with industrial uses.
- Requires additional right-of-way for East D Street extension (Parcel 8950000960, Gulf Marine, Inc. and Parcel 8950000910, 501 East 11th Street LLC)..
- Requires a relocation of existing rail spur along East F Street right-of-way.
- Tight turn immediately south of East 11th Street needs further evaluation.
- Requires additional right-of-way and impact to fire station #6 to realign East F Street and East 11th Street (Parcel 8950000891, City of Tacoma). Fire station may need to be relocated.

Solution A-3: East D Street/15th Street Boulevard

Benefits

- Provides separation / buffer between land uses through landscaping / vegetation.
- Does not require an East D Street extension (north of East 15th Street) because boulevard can continue to St. Paul Avenue.
- Does not require as much right-of-way as a separated industrial road (minor right-of-way may be needed from Parcel 8950001652, Supervalu Holdings).
- Uses access management to control traffic operations.
- Has less restrictions for traffic exiting industrial land uses on east side of East D Street.

Constraints

- Does not separate industrial traffic from non-industrial traffic (An option would be to have two lanes in each direction, with one lane in each direction as a dedicated truck lane).

Solution A-4: East D Street/15th Street Industrial Road

Benefits

- Provides separation / buffer between land uses through landscaping / vegetation.
- Provides for a total separation between industrial and non-industrial traffic.
- Restricts traffic exiting industrial land uses on east side of East D Street to industrial road only. Industrial road would terminate and intersect with non-industrial road north of SR 509.

Constraints

- Parallel road treatment may introduce safety concerns to pedestrian movements across roads.
- Emergency access to properties along east side of East D Street (south of East 11th Street) could be complicated due to separation of roadways.
- Requires an East D Street extension (north of East 15th Street) for non-industrial road, because parallel roads would not be able to intersect at St. Paul Avenue without significant operational and safety concerns.
- Requires more right-of-way than a boulevard, including Parcel 8950001652, Supervalu Holdings and Parcel 0320041055, Steeler, Inc, Parcel 0320041053, 525 15th Street, LLC, and Parcel 0320041028, Burlington Northern Santa Fe.

Concept B – Use of Existing Streets

Solution B-1: East 11th Street / St. Paul Avenue Realignment

Benefits

- Does not require additional right-of-way for new roads (Does not require new east-west road north of East 11th Street).

Constraints

- Requires mixing of industrial and non-industrial traffic south of East 11th Street.
- Emergency access to downtown and hospitals would worsen due to a lack of an East 11th Street connection; otherwise response times remain unchanged.

- Does not provide convenient access (vehicular and nonmotorized) to shoreline district land uses south of East 11th Street.
- Requires additional right-of-way and impact to fire station #6 to realign East F Street and East 11th Street (Parcel 8950000891, City of Tacoma). Fire station may need to be relocated.

Solution B-2: East D Street / 15th Street Boulevard
(Same benefits and constraints as Solution A-3 above)

Solution B-3: East D Street / 15th Street Industrial Road
(Same benefits and constraints as Solution A-4 above)

CHAPTER 5 – RECOMMENDED IMPROVEMENTS

This chapter provides a summary of the recommended improvements for the corridor, along with the conceptual design, and design considerations. After the public workshop, a Steering Committee workshop was held to review the results of the public workshop, alternatives analysis and identify preferred solutions. The following section describes the recommended improvements by geographic area of the peninsula. Some of the specific recommendations, such as roadway or sidewalk width are not necessarily the recommendation of the Steering Committee, but rather a professional recommendation based on Steering Committee guidance.

The committee recommended that improvements for two future options be developed; with an operational Murray Morgan bridge, and without the Murray Morgan bridge. The recommended improvements are shown in **Figure 5-1** and listed in **Table 5-1**. Conceptual design drawings for the recommended improvements are shown in **Appendix C**.

Table 5-1: Recommended Improvements

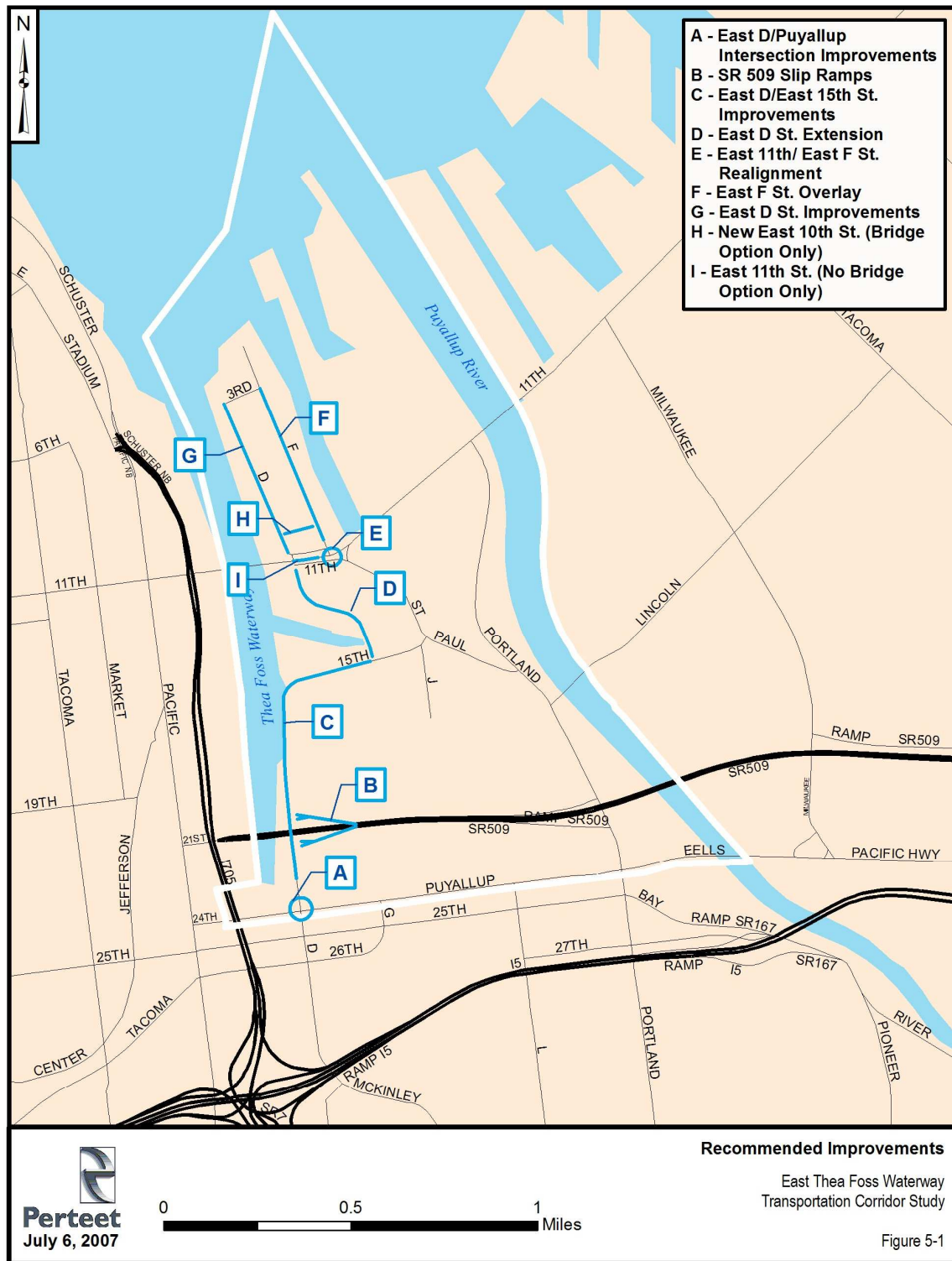
ID #	Location	Recommendation
Both Options		
A	East D/ Puyallup Ave.	Adjust traffic signal phasing (Grade separation improvement complete and open)
B	East D/ SR 509	Construct Half Single Point Urban Interchange at East D St. / SR 509 (Ramps to and from the east) and signal.
C	East D/ East 15th Streets	Improve East 15th St. / East D St. to include 10' sidewalk on west side, SB parking lane, 14' SB lane, 12' landscaped median/turn pocket, 14' NB lane. Access management/driveway consolidation where needed. Also improve pedestrian crossings at designated locations. Relocate transit stops/shelters to crosswalk locations.
D	East D St. Extension (Private Road) ¹	Extension is on private land and would require the relocation of the BNSF rail spur. Extend East D St. south of East 11th St. to link to East 15th St. (10' sidewalk on west side, SB parking lane, 2 - 11' travel lanes, 6' sidewalk on east side).
E	E. 11th / E. F St.	Realign intersection at E. 11th St. and East F St.
F	East F St.	Reconstruct East F Street north of East 11th St.
G	East D St. (North of E. 11th St.)	Widen East D St. north of East 11th St. (SB parking lane and 2 - 14' lanes, 10' sidewalk on west side.
Operational Murray Morgan Bridge		
H	East 10th St.	Add new east-west street (E. 10th St.) between East D and East F Streets to include one 14' lane each direction and 6' sidewalk on south side.
No Murray Morgan Bridge		
I	East 11th St.	Extend East 11th St. west to tie into East D St.; Multi-use trail on north side linking to future shoreline esplanade and sidewalk on south side.

Note 1: The recommendation of this planned Private road does irrevocably commit the property owner to build the road.

North of East 11th Street

East D Street

Over the near term, East D Street should be designed to be shared by shoreline and industrial traffic due to the access needs of adjacent industrial uses (Map Reference G).



Currently, every business on East D Street is dependent upon industrial trucking. East D Street in this area is needed for trucks to access Globe Machinery, Olympic Chemical, Commencement Bay Marine Services, Salmon Express Seafood, Conoco and NuStar (Valero). Trucks that access Olympic Chemical, Commencement Bay Marine Services and Globe Machinery must use East D Street from East 11th Street. However, it is recommended that trucks that are destined to Conoco and NuStar use East F Street, turn west on East 7th Street, and north on East D Street. In the near term, industrial use of East D Street should be northbound only, and traffic leaving industrial sites should traverse southbound on East F Street.

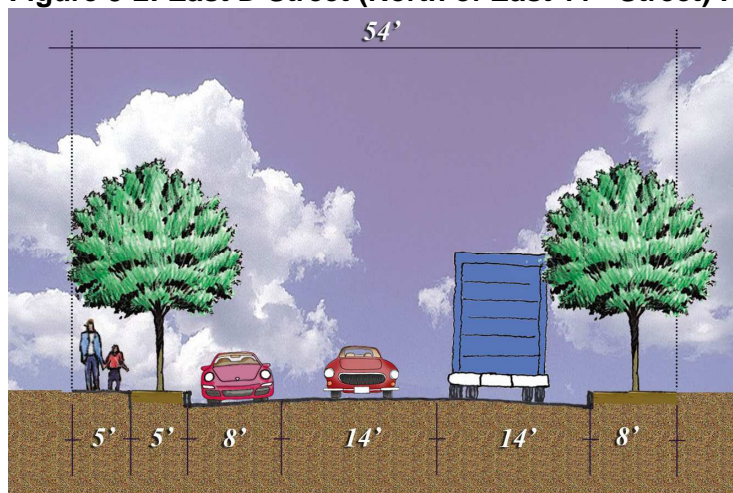
Ultimately, East D Street should be designed as a roadway serving non-industrial / shoreline traffic only. As redevelopment or land use changes occur in the future, the development should be designed so that primary industrial access is from either East E or East F Streets rather than East D Street.

The City of Tacoma does not currently have a truck classification system. It is recommended that the City adopt a truck classification system so that designated truck routes can be enforced. Once a truck classification system is developed, signage should be placed at key locations to direct industrial and non-industrial traffic. Speed limit signs (25 mph) will help to mitigate the issue of speeding identified by local business representatives.

Pedestrians should be directed to the west side of the street away from the industrial uses and truck turning movements. Signage / wayfinding can be used to help direct pedestrians to the sidewalk.

East D Street (Map Reference G) should be designed to include a 14' lane in each direction. The 14' lane would provide adequate width for industrial traffic, and also allow adequate space for bicyclists to share the road with vehicles. A 10' sidewalk (including 4-5' tree grate) should be constructed along the west side of the street, and an 8' southbound on-street parking lane should be included in the design as shown in **Figure 5-2**. On-street parking is needed for commercial uses, but also helps to provide a buffer between pedestrians and moving vehicles. An 8' buffer for landscape treatment is recommended on the east side of the roadway where feasible.

Figure 5-2: East D Street (North of East 11th Street) Proposed Cross-section



East F Street

East F Street should be the primary road for accessing industrial land uses at the northern portion of the peninsula. The current road design and width is suitable for industrial traffic, but should be reconstructed between East 11th Street and its northern terminus with an asphalt overlay (Map Reference F) due to its current poor condition. East F Street should be designed in a manner that meets heavy truck use based on the expected annual tonnage and load rating.

East 11th Street to East 15th Street

Murray Morgan Bridge / East 11th Street

The Steering Committee recommended that two design options be developed, including one with the Murray Morgan Bridge, and another with a closed or removed bridge.

Operational Murray Morgan Bridge

The operational bridge option should be designed similar to Design Solution A-1 in Scenario 1. A new East 10th Street (Map Reference H) would be needed to connect East D and East F Streets. This road would need to be shared by both cars and trucks, and therefore its design should include a 14' lane in each direction and adequate turning radius for trucks. A 6' wide sidewalk along the south side of the new road is needed for pedestrian connectivity. Signage should be placed at key locations to direct industrial and non-industrial traffic.

The intersection at East 11th Street and East F Street (Map Reference E) should be reconfigured to allow for a 4-legged intersection. This intersection is currently very confusing and its current design results in illegal turning movements. A realigned 4-legged intersection would improve operations and safety of the intersection. Because of the relatively low existing or projected traffic volumes, a signal is not necessary. The north and south legs can be controlled by stop signs, and the northbound to eastbound, and southbound to westbound movements can operate as a yield.

An optional design for a connection between East D and East F Streets could include one-way frontage roads on each side of the Murray Morgan bridge (westbound on north side of bridge, eastbound on south side of bridge) between East D and East F Streets. This would allow for traffic going westbound on East 11th Street to continue through the intersection at East F Street toward East D Street, rather than diverting north on East F Street to a new east-west (East 10th Street) road. Likewise, traffic coming from East D Street headed east would travel to the eastbound frontage road (south of the bridge), and continue toward the intersection at East F Street where they could either continue east on East 11th Street, or turn south onto St. Paul Avenue. This option would negate the need for a new east-west NE 10th Street as described above. The frontage road option would require that a signal be installed at the intersection of East 11th / East F Streets. A potential issue with this option are site distance and geometric issues where the frontage roads intersect with East D Street.

In addition, a shared use path (approximately 10-12' wide) should be constructed along the either the north or south side of East 11th Street / Murray Morgan bridge. This path would provide for a nonmotorized connection between the future shoreline esplanade, East D Street, and further east toward St. Paul Avenue. The City has identified a future shared use path along St. Paul Avenue,

and bike lanes along East 11th Street (East of St. Paul Avenue) in its Transportation Element of the Comprehensive Plan. A shared use path connecting to these other proposed improvements would maximize nonmotorized connections between industrial areas and the shoreline and commercial land uses. The shared use path could also potentially be combined with other features (such as a plaza or trailhead) to act as a gateway feature toward the shoreline.

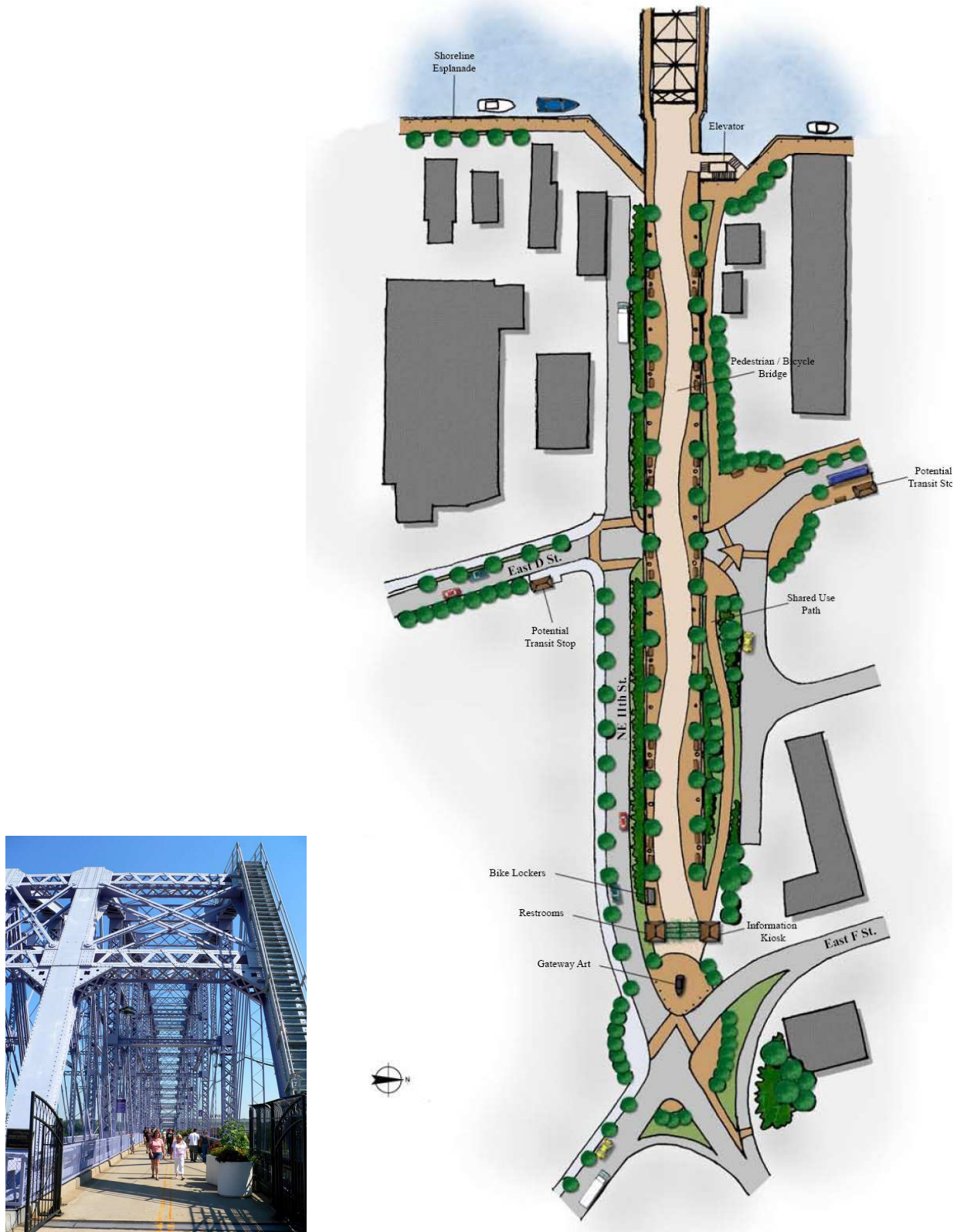
Closed or Removed Murray Morgan Bridge

Similar to the “Operational Murray Morgan Bridge” option, the intersection of East 11th Street and East F Street should be realigned (Map Reference E). The closed/removed bridge option should extend East 11th Street west (Map Reference I) to link with East D Street (where the current bridge approach is located). The Steering Committee recommended that the East 11th Street extension be aligned south of the current alignment of the Murray Morgan Bridge, because it is unknown when the bridge will be removed. This alignment would also allow the opportunity to use the bridge for nonmotorized and emergency access use. The East 11th Street roadway extension (west of East F Street) would only need one 14’ lane in each direction (due to the relatively low traffic volume) and potential left turn pockets at the intersections of East D Street and East F Street. Under this option, the east-west road (East 10th Street) proposed under the “Operational Murray Morgan Bridge” option would not be needed. A shared use path is also recommended on the north side of the Murray Morgan bridge to provide a connection between the shoreline esplanade and future shared use path along St. Paul Avenue. West of East D Street, the path could be constructed within the right of way that is currently used for the Murray Morgan bridge, or beneath the bridge (if the bridge remains for nonmotorized use). The redesign of roadways in this vicinity provide an opportunity to create an attractive gateway and connection to the shoreline and esplanade. **Figure 5-3** shows a design concept for a future trail connection to the shoreline, combined with a redesign of the Murray Morgan bridge for nonmotorized use.

The east side of the Foss Waterway is expected to continue operating as a working waterfront over the foreseeable future. Such activities include shipbuilding, such as the Martinac vessel building facility. Therefore, it is recommended that under both options, an opportunity for a future access road between East D Street and the shoreline be maintained. Under the No Bridge option, the newly aligned East 11th Street could continue west of East D Street to serve the maritime businesses that are located or may locate in the central Foss Peninsula.

Under both options, it is recommended that truck staging areas be developed within private property. Trucks currently queue on East D Street before accessing their final destination. Although the City’s Municipal Code prohibits streets from being blocked by vehicles for more than 6 minutes without an infraction, queuing continues to be a problem. Private off-street staging areas would help to solve current queuing problems along East D Street.

Figure 5-3: Potential Nonmotorized connection to Shoreline and Nonmotorized Bridge



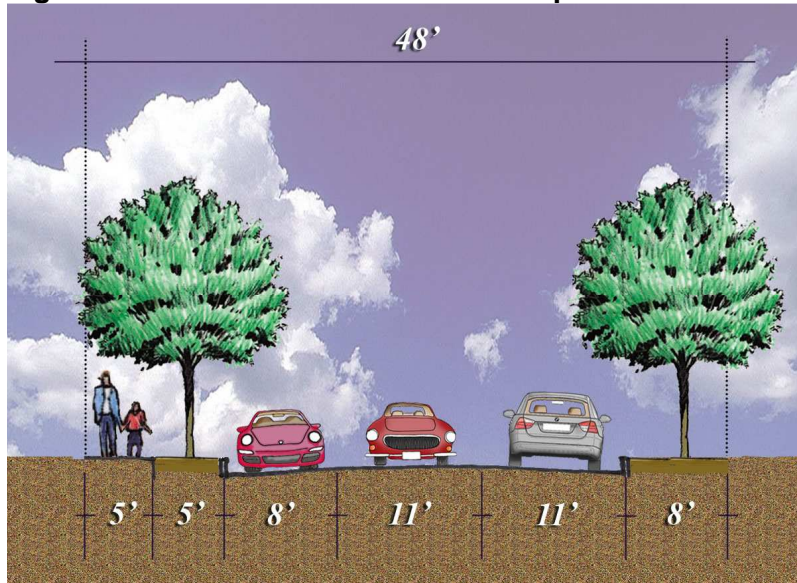
Example of a Pedestrian Bridge in Cincinnati, Ohio

East D Street Extension

East D Street should be extended south of East 11th Street to provide a connection to East 15th Street, using the East D Street right-of-way south of East 11th Street (Map Reference D). This roadway should be used by non-industrial traffic. The East D Street right-of-way is favored over the East F Street right-of-way, because it is closer to the shoreline, and allows for better access to the shoreline district and related commercial uses. Conversely, using the East F Street right-of-way would require access through industrial zoned uses to access the shoreline related uses. The road should be designed as a two lane road, with an 11' lane in each direction. In addition, a 10' sidewalk along the west side is required, along with an 8' southbound parking lane as shown in **Figure 5-4**. An 8' buffer with landscape treatment is also recommended along the east side of the road where feasible. Conversely, a 6' sidewalk on the east side of the street may also be warranted to serve future uses along the east side of the street.

The existing rail spur that follows the right-of-way should be relocated. The rail spur is currently used approximately three times per evening to deliver fuel to Valero. From Valero, the fuel is trucked to Conoco. The rail spur that is along East F Street could potentially be used for rail shipments. An agreement with BNSF would need to be made related to any relocation of the spur. The East D Street rail spur is also used by Olympic Chemical, which brings in two rail cars for three or four times per week; The East F Street rail spur is not an option for Olympic Chemical. However, the use of the East D Street right-of-way provides greater long term benefits for accessing the shoreline and related shoreline uses.

Figure 5-4: East D Street Extension Proposed Cross-section



South of East 15th Street

East D Street / East 15th Street

East D Street/East 15th Street (Map Reference C) should be designed as a shared use boulevard (rather than having a separate parallel industrial road) as shown in **Figures 5-5** and **5-6**. The relatively low traffic volumes, operational concerns and impacts to adjacent land uses associated with a parallel industrial road did not warrant a separate industrial road. East D Street / East 15th Street should be designed to allow for both cars and trucks through a wide (14') lane in each direction that can also accommodate bicycles. A landscaped median (approximately 12' wide) would be used to improve aesthetics and provide for a buffer between non-compatible land uses. A median of this width could allow for a mounded landscape area, which could provide an additional visual buffer between land uses. Left turn pockets would be located at key intersections or driveways. Pedestrian activity would be concentrated along the west side of the road, with a 10' sidewalk (including 4-5' tree grates), and crosswalks at key locations (such as at East 17th and East 19th Street) to allow pedestrian connections to transit stops and between the shoreline and industrial uses to the east. Shared-use paths or sidewalks would also connect from the East D Street sidewalk to the proposed shoreline esplanade.

On-street parking in the southbound direction would be maintained along East D Street for businesses, and to provide an additional buffer between pedestrians and traffic. This parking need is especially evident during the summer months for marine related activity. Landscape treatment (such as trees, shrubs and possibly a wall where feasible) is recommended along the east side of East D Street to act as an additional buffer. Access management techniques would include the relocation or consolidation of driveways where feasible, and restricted turning movements to key locations along East D Street.

The primary industrial use along East D Street in this area is SuperValu. It is recommended that trucks primarily access SuperValu from Portland Avenue, via St. Paul Avenue and East 15th Street to minimize traffic and noise impacts south of SuperValu. Trucks would enter the property at a new driveway entrance just west of the BNSF logyards. The SuperValu parking lot would need to be redesigned to allow for on-site truck circulation and staging. While trucks would be encouraged to use a north entrance to SuperValu, they would still be allowed to use East D Street south of SuperValu to access future slip ramps at SR 509 if needed. Signage should be placed at key locations to direct industrial and non-industrial traffic.

Figure 5-5: East D Street / East 15th Street Proposed Cross-section

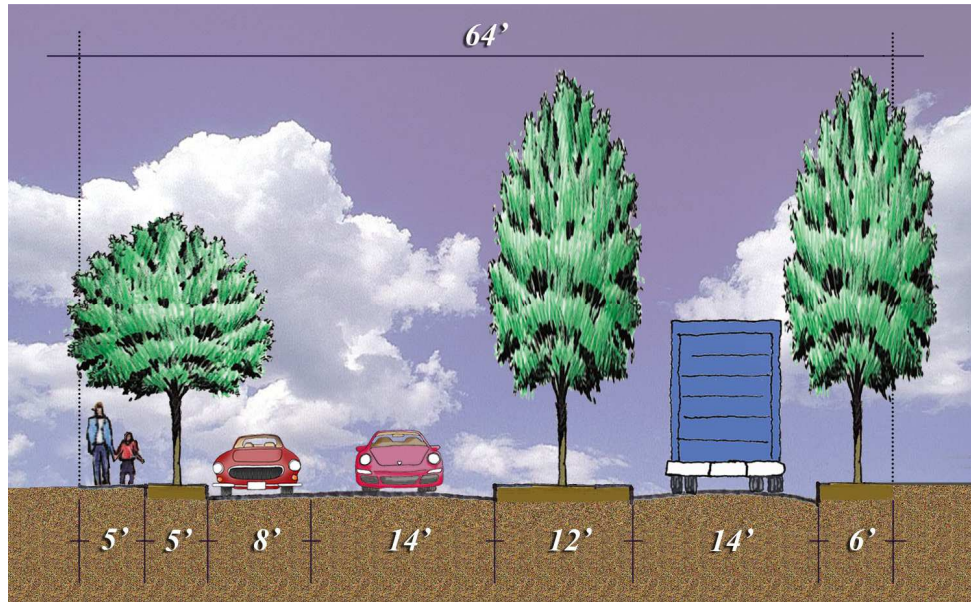
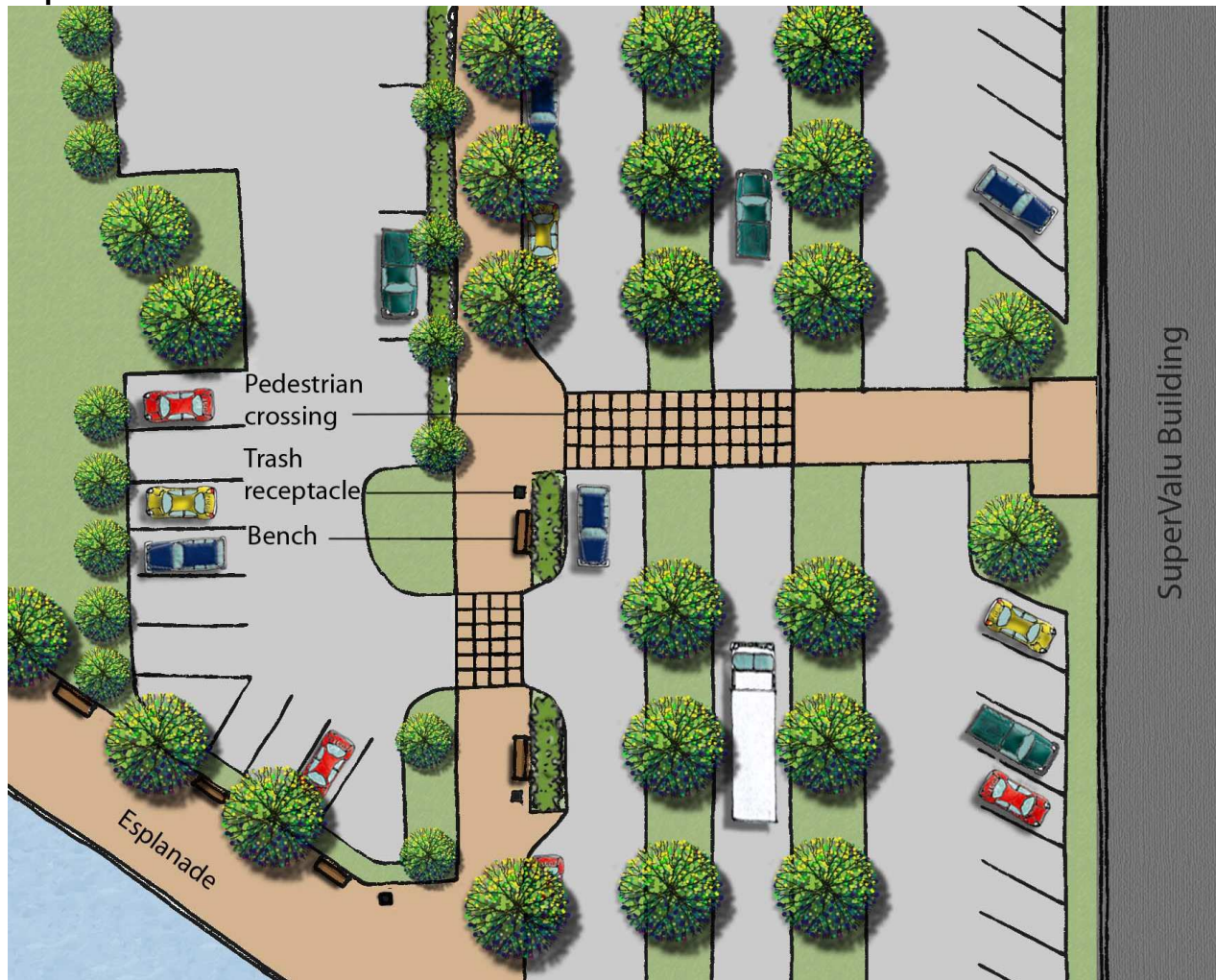


Figure 5-6: Recommended East D Street Site Plan near SuperValu



SR 509 Slip Ramps

Slip ramps to and from the east are recommended at SR 509 (Map Reference B). The ramps should terminate at East D Street as close to the freeway as possible to avoid impacts to the BNSF Tacoma Yards and UP Tacoma Yards. It is recommended that the ramps be designed as a half Single Point Urban Interchange (SPUI) to minimize impacts to the adjacent yards. A traffic signal would also be needed at this location. The slip ramps are needed to provide improved access to both the Dome area, and businesses along East D Street within the peninsula, such as SuperValu. Freight traffic to and from SuperValu however, should be encouraged to use East 15th Street/ St. Paul Avenue / Portland Avenue when possible, to reduce conflicts between trucks and shoreline related traffic along East D Street.

East D Street / Puyallup Avenue

It is recommended to change the split phasing on the northbound and southbound approaches of East D Street to a permissive left turn operation (Map Reference A). It is recommended that the

eastbound and westbound approaches be converted from permissive left turn operation to protected/permissive phasing.

Design Considerations

The following section provides an overview of specific design features that should be considered for the development of the corridor. Design features are provided for pedestrian facilities, street furniture, bicycle facilities, signage, transit, landscaping and driveways.

Pedestrian Facilities

Pedestrian facilities need to be accessible, convenient, and safe if they are to draw users.

Accessibility

- Pedestrian facilities, at a minimum, should be wide enough to allow the disabled, such as wheelchair users, to access them, usually a minimum of 6'. A 10' sidewalk is recommended along the west side of East D Street, which is likely to attract more pedestrians, and to provide space for landscape treatment. Additional sidewalk width is encouraged in the vicinity of transit zones.
- Direct pedestrian linkages should be considered where feasible, to connect between internal land uses and arterials such as East D Street. This reduces walking distances to transit stops, commercial uses and the shoreline. Designated pedestrian crossings should also be encouraged at key locations to improve accessibility.
- ADA (Americans with Disabilities Act) compliant curb ramps should be provided at each corner of an intersection where there is a sidewalk or pedestrian access. It is desirable to include directional ramps to designated crossings.

Convenience

- Pedestrian facilities should provide the most direct and convenient route possible, rather than circuitous and indirect paths.
- Require pedestrian access and orientation at street level for commercial, office or mixed use buildings to encourage transit use and multi-purpose trips.
- Provide benches along pedestrian facilities where possible to allow pedestrians to rest.
- Provide trash receptacles along sidewalks or paths, especially in areas of high pedestrian activity, such as in commercial areas, or at transit stops.

Safety and Comfort

- Along East D Street, a wide 10' sidewalk is recommended along the west side of the road only, to discourage pedestrians from walking along the east side, where trucks are turning into and out of industrial sites. Pedestrian crossing locations across East D Street are

needed at key locations, such as near East 17th Street, East 19th Street to direct pedestrians to the sidewalk and shoreline esplanade.

- Encourage private land uses, such as major employment centers, to provide clearly delineated paths between building entrances and the sidewalk, and through large parking lots, to safely accommodate pedestrian activity away from cars.
- Sidewalks can be widened at commercial zones and include attractive public open spaces to enhance the business area, while providing space for seating and social contact.
- Improve safety and comfort by providing trees and other landscaping such as shrubs along the sidewalk or path, and landscape strips, to buffer moving vehicular traffic from pedestrians.
- Pedestrian curb bulbs or roadway neck-downs should be provided at locations with frequent pedestrian crossings. They allow for more pedestrian standing space at intersections, and allow motorists to better see pedestrians waiting to cross the street. They also help to clearly delineate on-street parking spaces. Bulb outs should be located wherever midblock crossings are located.
- Pedestrian refuge islands should be provided whenever possible, such as at midblock crossings or at crosswalks without a signal. The median along East D Street provides an opportunity for refuge where midblock crossings are located.
- Provide adequate illumination along pedestrian facilities. Lighting should be prioritized at pedestrian crossing locations, in transit zones, and where there are concerns about personal security.
- Crosswalks at busy intersections can be designed using special pavement to clearly delineate the crossing and improve aesthetics.
- Decorative elements, such as public art and special paving, may be appropriate if adequate right-of-way width exists and long term maintenance issues are addressed.
- Bollards should be used where shared-use paths intersect with sidewalks, arterials or meet crosswalks. Bollards help to slow bicyclists and alert them of other movements.

Figure 5-7: Example of a Curb Bulb with Seating



Source: Context Sensitive Solutions.org

Figure 5-8: Example of a Midblock Crossing and Pedestrian Refuge



Source: Context Sensitive Solutions.org

Street Furniture

Street furniture can be an important element in creating a comfortable, safe and attract corridor, while also helping to provide a visual buffer from other uses. Examples of street furniture include benches, bike racks, kiosks, litter and recycling receptacles, news racks, water fountains, planters, public art and pedestrian scaled lighting. The recommended sidewalk width along the west side of East D Street is 10' which includes a 4-5' area adjacent the curb for landscape treatments, and a 5 – 6' pedestrian zone. Street furniture should be located within the landscape zone, between street trees. Street furniture should be setback a minimum of 3' from the face of the street curb. In addition, locations with curb bulbs can be used to provide extra space for street furniture. Seating should be designed to encourage appropriate use and be located to maximize user comfort and utility. Integration with art installations should be considered, and it should generally face the pedestrian zone. **Figure 5-9** provides an example of street furniture placement.

Figure 5-9: Example of landscaping and Street Furniture



Bicycle Facilities

The East D Street corridor improvements should include bicycle amenities to both encourage bicycling as a commute mode, and respond to bicyclists needs. The East D Street grade separation project is being constructed to include 5' bike lanes along both sides of the roadway between Puyallup Avenue, and just to the south of SR 509. North of where this project ends, it is recommended that bicyclists be directed to the Shoreline esplanade through a crosswalk and shared-use path. The esplanade, when complete, will be the primary north-south bicycle facility along the western side of the Thea Foss peninsula. In the meantime, it is necessary to provide some facility for bicyclists, as the full development of the esplanade is likely years away. East D Street (north of the grade separation project) is recommended to include a 14' wide in both directions to also accommodate bicyclists. This wide lane is especially needed in the southbound direction to provide adequate buffer space from on-street parking.

Nonmotorized connections (Shared use paths) between the shoreline esplanade and East D Street should be located where feasible to accommodate pedestrians and bicycles. These facilities should be designed as a Class I type facility, and be a minimum of 8' wide, but preferably between 10 feet and 12 feet wide. They can be striped to separate walkers from those using wheels. Bollards should be placed where the path meets the sidewalk to slow bicyclists at these locations as shown in **Figure 5-10**.

Bicycle racks should be located within the landscape zone (between street trees) at appropriate distances. They should especially be considered for areas with retail uses or major employment locations. Bicycle racks should have a minimum height of 2.5 feet so it is not a tripping hazard. They should have adequate clearance from driveways, curb ramps and transit loading areas.

Figure 5-10: Shared Use path and bollard at crosswalk



Source: Context Sensitive Solutions.org

Signage / Wayfinding

Signage or wayfinding can be helpful to direct pedestrians, motorists and trucks to where they need to go, and to help provide separation between these modes.

Truck Signage

Signage is encouraged at key locations to direct trucks to future designated truck routes or destinations such as major employment or industrial facilities, rail yards, and the regional freeway network. To develop truck signage, the City of Tacoma must first adopt a truck classification system so that designated truck routes can be developed. It is recommended that within the study area, truck routes be located along Portland Avenue, East D Street / East 15th Street (south of Wheeler Osgood Waterway), St. Paul Avenue, East 11th Street (west of East F Street) and East F Street. Potential locations for truck signage include the following locations:

- SR 509 (Eastbound) at Slip Ramp to Portland Avenue
- Interstate 5 (Westbound) at Ramp to Portland Avenue
- Portland Avenue at St. Paul Avenue (directing to East F Street)
- St. Paul Avenue at East 11th / East F Streets, northbound (directing to East F Street)
- East 11th Street at East F Street, westbound (directing to East F Street and East D Street)
- East F Street at East 7th Street (directing to East D Street)

Vehicular Signage

Vehicular signage would be used to direct non-industrial vehicles toward commercial areas. Potential locations for vehicular signage include the following locations:

- SR 509 (Westbound) at Future Ramp to East D Street (directing to East D Street / shoreline area)

Figure 5-11: Example of Truck Route Signage



Source: New York City Truck Route Management and Community Impact Reduction Study, March 2007.

- East D Street at Puyallup Avenue, west, south and east legs (directing to East D Street / shoreline area)
- East 15th Street at Proposed East D Street Extension, eastbound (directing to East D Street Extension)
- East D Street Extension at East 15th Street, southbound (directing to East D Street toward Puyallup Avenue)
- East F Street at new east-west road (East 10th Street), northbound (directing to East D Street)
- East D Street at New East-west Street (East 10th Street), southbound (directing to East F / East 11th Street and Murray Morgan Bridge to downtown)
- East F Street and East 11th Street, southbound (directing to Murray Morgan Bridge to downtown)

Nonmotorized Signage

Nonmotorized signage or wayfinding should be located at key locations to direct pedestrians or bicyclists from industrial land uses toward the commercial area along East D / East 15th Streets, and toward the shoreline esplanade. Along East D Street, a sidewalk is recommended along the west side of the road only, to discourage pedestrians from walking where trucks are turning into and out of industrial sites. Pedestrian wayfinding should be located at key locations within the industrial area that directs pedestrians toward pedestrian crossings to the sidewalk and shoreline esplanade. Wayfinding can also be placed along the west side of East D Street (within the sidewalk area) that directs pedestrians and bicyclists to the shoreline esplanade.

As the esplanade is constructed, wayfinding should also be located along it to direct pedestrians to key activity centers such as plazas, viewpoints, or connections to East D Street.

All wayfinding / signage should be consistent with the Thea Foss Waterway sign standards for visual orientation of the user and to enhance design continuity of the area.

Potential locations for nonmotorized wayfinding include the following locations:

- East F Street at East 3rd Street (directing to East D Street)
- East F Street at East 7th Street (directing to East D Street)
- East 11th Street at St. Paul Avenue (directing to East D Street, Murray Morgan Bridge, and Shoreline Esplanade)

- Proposed East D Street Extension and Esplanade at Wheeler Osgood Waterway (directing to the esplanade along the waterway)
- East D Street at East 17th Street, east and west sides (directing to Shoreline Esplanade)
- East D Street at East 19th Street, east and west sides (directing to Shoreline Esplanade)
- East D Street at Future Eastbound SR 509 Slip Ramp (directing to sidewalk on west side and Shoreline Esplanade).

In addition, where future developments along East D Street provide for pedestrian connections between East D Street and the esplanade, those developments should consider wayfinding to direct pedestrians and bicyclists. Examples of wayfinding are shown in **Figure 5-12**.

Figure 5-12: Examples of Nonmotorized Wayfinding



Transit Improvements

Pierce Transit currently provides transit service along East D Street (south of East 15th Street) and along East 15th Street, St. Paul Avenue, and East 11th Street. Pierce Transit should consider extending transit service along East D Street north of East 11th Street as commercial growth occurs in the future.

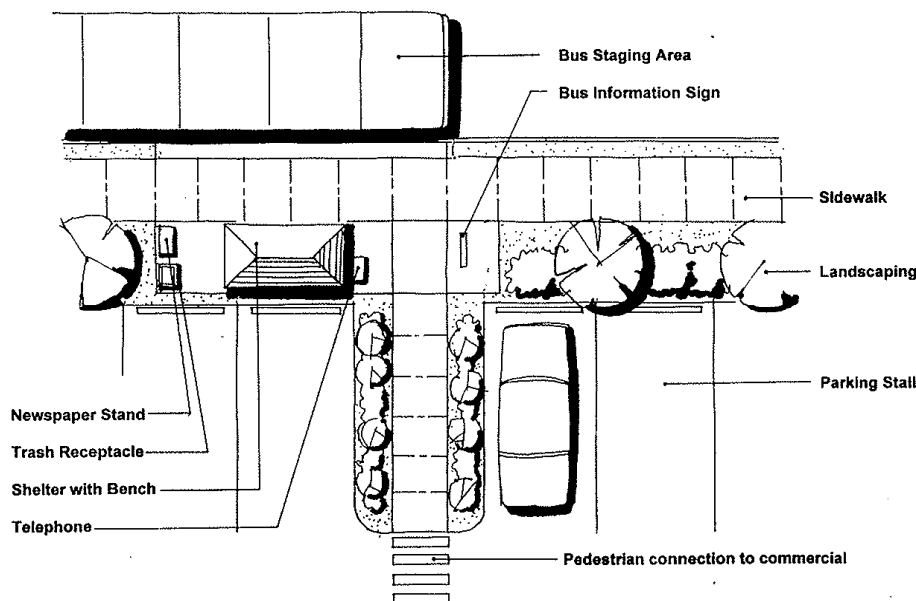
Along East D Street / East 15th Street, transit zones are currently in the vicinity of East Dock Street, East 19th Street, where East D Street meets East 15th Street, and near the intersection of St. Paul Avenue (as shown in **Figure 1-8**). As East D / East 15th Street improvements are designed, the City should work with Pierce Transit to identify transit zone locations at the most feasible location for riders. Transit zones and pedestrian connections should be located within close proximity to the entrances of major activity centers when possible as shown in **Figure 5-13**. Transit zones are usually located at the far side of an intersection for safety purposes. Midblock or intersection crossings should be planned to provide accessible connections to transit zones. It is not recommended that transit pull outs be constructed along East D / East 15th Streets due to the limited right-of-way.

Passenger comfort and convenience is essential to the success of transit service and facilities. The location of these facilities, along with the level of amenities, can have a significant impact on transit ridership. They should be easily identifiable, safe, accessible, secure and provide a comfortable waiting area for transit users.

The level of improvements at transit stops are usually based on existing boarding and alignment counts, as well as the adjacent land uses or activity centers. All transit zones must be ADA accessible, and include a landing pad, and legible bus stop sign. It is also suggested that all transit stops include a route schedule along with fare information and a customer service telephone number. This information should be continually updated as schedules or fares change. Local transit stops with low boarding volumes should have these facilities as a minimum.

Transit stops that have significant numbers of boarding and alighting, also known as “Primary local stops” should include other amenities, such as a shelter, seating, system map, trash receptacles and lighting. Shelter protection from adverse weather is essential for attracting riders. Lighting at stops influences riders’ perception of security and safety, and in general, results in less vandalism. Lighting is especially needed during winter months when it is dark during the peak commuting period. Transit stops with greater than 25 boardings per day should be considered for these improvements. It is also recommended that other amenities be included, such as a bicycle rack, and newspaper stand.

Figure 5-13: Transit Stop Accessibility



The City should work with Pierce Transit, adjacent property owners and developers to include direct pedestrian access between transit stops and adjacent uses as shown in **Figure 5-13**.

Improved pedestrian access can result in greater safety and convenience for transit riders. For example, a direct, separated pedestrian path from a transit stop to the entrance of a major employer, keeps cars that are circulating in parking lots away from pedestrians. These improved pedestrian connections can also play a role in attracting more ridership, especially when the only other option is a long, circuitous route.

Bicycle storage facilities, such as racks or lockers, should also be located at primary local transit stops. The inclusion of bike storage allows more multi-modal opportunities, and potentially more transit riders.

The City should also ensure that areas surrounding transit stops are well landscaped or that landscaping is maintained. Landscaping can enhance the level of passenger comfort and attractiveness of using transit. Properly maintaining landscaping, such as tree branch trimming, improves safety and accessibility.

Landscape Treatments

Street trees and landscaping are a desirable part of the pedestrian environment and provide a complement to street furnishings. They have both environmental and aesthetic benefits. They help provide a visual and safety buffer between pedestrians and moving traffic. Street trees should be located within the 4-6' landscape zone adjacent the sidewalk curb. Tree pits require a minimum square footage of 24 square feet of open area (typically 4 feet x 6 feet or 5 feet by 5 feet). Tree grates can also be used as an architectural design element or as a means of maximizing the pedestrian accessible area. Within transit zones, street trees should be located to be compatible with transit passenger loading areas, and maintained so as not to interfere with transit vehicle access.

Street trees and other low-level landscaping are also recommended within the 12' median along East D / East F Streets, and where possible, along the east / south side of East D / East F Streets. The provision of three linear forms of street trees will help to visually buffer industrial land uses from shoreline / commercial related land uses.

Depending on the situation, the trees selected for East D / East 15th Streets should mature to a "spherical" shape such as a Norway Maple or Red Maple, or a "columnar" form such as a Bowhall or Armstrong Maple or Chanticleer Pear. Examples are shown in **Figure 5-14**. The spherical shaped trees would be adequate along the west side of the road within the sidewalk. However, a more columnar shaped tree may be needed within the roadway median and along the east side of the road, to maintain adequate clear space associated with tall trucks.

Other forms of landscape treatments can also be considered, such as grass, low shrubs, perennial or groundcover plantings. The location for these treatments should be placed as to not disrupt areas where on-street parking is located.

Figure 5-14: Example of a Red Maple (Left) and Bowhall Maple (Right)



Driveways

Driveways should be designed to look like driveways, not intersections. This is especially important along the west side of East D Street, where the sidewalk is recommended. The public sidewalk should have the right-of-way over private crossings. Driveways should also be designed to accommodate wheelchair users.

As part of an overall access management program for East D / East F Streets, driveways should be consolidated where possible to better direct traffic and improve safety of the corridor. Some driveways can also be restricted to a right in-right out only operation.

CHAPTER 6 – IMPLEMENTATION

This chapter provides a summary of the recommended project phasing and planning level costs. The implementation plan does not identify specific funding sources. Given that the traffic volumes and accident rates within the corridor are relatively low, proposed projects are unlikely to compete well for grants as funding sources. The proposed projects will require a combination of federal, state and local resources to make these projects a reality.

Recommended Implementation Strategy

The City should work with partners and other agencies to implement three priority projects, including:

1. Begin needed street and rail crossing maintenance.
2. Improve the East 11th Street at East F Street/St Paul intersection.
3. Move forward with SR 509 ramp feasibility with WSDOT and BNSF.

Other Implementation Strategies include:

- Develop a plan to classify heavy truck arterials and implement heavy truck arterial design standards.
- Determine if a shared cost approach (Local Improvement District or other approach) would be acceptable to study area businesses and property owners.
- As funding allows, adopt the recommended projects into the City's Six-Year Transportation Program 2008 amendment.
- Add all unfunded capital projects to the 2008 Comprehensive Plan/Transportation Element/Project list.

Factors Affecting Implementation

- Competing interests for limited funding.
- Economic conditions.
- Availability of grant funding.
- Varied opinions on separating traffic.

Recommended Next Steps

- Incorporate appropriate sections of this traffic study into the S-8 Shoreline Master Plan Regulations.
- Implement the recommended three priority projects identified above.
- Participating entities need to take study recommendations back to their boards/commissions.
- Increase coordination of advanced facility planning between the City and the Port of Tacoma.

- Facilitate partnerships to share infrastructure costs to maintain existing uses and to increase economic development in the study area.

Opinion of Cost

Planning level (opinion of cost) cost estimates were developed for each of the recommended improvements. The planning level cost estimates included factors such as survey, design engineering design, construction engineering, excavation, traffic control, pavement, landscaping, illumination, railroad removal, and contingency costs. All costs are in current (2008) dollars. Planning level cost estimates are shown in **Table 6-1**, and in **Appendix D**.

Table 6-1: Opinion of Cost for Recommended Improvements

Map Reference	Location	Recommendation	Cost Estimate
Both Options			
A	East D / Puyallup Ave.	Adjust traffic signal phasing (Grade Separation improvement complete and open).	\$2,000
B	East D / SR 509	Construct Half Single Point Urban Interchange at East D St. / SR 509 (Ramps to and from the east) and signal.	\$10,962,000
C	East D / East 15th Streets	Improve East 15th St. / East D St. to include 10' sidewalk on west side, SB parking lane, 14' SB lane, 12' landscaped median/turn pocket, 14' NB lane. Access management/driveway consolidation where needed. Also improve pedestrian crossings at designated locations. Relocate transit stops/shelters to crosswalk locations.	\$4,771,000
D	East D St. Extension (Private Road) ²	Extension is on private land and would require the relocation of BNSF rail spur. Extend East D St. south of East 11th St. to link to East 15th St. (10' sidewalk on west side, SB parking lane, 2 - 11' travel lanes, 6' sidewalk on east side) ³ .	\$3,354,000
E	East 11th / East F St.	Realign intersection at East 11th St. and East F St.	\$682,000
F	East F St.	Reconstruct East F Street north of East 11th St.	\$1, 621,000
G	East D St. (North of E. 11th St.)	Widen East D St. north of East 11th St.(SB parking lane and 2 - 14' lanes, 10' sidewalk on west side.	\$1,760,000
Operational Murray Morgan Bridge			
H	East 10th St.	Add new east-west street (East 10th St.) between East D and East F Streets to include one 14' lane each direction and 6' sidewalk on south side.	\$620,000
No Murray Morgan Bridge			
I	East 11th St.	Extend East 11th St. west to tie into East D St.; Multi-use trail on north side linking to future shoreline esplanade and sidewalk on south side.	\$846,000
Total with Operational Murray Morgan Bridge			\$23,772,000¹
Total with Murray Morgan Bridge closed			\$23,998,000¹

Note 1: The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements, or Bridge removal.

Note 2: The recommendation of this planned Private Road does irrevocably commit the property owner to build the road.

Note3: The roadway cross-section was developed for cost purposes only.

APPENDIX A

Stakeholder Interview Summary

EAST THEA FOSS WATERWAY TRANSPORTATION CORRIDOR STUDY

Stakeholder Interview Summary October 24, 2007

The City of Tacoma is conducting the East Thea Foss Waterway Transportation Corridor Study in cooperation with the Tacoma Chamber of Commerce, the Port of Tacoma, and the Foss Waterway Development Authority. Between June and August of 2007, interviews were conducted as input to the needs of stakeholders on the Peninsula. The following summary encompasses the results of 10 interviews organized by question and by theme. Each bullet point represents a single person's comments. Attachment A presents a list of stakeholders interviewed. This Interim Report represents work-in-progress, and will be added to in future weeks.

KEY ISSUES

- The roads are in poor repair, which adversely affects traffic and equipment. Most interviewees think the City of Tacoma is not performing enough preventive maintenance on the peninsula's roads.
- Planning needs to properly integrate industrial users with mixed-use areas.
- Portland Avenue is the primary source of access for most freight users due to weight limits on other bridges.
- The 11th Street Bridge (Murray Morgan) is a point of contention between the City and the State, and its future configuration is a point of contention between industrial and commercial users.
- Industrial users do not plan significant expansion of transportation infrastructure in the coming 20 years. Existing properties are nearly fully utilized, limiting possible growth to properties that are currently unused—much of which has recently been purchased by the Port of Tacoma, creating uncertainty about future uses of those properties.
- Conflict with rail movements is not a common theme. Use of rail by properties on the peninsula is limited by the Burlington Northern and Santa Fe Railway's meager capability for servicing small customers.
- Freight users rely on mostly trucks for distribution.
- High-volume freight users are currently mostly content; they want potholes filled and more access points. Non-freight users are less happy, and call for more dramatic changes such as reconfiguring the 11th Street Bridge.
- Pedestrians, bicycles, and transit are not high priorities for most industrial businesses. Commercial businesses on the east side of the Foss Waterway are more interested in improving access for such users.

What are the current access and transportation challenges on the Thea Foss Peninsula?

Poor Road Condition

- General condition of roads on the Peninsula is deteriorating, and I see little investment in the roads by the city. The City should do better at maintaining and improving the routes.
- About shakes the teeth out of your head to drive on the roads. With the construction on D Street, around the south end of the waterway, over by the condos, and up the hill we have had to change route to get to work and for trucking.
- Improve the roads! The pot holes are damaging our trucks.
- The condition of roads is very poor, especially in Portland and Puyallup.
- Trucking companies tell us the biggest challenge is the quality of the roads, rather than problems with traffic volume.
- Condition of roads is a major problem. There is a lot of truck traffic to Valero and the section of D Street north of St. Paul is terrible. There are problems from the trucks that come up Portland and take 15th Street to D Street. That traffic has caused problems at the intersection of Portland and St Paul as well on the 15th Street.
- The City needs to keep up on on-going maintenance to avoid major rebuild activities, which would have a substantial negative impact on commerce.
- In this whole area, there are questions about who should be paying for road maintenance. Are they damaged by Port activity or normal industrial city business? There is a microcosm of this issue on the Peninsula. What is the appropriate funding mechanism that will improve those roads?

Traffic Congestion, Bottleneck Roads

- With the massive growth of warehouse structures down here, the roads need to be enlarged, widened. Some places where there are technically lanes, it's often backed up around the tank farms. Then the road is essentially strangled down to a lane. It's difficult for me in my Honda to maneuver through that, and I've seen our carriers just stop because they can't get through.
- There is traffic from tanker trucks especially along D Street. It is a hassle and a risk to pedestrians.
- I can't think of any congestion issues on the peninsula. Getting off I-5 is the challenge. Generally in good shape—don't need more lanes, just need them in better shape.
- There is a school bus facility that can cause problems. They ingress and egress in mass. They come back at 12 and go back out at 1:40 and hundreds of buses stop at every rail road interchange. That can cause a serious wait for our trucks. I understand they have to stop when they have passengers, but here they don't have passengers. My guess is that they are told to always stop to facilitate the sense of urgency for when they do have students. Either way we still have to wait for them to go over three sets of tracks and we have to follow them all the way to Portland Avenue. It is really frustrating for truck drivers and our employees.
- There is a loss of access to the public because of the dragon boats.
- The 11th Street Bridge going north from the Peninsula is an important corridor that is always congested. It is to the point that it will take more than a quick fix.
- It can be difficult to get on 1-5 North along Portland because of the double light and trucks getting backed up.

Limitations of Routing: Challenging Road Network

- The street network is not a very rational system. There is mixing of truck, rail, and auto traffic. It is difficult to get to and from the Peninsula. To get to Supervalu, you have to go up Portland, across St. Paul and then back down.

11th Street Bridge is a Major Corridor and Needs to be Maintained

- The 11th Street corridor is a crucial connector to downtown for both sides of the waterway. As the bridge hits land on the Peninsula, I want to be able to loop south & come around to the west side—a loop circulation pattern around the waterway that works for all modes of transportation.
- The 11th Street Bridge across the Foss is barely useable. It is not maintained by state and not paved correctly. Resolution of this problem is the biggest issue for us.

Bridge Weight Restrictions Lead to Limited Access Points

- The weight and size restrictions on 11th Street are a major challenge for us. Before those restrictions we had multiple access points, at least three routes to get to 11th Street, and if it was a smaller truck we could come across the Murray Morgan bridge. With the new weight restrictions we are restricted to Portland Avenue only. If anything was to happen on Portland, we are backed up for hours.

Portland Avenue, Intersection with Puyallup

- The interchange at Portland Avenue and I-5 is a nightmare and a disaster waiting to happen. One evening there was a truck vehicle accident and because that's the only access point for us when something like that happens and traffic doesn't move, and we lose hours when our load isn't moving.
- Portland Avenue and Puyallup intersection has 4 to 6 inch grooves in the asphalt from trucks. It continues to get worse year after year. Since it has been ignored for so long it will lead to a major rebuild. Is there a schedule for maintenance?
- The two lanes on Portland Avenue between I-5 and Simpson are a bottleneck for us. They recently paved one lane between Lincoln and 11th Street, but City dump trucks beat it up during Foss Waterway cleanup.
- The repeated flooding on the underpass under the freeway off Puyallup has caused problems for us.

Poor Signage

- In many places there is poor signage making it difficult for visitors to navigate.

Current Construction: Some Problems are Already Being Addressed

- The Peninsula is temporarily in a state of flux because of all the construction. There is an impact on the business, but we can work around it. Trucks get through, with delays. It will be important to see how many of these projects can help alleviate our challenges.
- The D Street construction is an unknown, but could help alleviate some of the current circulation challenges. The D Street overpass will be increase in route options for trucks.

Issues Related to Possible Development

- There needs to be collaboration between tenants and property owners for changes to 11th Street corridor if any developments happen.
- I am concerned about development on the Port property on the Peninsula and how it could affect traffic.
- The big challenge is to make multiple uses coexist but not conflict.
- If residential uses are created south of 11th Street to the east of the Foss waterway, I like the idea of letting residential traffic go immediately south to avoid the industrial zone.
- There has been incomplete infrastructure planning for redevelopment and business needs on the Peninsula. The challenge is how to put in place an infrastructure plan that allows existing businesses to grow and allows new businesses to come? The Port's lands are a classic example. They are incompatible with pedestrians.

Cost Guard Channel

- Waterway needs to continue to be a coast-guard approved channel. There has been talk in the past of taking this away.

Are there particular times of days, week, or seasons that are more challenging than others?

- During "peak" boating season, in the summer, there is not enough parking at the marina, so people park along the streets which limits access.
- Not that I have noticed, traffic seems to be random.
- No (2). Though construction has caused an impact recently.

Are back ups triggered by events such as boat dockings, etc.?

Bridges Cause Limited Congestion

- Bridges going up and down can cause delays but that is very occasional a couple times per quarter. Since 11th Street is no longer the main artery on the peninsula it has little traffic and little impact.
- The school busses can trigger back ups.
- Freight not affected by bridge raising, but office employees are often held up.
- No (4)

Are train movements a source of congestion?

- Just the train along D Street. Once a day, between 5 pm and 6 pm, trains block the road. The track goes out to the tank farm at the end of the Peninsula.
- We do get cut off with trains at Simpson Timber. They have to load a large train, the pull forward and then pull back and block 11th Street and St. Paul leaving us completely cut off. While we could snake around St. Paul and onto Johnny's Dock in a normal situation with the D Street construction on the over pass, that's not an option.
- Trains are a problem at D Street, but the current project will fix it. I think D Street is not a worthwhile project. Trucks don't use that route to get to the freeway.

THEA FOSS WATERWAY TRANSPORTATION CORRIDOR STUDY

- Train movements are not bad, they used to be worse. The Port has diverted a lot of traffic off 11th Street. The exception is occasionally coming west on 11th Street at the train crossing on 11th Street and Portland Avenue you may see only 5 or 6 cars or trucks backed up. If the Port brings unit trains to the peninsula, that could bring problems. Simpson gets only a couple switches per day.
- Trains along D Street occasionally block the entrance to our property. While it only lasts a short duration, it can surprise visitors.
- No (3)

What do you see as the current, medium-term (3-5 years), and long-term transportation infrastructure needs on and around the Thea Foss Peninsula?

Better, Wider Roads

- The condition of streets at rail crossing is atrocious. We have to weave around to miss the ruts.
- The roads need to be repaved. It's not just minor potholes, I am fearful to drive my car down Portland Avenue because of damage the roads can cause. All the transition areas over the rail road tracks, they are 8-10 inches above the road.
- Improvement to the roads—fix the potholes.

More Access Points, Especially to the Port of Tacoma

- We need more access points. If the restrictions on the 11th Street Bridge could be lifted or whatever needs to be done to upgrade the bridge to handle size and weight, that would give us another option, and help us access the Port.
- Currently to access the Port we have to take I-5 and come back. We have to drive 10 miles to go one as the bird flies. We do a significant amount of business with the Port now and expect more growth. We'll even sit sometimes and just go to the Port of Portland because it's easier.
- It would be great to increase the weight limitations over here.
- Upgrading on the 11th Street Bridge is the main issue.

Bridges

- The big issue is the 11th Street Bridge across the Foss (the Murray/Morgan bridge) – redesign 11th where it lands on the flats to better tie into D St. and the mixed-use area to the south of 11th. There's a need to complete some missing links in the road system on the peninsula, particularly between 15th and 11th as far west as possible, like a new roadbed at the head of the Wheeler-Osgood Waterway that connects 15th and 11th near/along the BNSF track ROW.
- Other plan: if the bridge is going to be there, access to the east should be maintained (if the main thoroughfare is turned to the south at D.) – the new SR 509 routed the SR off 11th Street. There was an agreement between the City & State that the State would bring bridges up to code/standard before handing it back to the City. It hasn't yet been funded—now the State is saying there is not enough traffic on the road, and the bridge is not safe. Preservationists say it is safe for some traffic, and the State should make it safe at least for car traffic.
- Bridges have no effect on our business.
- The 11th Street Bridge—nice amenity, but not a must-have. We are ok with State and Federal dollars going to it, but doesn't warrant the City footing the bill. It is not essential to our businesses. We would like to see the City's resources best spent elsewhere.

Rail Usage on the Peninsula

- We get about get one switch per day. We could do more, but BNSF doesn't have the manpower.
- We don't use rail; our issue is to make sure the roads are designed to be compatible with rail.

Transit and Mobility Options: Conflicting Feedback

- Some would be an improvement! There is none.
- Transit can complement what's happening on the west side of the Foss waterway. We need good ties to 11th Street near the bridge. We support transit, but people need to use it more.
- Employees would be better served by more frequent service. But if there's anything the city could do to put more busses on during rush hour, it might help more people consider it. The transfer is at 10th Street and Commerce Street in downtown and the service is insufficient to build demand. There should be either more bus service to the peninsula, or nothing.
- We have quite a few vanpools
- No idea, I don't ride it much. I thought the trolley was very expensive.
- All the workers at our site live outside the city, they need to drive to work.
- No homes on the peninsula, so no transit needed.

Pedestrian and Bicycle

- I definitely see a need for increased pedestrian, bicycle, and transit options considering the condos that are being built. Public transportation doesn't really come over here and the few employees that take it have to walk.
- Don't think there's a need for sidewalks. The esplanade requirement along water will take care of it.
- The Peninsula is accessible now. I see people walking and biking fairly regularly. Sidewalks go up to our facility.
- It doesn't matter to me, pedestrians wouldn't be able to go our property for security reasons and improvements outside the facility wouldn't have an impact on us.
- I agree with the Foss Waterway plan.
- If money comes from the Feds, sure, improve the bike lanes. If it is local dollars, focus the money on routes likely to serve the most users. The Port is not friendly to bikes with noise, dust, trucks, etc. Other commercial centers could probably get more bang for the buck. We have pretty minor usage down here any way.

Parking

- We don't want to lose parking. It is only a seasonal problem, so we can tolerate it. Businesses in the area often close on the weekend, which is a help to them.

Need to be Consistent with Development Changes

- Depends on the uses—as the peninsula changes, the transportation needs will change. Some talk about rerouting tankers from D to F.

Are there issues or concerns related to emergency response to your facility?

- Emergency response is certainly an issue. Fortunately there is a fire station but I have heard talk that it will be closed. If that happens and there are no emergency stations, we will be limited. What happens if Portland was cut off and the 11th Street Bridge was closed?
- Not really, the capacity exists now.
- Not with fire, the station is very close to our property. For ambulance service we need to keep the 11th Street Bridge open.
- No there is good access. The Fire Department is four minutes away, and they're on the water for fireboat access.
- Don't have any issues.
- No, have good response from fire and aid cars.

What opportunities do you see to alleviate transportation challenges?

- You should map the existing rights of way, both rail and road network. I believe there are several areas of rights of way that aren't used, that could be developed to help make the road network more straight forward and useable. The value of having dedicated unused right of way is to consider trading that with private owners to make existing roads wider or new roads in strategic locations. It is difficult to get a handle on the exact extent of right of ways but possible locations include:
 - F Street South of 11th
 - D Street South of 11th
 - E Street North of 11th

Are there particular projects that could help your site or the Peninsula as a whole?

- I surveyed our team and the resounding answer was to repave the streets and fix the railroad transitions.
- Maintain the roads.
- Off-ramps from 23rd Street to D Street would be good.
- The D Street overpass will bring retail traffic to the East Foss, and will improve access to Freighthouse Square.
- Regarding the Major Arterial road designation on D Street: the designation stops at 15th Street (Martinac) and doesn't connect to 11th Street. It needs to link up with something, preferably 11th Street.
- Improve F Street. Our customers currently just use D Street, but F Street is a straight shot into our property.
- Add pedestrian walkways and increase public transportation.
- Get rid of the weight loads.
- Widen the roads.
- We need to separate the truck and car traffic. There should be a hard buffer between heavy industrial uses and other land uses. That includes separate auto and truck lanes and even separate roads. D Street and 15th Street are specific places where auto and truck traffic should be separated. Autos should be on the water side. Non-industrial uses should be closer to downtown, on the south side of the peninsula.

Are you currently looking at any planning relating to your site? If so, what are the implications for the transportation network?

- No, nothing that fundamentally changes what we do or our transportation needs.
- Not planning to change our site.
- We may see a slight increase in trucks, but nothing significant.
- I have a sense there may come limits on storing logs in the water and reducing the amount of logs brought in by water, so we may have more trucks on the road. I would approximate a 30% to 100% in trucks, if regulations about logs in the water are created.
- I don't see us growing facility wise, we are looking to expand our volume of business.
- The Port is proposing a mix of commercial uses on the 20 acre site. It will be a center for more auto traffic on the Peninsula. A possible mix of uses would be 8 acres in office and 10 in light industrial.

FREIGHT TRAFFIC

How do you typically send and receive freight?

What modes to you typically use to send and receive freight?

- Our percentage use of modes is:
 - Primarily truck deliveries – 60-70%
 - Barge: 30-40% water
 - Nothing now by rail, but there used to be
- We have about 77% finished product by rail and 23% by truck, about five to six trucks per day.
- We get mostly deliveries from semi-trucks, equipment. A little bit of outgoing.
- We use truck and water.
- We use majority pipeline, a few barges, and about one rail switch per day.
- Almost everything comes and goes by truck, about 99%. The other 1% is rail that backs off the property.
- The majority of our shipments go out legal weight truck or full truck loads (about 99%). We use common carriers and smaller owner-operated shops.
- I use truck only. The railroad has me pinned down.

What is your daily truck activity?

- We have 16 power units that are all moving in and out every day. About half of them will do an additional trip in and out, so in total about 24 trips in and out daily.
- We receive five to seven semis every day.
- We see 10-20 trucks per day, primarily in.
- We have occasional tractor-trailer traffic and LTL of about 10 or more per day.
- We see 80 to 100 trucks twenty-four hours a day, seven days a week.
- We have between 5-10 deliveries. Common carriers will drop off in the morning and come back in the afternoon and 5-10 outbound. If we have a project that number can increase exponentially we've had in excess of 8-10 truckloads.

- Our daily truck activity is:
 - 50-70 trucks/day bringing logs into the facility
 - Paper: up to 100 trucks w/ chips & paper to be recycled coming in
 - Pulp mill: 15 trucks LTL trucks (like UPS, or local deliveries)—parts, equipment, etc.
 - Maybe 10 trucks of chips going out from the lumber mill to external chip customers
 - Five to six lumber trucks/day leaving with product
- 30-50 trucks per day.

What routes do you use?

- Probably all of our routes are to Portland, St. Paul, or 15th Street.
- We take the Portland Ave exit off I-5; left on 11th; right on D Street. Both in and out (generally). Our smaller trucks might take other routes.
- We take the Portland Avenue exit, it's much better than the Port of Tacoma exit, even though it does have areas of saggy pavement.
- We are located on east 18th Street and everyone comes in on Portland, to St. Paul to 15th to 18th. It is the only way in given the weight limit on the 11th Street Bridge.
- Don't keep track, the trucks aren't ours, so we don't track where they go.

Where does your in-coming freight originate, and where does your out-going freight end up: North, South, East on SR 167, or other?

- Our trucks take I-5 north or south, occasionally Highway 18 to I-90, and occasionally we use SR 167. We are going all over, including to Canada. Then we use the Blaine Crossing.
- We deliver to the Greater Puget Sound area. We try to stay away from SR 167 because it doesn't move all the time.
- Freight comes in from all over, local, regional, and from overseas.
- Our business is mostly to California.
- We receive and send deliveries all over.
- Everywhere in the region.
- Primarily south I-5 to Portland area and California. We do have some customers north in the Seattle area.

Looking out 20 years, what do you expect will be your long term freight needs?

Do you anticipate growth? Small scale, large scale growth?

- We anticipate 15-20% growth per year.
- We expect this to remain somewhat the same. Our only variable is fluctuation in activity level. 20 years ago there was a higher level of activity that we would like to get back. We might rise back up again to the old level. We used to be 350 employees steady; now we are up and down. We are currently have around 100 employees; while we could get back to 300-350, we won't grow over that.
- We anticipate similar patterns in the future, marginal growth, with perhaps more rail. If water deliveries dry up, we could double incoming log trucks—up to more than 100 daily.

- We will experience some optimization and maybe small scale growth. We are already the biggest plant of our kind on Puget Sound. We feel that we have saturated our markets and can't see building another similar plant in the area.
- I would say if we meet our growth goals, it would double and it would change the scope, it wouldn't just be morning and night. Right now we operate approximately 24 hours, but not at full capacity. If we were I would anticipate three full shifts of production so trips could be all day and night.

Do you expect growth to be handled through rail or truck traffic?

- We expect growth to continue similar proportion, although rail may grow some because the freeways are getting more congested. There is some expected growth in sending products to eastern markets by rail.
- Anticipate most by truck.

If truck growth, what amount of activity do you expect per day? (ie, what percentage of growth between now and 2025)?

- Our terminal is maxed out. While we could receive a few more trucks, there is no more room for tanks. We could time-shift trucks away from congested periods to increase our traffic, but not by much.
- Again, we anticipate about the same truck activity unless other modes, water, are cut.

What are your current hours of operation? Do you expect this to change?

- 24 hours
- Here 24, but not 7-5 for peak
- We have one primary day shift that makes noise. We also have painters at night, but they are quieter. Our painters are smellier.
- We operate from 6am to 10pm.
- We operate 24/7 at the same levels around the clock.
- We operate 24/7, but the Monday through Friday 7am to 6pm shifts hold the majority of the truck traffic. There is some limited traffic on the weekends.

Do you have peak transportation needs at certain times of day?

- Business is pretty well spread out; it is steady.
- Highest activity if from 5 am to 8 am, when trucks are headed out. They come back in a dribble.
- Late afternoon is our peak, as businesses are closing and the dragon boaters are coming in.
- Daytime is busy, especially first thing in the morning when the truckers start their day. There are no home heating oil trucks in the evenings.
- Our business hours are as follows:
 - 10 am to 4 pm for rail and trucking. We load trucks during the day and at swing shifts, 7 days a week.
 - Our sawmill has 5 or 6 trucks on the day shift.

Is your business subject to seasonality? What are the seasons?

- No (5)
- Cyclical not seasonal
- Yes. Home heating oil, a minority of the business, experiences some peaks. While most of the customers have the same rate of activity all year, new regulations for sulfur content in fuel are going to decrease demand. Sulfur is being reduced in home fuels, which will increase the cost, so the product is probably being phased out.

How do your employees travel to and from work?

- They come across 11th Street and pick their way through Dock Street. But you can't count on it being open.
- Everyone comes in cars.
- A few carpools (20 or so), mostly cars, and a couple bikes.
- Personal autos (x2)
- Most take I-5 to Portland Avenue. A few others take I-705 and 11th Street using personal autos and some van pools.
- A lot of employees come across Murray Morgan Bridge, but the majority of us come across the 11th Street Bridge. Even if employees come from I-5, they will take the I-705 exit, so they don't have to deal with the Portland Avenue interchange. When the Murray Morgan gets stuck open or under maintenance there is no other way to go.

Do you have any specific physical security needs?

- With our current access we are able to meet homeland security regulations and Coast Guard requirements.
- We need to have emergency vehicles, including fire trucks, access us quickly.
- We haven't restricted access yet – signing people in and out. It's something that we're talking about, but haven't implemented.

STAKEHOLDERS INTERVIEWED AS OF AUGUST 7, 2007

Nathan Childs, Globe Machinery

Bob Emerson, Port of Tacoma

Mark Eshleman, Panattoni

Joe Martinac, Jr., J. M. Martinac Shipbuilding Corp.

Dave McEntee, Simpson Cos.

Don Meyer, Thea Foss Development Authority

Clare Petrich, Petrich Marine Dock

Laura Shane, Globe Machinery

Jay Stewart, Port of Tacoma

William Stowell, New Star Energy/Valero LP/Shore Terminal; & Stephen Tan, Cascadia Law Group

Kevin Trucco, Colonial Fruit & Produce

APPENDIX B

Design Concepts Workshop Summary



CITY OF TACOMA EAST THEA FOSS WATERWAY TRANSPORTATION CORRIDOR STUDY

Design Concepts Workshop Summary September 27, 2007

INTRODUCTION

The City of Tacoma has identified the need for improved transportation along the East Thea Foss Waterway Corridor. In order to facilitate compatibility between co-existing land uses and encourage economic development in the Thea Foss Peninsula, the City commissioned a transportation corridor study to provide transportation and streetscape/aesthetic improvements. The initial project drafted several different design options and the City invited the public and key stakeholders to attend a design concepts workshop at the Freighthouse Square on Thursday, September 27, 2007 from 4pm to 6pm.

Invitations to the meeting were distributed via email to people who owned businesses, worked, or resided in the Thea Foss Peninsula. Participants included 17 members of the public, five steering committee members and seven consultant team members. After a half-hour open house during which the public was invited to view each of the design concepts, Peter Huffman, City of Tacoma welcomed participants. Steve Sindiong, Perteet Engineering, briefly elaborated on the existing conditions, key issues, and design concepts of the project. Participants were then asked to break into separate discussion groups based on their interest in the North Area or South Area of the Peninsula.

The City asked the attendees to review several draft designs and comment on how well those design concepts worked, what could be improved, and to offer additional design ideas and concepts. Participants were given the opportunity to share their comments verbally with staff during the open house and the discussion groups, and/or to write their responses down on flip charts spaced around the room and comment forms provided by staff. This document summarizes that feedback from workshop.

Key Themes

- There were widely varied views regarding the necessity of separating industrial traffic from non-industrial traffic.
- Most participants enthusiastically supported slip ramps.
- Most participants supported maintaining the Murray Morgan Bridge as it currently operates.
- Participant comments seem to reflect a desire for fixing the St. Paul Avenue and East 11th Street interchange which is part of every design concept presented at the workshop

- There seems to be consensus that something should be done with East D Street, but participants offered no clear perspectives as to whether extension, widening or two parallel roads is preferable.

Participant Comments

Response to Specific Designs

- Solution A-5 should have cars only on the bridge. Slip ramps are needed and trucks should only use on and off slip ramps. Not past east bound slip ramp.
- No to scenario A2. The corner of East 15th/F Street: Small office development/residential. Belos RV, owners, under contract. Port owns area to the west, interested in swapping land. Funky wholesale retail.
- A1: I like the idea of separating industrial and non-industrial traffic. It should help reduce the stopping and staggering in morning along 15th and East D Street.
- The extension of D Street south of East 11th Street would be a safety concern due to the speed of the trucks accessing the north end of East D Street. It would be better to extend an east-west street, preferably 10th, between East D and F Streets.
- I like the industrial road option because it allows traffic to get on and off slip ramps. It doesn't need to be separated necessarily.
- I don't like medians. (A5)
- Medians are great urban design features and can slow traffic and raise property values. (A5)
- Use the least conflicting traffic pattern and one that takes up the least land for D Street up to the north.

Support for Separating Traffic

- It is important to have a functional separation between cars and trucks. Cars and trucks are not compatible.
- It is better to keep industrial access and cars separate. Current traffic patterns deter customers and make it tough to lease space. Trucks shouldn't be allowed along East D Street.
- Trucks are loud and will damage the roads.
- Keeping trucks and traffic apart is the right idea, but doesn't solve the issue to the south. If you could take the Supervalu parking row for trucks it would be great.
- It would be a huge improvement to have wide separation south of Supervalu between industrial users.
- Separate traffic reduces conflict with vehicular and buses.
- Separate traffic produces problem for the Port of Tacoma, it needs 10 feet on each side for wheelchair access.
- Mixed traffic means big lanes and turning radiuses which makes cars drive faster. Separation would allow for a smaller street design for cars.

East Thea Foss Waterway Transportation Corridor Study

- North of East 11th Street should be industrial traffic only. South of 11th Street the east side should be industrial traffic only and the west should be non-industrial.
- Truck separation is more of a land use issue than a traffic issue.
- Separation on East D Street would be nice, but there is no right of way.
- Make East D Street from SR 509 to Puyallup Avenue for commercial use only, if possible.
- Separating industrial traffic from commercial traffic is of high priority, but not on a single street, have two different streets, such as commercial on East D Street and industrial on Portland Avenue.
- The goal for separation is a transition zone between industrial and non-industrial traffic between Johnny's Dock and Supervalu.
- Move industrial traffic to East F Street.

Resistance to Separating Traffic

- At most locations it is acceptable for cars and trucks to share the same road. For the safety of the users of the Youth Marine Foundation site it is necessary for cars and trucks to be separated north of East 11th on East D Street.
- Don't separate the traffic – that doesn't accomplish enough for the money.
- Don't worry about mixing car and truck traffic.
- More channeling and separation would potentially create more operational problems because there would be two, two lane roads. What happens if something blocks traffic, like an unloading bus or a break down?

Traffic Circulation and Flow

- The greatest problem is the speed of the trucks (too fast) during the 7 a.m. to 8 p.m. hours of the Youth Marine Foundation.
- Make the truck traffic go east to Portland Avenue. There is no truck traffic there at all.
- Industrial traffic should only be allowed to make a right turn onto East D Street (from future SR 509 westbound slip ramp) and head northbound. Driveways should be designed so that the turning radius at the corner allows for a right turn only.
- Designing East D Street to be northbound only for industrial traffic doesn't make sense because exiting trucks that would need to go back south to get to their final destination would want the shortest route, rather than meandering northbound to get back to Portland Avenue.
- Traffic wants to go south on D Street, right on Puyallup Avenue and then left on C Street to the I-5/705 on-ramp.
- The Dinner Train sits on C Street.
- Improved signage at East 11th and East D Street is needed to help direct traffic to their destinations which would help the Foundation which has public users of their site.

East Thea Foss Waterway Transportation Corridor Study

- Buses get stuck at St Paul Avenue and East 15th Street behind rail.
- St Paul Avenue and East 15th Street is an awful intersection: dangerous and frustrating.
- The intersection at St. Paul and East 11th Street is also bad.
- Valero has a ton of trucks that queue down East D Street to underneath East 11th Street to St. Paul.
- The heaviest truck volume occurs on East D Street north of 11th Street.
- Improve Portland Avenue and SR 509 intersection.
- With light rail running on 25th Street and sounder running between 25th Street and 26th Street, trucks will have a problem through this area.

Traffic Circulation and Flow at 15th Street and D Street Specifically

- Traffic should be redirected behind Supervalu but you can't get across the rail road until BNSF gives permission. (15th/D)
- Trucks stage to get into Supervalu at East 15th Street and East D Street.
- Signage and information could be improved along and around Supervalu. South of Supervalu people stop and stare – they are confused. (15th/D)
- Trucks go from St. Paul Avenue to 15th to East D Street. They stop as they are on 15th, because they are lost. Signage could help here.
- East D Street, south of East 15th will have industrial use to the east and mixed use to the west. Regardless of whether the traffic is missed or separated the bus safety/design requirement of three rows of trees creates a transition zone. The aesthetics of the road is a big part of meeting the goal of transition from shared to individual traffic.

SR 509 Slip Ramps

- The extension of East D Street south of 11th Street would be a safety concern due to the speed of the trucks accessing the north end of D Street. It would be better to extend an east-west street, preferably 10th Street, between D and F Streets.
- Most traffic will use I-5, so the slip ramp should be one-way to I-5.
- Slip ramps are increasingly important for access south of East 15th Street on the west side.
- We like ramps and wanted them and were told by Norm Dicks that they would get them after East D Street went in.
- I like the slip ramps with only north bound truck traffic.
- The goal is to keep industrial traffic out of the Dome District streets. Ramps are the way to do it, ramps but no bridge. Dome events and trucks need ramps.
- I like the idea of a ½ Single Point Urban Interchange (SPUI) for SR 509 ramps.
- South of Supervalu there is no need for trucks to use East D Street until the SR 509 ramps happen – this could be a one-way south on D Street.
- Ramps could help trucks with accessibility.

East Thea Foss Waterway Transportation Corridor Study

- I want slip ramps onto SR 509 to alleviate traffic in the Dome District
- Make a westbound off-ramp from SR 509 to north on Portland Avenue.
- SR 509 ramps would help industrial traffic from Thea Foss on East D Street. Industrial traffic needs to be discouraged from entering the Dome District via the East D Street overpass.

Land Uses

- A visual buffer between industrial and non-industrial land uses should not come at the expense of parking.
- The creation of an esplanade seems like it would encourage more office uses.
- The west side of the Foss is a different world.
- What are the future highest and best uses of the north end of the Foss? Are there zoning changes along Foss north of 11th Street that are applicable? You should refer to the State sponsored Innovation Zones study and effort.
- There are great views on the east side and a warm afternoon light. The west side is a premium office area. I am concerned that office invites residential.

Murray Morgan Bridge

- It is more important to keep the 11th Street Bridge open than to separate cars and trucks.
- The 11th Street (Murray Morgan) Bridge is weight limited – it needs significant repairs. Could it be just pedestrians or just cars and no trucks?
- The Murray Morgan Bridge is key - link to Foss waterway for industrial? (it will fall into water someday)
- I want the Murray Morgan Bridge to be open.
- The Murray Morgan Bridge needs to be kept.

Non-Motorized Facilities

- Customers using the Foundation site park under the 11th Street Bridge and then walk north to the Foundation site along the West side of East D Street. This is also the route for pedestrians to and from downtown Tacoma.
- Sidewalks are needed along the West side of East D Street north of 11th Street however they should not be at the expense of on street parking. The sidewalk may not be compatible with the rail line that runs along the west side of East D Street.
- There has been significantly increased pedestrian traffic activity in the last few years.
- Put an esplanade just north of 509 on the street, not on the waterfront (danger zone).
- Use space for wide sidewalks and bike path or lane
- Bike lanes should not be created at the expense of on street parking.

Parking

- On street parking is absolutely necessary for cars along the west side of East D Street north of 11th Street. The Youth Marine Foundation needs more on-street parking for its clients.
- Parking garages shouldn't go in Dome District. Want density and urban vibrancy.

Needed Collaborations and Partnerships

- Any effort needs to have specific commitments from key organizations including the City, the State, BNSF, and the Port of Tacoma.
- You should engage long-term needs of users such as Valero.

Questions Raised by Participants

- Do users need East D Street access?
- Could you operate slip ramps?
- Why both bridge and slip ramps or no bridge and no slip ramps? Why not slip ramps but no bridge or a bridge but no slip ramps?
- Can we get BNSF right of way along East F Street?
- Will BNSF vacate the right of way?
- What about ramps at Portland on SR 509 separation?

APPENDIX C

Recommended Improvements
Conceptual Design



May 13, 2008 - 11:42am - 43Mpl - C:\Documents\2008\Bathub\Bathub\Drawings\Waterway - compressed\Working Murray Morgan Bridge\Project - Layout Name Layout (8)

No.	Date	Revision	By	Appr.

 Perteet Inc. 253-984-7138 253-589-0399 3625 Perkins Lane SW, Suite 300 Lakewood, Washington 98499					Drawn By DRP Designed By DRP Checked By 5/9/08 Approved By	Date 5/9/08 5/9/08 5/9/08	SCALE Horiz 1"=50' Vert N/A Project Number 27039	CITY OF TACOMA		Drawing No. L7
								E. THEA FOSS WATERWAY PROJECT 8 – NEW EAST 10TH ST. MAINTAINED MURRAY MORGAN BRIDGE		Sheet No. 7 of Total 7

APPENDIX D

Recommended Improvements
Planning Level Cost Estimates

Construction Cost Estimate **Date: Jan-10-2008**
Port of Tacoma - Thea Foss Waterway
Project H - Operational Murray Morgan Bridge Option

Project Description - Add new east-west street (East 10th St.) between East D and East F St. to include one 14' lane each direction and 6' sidewalks on both sides.

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Mobilization (10%)	1	LS	\$26,808	\$26,808
2	Temporary Sediment and Erosion Controls (3%)	1	LS	\$8,042	\$8,042
3	Temporary Traffic Control (5%)	1	LS	\$13,404	\$13,404
4	Surveying & Monuments	1	LS	\$5,000	\$5,000
5	Clearing and Grubbing	0.3	Acre	\$4,600	\$1,380
6	Excavation Safety Systems	1	LS	\$5,000	\$5,000
7	Roadway Excavation Incl. Haul	1,000	CY	\$10	\$10,000
8	Storm Drain Pipe	500	LF	\$50	\$25,000
9	Storm Drain Structures	8	EA	\$3,500	\$28,000
10	Water Quality Vault	1	LS	\$8,000	\$8,000
11	Adjust and Connect Utilities	1	LS	\$5,000	\$5,000
12	Gravel Base	820	Ton	\$20	\$16,400
13	Asphalt Concrete Pavement	600	Ton	\$105	\$63,000
14	Cement Concrete Sidewalks/Ramps	600	SY	\$40	\$23,928
15	Cement Concrete Driveway Entrances	80	SY	\$60	\$4,800
16	Curbs and Curb and Gutter	1,000	LF	\$20	\$20,000
17	Permanent Pavement Marking	1,400	LF	\$1	\$1,274
18	Permanent Signage	460	LF	\$5	\$2,300
19	Illumination (Streetlighting)	6	EA	\$5,000	\$30,000
20	Illumination (Pedestrian)	0	EA	\$2,500	\$0
21	Traffic Signal Systems	0	LS	\$0	\$0
22	Railroad Tracks & Crossings	0	LS	\$0	\$0
23	Railroad Signal	0	LS	\$0	\$0
24	Tree Grates	35	EA	\$250	\$8,750
25	Trees	35	EA	\$200	\$7,000
26	Landscaping	0	LS	\$0	\$0
27	Force Account Roadside Cleanup	1	SA	\$12,000	\$12,000
28	Railroad Removal	0	LS	\$0	\$0
Bid Item Subtotal					\$316,337
Contingency				40%	\$126,535
Estimated Project Construction Total (rounded)					\$443,000

Design Engineering	20%	\$88,600
Construction Engineering	20%	\$88,600

Estimated Total Project Cost (rounded)	\$620,000
---	------------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Approximate Project Length =460 LF

Assumptions

- 1 New curb and gutter on both sides
- 2 4" crushed rock under sidewalk
- 3 No detention required
- 4 No fencing
- 5 New storm drain system
- 6 Illumination - every 100' (roadway), every 30' (pedestrians)
- 7 3' wide asphalt patch for new conveyance system
- 8 existing roadway to remain, sawcut to add drainage and sidewalk(s)
- 9 Stop sign controlled intersections
- 10 Roadway section: 6" ACP over 9" Agg Base
- 11 ROW Required but not included in estimate

Construction Cost Estimate
Port of Tacoma - Thea Foss Waterway
Project G

Date: Jan-10-2008

Project description - Widen East D St. north of East 11th St. (SB parking lane and 2-14' lanes, 12' sidewalk on west side)

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Mobilization (10%)	1	LS	\$84,574	\$84,574
2	Temporary Sediment and Erosion Controls (3%)	1	LS	\$25,372	\$25,372
3	Temporary Traffic Control (5%)	1	LS	\$42,287	\$42,287
4	Surveying & Monuments	1	LS	\$20,000	\$20,000
5	Clearing and Grubbing	0.5	Acre	\$4,600	\$2,300
6	Excavation Safety Systems	1	LS	\$20,000	\$20,000
7	Roadway Excavation Incl. Haul	2,500	CY	\$10	\$25,000
8	Storm Drain Pipe	2,000	LF	\$50	\$100,000
9	Storm Drain Structures	20	EA	\$3,500	\$70,000
10	Water Quality Vault	1	LS	\$20,000	\$20,000
11	Adjust and Connect Utilities	1	LS	\$10,000	\$10,000
12	Gravel Base	2,000	Ton	\$20	\$40,000
13	Asphalt Concrete Pavement	1,030	Ton	\$105	\$108,150
14	Cement Concrete Sidewalks/Ramps	270	SY	\$40	\$10,768
15	Cement Concrete Driveway Entrances	50	SY	\$60	\$3,000
16	Curbs and Curb and Gutter	4,660	LF	\$20	\$93,200
17	Permanent Pavement Marking	7,000	LF	\$1	\$6,370
18	Permanent Signage	2,350	LF	\$5	\$11,750
19	Illumination (Street lighting)	23	EA	\$5,000	\$115,000
20	Illumination (Pedestrian)	40	EA	\$2,500	\$100,000
21	Traffic Signal Systems	0	LS	\$0	\$0
22	Railroad Tracks & Crossings	0	LS	\$0	\$0
23	Railroad Signal	0	LS	\$0	\$0
24	Tree grates	156	EA	\$250	\$39,000
25	Trees	156	EA	\$200	\$31,200
26	Landscaping	1	LS	\$5,000	\$5,000
27	Force Account Roadside Cleanup	1	FA	\$15,000	\$15,000
28	Railroad Removal	0	LS	\$0	\$0
Bid Item Subtotal					\$897,970
Contingency				40%	\$359,188
Estimated Project Construction Total (rounded)					\$1,257,000

Design Engineering	20%	\$251,400
Construction Engineering	20%	\$251,400

Estimated Total Project Cost (rounded)	\$1,760,000
---	--------------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Approximate Project Length = 2,330 LF

Assumptions

- Roadway section: 6" ACP over 9" Agg Base
- New curb and gutter on both sides
- Trees planted every 30' each side
- 4" crushed rock under sidewalk
- New conveyance system
- 3' wide asphalt patch for new conveyance system, adjacent to curb line
- No detention required
- Existing roadway to remain, sawcut to add drainage and sidewalk(s)
- No fencing
- Illumination - every 100' (roadway) and every 30' (pedestrian)
- Remove and replace 8' wide section of the northbound lane
- Remove existing sidewalk, both sides

Construction Cost Estimates Port of Tacoma - Thea Foss Waterway Summary	Date: Jan-10-2008
--	------------------------------

Estimated Project Construction Totals (rounded)

Project	Cost	Option
A	\$2,000	Both
B	\$10,962,000	Both
C	\$4,771,000	Both
D	\$3,354,000	Both
E	\$682,000	Both
F	\$1,621,000	Both
G	\$1,760,000	Both
H	\$620,000	Operational Murray Morgan Bridge Option
I	\$846,000	No Murray Bridge Option

Operational Murray Bridge	\$23,772,000
No Murray Bridge Option	\$23,998,000

Construction Cost Estimate
Port of Tacoma - Thea Foss Waterway
Project E

Date: Jan-10-2008

Project Description - Realign intersection at East 11th St. and East F St.

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Mobilization (10%)	1	LS	\$29,468	\$29,468
2	Temporary Sediment and Erosion Controls (3%)	1	LS	\$8,840	\$8,840
3	Temporary Traffic Control (5%)	1	LS	\$14,734	\$14,734
4	Surveying & Monuments	1	LS	\$10,000	\$10,000
5	Clearing and Grubbing	0.5	Acre	\$4,600	\$2,300
6	Excavation Safety Systems	1	LS	\$10,000	\$10,000
7	Roadway Excavation Incl. Haul	600	CY	\$10	\$6,000
8	Storm Drain Pipe	500	LF	\$50	\$25,000
9	Storm Drain Structures	7	LF	\$3,500	\$24,500
10	Water Quality Vault	1	LS	\$12,000	\$12,000
11	Adjust and Connect Utilities	1	LS	\$5,000	\$5,000
12	Gravel Base	750	Ton	\$20	\$15,000
13	Asphalt Concrete Pavement	560	Ton	\$105	\$58,800
14	Cement Concrete Sidewalks/Ramps	720	SY	\$40	\$28,714
15	Cement Concrete Driveway Entrances	0	SY	\$0	\$0
16	Curbs and Curb and Gutter	2,525	LF	\$20	\$50,500
17	Permanent Pavement Marking	3,700	LF	\$1	\$3,367
18	Permanent Signage	900	LF	\$5	\$4,500
19	Illumination (Streetlighting)	5	EA	\$5,000	\$25,000
20	Illumination (Pedestrian)	0	EA	\$2,500	\$0
21	Traffic Signal Systems	0	LS	\$0	\$0
22	Railroad Tracks & Crossings	0	LS	\$0	\$0
23	Railroad Signal	0	LS	\$0	\$0
24	Tree Grates	0	EA	\$250	\$0
25	Trees	0	EA	\$200	\$0
26	Landscaping	1	LS	\$4,000	\$4,000
27	Force Account Roadside Cleanup	1	FA	\$10,000	\$10,000
28	Railroad Removal	0	LS	\$0	\$0
Bid Item Subtotal					\$347,723
Contingency				40%	\$139,089
Estimated Project Construction Total (rounded)					\$487,000

Design Engineering	20%	\$97,400
Construction Engineering	20%	\$97,400

Estimated Total Project Cost (rounded)	\$682,000
---	------------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Approximate Project Length = 800 LF (length of intersecting roadways)

Assumptions

- 1 Non-signalized intersection
- 2 New curb and gutter on both sides
- 3 No trees on sidewalk
- 4 6' concrete sidewalk each side
- 5 4" crushed rock under sidewalk
- 6 New conveyance system on East F St only
- 7 3' wide asphalt patch for new conveyance system
- 8 No detention required
- 9 No fencing
- 10 Illumination - every 100' (roadway) and every 30' (pedestrian)
- 11 Existing roadway to remain, sawcut to add drainage and sidewalk(s)
- 12 Roadway section: 6" ACP over 9" Agg Base
- 13 Option would require taking of Fire Station but not estimated at this time
- 14 Estimate does not assume cost of taking down bridge
- 15 ROW will be required but is not included in estimate

Construction Cost Estimate
Port of Tacoma - Thea Foss Waterway
Project D

Date: Jan-10-2008

Project Description - Extend East D St. south of East 11th St. to link to East 15th St. (12' sidewalk on west side, SB parking lane, 2 - 11' travel lanes). Relocate BNSF rail spur.

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Mobilization (10%)	1	LS	\$145,013	\$145,013
2	Temporary Sediment and Erosion Controls (3%)	1	LS	\$43,504	\$43,504
3	Temporary Traffic Control (5%)	1	LS	\$72,507	\$72,507
4	Surveying & Monuments	1	LS	\$15,000	\$15,000
5	Clearing and Grubbing	0.5	Acre	\$4,600	\$2,300
6	Excavation Safety Systems	1	LS	\$15,000	\$15,000
7	Roadway Excavation Incl. Haul	3,025	CY	\$10	\$30,250
8	Storm Drain Pipe	2,500	LF	\$50	\$125,000
9	Storm Drain Structures	20	EA	\$3,500	\$70,000
10	Water Quality Vault	1	LS	\$20,000	\$20,000
11	Adjust and Connect Utilities	1	LS	\$10,000	\$10,000
12	Gravel Base	5,000	Ton	\$20	\$100,000
13	Asphalt Concrete Pavement	3,700	Ton	\$105	\$388,500
14	Cement Concrete Sidewalks/Ramps	4,435	SY	\$40	\$176,868
15	Cement Concrete Driveway Entrances	160	SY	\$60	\$9,600
16	Curbs and Curb and Gutter	3,900	LF	\$20	\$78,000
17	Permanent Pavement Marking	5,700	LF	\$1	\$5,187
18	Permanent Signage	1,880	LF	\$5	\$9,400
19	Illumination (Streetlighting)	20	EA	\$5,000	\$100,000
20	Illumination (Pedestrian)	65	EA	\$2,500	\$162,500
21	Traffic Signal Systems	0	LS	\$0	\$0
22	Railroad Tracks & Crossings	0	LS	\$0	\$0
23	Railroad Signal	0	LS	\$0	\$0
24	Tree grate	142	EA	\$250	\$35,500
25	Trees	142	EA	\$200	\$28,400
26	Landscaping	1	LS	\$3,630	\$3,630
27	Force Account Roadside Cleanup	1	FA	\$15,000	\$15,000
28	Railroad Removal	1	LS	\$50,000	\$50,000
Bid Item Subtotal					\$1,711,159
Contingency				40%	\$684,464
Estimated Project Construction Total (rounded)					\$2,396,000

Design Engineering	20%	\$479,200
Construction Engineering	20%	\$479,200

Estimated Total Project Cost (rounded)	\$3,354,000
---	--------------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Project Length = 1,880 LF

Assumptions

- 1 New curb and gutter on both sides
- 2 Trees planted every 30' each side
- 3 4" crushed rock under sidewalk
- 4 New conveyance system
- 5 3' wide asphalt patch for new conveyance system
- 6 No detention required
- 7 No fencing
- 8 Illumination - every 100' (roadway) and every 30' (pedestrian)
- 9 New roadway to be constructed
- 10 Remove railspur. Any new rail to be constructed by others.
- 11 Roadway section: 6" ACP over 9" Agg Base

Construction Cost Estimate
Port of Tacoma - Thea Foss Waterway
Project C

Date: Jan-10-2008

Project Description - Improve East 15th St. / East D St. to include 12' sidewalk on west side, SB parking lane, 14' SB lane, 12' landscaped median/turn pocket, 14' NB lane, NB truck storage lane north of SR509. Access management/driveway consolidation where needed. Also improve pedestrian crossings at designated locations. Relocate transit stops/shelters to crosswalk locations.

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Mobilization (10%)	1	LS	\$206,311	\$206,311
2	Temporary Sediment and Erosion Controls (3%)	1	LS	\$61,893	\$61,893
3	Temporary Traffic Control (5%)	1	LS	\$103,156	\$103,156
4	Surveying & Monuments	1	LS	\$20,000	\$20,000
5	Clearing and Grubbing	0.2	Acre	\$4,600	\$920
6	Excavation Safety Systems	1	LS	\$20,000	\$20,000
7	Roadway Excavation Incl. Haul	2,870	CY	\$10	\$28,700
8	Storm Drain Pipe	4,800	LF	\$50	\$240,000
9	Storm Drain Structures	30	EA	\$3,500	\$105,000
10	Water Quality Vault	2	EA	\$20,000	\$40,000
11	Adjust and Connect Utilities	1	LS	\$10,000	\$10,000
12	Gravel Base	700	Ton	\$20	\$14,000
13	Asphalt Concrete Pavement	520	Ton	\$105	\$54,600
14	Cement Concrete Sidewalks/Ramps	8,200	SY	\$40	\$327,016
15	Cement Concrete Driveway Entrances	312	SY	\$60	\$18,720
16	Curbs and Curb and Gutter	12,150	LF	\$20	\$243,000
17	Permanent Pavement Marking	15,400	LF	\$1	\$14,014
18	Permanent Signage	4,100	LF	\$5	\$20,500
19	Illumination (Streetlighting)	42	EA	\$5,000	\$210,000
20	Illumination (Pedestrian)	140	EA	\$2,500	\$350,000
21	Traffic Signal Systems	0	LS	\$0	\$0
22	Railroad Tracks & Crossings	0	LS	\$0	\$0
23	Railroad Signal	3	LS	\$45,130	\$135,390
24	Tree grates	325	EA	\$250	\$81,250
25	Trees	500	EA	\$200	\$100,000
26	Landscaping	1	LS	\$10,000	\$10,000
27	Force Account Roadside Cleanup	1	FA	\$20,000	\$20,000
28	Railroad Removal	0	LS	\$0	\$0
Bid Item Subtotal					\$2,434,470
Contingency				40%	\$973,788
Estimated Project Construction Total (rounded)					\$3,408,000

Design Engineering	20%	\$681,600
Construction Engineering	20%	\$681,600

Estimated Total Project Cost (rounded)	\$4,771,000
---	--------------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Approximate Project Length = 4,100 LF

Assumptions

- 1 New curb and gutter on both sides
- 2 Trees planted every 30' each side
- 3 New conveyance system
- 4 3' wide asphalt patch for new conveyance system
- 5 No detention required
- 6 No fencing
- 7 Illumination - every 100' (roadway) and every 30' (pedestrian)
- 8 Existing roadway to remain, sawcut to add drainage and sidewalk(s)
- 9 Intersections are non-signalized
- 10 Roadway section: 6" ACP over 9" Agg Base
- 11 Assume Trees and Shrubs in Medians

Construction Cost Estimate
Port of Tacoma - Thea Foss Waterway
Project B

Date: Jan-10-2008

Project Description - Construct half single point urban interchange at East D St. / SR509 (ramps to and from the east) and signal.

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Mobilization (10%)	1	LS	\$180,045	\$180,045
2	Temporary Sediment and Erosion Controls (3%)	1	LS	\$54,013	\$54,013
3	Temporary Traffic Control (10%)	1	LS	\$180,045	\$180,045
4	Surveying & Monuments	1	LS	\$20,000	\$20,000
5	Clearing and Grubbing	2	Acre	\$4,600	\$9,200
6	Excavation Safety Systems	1	LS	\$10,000	\$10,000
7	Roadway Excavation Incl. Haul	7,250	CY	\$10	\$72,500
8	Storm Drain Pipe	2,000	LF	\$50	\$100,000
9	Storm Drain Structures	13	EA	\$3,500	\$46,667
10	Adjust and Connect Utilities	1	LS	\$10,000	\$10,000
11	Water Quality Vault	1	EA	\$25,000	\$25,000
12	Gravel Base	9,100	Ton	\$20	\$182,000
13	Asphalt Concrete Pavement	8,800	Ton	\$105	\$924,000
14	Cement Concrete Sidewalks/Ramps	0	SY	\$40	\$0
15	Cement Concrete Driveway Entrances	0	SY	\$60	\$0
16	Curbs and Curb and Gutter	0	LF	\$20	\$0
17	Permanent Pavement Marking	5,500	LF	\$1	\$5,005
18	Permanent Signage	2,700	LF	\$5	\$13,500
19	Illumination (Streetlighting)	15	EA	\$5,000	\$75,000
20	Illumination (Pedestrian)	0	EA	\$2,500	\$0
21	Traffic Signal Systems	1	LS	\$87,575	\$87,575
22	Railroad Tracks & Crossings	0	LS	\$394,850	\$0
23	Railroad Signal	0	LS	\$45,130	\$0
24	Tree grates	0	EA	\$250	\$0
25	Trees	0	EA	\$200	\$0
26	Landscaping	1	LS	\$15,000	\$15,000
27	Force Account Roadside Cleanup	1	FA	\$15,000	\$15,000
28	Railroad Removal	0	LS	\$0	\$0
29	Remove Guardrail	600	LF	\$6	\$3,600
30	Retaining Walls	45,000	SF	\$75	\$3,375,000
31	Signal & Interconnect	1	LS	\$200,000	\$200,000
Bid Item Subtotal					\$5,593,149
Contingency				40%	\$2,237,260
Estimated Project Construction Total (rounded)					\$7,830,000

Design Engineering	20%	\$1,566,000
Construction Engineering	20%	\$1,566,000

Estimated Total Project Cost (rounded)	\$10,962,000
---	---------------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Approximate Project Length = 2,700 LF

Assumptions

- 1 No New curb and gutter
- 2 No new trees
- 3 Reduced new conveyance system, storm water conveyance by ditch, cross culverts
- 4 No detention required
- 5 No fencing
- 6 Illumination - every 100' (roadway)
- 7 Add new intersection signal on East D St.
- 8 Water quality required
- 9 Roadway section: 6" ACP over 9" Agg Base

Construction Cost Estimate Port of Tacoma - Thea Foss Waterway Project A	Date: Jan-10-2008
---	--------------------------

Project Description - Adjust Traffic Signal Phasing at East D / Puyallup Ave.

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Adjust signal phasing	1	EA	\$2,000	\$2,000
Bid Item Subtotal					\$2,000

Estimated Total Project Cost (rounded)	\$2,000
---	----------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Assumptions

None

Construction Cost Estimate
Port of Tacoma - Thea Foss Waterway
Project F

Date: Jan-10-2008

Project Description - Provide new overlay of East F St. north of East 11th St.

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Mobilization (10%)	1	LS	\$70,095	\$70,095
2	Temporary Sediment and Erosion Controls (3%)	1	LS	\$21,029	\$21,029
3	Temporary Traffic Control (5%)	1	LS	\$35,048	\$35,048
4	Surveying & Monuments	1	LS	\$10,000	\$10,000
5	Clearing and Grubbing	0	Acre	\$4,600	\$1,840
6	Excavation Safety Systems	1	LS	\$5,000	\$5,000
7	Roadway Excavation Incl. Haul	770	CY	\$12	\$9,240
8	Storm Drain Pipe	300	LF	\$50	\$15,000
9	Storm Drain Structures	5	EA	\$3,500	\$17,500
10	Water Quality Vault	2	LS	\$8,000	\$16,000
11	Adjust and Connect Utilities	1	LS	\$5,000	\$5,000
12	Gravel Base	1415	Ton	\$17	\$24,055
13	Asphalt Concrete Pavement	1430	Ton	\$105	\$150,150
14	Cement Concrete Sidewalks/Ramps	80	SY	\$40	\$3,190
15	Cement Concrete Driveway Entrances	20	SY	\$60	\$1,200
16	Curbs and Curb and Gutter	600	LF	\$25	\$15,000
17	Permanent Pavement Marking	800	LF	\$1	\$960
18	Permanent Signage	260	LF	\$5	\$1,300
19	Illumination (Streetlighting)	3	EA	\$5,000	\$15,000
20	Illumination (Pedestrian)	1	EA	\$2,500	\$2,500
21	Traffic Signal Systems	1	LS	\$350,000	\$350,000
22	Railroad Tracks & Crossings	2	LS	\$15,000	\$30,000
23	Railroad Signal	0	LS	\$0	\$0
24	Tree grates	18	EA	\$250	\$4,500
25	Trees	18	EA	\$200	\$3,600
26	Landscaping	0	LS	\$0	\$0
27	Force Account Roadside Cleanup	1	FA	\$10,000	\$10,000
28	Railroad Removal	1	LS	\$10,000	\$10,000
Bid Item Subtotal					\$827,207
Contingency				40%	\$330,883
Estimated Project Construction Total (rounded)					\$1,158,000

Design Engineering	20%	\$231,600
Construction Engineering	20%	\$231,600

Estimated Total Project Cost (rounded)	\$1,621,000
---	--------------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Approximate Project Length = 260 LF

Assumptions

- 1 New curb and gutter on both sides
- 2 Trees planted every 30' each side
- 3 4" crushed rock under sidewalk
- 4 New conveyance system
- 5 3' wide asphalt patch for new conveyance system
- 6 No detention required
- 7 2" Overlay
- 8 No fencing
- 9 Illumination - every 100' (roadway)
- 10 Assume overlay of East F Street, north of intersection, 2,100 feet.

Construction Cost Estimate
Port of Tacoma - Thea Foss Waterway
Project I - No Murray Bridge Option

Date: Jan-10-2008

Project Description - Extend East 11th St. west to tie into East D St.; Includes adjacent multi-purpose trail on north side linking to future shoreline esplanade, and sidewalk on south side.

Item No.	Item Description	Total Quantity	Unit	Unit Price	Total Cost
1	Mobilization (10%)	1	LS	\$36,557	\$36,557
2	Temporary Sediment and Erosion Controls (3%)	1	LS	\$10,967	\$10,967
3	Temporary Traffic Control (5%)	1	LS	\$18,279	\$18,279
4	Surveying & Monuments	1	LS	\$8,000	\$8,000
5	Clearing and Grubbing	0.5	Acre	\$4,600	\$2,300
6	Excavation Safety Systems	1	LS	\$5,000	\$5,000
7	Roadway Excavation Incl. Haul	800	CY	\$10	\$8,000
8	Storm Drain Pipe	650	LF	\$50	\$32,500
9	Storm Drain Structures	7	EA	\$3,500	\$24,500
10	Water Quality Vault	1	LS	\$5,000	\$5,000
11	Adjust and Connect Utilities	1	LS	\$5,000	\$5,000
12	Gravel Base	850	Ton	\$20	\$17,000
13	Asphalt Concrete Pavement	630	Ton	\$105	\$66,150
14	Cement Concrete Sidewalks/Ramps	1,200	SY	\$40	\$47,856
15	Cement Concrete Driveway Entrances	0	SY	\$60	\$0
16	Curbs and Curb and Gutter	1,200	LF	\$20	\$24,000
17	Permanent Pavement Marking	1,800	LF	\$1	\$1,638
18	Permanent Signage	1,200	LF	\$5	\$6,000
19	Illumination (Street lighting)	11	EA	\$5,000	\$55,000
20	Illumination (Pedestrian)	12	EA	\$2,500	\$30,000
21	Traffic Signal Systems	0	LS	\$0	\$0
22	Railroad Tracks & Crossings	0	LS	\$0	\$0
23	Railroad Signal	0	LS	\$0	\$0
24	Tree grates	20	EA	\$250	\$5,000
25	Trees	20	EA	\$200	\$4,000
26	Landscaping	1	LS	\$3,630	\$3,630
27	Force Account Roadside Cleanup	1	FA	\$15,000	\$15,000
28	Railroad Removal	0	LS	\$0	\$0
Bid Item Subtotal					\$431,377
Contingency				40%	\$172,551
Estimated Project Construction Total (rounded)					\$604,000

Design Engineering	20%	\$120,800
Construction Engineering	20%	\$120,800

Estimated Total Project Cost (rounded)	\$846,000
---	------------------

The Cost Estimate does not include costs for Permitting, Right of Way, Utility and Agency Agreements.

Approximate Project Length = 650 LF (roadway) 425 LF (pathway)

Assumptions

- 1 Bridge Demo not included
- 2 New curb and gutter on both sides
- 3 Trees planted every 30' each side
- 4 4" crushed rock under sidewalk
- 5 New conveyance system
- 6 3' wide asphalt patch for new conveyance system
- 7 No detention required
- 8 No fencing
- 9 Illumination - every 100' (roadway) and every 30' (pedestrian)
- 10 Roadway section: 6" ACP over 9" Agg Base

EAST THEA FOSS WATERWAY TRANSPORTATION CORRIDOR STUDY

Stakeholder Interview Summary October 24, 2007

The City of Tacoma is conducting the East Thea Foss Waterway Transportation Corridor Study in cooperation with the Tacoma Chamber of Commerce, the Port of Tacoma, and the Foss Waterway Development Authority. Between June and August of 2007, interviews were conducted as input to the needs of stakeholders on the Peninsula. The following summary encompasses the results of 10 interviews organized by question and by theme. Each bullet point represents a single person's comments. Attachment A presents a list of stakeholders interviewed. This Interim Report represents work-in-progress, and will be added to in future weeks.

KEY ISSUES

- The roads are in poor repair, which adversely affects traffic and equipment. Most interviewees think the City of Tacoma is not performing enough preventive maintenance on the peninsula's roads.
- Planning needs to properly integrate industrial users with mixed-use areas.
- Portland Avenue is the primary source of access for most freight users due to weight limits on other bridges.
- The 11th Street Bridge (Murray Morgan) is a point of contention between the City and the State, and its future configuration is a point of contention between industrial and commercial users.
- Industrial users do not plan significant expansion of transportation infrastructure in the coming 20 years. Existing properties are nearly fully utilized, limiting possible growth to properties that are currently unused—much of which has recently been purchased by the Port of Tacoma, creating uncertainty about future uses of those properties.
- Conflict with rail movements is not a common theme. Use of rail by properties on the peninsula is limited by the Burlington Northern and Santa Fe Railway's meager capability for servicing small customers.
- Freight users rely on mostly trucks for distribution.
- High-volume freight users are currently mostly content; they want potholes filled and more access points. Non-freight users are less happy, and call for more dramatic changes such as reconfiguring the 11th Street Bridge.
- Pedestrians, bicycles, and transit are not high priorities for most industrial businesses. Commercial businesses on the east side of the Foss Waterway are more interested in improving access for such users.

What are the current access and transportation challenges on the Thea Foss Peninsula?

Poor Road Condition

- General condition of roads on the Peninsula is deteriorating, and I see little investment in the roads by the city. The City should do better at maintaining and improving the routes.
- About shakes the teeth out of your head to drive on the roads. With the construction on D Street, around the south end of the waterway, over by the condos, and up the hill we have had to change route to get to work and for trucking.
- Improve the roads! The pot holes are damaging our trucks.
- The condition of roads is very poor, especially in Portland and Puyallup.
- Trucking companies tell us the biggest challenge is the quality of the roads, rather than problems with traffic volume.
- Condition of roads is a major problem. There is a lot of truck traffic to Valero and the section of D Street north of St. Paul is terrible. There are problems from the trucks that come up Portland and take 15th Street to D Street. That traffic has caused problems at the intersection of Portland and St Paul as well on the 15th Street.
- The City needs to keep up on on-going maintenance to avoid major rebuild activities, which would have a substantial negative impact on commerce.
- In this whole area, there are questions about who should be paying for road maintenance. Are they damaged by Port activity or normal industrial city business? There is a microcosm of this issue on the Peninsula. What is the appropriate funding mechanism that will improve those roads?

Traffic Congestion, Bottleneck Roads

- With the massive growth of warehouse structures down here, the roads need to be enlarged, widened. Some places where there are technically lanes, it's often backed up around the tank farms. Then the road is essentially strangled down to a lane. It's difficult for me in my Honda to maneuver through that, and I've seen our carriers just stop because they can't get through.
- There is traffic from tanker trucks especially along D Street. It is a hassle and a risk to pedestrians.
- I can't think of any congestion issues on the peninsula. Getting off I-5 is the challenge. Generally in good shape—don't need more lanes, just need them in better shape.
- There is a school bus facility that can cause problems. They ingress and egress in mass. They come back at 12 and go back out at 1:40 and hundreds of buses stop at every rail road interchange. That can cause a serious wait for our trucks. I understand they have to stop when they have passengers, but here they don't have passengers. My guess is that they are told to always stop to facilitate the sense of urgency for when they do have students. Either way we still have to wait for them to go over three sets of tracks and we have to follow them all the way to Portland Avenue. It is really frustrating for truck drivers and our employees.
- There is a loss of access to the public because of the dragon boats.
- The 11th Street Bridge going north from the Peninsula is an important corridor that is always congested. It is to the point that it will take more than a quick fix.
- It can be difficult to get on 1-5 North along Portland because of the double light and trucks getting backed up.

Limitations of Routing: Challenging Road Network

- The street network is not a very rational system. There is mixing of truck, rail, and auto traffic. It is difficult to get to and from the Peninsula. To get to Supervalu, you have to go up Portland, across St. Paul and then back down.

11th Street Bridge is a Major Corridor and Needs to be Maintained

- The 11th Street corridor is a crucial connector to downtown for both sides of the waterway. As the bridge hits land on the Peninsula, I want to be able to loop south & come around to the west side—a loop circulation pattern around the waterway that works for all modes of transportation.
- The 11th Street Bridge across the Foss is barely useable. It is not maintained by state and not paved correctly. Resolution of this problem is the biggest issue for us.

Bridge Weight Restrictions Lead to Limited Access Points

- The weight and size restrictions on 11th Street are a major challenge for us. Before those restrictions we had multiple access points, at least three routes to get to 11th Street, and if it was a smaller truck we could come across the Murray Morgan bridge. With the new weight restrictions we are restricted to Portland Avenue only. If anything was to happen on Portland, we are backed up for hours.

Portland Avenue, Intersection with Puyallup

- The interchange at Portland Avenue and I-5 is a nightmare and a disaster waiting to happen. One evening there was a truck vehicle accident and because that's the only access point for us when something like that happens and traffic doesn't move, and we lose hours when our load isn't moving.
- Portland Avenue and Puyallup intersection has 4 to 6 inch grooves in the asphalt from trucks. It continues to get worse year after year. Since it has been ignored for so long it will lead to a major rebuild. Is there a schedule for maintenance?
- The two lanes on Portland Avenue between I-5 and Simpson are a bottleneck for us. They recently paved one lane between Lincoln and 11th Street, but City dump trucks beat it up during Foss Waterway cleanup.
- The repeated flooding on the underpass under the freeway off Puyallup has caused problems for us.

Poor Signage

- In many places there is poor signage making it difficult for visitors to navigate.

Current Construction: Some Problems are Already Being Addressed

- The Peninsula is temporarily in a state of flux because of all the construction. There is an impact on the business, but we can work around it. Trucks get through, with delays. It will be important to see how many of these projects can help alleviate our challenges.
- The D Street construction is an unknown, but could help alleviate some of the current circulation challenges. The D Street overpass will be increase in route options for trucks.

Issues Related to Possible Development

- There needs to be collaboration between tenants and property owners for changes to 11th Street corridor if any developments happen.
- I am concerned about development on the Port property on the Peninsula and how it could affect traffic.
- The big challenge is to make multiple uses coexist but not conflict.
- If residential uses are created south of 11th Street to the east of the Foss waterway, I like the idea of letting residential traffic go immediately south to avoid the industrial zone.
- There has been incomplete infrastructure planning for redevelopment and business needs on the Peninsula. The challenge is how to put in place an infrastructure plan that allows existing businesses to grow and allows new businesses to come? The Port's lands are a classic example. They are incompatible with pedestrians.

Cost Guard Channel

- Waterway needs to continue to be a coast-guard approved channel. There has been talk in the past of taking this away.

Are there particular times of days, week, or seasons that are more challenging than others?

- During "peak" boating season, in the summer, there is not enough parking at the marina, so people park along the streets which limits access.
- Not that I have noticed, traffic seems to be random.
- No (2). Though construction has caused an impact recently.

Are back ups triggered by events such as boat dockings, etc.?

Bridges Cause Limited Congestion

- Bridges going up and down can cause delays but that is very occasional a couple times per quarter. Since 11th Street is no longer the main artery on the peninsula it has little traffic and little impact.
- The school busses can trigger back ups.
- Freight not affected by bridge raising, but office employees are often held up.
- No (4)

Are train movements a source of congestion?

- Just the train along D Street. Once a day, between 5 pm and 6 pm, trains block the road. The track goes out to the tank farm at the end of the Peninsula.
- We do get cut off with trains at Simpson Timber. They have to load a large train, the pull forward and then pull back and block 11th Street and St. Paul leaving us completely cut off. While we could snake around St. Paul and onto Johnny's Dock in a normal situation with the D Street construction on the over pass, that's not an option.
- Trains are a problem at D Street, but the current project will fix it. I think D Street is not a worthwhile project. Trucks don't use that route to get to the freeway.

THEA FOSS WATERWAY TRANSPORTATION CORRIDOR STUDY

- Train movements are not bad, they used to be worse. The Port has diverted a lot of traffic off 11th Street. The exception is occasionally coming west on 11th Street at the train crossing on 11th Street and Portland Avenue you may see only 5 or 6 cars or trucks backed up. If the Port brings unit trains to the peninsula, that could bring problems. Simpson gets only a couple switches per day.
- Trains along D Street occasionally block the entrance to our property. While it only lasts a short duration, it can surprise visitors.
- No (3)

What do you see as the current, medium-term (3-5 years), and long-term transportation infrastructure needs on and around the Thea Foss Peninsula?

Better, Wider Roads

- The condition of streets at rail crossing is atrocious. We have to weave around to miss the ruts.
- The roads need to be repaved. It's not just minor potholes, I am fearful to drive my car down Portland Avenue because of damage the roads can cause. All the transition areas over the rail road tracks, they are 8-10 inches above the road.
- Improvement to the roads—fix the potholes.

More Access Points, Especially to the Port of Tacoma

- We need more access points. If the restrictions on the 11th Street Bridge could be lifted or whatever needs to be done to upgrade the bridge to handle size and weight, that would give us another option, and help us access the Port.
- Currently to access the Port we have to take I-5 and come back. We have to drive 10 miles to go one as the bird flies. We do a significant amount of business with the Port now and expect more growth. We'll even sit sometimes and just go to the Port of Portland because it's easier.
- It would be great to increase the weight limitations over here.
- Upgrading on the 11th Street Bridge is the main issue.

Bridges

- The big issue is the 11th Street Bridge across the Foss (the Murray/Morgan bridge) – redesign 11th where it lands on the flats to better tie into D St. and the mixed-use area to the south of 11th. There's a need to complete some missing links in the road system on the peninsula, particularly between 15th and 11th as far west as possible, like a new roadbed at the head of the Wheeler-Osgood Waterway that connects 15th and 11th near/along the BNSF track ROW.
- Other plan: if the bridge is going to be there, access to the east should be maintained (if the main thoroughfare is turned to the south at D.) – the new SR 509 routed the SR off 11th Street. There was an agreement between the City & State that the State would bring bridges up to code/standard before handing it back to the City. It hasn't yet been funded—now the State is saying there is not enough traffic on the road, and the bridge is not safe. Preservationists say it is safe for some traffic, and the State should make it safe at least for car traffic.
- Bridges have no effect on our business.
- The 11th Street Bridge—nice amenity, but not a must-have. We are ok with State and Federal dollars going to it, but doesn't warrant the City footing the bill. It is not essential to our businesses. We would like to see the City's resources best spent elsewhere.

Rail Usage on the Peninsula

- We get about get one switch per day. We could do more, but BNSF doesn't have the manpower.
- We don't use rail; our issue is to make sure the roads are designed to be compatible with rail.

Transit and Mobility Options: Conflicting Feedback

- Some would be an improvement! There is none.
- Transit can complement what's happening on the west side of the Foss waterway. We need good ties to 11th Street near the bridge. We support transit, but people need to use it more.
- Employees would be better served by more frequent service. But if there's anything the city could do to put more busses on during rush hour, it might help more people consider it. The transfer is at 10th Street and Commerce Street in downtown and the service is insufficient to build demand. There should be either more bus service to the peninsula, or nothing.
- We have quite a few vanpools
- No idea, I don't ride it much. I thought the trolley was very expensive.
- All the workers at our site live outside the city, they need to drive to work.
- No homes on the peninsula, so no transit needed.

Pedestrian and Bicycle

- I definitely see a need for increased pedestrian, bicycle, and transit options considering the condos that are being built. Public transportation doesn't really come over here and the few employees that take it have to walk.
- Don't think there's a need for sidewalks. The esplanade requirement along water will take care of it.
- The Peninsula is accessible now. I see people walking and biking fairly regularly. Sidewalks go up to our facility.
- It doesn't matter to me, pedestrians wouldn't be able to go our property for security reasons and improvements outside the facility wouldn't have an impact on us.
- I agree with the Foss Waterway plan.
- If money comes from the Feds, sure, improve the bike lanes. If it is local dollars, focus the money on routes likely to serve the most users. The Port is not friendly to bikes with noise, dust, trucks, etc. Other commercial centers could probably get more bang for the buck. We have pretty minor usage down here any way.

Parking

- We don't want to lose parking. It is only a seasonal problem, so we can tolerate it. Businesses in the area often close on the weekend, which is a help to them.

Need to be Consistent with Development Changes

- Depends on the uses—as the peninsula changes, the transportation needs will change. Some talk about rerouting tankers from D to F.

Are there issues or concerns related to emergency response to your facility?

- Emergency response is certainly an issue. Fortunately there is a fire station but I have heard talk that it will be closed. If that happens and there are no emergency stations, we will be limited. What happens if Portland was cut off and the 11th Street Bridge was closed?
- Not really, the capacity exists now.
- Not with fire, the station is very close to our property. For ambulance service we need to keep the 11th Street Bridge open.
- No there is good access. The Fire Department is four minutes away, and they're on the water for fireboat access.
- Don't have any issues.
- No, have good response from fire and aid cars.

What opportunities do you see to alleviate transportation challenges?

- You should map the existing rights of way, both rail and road network. I believe there are several areas of rights of way that aren't used, that could be developed to help make the road network more straight forward and useable. The value of having dedicated unused right of way is to consider trading that with private owners to make existing roads wider or new roads in strategic locations. It is difficult to get a handle on the exact extent of right of ways but possible locations include:
 - F Street South of 11th
 - D Street South of 11th
 - E Street North of 11th

Are there particular projects that could help your site or the Peninsula as a whole?

- I surveyed our team and the resounding answer was to repave the streets and fix the railroad transitions.
- Maintain the roads.
- Off-ramps from 23rd Street to D Street would be good.
- The D Street overpass will bring retail traffic to the East Foss, and will improve access to Freighthouse Square.
- Regarding the Major Arterial road designation on D Street: the designation stops at 15th Street (Martinac) and doesn't connect to 11th Street. It needs to link up with something, preferably 11th Street.
- Improve F Street. Our customers currently just use D Street, but F Street is a straight shot into our property.
- Add pedestrian walkways and increase public transportation.
- Get rid of the weight loads.
- Widen the roads.
- We need to separate the truck and car traffic. There should be a hard buffer between heavy industrial uses and other land uses. That includes separate auto and truck lanes and even separate roads. D Street and 15th Street are specific places where auto and truck traffic should be separated. Autos should be on the water side. Non-industrial uses should be closer to downtown, on the south side of the peninsula.

Are you currently looking at any planning relating to your site? If so, what are the implications for the transportation network?

- No, nothing that fundamentally changes what we do or our transportation needs.
- Not planning to change our site.
- We may see a slight increase in trucks, but nothing significant.
- I have a sense there may come limits on storing logs in the water and reducing the amount of logs brought in by water, so we may have more trucks on the road. I would approximate a 30% to 100% in trucks, if regulations about logs in the water are created.
- I don't see us growing facility wise, we are looking to expand our volume of business.
- The Port is proposing a mix of commercial uses on the 20 acre site. It will be a center for more auto traffic on the Peninsula. A possible mix of uses would be 8 acres in office and 10 in light industrial.

FREIGHT TRAFFIC

How do you typically send and receive freight?

What modes to you typically use to send and receive freight?

- Our percentage use of modes is:
 - Primarily truck deliveries – 60-70%
 - Barge: 30-40% water
 - Nothing now by rail, but there used to be
- We have about 77% finished product by rail and 23% by truck, about five to six trucks per day.
- We get mostly deliveries from semi-trucks, equipment. A little bit of outgoing.
- We use truck and water.
- We use majority pipeline, a few barges, and about one rail switch per day.
- Almost everything comes and goes by truck, about 99%. The other 1% is rail that backs off the property.
- The majority of our shipments go out legal weight truck or full truck loads (about 99%). We use common carriers and smaller owner-operated shops.
- I use truck only. The railroad has me pinned down.

What is your daily truck activity?

- We have 16 power units that are all moving in and out every day. About half of them will do an additional trip in and out, so in total about 24 trips in and out daily.
- We receive five to seven semis every day.
- We see 10-20 trucks per day, primarily in.
- We have occasional tractor-trailer traffic and LTL of about 10 or more per day.
- We see 80 to 100 trucks twenty-four hours a day, seven days a week.
- We have between 5-10 deliveries. Common carriers will drop off in the morning and come back in the afternoon and 5-10 outbound. If we have a project that number can increase exponentially we've had in excess of 8-10 truckloads.

- Our daily truck activity is:
 - 50-70 trucks/day bringing logs into the facility
 - Paper: up to 100 trucks w/ chips & paper to be recycled coming in
 - Pulp mill: 15 trucks LTL trucks (like UPS, or local deliveries)—parts, equipment, etc.
 - Maybe 10 trucks of chips going out from the lumber mill to external chip customers
 - Five to six lumber trucks/day leaving with product
- 30-50 trucks per day.

What routes do you use?

- Probably all of our routes are to Portland, St. Paul, or 15th Street.
- We take the Portland Ave exit off I-5; left on 11th; right on D Street. Both in and out (generally). Our smaller trucks might take other routes.
- We take the Portland Avenue exit, it's much better than the Port of Tacoma exit, even though it does have areas of saggy pavement.
- We are located on east 18th Street and everyone comes in on Portland, to St. Paul to 15th to 18th. It is the only way in given the weight limit on the 11th Street Bridge.
- Don't keep track, the trucks aren't ours, so we don't track where they go.

Where does your in-coming freight originate, and where does your out-going freight end up: North, South, East on SR 167, or other?

- Our trucks take I-5 north or south, occasionally Highway 18 to I-90, and occasionally we use SR 167. We are going all over, including to Canada. Then we use the Blaine Crossing.
- We deliver to the Greater Puget Sound area. We try to stay away from SR 167 because it doesn't move all the time.
- Freight comes in from all over, local, regional, and from overseas.
- Our business is mostly to California.
- We receive and send deliveries all over.
- Everywhere in the region.
- Primarily south I-5 to Portland area and California. We do have some customers north in the Seattle area.

Looking out 20 years, what do you expect will be your long term freight needs?

Do you anticipate growth? Small scale, large scale growth?

- We anticipate 15-20% growth per year.
- We expect this to remain somewhat the same. Our only variable is fluctuation in activity level. 20 years ago there was a higher level of activity that we would like to get back. We might rise back up again to the old level. We used to be 350 employees steady; now we are up and down. We are currently have around 100 employees; while we could get back to 300-350, we won't grow over that.
- We anticipate similar patterns in the future, marginal growth, with perhaps more rail. If water deliveries dry up, we could double incoming log trucks—up to more than 100 daily.

- We will experience some optimization and maybe small scale growth. We are already the biggest plant of our kind on Puget Sound. We feel that we have saturated our markets and can't see building another similar plant in the area.
- I would say if we meet our growth goals, it would double and it would change the scope, it wouldn't just be morning and night. Right now we operate approximately 24 hours, but not at full capacity. If we were I would anticipate three full shifts of production so trips could be all day and night.

Do you expect growth to be handled through rail or truck traffic?

- We expect growth to continue similar proportion, although rail may grow some because the freeways are getting more congested. There is some expected growth in sending products to eastern markets by rail.
- Anticipate most by truck.

If truck growth, what amount of activity do you expect per day? (ie, what percentage of growth between now and 2025)?

- Our terminal is maxed out. While we could receive a few more trucks, there is no more room for tanks. We could time-shift trucks away from congested periods to increase our traffic, but not by much.
- Again, we anticipate about the same truck activity unless other modes, water, are cut.

What are your current hours of operation? Do you expect this to change?

- 24 hours
- Here 24, but not 7-5 for peak
- We have one primary day shift that makes noise. We also have painters at night, but they are quieter. Our painters are smellier.
- We operate from 6am to 10pm.
- We operate 24/7 at the same levels around the clock.
- We operate 24/7, but the Monday through Friday 7am to 6pm shifts hold the majority of the truck traffic. There is some limited traffic on the weekends.

Do you have peak transportation needs at certain times of day?

- Business is pretty well spread out; it is steady.
- Highest activity if from 5 am to 8 am, when trucks are headed out. They come back in a dribble.
- Late afternoon is our peak, as businesses are closing and the dragon boaters are coming in.
- Daytime is busy, especially first thing in the morning when the truckers start their day. There are no home heating oil trucks in the evenings.
- Our business hours are as follows:
 - 10 am to 4 pm for rail and trucking. We load trucks during the day and at swing shifts, 7 days a week.
 - Our sawmill has 5 or 6 trucks on the day shift.

Is your business subject to seasonality? What are the seasons?

- No (5)
- Cyclical not seasonal
- Yes. Home heating oil, a minority of the business, experiences some peaks. While most of the customers have the same rate of activity all year, new regulations for sulfur content in fuel are going to decrease demand. Sulfur is being reduced in home fuels, which will increase the cost, so the product is probably being phased out.

How do your employees travel to and from work?

- They come across 11th Street and pick their way through Dock Street. But you can't count on it being open.
- Everyone comes in cars.
- A few carpools (20 or so), mostly cars, and a couple bikes.
- Personal autos (x2)
- Most take I-5 to Portland Avenue. A few others take I-705 and 11th Street using personal autos and some van pools.
- A lot of employees come across Murray Morgan Bridge, but the majority of us come across the 11th Street Bridge. Even if employees come from I-5, they will take the I-705 exit, so they don't have to deal with the Portland Avenue interchange. When the Murray Morgan gets stuck open or under maintenance there is no other way to go.

Do you have any specific physical security needs?

- With our current access we are able to meet homeland security regulations and Coast Guard requirements.
- We need to have emergency vehicles, including fire trucks, access us quickly.
- We haven't restricted access yet – signing people in and out. It's something that we're talking about, but haven't implemented.

STAKEHOLDERS INTERVIEWED AS OF AUGUST 7, 2007

Nathan Childs, Globe Machinery

Bob Emerson, Port of Tacoma

Mark Eshleman, Panattoni

Joe Martinac, Jr., J. M. Martinac Shipbuilding Corp.

Dave McEntee, Simpson Cos.

Don Meyer, Thea Foss Development Authority

Clare Petrich, Petrich Marine Dock

Laura Shane, Globe Machinery

Jay Stewart, Port of Tacoma

William Stowell, New Star Energy/Valero LP/Shore Terminal; & Stephen Tan, Cascadia Law Group

Kevin Trucco, Colonial Fruit & Produce



CITY OF TACOMA EAST THEA FOSS WATERWAY TRANSPORTATION CORRIDOR STUDY

Design Concepts Workshop Summary September 27, 2007

INTRODUCTION

The City of Tacoma has identified the need for improved transportation along the East Thea Foss Waterway Corridor. In order to facilitate compatibility between co-existing land uses and encourage economic development in the Thea Foss Peninsula, the City commissioned a transportation corridor study to provide transportation and streetscape/aesthetic improvements. The initial project drafted several different design options and the City invited the public and key stakeholders to attend a design concepts workshop at the Freighthouse Square on Thursday, September 27, 2007 from 4pm to 6pm.

Invitations to the meeting were distributed via email to people who owned businesses, worked, or resided in the Thea Foss Peninsula. Participants included 17 members of the public, five steering committee members and seven consultant team members. After a half-hour open house during which the public was invited to view each of the design concepts, Peter Huffman, City of Tacoma welcomed participants. Steve Sindiong, Perteet Engineering, briefly elaborated on the existing conditions, key issues, and design concepts of the project. Participants were then asked to break into separate discussion groups based on their interest in the North Area or South Area of the Peninsula.

The City asked the attendees to review several draft designs and comment on how well those design concepts worked, what could be improved, and to offer additional design ideas and concepts. Participants were given the opportunity to share their comments verbally with staff during the open house and the discussion groups, and/or to write their responses down on flip charts spaced around the room and comment forms provided by staff. This document summarizes that feedback from workshop.

Key Themes

- There were widely varied views regarding the necessity of separating industrial traffic from non-industrial traffic.
- Most participants enthusiastically supported slip ramps.
- Most participants supported maintaining the Murray Morgan Bridge as it currently operates.
- Participant comments seem to reflect a desire for fixing the St. Paul Avenue and East 11th Street interchange which is part of every design concept presented at the workshop

- There seems to be consensus that something should be done with East D Street, but participants offered no clear perspectives as to whether extension, widening or two parallel roads is preferable.

Participant Comments

Response to Specific Designs

- Solution A-5 should have cars only on the bridge. Slip ramps are needed and trucks should only use on and off slip ramps. Not past east bound slip ramp.
- No to scenario A2. The corner of East 15th/F Street: Small office development/residential. Belos RV, owners, under contract. Port owns area to the west, interested in swapping land. Funky wholesale retail.
- A1: I like the idea of separating industrial and non-industrial traffic. It should help reduce the stopping and staggering in morning along 15th and East D Street.
- The extension of D Street south of East 11th Street would be a safety concern due to the speed of the trucks accessing the north end of East D Street. It would be better to extend an east-west street, preferably 10th, between East D and F Streets.
- I like the industrial road option because it allows traffic to get on and off slip ramps. It doesn't need to be separated necessarily.
- I don't like medians. (A5)
- Medians are great urban design features and can slow traffic and raise property values. (A5)
- Use the least conflicting traffic pattern and one that takes up the least land for D Street up to the north.

Support for Separating Traffic

- It is important to have a functional separation between cars and trucks. Cars and trucks are not compatible.
- It is better to keep industrial access and cars separate. Current traffic patterns deter customers and make it tough to lease space. Trucks shouldn't be allowed along East D Street.
- Trucks are loud and will damage the roads.
- Keeping trucks and traffic apart is the right idea, but doesn't solve the issue to the south. If you could take the Supervalu parking row for trucks it would be great.
- It would be a huge improvement to have wide separation south of Supervalu between industrial users.
- Separate traffic reduces conflict with vehicular and buses.
- Separate traffic produces problem for the Port of Tacoma, it needs 10 feet on each side for wheelchair access.
- Mixed traffic means big lanes and turning radiuses which makes cars drive faster. Separation would allow for a smaller street design for cars.

East Thea Foss Waterway Transportation Corridor Study

- North of East 11th Street should be industrial traffic only. South of 11th Street the east side should be industrial traffic only and the west should be non-industrial.
- Truck separation is more of a land use issue than a traffic issue.
- Separation on East D Street would be nice, but there is no right of way.
- Make East D Street from SR 509 to Puyallup Avenue for commercial use only, if possible.
- Separating industrial traffic from commercial traffic is of high priority, but not on a single street, have two different streets, such as commercial on East D Street and industrial on Portland Avenue.
- The goal for separation is a transition zone between industrial and non-industrial traffic between Johnny's Dock and Supervalu.
- Move industrial traffic to East F Street.

Resistance to Separating Traffic

- At most locations it is acceptable for cars and trucks to share the same road. For the safety of the users of the Youth Marine Foundation site it is necessary for cars and trucks to be separated north of East 11th on East D Street.
- Don't separate the traffic – that doesn't accomplish enough for the money.
- Don't worry about mixing car and truck traffic.
- More channeling and separation would potentially create more operational problems because there would be two, two lane roads. What happens if something blocks traffic, like an unloading bus or a break down?

Traffic Circulation and Flow

- The greatest problem is the speed of the trucks (too fast) during the 7 a.m. to 8 p.m. hours of the Youth Marine Foundation.
- Make the truck traffic go east to Portland Avenue. There is no truck traffic there at all.
- Industrial traffic should only be allowed to make a right turn onto East D Street (from future SR 509 westbound slip ramp) and head northbound. Driveways should be designed so that the turning radius at the corner allows for a right turn only.
- Designing East D Street to be northbound only for industrial traffic doesn't make sense because exiting trucks that would need to go back south to get to their final destination would want the shortest route, rather than meandering northbound to get back to Portland Avenue.
- Traffic wants to go south on D Street, right on Puyallup Avenue and then left on C Street to the I-5/705 on-ramp.
- The Dinner Train sits on C Street.
- Improved signage at East 11th and East D Street is needed to help direct traffic to their destinations which would help the Foundation which has public users of their site.

East Thea Foss Waterway Transportation Corridor Study

- Buses get stuck at St Paul Avenue and East 15th Street behind rail.
- St Paul Avenue and East 15th Street is an awful intersection: dangerous and frustrating.
- The intersection at St. Paul and East 11th Street is also bad.
- Valero has a ton of trucks that queue down East D Street to underneath East 11th Street to St. Paul.
- The heaviest truck volume occurs on East D Street north of 11th Street.
- Improve Portland Avenue and SR 509 intersection.
- With light rail running on 25th Street and sounder running between 25th Street and 26th Street, trucks will have a problem through this area.

Traffic Circulation and Flow at 15th Street and D Street Specifically

- Traffic should be redirected behind Supervalu but you can't get across the rail road until BNSF gives permission. (15th/D)
- Trucks stage to get into Supervalu at East 15th Street and East D Street.
- Signage and information could be improved along and around Supervalu. South of Supervalu people stop and stare – they are confused. (15th/D)
- Trucks go from St. Paul Avenue to 15th to East D Street. They stop as they are on 15th, because they are lost. Signage could help here.
- East D Street, south of East 15th will have industrial use to the east and mixed use to the west. Regardless of whether the traffic is missed or separated the bus safety/design requirement of three rows of trees creates a transition zone. The aesthetics of the road is a big part of meeting the goal of transition from shared to individual traffic.

SR 509 Slip Ramps

- The extension of East D Street south of 11th Street would be a safety concern due to the speed of the trucks accessing the north end of D Street. It would be better to extend an east-west street, preferably 10th Street, between D and F Streets.
- Most traffic will use I-5, so the slip ramp should be one-way to I-5.
- Slip ramps are increasingly important for access south of East 15th Street on the west side.
- We like ramps and wanted them and were told by Norm Dicks that they would get them after East D Street went in.
- I like the slip ramps with only north bound truck traffic.
- The goal is to keep industrial traffic out of the Dome District streets. Ramps are the way to do it, ramps but no bridge. Dome events and trucks need ramps.
- I like the idea of a ½ Single Point Urban Interchange (SPUI) for SR 509 ramps.
- South of Supervalu there is no need for trucks to use East D Street until the SR 509 ramps happen – this could be a one-way south on D Street.
- Ramps could help trucks with accessibility.

East Thea Foss Waterway Transportation Corridor Study

- I want slip ramps onto SR 509 to alleviate traffic in the Dome District
- Make a westbound off-ramp from SR 509 to north on Portland Avenue.
- SR 509 ramps would help industrial traffic from Thea Foss on East D Street. Industrial traffic needs to be discouraged from entering the Dome District via the East D Street overpass.

Land Uses

- A visual buffer between industrial and non-industrial land uses should not come at the expense of parking.
- The creation of an esplanade seems like it would encourage more office uses.
- The west side of the Foss is a different world.
- What are the future highest and best uses of the north end of the Foss? Are there zoning changes along Foss north of 11th Street that are applicable? You should refer to the State sponsored Innovation Zones study and effort.
- There are great views on the east side and a warm afternoon light. The west side is a premium office area. I am concerned that office invites residential.

Murray Morgan Bridge

- It is more important to keep the 11th Street Bridge open than to separate cars and trucks.
- The 11th Street (Murray Morgan) Bridge is weight limited – it needs significant repairs. Could it be just pedestrians or just cars and no trucks?
- The Murray Morgan Bridge is key - link to Foss waterway for industrial? (it will fall into water someday)
- I want the Murray Morgan Bridge to be open.
- The Murray Morgan Bridge needs to be kept.

Non-Motorized Facilities

- Customers using the Foundation site park under the 11th Street Bridge and then walk north to the Foundation site along the West side of East D Street. This is also the route for pedestrians to and from downtown Tacoma.
- Sidewalks are needed along the West side of East D Street north of 11th Street however they should not be at the expense of on street parking. The sidewalk may not be compatible with the rail line that runs along the west side of East D Street.
- There has been significantly increased pedestrian traffic activity in the last few years.
- Put an esplanade just north of 509 on the street, not on the waterfront (danger zone).
- Use space for wide sidewalks and bike path or lane
- Bike lanes should not be created at the expense of on street parking.

Parking

- On street parking is absolutely necessary for cars along the west side of East D Street north of 11th Street. The Youth Marine Foundation needs more on-street parking for its clients.
- Parking garages shouldn't go in Dome District. Want density and urban vibrancy.

Needed Collaborations and Partnerships

- Any effort needs to have specific commitments from key organizations including the City, the State, BNSF, and the Port of Tacoma.
- You should engage long-term needs of users such as Valero.

Questions Raised by Participants

- Do users need East D Street access?
- Could you operate slip ramps?
- Why both bridge and slip ramps or no bridge and no slip ramps? Why not slip ramps but no bridge or a bridge but no slip ramps?
- Can we get BNSF right of way along East F Street?
- Will BNSF vacate the right of way?
- What about ramps at Portland on SR 509 separation?