Chapter 3 The Environment

This chapter describes existing conditions in the study area and past uses that led to these conditions. This chapter also presents the environmental effects that would likely result from the Grays Harbor new casting basin facility construction, building and launching pontoons at both the existing CTC and the proposed Grays Harbor casting basin facilities, and mooring pontoons until they are needed. Also, potential indirect and cumulative effects are described. For comparison purposes, the consequences of the No Build Alternative are also discussed. This chapter also presents methods that WSDOT could use to avoid, minimize, or mitigate for any effects.

What topics did WSDOT include in the environmental effects analysis?

To identify and evaluate the environmental effects of the SR 520 Pontoon Construction Project, WSDOT studied relevant components of the built and natural environment. Following are the environmental topics included in this analysis:

- Ecosystems, including wetlands, fish and aquatic resources, and wildlife
- Geology and Soils
- Hazardous Materials
- Water Resources, including floodplains
- Air Quality
- Energy and Climate Change
- Cultural Resources
- Economics
- Navigable Waterways
- Noise
- Public Services and Utilities
- Land Use
- Social Elements, including recreational facilities and environmental justice
- Transportation
- Visual Quality and Aesthetics
- Section 4(f) Resources

WSDOT analysts—scientists, cultural resource experts, and environmental, transportation, and land use planners with specialized knowledge about the components listed above—documented their detailed analyses in discipline reports and technical memoranda, provided in Appendices C through S of this Draft EIS. The effects analyses provided in this chapter were summarized from these appendices and are presented in the order listed above.

WSDOT analysts defined specific study areas as appropriate for each discipline. For example, the public services and utilities study area extends one-quarter mile beyond the casting basin facility site boundaries; for air quality, however, the study area is not so precisely defined and encompasses a broader, regional area.

What types of direct effects did WSDOT evaluate?

The environmental effects analyses followed state guidance (WSDOT 2008b), which is designed to ensure compliance with NEPA and other federal, local, and state regulations. NEPA requires that an EIS disclose direct, indirect, and cumulative effects of a proposed action on the environment (40 CFR 1500-1508) and describe how the project would affect the built or natural environment. Direct effects are caused as a direct result of project activities and can be either short term and temporary or long term. For this Draft EIS, the direct effects analysis for each discipline is divided into the following types of effects:

- **Construction effects**, which are effects anticipated during construction of the new casting basin, support facilities, new moorage facilities, and mitigation features, including long-term effects that would result from site development activities.
- **Operational effects**, which are effects anticipated during pontoon construction at the new casting basin and the existing CTC facility, as well as long-term effects that would result from site operations activities. The effects of mooring pontoons over an indefinite period of time, maintaining the Grays Harbor casting basin facility after the SR 520 Pontoon Construction Project is complete, and implementing mitigation features expected to remain when the project is completed are also considered operation effects.

What are indirect effects, and how did WSDOT evaluate them?

Indirect effects are caused by the action (the project) and occur later in time or are farther removed in distance but still are reasonably foreseeable (40 CFR 1508.8). Indirect effects result from one project

but, unlike direct effects, typically involve a chain of cause-and-effect relationships that can take time to develop and can occur at a distance from the project site. Often times, indirect effects on a resource are the result of changes to another resource in the area, so cross-resource interactions must be considered as well. This makes indirect effects difficult to predict accurately and usually require a qualitative estimate more general than predictions of direct effects.

The project analysts used WSDOT and FHWA guidance on how to assess potential indirect effects of this project on a resource. See Appendix S, Indirect and Cumulative Effects Technical Memorandum, for a summary of the methodology used and examples of resource-specific approaches to the indirect effects evaluation for this project.

What are cumulative effects, and how did WSDOT evaluate them?

Cumulative effects are effects on the environment that would result from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal), or person, undertakes such other actions. Cumulative effects can result from individually minor—but collectively significant—actions taking place over a period of time (40 CFR 1508.7). A cumulative effect is also the project's direct and indirect effects on a particular resource, combined with the past, present, and future effects of other human activities on that same resource. The result is the expected future condition of the resource when all of the external factors known or likely to affect it are taken into account.

The project analysts reviewed the general guidance in Section 412 of the WSDOT *Environmental Procedures Manual* (WSDOT 2008b) and in FHWA Technical Advisory T 6640.8A (FHWA 1987). Specifically, they followed the *Guidance on Preparing Cumulative Impact Analyses* (WSDOT et al. 2008). See Appendix S for a summary of the methodology used to consider cumulative effects.

Why did WSDOT consider indirect and cumulative effects in this EIS?

Federal regulations (40 CFR 1502.16, 1508.7, 1508.8) require that indirect and cumulative effects be considered in an EIS because the effects inform the public and decision-makers about possible unintended consequences of a project that are not always revealed by examining direct effects alone. This information helps project planners and designers to mitigate direct effects under their control in ways that can make adverse indirect and cumulative effects less likely and less severe.

WSDOT does not mitigate cumulative effects because it does not have jurisdiction over the many non-WSDOT projects that contribute to cumulative effects. However, WSDOT and FHWA are required to disclose cumulative effects and to suggest practical mitigation options that could be implemented by the responsible parties (WSDOT et al. 2008). As a result, this chapter suggests ways that public agencies and private developers beyond WSDOT's jurisdictional responsibilities could mitigate cumulative effects. The chapter also places particular emphasis on ecosystem effects, including wetlands, fish and aquatic resources, and wildlife, because of interest expressed by the PCPACT.

How did WSDOT identify other past, current, and reasonably foreseeable actions?

WSDOT identified past actions and trends affecting the resource in order to "tell the story of the resource" as part of the effort to characterize the baseline (current) condition of the resource. To do this, WSDOT collected information from field surveys, interviews, and literature searches to assess the current condition of the resource; WSDOT also considered development trends in the project vicinity. WSDOT did not address the past in detail, but instead briefly summarized each resource to place it in its historical context and identify long-term trends affecting the resource's conditions.

Reasonably Foreseeable Actions

A reasonably foreseeable action is a private or public project already funded, permitted, or under regulatory review, or included in an approved final planning document. For the Pontoon Construction Project, WSDOT defined reasonably foreseeable actions as actions or projects with a reasonable expectation of actually happening, as opposed to potential developments expected only on the basis of speculation.

To identify other current and reasonably foreseeable actions in the project vicinity for the cumulative effects assessment, WSDOT reviewed comprehensive land use planning documents, long-range transportation plans, and agency Websites to obtain publicly available information. WSDOT also spoke with agency and Tribal officials, representatives of private companies and organizations, and members of the public during the scoping process conducted for the Draft EIS (see *How has WSDOT involved the public in the environmental process?* and *How has WSDOT included agencies and tribes in the environmental process?* in Chapter 1).

Applying criteria outlined by WSDOT, FHWA, and the U.S. Environmental Protection Agency (EPA) (WSDOT et al. 2008), WSDOT mapped and compiled lists of current and reasonably foreseeable actions for the Grays Harbor and Tacoma areas to support the resource-specific cumulative effects assessments conducted for those areas; Exhibits 3-1 and 3-2 list those projects and their (estimated) completion date. Exhibits 3-3 and 3-4 show the approximate locations of current and reasonably foreseeable development projects that WSDOT has identified for the Grays Harbor and Tacoma areas, respectively. The Indirect and Cumulative Effects Analysis Methodology Memorandum in

Appendix S provides more detail about these Tacoma and Grays Harbor area projects.

As mentioned in the SR 520 Pontoon Construction Project's purpose statement, if the pontoons are not needed for catastrophic failure response, then they would be used for the planned replacement of the Evergreen Point Bridge. Therefore, the reasonably foreseeable actions for this project would include the proposed SR 520 Program's I-5 to Medina: Bridge Replacement and HOV Project, which has a separate purpose and need and would provide an independent benefit to the region. The SR 520 Program's I-5 to Medina Project is currently undergoing environmental review to comply with NEPA, and the Supplemental Draft EIS (published January 2010) discloses the potential environmental effects that would be anticipated when using the pontoons constructed as part of this project to replace the floating bridge.

EXHIBIT 3-1
Completed, Current, and Reasonably Foreseeable Development Projects in the Grays Harbor Area

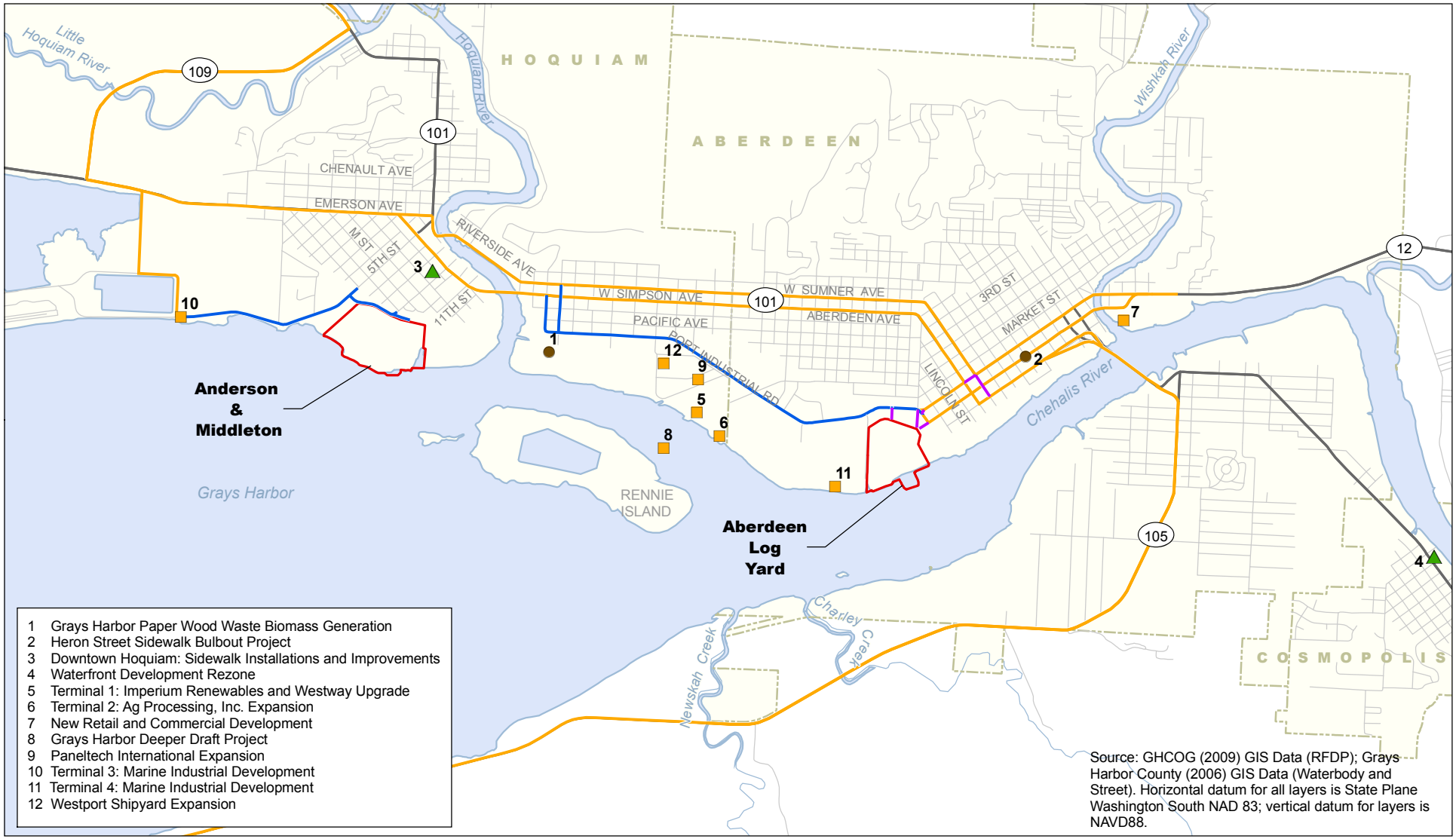
ID	Project	Approximate Completion Year	Status
1	Grays Harbor Paper Wood Waste Biomass Generation	2007	Completed
2	Heron Street Sidewalk Bulbout Project	2009	Completed
3	Downtown Hoquiam: Sidewalk Installations and Improvements	2009	Current
4	Waterfront Development Rezone	Unknown	Future
5	Terminal 1: Imperium Renewables and Westway Upgrade	2011	Future
6	Terminal 2: Ag Processing, Inc. Expansion	2011	Future
7	New Retail and Commercial Development	2013	Future
8	Grays Harbor Deeper Draft Project	2018	Future
9	Paneltech International Expansion	Unknown	Future
10	Terminal 3: Marine Industrial Development	Unknown	Future
11	Terminal 4: Marine Industrial Development	Unknown	Future
12	Westport Shipyard Expansion	Unknown	Future

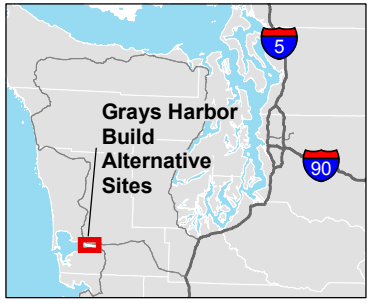
EXHIBIT 3-2
Completed, Current, and Reasonably Foreseeable Development Projects in the Tacoma Area

ID	Project Name	Approximate Completion Year	Status
1	Puyallup River Levee Trail: TAC 38	2007	Completed
2	Pacific Avenue Safety and Mobility Improvements	2008	Completed
3	Prairie Line Trail: Water Ditch Trail Extension	2008	Completed
4	Scott Pierson Trail and Scott's Way (SR 16)	2008	Completed
5	Tacoma-Lakewood Track and Signal	2008	Completed
6	Thea Foss Waterway Public Esplanade: Balfor Dock	2008	Completed
7	Thea Foss Waterway Esplanade: Site 1 (21st Street Park)	2008	Completed
8	Lincoln Avenue Grade Separation	2009	Current
9	Puyallup Bridge F16A and F16B Replacement	2009	Current
10	Thea Foss Waterway Hotel	2009	Current
11	I-5: Pierce and King Counties Line to 320th Street	2010	Future
12	Lister Gulch Bicycle-Pedestrian Improvements	2010	Future
13	Pacific Avenue Rail Grade Separation Crossing	2010	Future
14	SR 16: Tacoma Narrows Bridge	2010	Future
15	SR 16: I-5 to Tacoma Narrows Bridge	2010	Future
16	Tacoma Dome Bike Station	2010	Future
17	Tacoma Dome Station Access Signal Priority Enhancements	2010	Future
18	Water Ditch Trail (South Tacoma Way and East 26th Street)	2010	Future
19	Lincoln Avenue Bridge Replacement	2011	Future
20	Taylor Avenue Realignment	2011	Future
21	NYK Line Container Terminal	2012	Future
22	Puyallup Riverfront Trail	2012	Future
23	SSA Marine, Inc. and Puyallup Tribe Container and Cargo Facility	2012	Future
24	I-5 at SR 18 and SR 161 (Triangle)	2015	Future
25	SR 167 Extension: Phase 1	2025	Future
26	SR 167 Extension: Phase 2	2025	Future
27	Expanded Sounder Service Levels	2027	Future
28	Tacoma Link Extension to Tacoma Community College with Tacoma Link Technology	2027	Future
29	New Express Bus Route Serving All Sounder Stations (Tacoma Dome to King Street)	2027	Future

EXHIBIT 3-2
Completed, Current, and Reasonably Foreseeable Development Projects in the Tacoma Area

ID	Project Name	Approximate Completion Year	Status
30	I-5: South 48th Street	2030	Future
31	I-5: 72nd Street to SR 16	2030	Future
32	I-5: Fife Park-and-Ride	2030	Future
33	I-5: SR 512 to 72nd Street	2030	Future
34	I-5: Tacoma Dome HOV Direct Access	2030	Future
35	Interurban Trail Crossing at SR 516	2030	Future
36	Link LRT Extension from Port of Tacoma to Tacoma Dome	2030	Future
37	Narrows Bridge SR 16 Park-and-Ride	2030	Future
38	South 154th Street Park-and-Ride	2030	Future
39	South 200th Street Park-and-Ride	2030	Future
40	South Tacoma Station Park-and-Ride	2030	Future
41	SR 167 Capacity Improvements: SR 410 in Sumner to South 180th Street in Renton	2030	Future
42	SR 167 Extension: Phase 3	2030	Future
43	SR 509	2030	Future
44	Tacoma Dome Station Phase II Park-and-Ride	2030	Future





Development Project

- Completed
- Current
- Future
- Proposed project haul route common to all project sites
- Proposed project haul route: Aberdeen Log Yard
- Proposed project haul route: Anderson & Middleton
- Build Alternative Site
- City limits

N

0 0.5 1 Miles

Exhibit 3-3. **Locations of Current and Reasonably Foreseeable Development Projects in the Grays Harbor Area**

SR 520 Pontoon Construction Project

Washington State Department of Transportation

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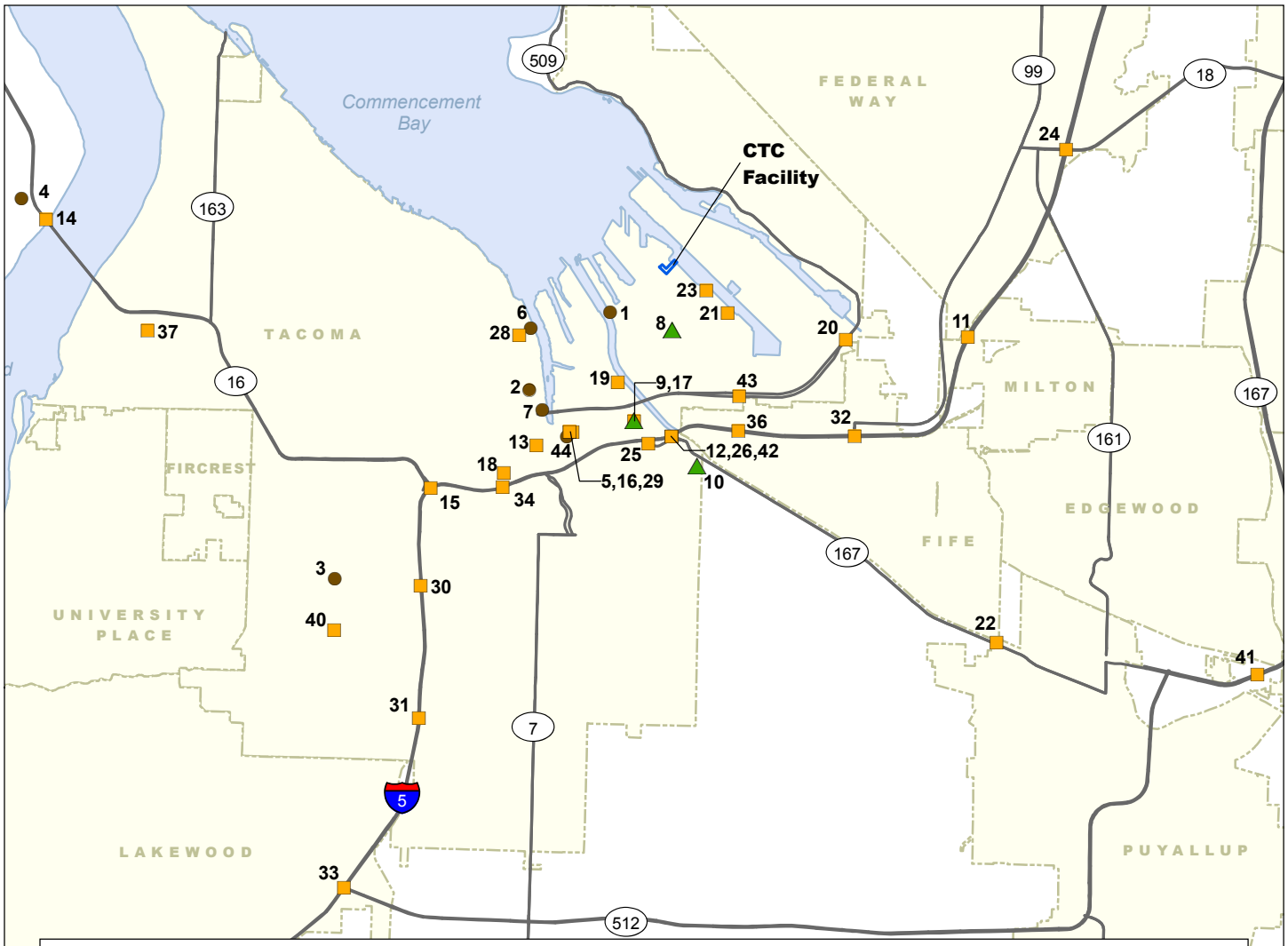
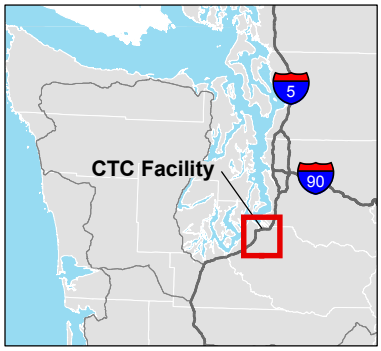


1 Puyallup River Levee Trail: TAC 38
2 Pacific Avenue Safety and Mobility Improvements
3 Prairie Line Trail: Water Ditch Trail Extension
4 Scott Pierson Trail and Scott's Way (SR 16)
5 Tacoma-Lakewood Track and Signal
6 Thea Foss Waterway Public Esplanade: Balfor Dock
7 Thea Foss Waterway Esplanade: Site 1 (21st Street Park)
8 Lincoln Avenue Grade Separation
9 Puyallup Bridge F16A and F16B Replacement
10 Thea Foss Waterway Hotel
11 I-5: Pierce and King County Line to 320th Street
12 Lister Gulch Bicycle-Pedestrian Improvements
13 Pacific Avenue Rail Grade Separation Crossing
14 SR 16: Tacoma Narrows Bridge
15 SR 16: I-5 to Tacoma Narrows Bridge
16 Tacoma Dome Bike Station
17 Tacoma Dome Station Access Signal Priority Enhancements
18 Water Ditch Trail (South Tacoma Way and 26th Street)
19 Lincoln Avenue Bridge Replacement
20 Taylor Avenue Realignment
21 NYK Line Container Terminal
22 Puyallup Riverfront Trail
23 SSA Marine and Puyallup Tribe Container and Cargo Facility
24 I-5 at SR 18 and SR 161 (Triangle)
25 SR 167 Extension: Phase 1
26 SR 167 Extension: Phase 2
27 Expanded Sounder Service Levels
28 Extension of Tacoma Link to Tacoma Community College with Tacoma Link Technology*
29 New Express Bus Route Serving All Sounder Stations (Tacoma Dome to King Street)
30 I-5: 48th Street
31 I-5: 72nd Street to SR 16
32 I-5: Fife Park-and-Ride
33 I-5: SR 512 to 72nd Street
34 I-5: Tacoma Dome HOV Direct Access
35 Interurban Trail Crossing at SR 516*
36 Link LRT Extension from Port of Tacoma to Tacoma Dome
37 Narrows Bridge SR 16 Park-and-Ride
38 South 154th Park-and-Ride*
39 South 200th Park-and-Ride*
40 South Tacoma Station Park-and-Ride
41 SR 167 Capacity Imrovements: SR 410 in Sumner to South 180th Street in Renton
42 SR 167 Extension: Phase 3
43 SR 509: East-West Corridor: Phase II
44 Tacoma Dome Station: Phase II Park-and-Ride

* Project located outside of map extent



Development Project

- Completed
- Current
- Future
- Existing CTC facility
- City limits

N

0 0.75 1.5 3 Miles

Source: WSDOT (2002) GIS Data (City Limit) and WSDOT (2004) GIS Data (State Route). Horizontal datum for all layers is State Plane Washington South NAD 83; vertical datum for layers is NAVD88.

Exhibit 3-4. **Locations of Current and Reasonably Foreseeable Development Projects in the Tacoma Area**

SR 520 Pontoon Construction Project

Washington State Department of Transportation