

3 DESCRIPTION OF ALTERNATIVES

3.1 INTRODUCTION

The Build Alternative in this Environmental Assessment (EA) best meets the need and purpose for the Project while avoiding, minimizing, and/or mitigating for the effects it would have on the environment. The Build Alternative is the result of an alternative evaluation process that occurred in two phases. The *I-5 JBLM Vicinity IJR and Environmental Documentation, Phase 1 – Corridor Plan Feasibility Study*, was completed in January 2014 to identify I-5 mainline and interchange improvements that would improve corridor mobility and reduce congestion. WSDOT also conducted the *I-5 JBLM Vicinity Congestion Relief Study, Phase 2 – Multimodal Alternatives Analysis*, completed in March 2015, to identify and analyze various I-5 access improvements, local street improvements, TDM improvements and transit options. The multimodal improvement options were combined with the recommended Phase 1 mainline improvements to develop various alternative combinations. These reports can be found on WSDOT's

Transportation Demand Management (TDM) refers to a variety of actions designed to reduce the number of single-occupant vehicles (SOV) using the road system by promoting non-SOV modes of transportation (e.g. carpools, vanpools, bicyclists and transit, and pedestrians).

website: <http://www.wsdot.wa.gov/Projects/I5/JBLMImprovements/FuturePlans.htm>

The alternative combinations were analyzed and evaluated using several quantitative and qualitative measures to assess how each program met the Project's goals and addressed the congestion issues. The various alternatives were screened through this multi-step evaluation process, documented in the previously mentioned reports. The most promising alternative was selected as the Build Alternative. The following sections describe the No Build Alternative and the proposed Build Alternative. The process for developing and evaluating reasonable alternatives to improve I-5 mobility and safety is described in greater detail in this chapter.

3.2 NO BUILD ALTERNATIVE – WHAT IMPROVEMENTS ARE PROPOSED BY 2020 AND 2040 IF THE PROJECT IS NOT BUILT?

Through the North and South Study Areas, I-5 has three general purpose (GP) lanes in each direction south of the Thorne Lane interchange and four lanes in each direction north of this interchange. Auxiliary lanes are located in three areas: 1) southbound between the Thorne Lane and Berkeley Street interchanges; 2) both directions

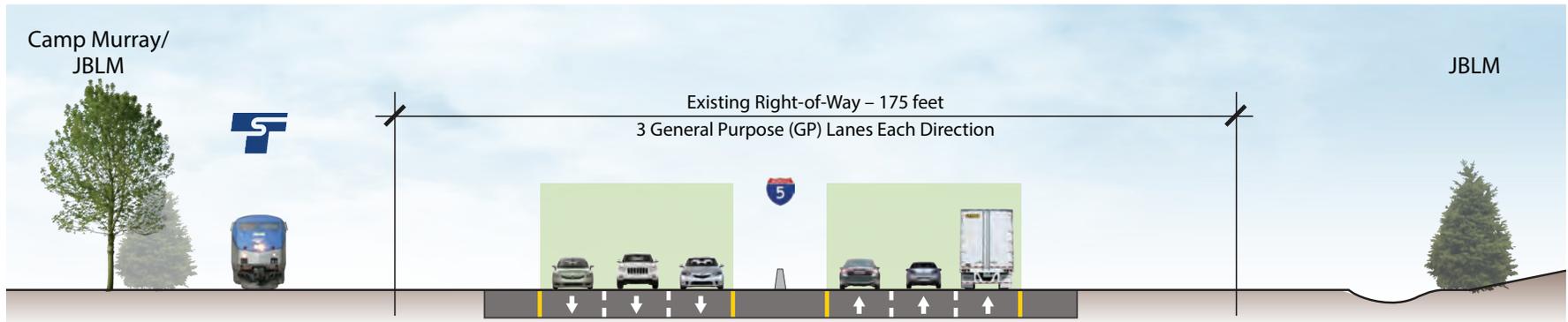


Figure 3.2-1 Existing Typical I-5 Section South of Thorne Lane

An **auxiliary lane** is an extra lane adjacent to the general travel lane that generally extends between one or two interchanges. It is used to facilitate entering and exiting traffic by giving drivers more room to speed up or slow down to merge into or out of the general traffic flow, or to travel short distances between adjacent interchanges.

between Steilacoom-DuPont Road and Center Drive interchanges; and 3) southbound between Center Drive and Mounts Road interchanges. A typical cross section of I-5 between the Steilacoom-DuPont Road interchange and the Thorne Lane interchange is illustrated in Figure 3.2-1.

The 2020 and 2040 peak period traffic conditions in

the No Build Alternative were analyzed using a multi-step traffic forecasting process that is described in greater detail in Section 4.3 Transportation. Assumptions regarding the component elements of the future No Build Alternative street and highway network are discussed below.

The No Build Alternative includes the existing transportation network plus funded projects in the Transportation Improvement

Programs (TIPs) of local agencies and WSDOT's State Transportation Improvement Plan (STIP). Recent improvements to transportation facilities on JBLM are also included in the No Build Alternative such as the recently constructed Integrity Gate, Mounts Road Gate, and on-base local street improvements. All projects analyzed as part of the No Build Alternative were completed after 2013 and/or will be completed before 2020 in accordance with the TIPs for DuPont or Lakewood.

The No Build Alternative also includes:

- ◆ The TIGER III Grant funded projects completed between 2014 and 2015.
- ◆ The Madigan Access Improvement Project completed in 2016.
- ◆ The Point Defiance Bypass Rail Project expected to be open for service in 2017.

The TIGER III Grant program provided congestion management improvements along a 15-mile section of I-5 between SR 510 and SR 512. These projects are short-term improvements that are helping ease congestion in this area. The Madigan Access improvements at

the Berkeley Street interchange include a second left-turn lane on the southbound off-ramp, a second lane on the Berkeley Street bridge easterly towards JBLM, and a third lane on Jackson Avenue from the northbound off-ramp into JBLM. The Point Defiance Bypass Project is a joint effort by WSDOT and Sound Transit to upgrade the rail line adjacent to I-5 to allow Amtrak service to relocate to this more direct route between Tacoma and Nisqually.

The 2040 No Build Alternative also includes transit service enhancements as identified in Puget Sound Regional Council 2040, and the assumed long-term plans of Sound Transit such as the extension of Sounder Commuter Rail to DuPont. For the 2020 No Build Alternative, the existing level of transit service is assumed to remain unchanged.

3.3 WHAT IMPROVEMENT OPTIONS WERE CONSIDERED IN DEVELOPING THE BUILD ALTERNATIVE?

The Build Alternative is the culmination of a multi-phased analysis process conducted between 2013 and early 2016. The first phase of the process involved development of a Project corridor strategy that placed it in its regional context and provided guidance on the type of highway and interchange improvements that should be considered for implementation. The second phase focused on evaluating multimodal travel opportunities including 181 different concepts for improving transit, vanpooling and rideshare activities, along with local road improvements and modifications to I-5 access to support multimodal travel. Then, programs of promising I-5 mainline, interchange and multimodal improvement options were assembled and evaluated. In each phase, evaluation criteria were developed and applied based on the Project's stated need and purpose and that

were appropriate to the level of detail available at each step. Below is a summary of the types of improvement options and alternatives that were considered.

Types of Alternatives Considered

- ◆ **I-5 Mainline Alternatives** – Six initial alternatives were developed and evaluated for improving the I-5 mainline and two concepts were advanced for more detailed analysis. See the *I-5 JBLM Vicinity Phase 1 Corridor Plan Feasibility Study*, WSDOT, January 2014, at: http://www.wsdot.wa.gov/publications/fulltext/Projects/I5_JBLM/CorridorPlanFeasibilityStudy.pdf for further information.
 - ◆ **I-5 Interchange Alternatives** – Improvement concepts were developed for four key interchanges in the heart of the corridor as follows:
 - Thorne Lane (Exit 123) – three concepts were developed and evaluated for improving this interchange.
 - Berkeley Street (Exit 122) – two concepts were developed and evaluated for improving this interchange.
 - 41st Division Drive/Main Gate (Exit 120) – four concepts were developed and evaluated for improving this interchange.
 - Steilacoom-DuPont Road (Exit 119) – three concepts were developed and evaluated for improving this interchange.
- See the *I-5 JBLM Vicinity Corridor Plan Feasibility Study* at web address noted above for further information.
- ◆ **Multimodal Alternatives** – These were developed through a multi-step process that began with stakeholder and public brainstorming of as wide a range of potential options as possible. These brainstormed options were evaluated first to identify fatal flaws, and secondly to determine their potential

to relieve congestion on I-5. Options surviving this screening were packaged into multimodal alternatives that were further evaluated and screened. Reports summarizing the Multimodal Alternatives Analysis can be accessed at the following web links:

- *Phase 2A Alternative Analysis Development and Screening of Multimodal Options*, WSDOT, August 2014 at: <http://www.wsdot.wa.gov/NR/rdonlyres/F31589DA-695A-4AAB-BE26-1E851CBE1170/0/5JBLMvicPhase2AAlternativeAnalysisofMultimodalOptionsAug2014.pdf>.
- *Phase 2 – Multimodal Alternatives Analysis*, WSDOT, March 2015 at: <http://www.wsdot.wa.gov/NR/rdonlyres/3C8174E3-52BA-4D28-ABA8-A797C980033C/0/FinalPhase2RptI5JBLMvicCongestionReliefStudySectionVI.pdf>.

The process evaluated many local road connection options, TDM and other multimodal improvements. Analysis revealed that none of the non-mainline I-5 improvements, alone or in combination, met the stated need and purpose for the Project because they did not provide sufficient congestion relief to I-5 or would have prohibitive impacts. One new local road connection, the Gravelly-Thorne connector, was found to divert considerable traffic from I-5 and is therefore included in the Build Alternative.

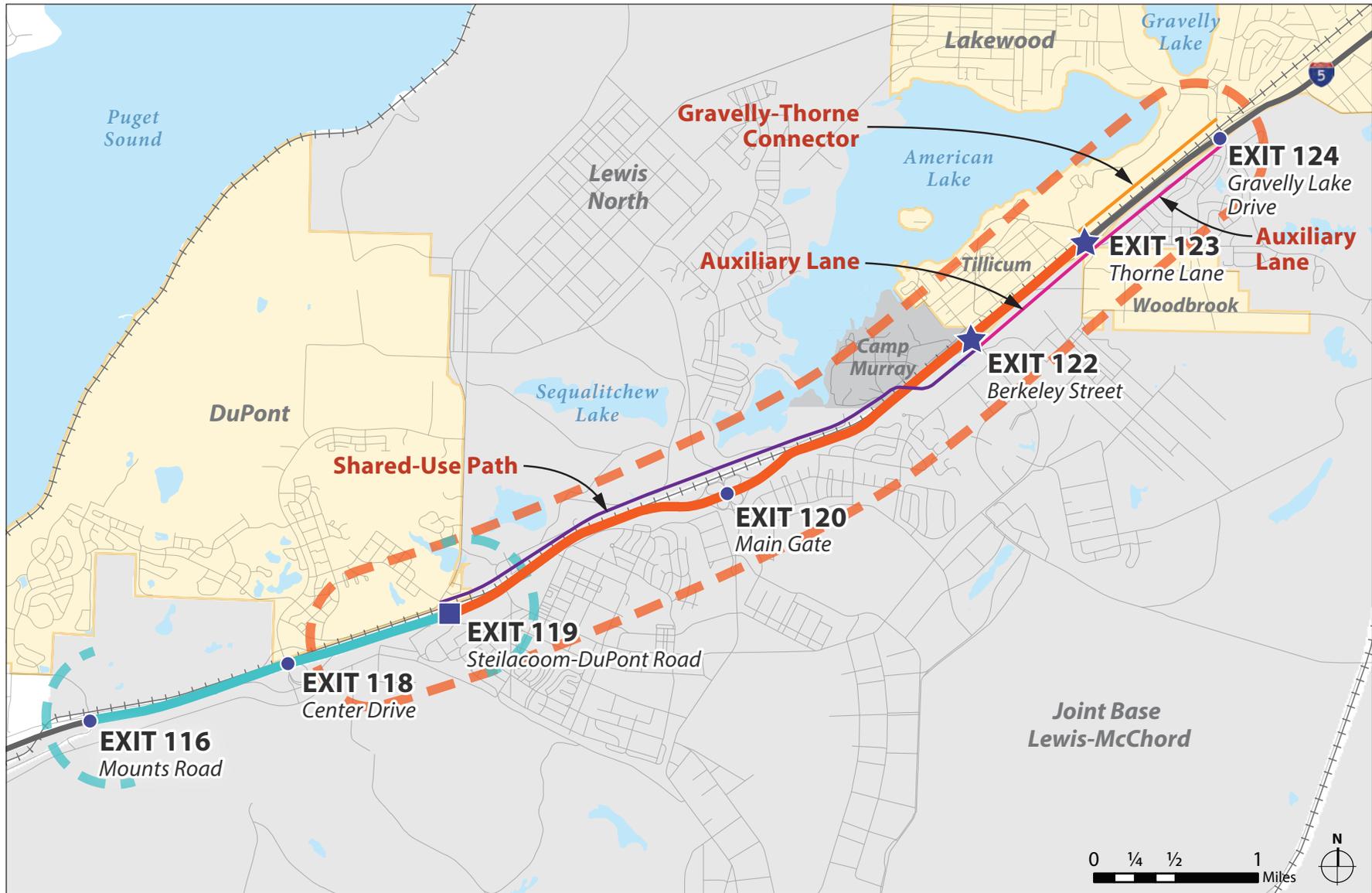
The culmination of this multi-phase evaluation process led to the recommended Build Alternative, a program of improvements with a footprint primarily in the North Study Area, as well as identification of possible options for future consideration in the South Study Area.

3.4 WHAT IMPROVEMENTS WOULD THE BUILD ALTERNATIVE INCLUDE?

The Build Alternative focuses on adding I-5 capacity through a preferred improvement concept for the I-5 mainline and two interchanges: I-5 at Thorne Lane and I-5 at Berkeley Street. It was chosen, based on the work conducted in the corridor plan feasibility study, and the multimodal alternatives analysis, as the most promising alternative, and therefore selected for analysis through a NEPA environmental assessment.

The Building Alternative’s program of improvements includes the following elements, as illustrated in Figure 3.4-1:

1. **Mainline widening** adds a fourth lane northbound on I-5 from the Steilacoom-DuPont Road interchange on-ramp to the Thorne Lane interchange, and southbound from Thorne Lane to Center Drive. The new lanes would open as General Purpose (GP) lanes but would transition to HOV use in the future, once the I-5 HOV system is extended to provide continuous HOV service between Tacoma and DuPont. See Figure 3.4-2 for an illustration of the added travel lanes.
2. **Auxiliary lanes** would be added northbound between the Berkeley Street and Thorne Lane interchanges and between the Thorne Lane and Gravelly Lake Drive interchanges. The existing southbound auxiliary lanes would be maintained between Thorne Lane and Berkeley Street and between Center Drive and Mounts Road. The existing northbound auxiliary lane between Center Drive and Steilacoom-DuPont Road would also be maintained. See Figure 3.4-2 for the location of existing and proposed auxiliary lanes.



- Existing I-5 Mainline
- Existing Interchange – No Proposed Changes
- NORTH STUDY AREA - BUILD ALTERNATIVE**
- Add One Lane Each Direction
- Shared-Use Path
- Auxiliary Lane
- Gravelly-Thorne Connector
- ★ Rebuild Interchange

- SOUTH STUDY AREA**
- Enhance I-5 Capacity
- Evaluate Interchange Options

Figure 3.4-1
Proposed Build Alternative and South Study Area



- █ Added Lane
- █ Existing Auxiliary Lane
- █ New Auxiliary Lane
- Roundabout

INTERCHANGES

- 116 Mounts Road interchange
- 118 Center Drive interchange
- 119 Steilacoom-DuPont Road interchange
- 120 Main Gate interchange
- 122 Berkeley Street interchange
- 123 Thorne Lane interchange
- 124 Gravelly Lake Drive interchange

Figure 3.4-2
I-5 Mainline Travel Lanes – Existing and Build Alternative



Figure 3.4-3 Rendering of the Proposed I-5/Thorne Lane Interchange



Figure 3.4-4 Rendering of the Proposed I-5/Berkeley Street Interchange

3. **Revised interchange layouts** to accommodate added I-5 lanes at Thorne Lane and Berkeley Street:

- The Thorne Lane interchange would be relocated approximately 350 feet south of the existing Thorne Lane bridge and designed as a diamond interchange with roundabouts at the ramp intersections. It would be elevated to grade-separate Thorne Lane over the adjacent rail line and Union Avenue. A new loop road would be added to connect Thorne Lane with Union Avenue. A preliminary rendering of the relocated Thorne Lane interchange is illustrated in Figure 3.4-3.
- The Berkeley Street interchange would be centered approximately 120 feet south of the existing Berkeley Street bridge and designed as a diamond interchange with roundabouts at the ramp intersections. It would be elevated to grade-separate over the adjacent rail line and Militia Drive. The extended Jackson Avenue would loop around an existing business and descend to grade at the intersection of Berkeley Street and Washington Avenue. A preliminary rendering of the relocated Berkeley Street interchange is illustrated in Figure 3.4-4.
- These relocated interchanges would be designed to accommodate I-5 mainline widening, improve traffic operations at the interchanges, provide pedestrian and bicycle facilities, and accommodate planned



- One Lane Southbound
- Northbound Auxiliary Lane
- Bicycle/Pedestrian Path

Figure 3.4-5
Proposed Gravelly-Thorne Connector



- New Bike & Pedestrian Path
- Connect to Local Bike & Pedestrian Network

INTERCHANGES

- 118** Center Drive interchange
- 119** Steilacoom-DuPont Road interchange
- 120** Main Gate interchange
- 122** Berkeley Street interchange
- 123** Thorne Lane interchange
- 124** Gravelly Lake Drive interchange

Figure 3.4-6
*Recommended Bicycle/
Pedestrian Pathway Concept*

community growth and support activities at JBLM and Camp Murray through improved access circulation.

Short trips refers to trips made on I-5 that begin and end at the seven interchanges along the Project corridor.

4. **Gravelly-Thorne connector** would be constructed to reduce short trips on I-5 between the Tillicum neighborhood and Lakewood. The new connector road would be a single southbound lane parallel and west of the adjacent rail line and extend between Gravelly Lake Drive and Thorne Lane. A preliminary layout for the Gravelly-Thorne connector is illustrated in Figure 3.4-5. Before the connector could be built, right of way would need to be acquired from Sound Transit and the Tacoma Country and Golf Club. The area needed on the Sound Transit right of way is approximately 25 feet wide. The area needed on the Tacoma Country and Golf Club is typically 4 feet wide with some additional width necessary near Gravelly Lake Drive.
5. **Bicycle/pedestrian shared use path** would be added to provide enhanced non-motorized access along the corridor. A preliminary layout of the bicycle/pedestrian routes is illustrated in Figure 3.4-6. New sections of shared use paths are planned along the new Gravelly-Thorne connector (segment one in the figure), as well as from the new Berkeley Street interchange along the east side of I-5 crossing to the west side just south of Camp Murray and extending to Steilacoom-DuPont Road (segment three). Between Thorne Lane and Berkeley Street (segment two), and between Center Drive and Steilacoom-DuPont Road (segment four), bicycles and pedestrians would use existing local streets and pedestrian facilities in the communities of Tillicum and DuPont.

3.5 WHAT IMPROVEMENTS MAY OCCUR IN THE SOUTH STUDY AREA?

Potential improvements in the South Study Area will be assessed in an alternatives analysis beginning in the fall of 2016 that is designed to identify solutions to JBLM's concerns regarding the original DuPont Gate and interchange location. These improvements may include added I-5 capacity and interchange modifications. This analysis is anticipated to be complete by early 2017. The alternatives analysis will evaluate how South Study Area interchanges would work if the JBLM DuPont Gate were relocated to connect at Center Drive as proposed by JBLM. It will also evaluate what traffic impacts to I-5 and local streets would result from relocating the DuPont Gate to Center Drive, and what improvements might be necessary to the Center Drive interchange and/or the Mounts Road interchange if the gate were to be relocated.

Following analysis of the traffic shifts and local road impacts of JBLM's proposal, WSDOT will work with stakeholders and the public to identify the best option for improvements in the South Study Area. Once an acceptable improvement package is identified it will become the build alternative for the South Study Area and additional environmental analysis will be conducted.

The impacts associated with improvements in the South Study Area are unknown until a build alternative is determined and a project footprint can be established. Chapter 5 provides a corridor level environmental analysis of the South Study Area.