

Appendix N:
Socioeconomics and
Environmental Justice
Discipline Report

Point Defiance Bypass Project



Socioeconomic and Environmental Justice Discipline Report



Washington State
Department of Transportation

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Abbreviations and Acronyms

ACS	American Community Survey of 2005-2009
ADA	Americans with Disabilities Act
CIA	Community Impact Assessment
CEQ	Council on Environmental Quality
CTC	Centralized Traffic Control
EA	Environmental Assessment
EJ	Environmental Justice
EPM	Environmental Procedures Manual
FTA	Federal Transit Administration
GIS	geographic information system
I-5	Interstate 5
JBLM	Joint Base Lewis McChord
LEP	Limited English proficiency
LOS	Level of Service
MP	Milepost
NEPA	National Environmental Policy Act
PNWRC	Pacific Northwest Rail Corridor
Section 6(f)	Section 6(f) of the Land and Water Conservation Fund Act
SEPA	State Environmental Policy Act
Title VI	Title VI of the Civil Rights Act of 1964
TLM	Track Laying Machine
USDOJ	US Department of Justice

Summary

The purpose of a Socioeconomic and Environmental Justice (EJ) Discipline Report is to assess the potential effects of a transportation project on the built environment as a requirement of NEPA and other social and environmental regulations. NEPA requires equal consideration of socioeconomic factors in “weighing and balancing alternatives and in making final decisions.” The Civil Rights Act of 1964 and Executive Order 12898 require that federally funded projects do not discriminate against minorities and low income populations, and this is documented within the NEPA review process.

What are the existing conditions in the study area?

Within the Project study area, connectivity through neighborhoods is generally good, although there are some neighborhoods that have reported limited connections to adjacent areas. The limitations to connection, and thus some isolation are due to geographic, land use, and transportation features such as I-5. This characterization is noted in the Tillicum, Nyanza, and Woodbrook neighborhoods, where in the existing condition there are physical, historic and travel constraints that contribute to the reduction of community connectivity and cohesion.

Sound Transit’s recent upgrades to portions of the project corridor for operation of *Sounder* commuter trains include improvements to the track with continuous welded rail, wayside horns at intersections, and signal upgrades. These upgrades include the intersections from Bridgeport Way Southwest and north to the Tacoma Dome Station at Freighthouse Square in Tacoma. This area can be generally characterized as commercial, retail and manufacturing, with residential properties one to two blocks away from the Point Defiance Bypass route. There are parks and community service facilities, such as churches and medical facilities along the route.

The Point Defiance Bypass route south of Bridgeport Way Southwest to the southern terminus of the Project has not been upgraded. This area includes five at-grade railroad/roadway crossings that do not have modern safety upgrades. Tacoma Rail operates a local freight service in that area, via agreement with Sound Transit, the rail owner. Traffic congestion issues at the intersections that cross the railroad right-of-way have been evaluated and many are highly congested at peak travel times. This area can be characterized as mostly residential with a retail corridor adjacent to

the Project. There are several large recreational features and military installations along the route.

What effects are anticipated for the No-Build Alternative for socioeconomic resources and Environmental Justice populations?

The existing conditions along the Point Defiance Bypass route and Puget Sound route would continue under the No Build Alternative. However, as described in the *Transportation Discipline Report*, along the project corridor, in the no-action condition, traffic flow at the southern at-grade intersections would continue to worsen as traffic volumes from increased population and employment in the area increases over the next 10-20 years. Levels of service would worsen, and community cohesion and connectivity would be reduced.

What effects are anticipated for the Project Alternative for socioeconomic resources and Environmental Justice populations?

Currently there are infrequent freight trains along the Point Defiance Bypass route south of Lakewood station, and there is illegal use of the railroad right-of-way for non-vehicular purposes. With the Project, the increased frequency and speed of trains may slightly increase the perception of isolation between and within neighborhood areas due to train pass-bys that close intersections sequentially and which generate noise. However, the Project's grade crossing improvements would contribute to improved community connectivity.

Grade crossing improvements would be made at five locations south of the Lakewood Station: Clover Creek Drive Southwest (Chicago Avenue Southwest), North Thorne Lane Southwest, and Berkeley Street Southwest in Lakewood; 41st Division Drive at JBLM, and Barksdale Avenue in DuPont. With the Project, improvements to the traffic signals at the grade crossings would minimize effects to the neighborhoods and reduce delays at the intersections. The improvements proposed for the intersections south of Bridgeport Way Southwest that would be upgraded as part of the Project would, in general, maintain or improve traffic flow. The intersection improvements would improve connectivity in the study area when compared to No Build conditions.

The improvements at these intersections would improve the physical condition by providing areas where pedestrians and bicycles may safely wait during train pass-bys, and by providing flush-level track crossings at intersections. Therefore, there could be a contribution to the improvement of pedestrian and bicycle access across the tracks. Bringing these

intersections to the same type of improvement as has been made for the *Sounder* extension project, north of the Lakewood station would also contribute to community safety along the corridor.

What economic effects are anticipated?

Construction employment associated with the Build Alternative is expected to be limited and specialized. While there would be some benefit for employment and gross income during construction due to housing food, and entertainment expenditures by construction crews, this benefit would be temporary and likely not significant in terms of direct or indirect economic benefits.

There is no anticipated effect to local businesses due to disruption during construction due to most construction taking place within the railroad right-of-way, away from intersections.

WSDOT conducted a literature review and synthesis of available studies on economic effects on value for properties located near a track.^{1,2,3,4,5,6} The studies looked at property value adjustments based on residential and business property proximity to commuter rail, high speed passenger rail, and freight rail; the conditions and services reflected a wide range of project conditions and requirements, including new right-of-way, and transit-oriented development. The conclusions from these studies indicate that there is a marked increase in property value for residential and commercial property in close proximity to stations (the distance varies in the literature but generally within ½ mile) with high- and middle-income neighborhoods receiving a greater boost in value compared to low-income neighborhoods. Commercial properties in close proximity to stations had an increased value.

Less clear from the literature are the potential effects to home values outside of a station and along the rail line. One study indicated that there may be a discount for houses within approximately 984 feet of the tracks. However, another study indicated that the issue was nuisance noise from train horns and that discounts in home values was not due specifically to the proximity of the home to tracks. This type of effect should be somewhat reduced with the Project, as wayside horns would be used as a signal for any train running along the corridor; freight trains would no longer have to blow louder train mounted horns through the improved

¹ *Cervero 2004*

² *Diaz 1999*

³ *Levinson 2010*

⁴ *PB 2001*

⁵ *Simons et al 2004*

⁶ *URS 2007*

grade crossings. In addition, the use of continuous welded rail would further facilitate quieter train pass-bys. The Project is not anticipated to affect property values, given that the rail corridor already exists, is used for freight and commuter service, and measures to minimize or eliminate noise and vibration will be implemented by the Project.

Will disruption and relocation occur?

Relocation of residential and businesses is not anticipated as part of the Project. There would be no right-of-way acquisitions required, and therefore there would be no physical increase in the size or width of the rail corridor, and its appearance would be very similar to the existing condition. Project elements include relocation of the Tacoma Amtrak Station from Puyallup Avenue to the Tacoma Dome Station at Freighthouse Square in Tacoma; acquisition of parking lots to serve the relocated Amtrak station would be part of the Project. There would be no disruption for residential and business properties during construction or operation. Previous encroachments onto the Sound Transit-owned corridor have been resolved.

What are the effects to Environmental Justice populations?

The construction and operational effects of the Project would affect low-income and minority populations in the study area. FRA and WSDOT examined whether or not the effects on the EJ populations would be disproportionate. The agencies determined that there are sufficient offsetting benefits to improved traffic flow and safety as well as minimization measures to address direct effects from noise and vibration at specific locations along the Point Defiance Bypass route. FRA and WSDOT found that these effects would not be appreciably more severe or greater in magnitude than the effect on non-minority or non-low-income populations in the vicinity of the project. Therefore, no disproportionately high or adverse effect on EJ populations would result from the Project and the Project is consistent with the requirements of Executive Order 12898 and the USDOT Environmental Justice Order, as it is supported by Title VI of the Civil Rights Act.

What minimization is proposed?

Construction and operation of the Project would not have a significant adverse effect on socioeconomics and EJ requiring mitigation. Effects associated with construction activities and Project operation would be reduced by minimization measures associated with other resources and no socioeconomic or EJ specific measures are proposed.

Chapter 1 – Project Description

Introduction

Under the High-Speed Intercity Passenger Rail (HSIPR) Program and pursuant to a programmatic Tier I Environmental Assessment (EA) the Federal Railroad Administration (FRA) has approved an application from the Washington State Department of Transportation (WSDOT) to improve the Pacific Northwest Rail Corridor (PNWRC), a federally designated high-speed rail corridor. One project included in the PNWRC application is the Point Defiance Bypass Project (the Project), which would respond to deficiencies in the existing rail operations around Point Defiance. This Discipline Report has been prepared in support of the project-specific EA for the Point Defiance Bypass project.

The Project is located in Pierce County along an existing approximately 20-mile rail corridor between Tacoma and Nisqually.⁷ The Project would provide for the re-routing of Amtrak passenger trains from the BNSF rail line that runs along the southern Puget Sound shoreline (Puget Sound route) to the Point Defiance Bypass route, an existing rail corridor that runs along the west side of I-5. The Project would consist of railroad track and support facility improvements, and relocation of the Tacoma Amtrak Station to Freighthouse Square in Tacoma.

Purpose and Need

As described above, the Point Defiance Bypass route is part of the larger PNWRC. Within Washington State, the vision for the PNWRC is to “...improve intercity passenger rail service by reducing travel times and achieving greater schedule reliability in order to accommodate growing intercity travel demand...”⁸.

The purpose of the Project is to provide more frequent and reliable high-speed intercity passenger rail service along the PNWRC between Tacoma and Nisqually. In conformity with the decisions under the Tier 1 Programmatic EA, the PNWRC Improvement Program has reduced the overall environmental effects of providing improved passenger rail service

⁷ *The three owners of the project corridor are Sound Transit, Tacoma Rail, and BNSF.*

⁸ *WSDOT 2009*

with the use of an existing transportation corridor and associated infrastructure, rather than creating a new corridor.

The Project is needed to address the deficiencies in the existing rail alignment around Point Defiance. The existing alignment (Puget Sound route), shared by freight and passenger rail traffic, is near capacity and is therefore unable to accommodate additional high-speed intercity passenger rail service without substantial improvements. In addition, the existing alignment has physical and operational constraints that adversely affect both passenger train scheduling and reliability.

Improving intercity passenger rail service in the study area and meeting the Project needs would be accomplished by:

- **Enhanced Frequency:** Increasing Amtrak Cascades round-trips from four to six by 2017 to meet projected service demands.
- **Improved Reliability:** Reducing scheduling conflicts with freight trains that often result in delays, and by minimizing or avoiding operational delays (e.g., drawbridge openings) and weather-related delays (e.g., mudslides), and improving on-time performance from 68 percent to 88 percent.
- **Enhanced Efficiency:** Enhancing the efficient movement of people by decreasing trip times by 10 minutes, and reducing the amount of time passenger trains spend yielding to freight movements.
- **Improved Safety:** Constructing at-grade crossings with upgraded safety features, including wayside horns, median barriers, advance warning signals, and traffic signal improvements.

What alternatives are being considered for the Point Defiance Bypass Project?

FRA and WSDOT conducted an evaluation of three build alternatives: the Point Defiance Bypass Alternative, the Shoreline Alternative, and the Greenfield Alternative. Two of the alternatives (the Shoreline Alternative, and the Greenfield Alternative) were eliminated from further study. Although both alternatives could meet the Project's purpose and need, they were determined to be impracticable and unfeasible due to technical constraints, high construction costs, and significant environmental effects. Grade separations were also evaluated for further consideration. FRA and WSDOT's preliminary analysis revealed that current and projected future traffic volumes do not warrant the construction of new grade-separated crossings.

What's happening in the bypass corridor today?

The rail line between TR Junction and East "D" Street in Tacoma hosts both freight and commuter trains, including freight operators Tacoma Rail and BNSF, and Sound Transit's *Sounder* commuter rail service. Freight train traffic between TR Junction and East "D" Street averages under two trains per day, while Sound Transit currently operates 18 trains per day between Freighthouse Square and Seattle each weekday, and also offers occasional special event trains, usually on weekends, to serve sporting and other events in Seattle. *Sounder* service to Lakewood begins in late 2012.

What would happen if the project were not built?

If the Project were not built (the No Build Alternative), Amtrak's Cascades and Coast Starlight passenger train service would continue to use the existing Puget Sound route. The No Build Alternative includes only the minor maintenance and repair activities necessary to keep the existing Puget Sound route operational. With the No Build Alternative, it would be expected that as freight traffic increases, congestion would adversely affect Amtrak service reliability, and the travel time for Amtrak trains between Seattle and Portland would increase.

Along the Point Defiance Bypass route, the Tacoma Rail and BNSF freight services would continue. The at-grade crossings at Clover Creek Drive Southwest, North Thorne Lane Southwest, Berkeley Street Southwest, 41st Division Drive, and Barksdale Avenue Southwest would not be upgraded.

Sound Transit's *Sounder* commuter passenger trains will become operational in late 2012 between the Tacoma Dome Station at Freighthouse Square in Tacoma and Sound Transit's Lakewood Station (on the Point Defiance Bypass route) with as many as 18 *Sounder* trains per day.

What are the proposed improvements and related activities of the Point Defiance Bypass Project?

The Project consists of railroad track and support facility improvements, and the relocation of Amtrak's Tacoma Station. Exhibit 1 shows the components of the Build Alternative. The following details specific components of the Build Alternative.

- **Construct New Track Adjacent to the Existing Main Line** – A new 3.5-mile track adjacent to the existing main line would be constructed from South 66th Street (Rail MP 6.9) in Tacoma to between Bridgeport

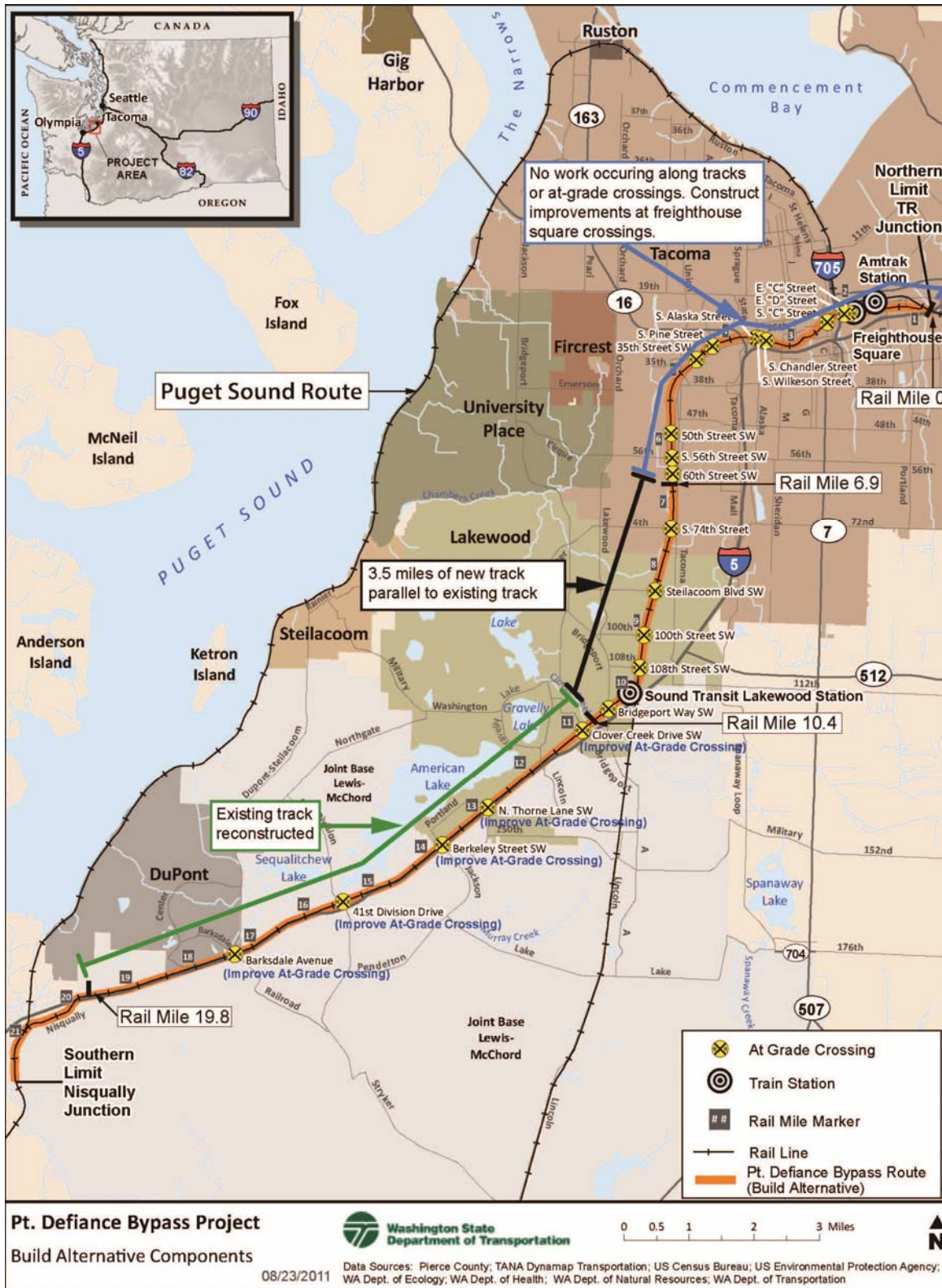
Way Southwest (Rail MP 10.4) and Clover Creek Drive Southwest✓ (Rail MP 10.9) in Lakewood.

- **Reconstruct and Rehabilitate the Existing Main Line** – Starting just southwest of Bridgeport Way Southwest (Rail MP 10.4) in Lakewood, the existing track would be reconstructed to a location southeast of the I-5/Mounts Road Southwest interchange (Rail MP 19.8) at Nisqually Junction.
- **Improvements at at-Grade Crossings** – Several grade crossings would be improved with wayside horns, gates, traffic signals and signage, sidewalks, median separators, and warning devices. These crossings include Clover Creek Drive Southwest, North Thorne Lane Southwest, Berkeley Street Southwest, 41st Division Drive and Barksdale Avenue.
- **Tacoma Amtrak Station Relocation** – The existing Tacoma Amtrak Station would be relocated from its Puyallup Avenue location to the Tacoma Dome Station at Freighthouse Square, at 430 E. 25th Street in Tacoma.

What are the proposed operational changes that would result from the Point Defiance Bypass Project?

Amtrak’s existing Cascades and Coast Starlight passenger train service would be rerouted from the Puget Sound route along the Puget Sound shoreline to the Point Defiance Bypass route. The Project would also provide for additional Amtrak Cascades service by increasing the number of round trips provided from 4 to 6, or a total of 12 Cascades service train trips. Amtrak Coast Starlight would also travel on the Point Defiance Bypass route for a total of two Coast Starlight service train trips. The speed of these passenger trains would be up to 79 mph.

Exhibit 1. Build Alternative Components



Chapter 2 – Methodology

What is included in this discipline report?

The elements reviewed for this discipline report include:

- Community characteristics, including land use/public facilities, social and economic demographics. The purpose of this evaluation is to determine whether there would be direct or indirect affect to facility access during construction or operation. A complete evaluation of land use appears in the *Land Use Discipline Report*
- Community connectivity and cohesion. Public access and safety is evaluated as an element of community connectivity and cohesion; full evaluation is provided in the *Transportation Discipline Report*
- Economic considerations including effects to businesses, employment, and property values during construction and operation
- EJ communities
- Relocation and disruption of residences and businesses.

What statutes and regulations apply?

Socioeconomic and EJ disciplines are required subject areas of NEPA and SEPA as part of the potential effects on the human, or built, environment. The applicable statutes and regulations include:

- NEPA 42 USC 4321 and implementing regulations in 40 CFR 1500-1508 (CEQ)
- SEPA Chapter 43.21C RCW and implementing regulation in Chapter 197-11 WAC and Chapter 468-12 WAC (WSDOT).

Other federal regulations include:

- Americans with Disabilities Act of 1990
- Age Discrimination Act of 1975
- Uniform Relocation Assistance and Real Property Acquisition Policies Act as amended (42 USC 4601).

Similar to the federal Uniform Relocation Act, Washington State has the Washington State Relocation Assistance – Real Property Acquisition Policy Act (RCW 8.26 and WAC 468-100).

Several state and federal regulations and policies address EJ issues, including:

- Title VI of the Civil Rights Act of 1964
- Presidential Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and corresponding USDOT Order 5610.2(a), FHWA's *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*
- Presidential Executive Order 13166, *Improving Access to Services for Persons with Limited English Proficiency*
- Governor's Executive Order 93-07

How was the study area defined?

There are two study areas: one for socioeconomic and another for environmental justice. The study area for the socioeconomic evaluation is within Pierce County and traverses portions of the communities of Tacoma, Lakewood and DuPont as well as the Joint Base Lewis McChord (JBLM). The study area was defined as the area within a 0.5 mile radius of the rail centerline. In addition, WSDOT and FRA considered socioeconomic data at the scale it was available, for example, economic trends are derived from county-wide data.

The EJ study area was determined in conformity with FHWA guidance.⁹ Census data were gathered for all of Pierce County and evaluated for representation of minority and low-income populations. Next, both the project corridor and the existing Puget Sound Route were evaluated. For each corridor, a radius of one-half mile on either side of the route centerline was defined, because this area would contain the likely direct and indirect effects that could be attributed to the with-Project and no-action conditions. Following this, the census tracts that touch the corridors within that one-half mile radius were evaluated for possible EJ communities, and compared to Pierce County as a whole. As shown in Exhibit 4 and Exhibit 6 for the project corridor, there is a higher concentration of EJ communities within the corridor census tracts than were found in Pierce County and on the basis of this comparison, census tracts with minority representation of 20 percent or greater, and census tracts with 20 percent or greater of persons below the poverty level were

⁹ <http://www.fhwa.dot.gov/wadiv/crp/ejwadiv.htm>

selected to define the with-Project EJ study areas. The existing Puget Sound route was evaluated using the same comparison to Pierce County as a whole.

For comparative purposes, the No Build Alternative study area applies the same study area radius definition. The Puget Sound route is more like Pierce County and does not exhibit the same concentrations of minority populations or persons below poverty level, except in the greater Tacoma area.

How was the analysis conducted, and what sources were used?

The methodology for evaluating the effects discussed in this report followed FHWA's evaluation guidance, WSDOT's

The environmental justice analysis includes minority and low-income populations.

Environmental Procedures Manual (EPM) and other guidance from Council of Environmental Quality (CEQ). The EJ analysis was conducted in conformity with President Clinton's Executive Order 12898 and with the USDOT Order 5610.2(a) (June 2012)

Several prior studies of the project corridor have been referenced and evaluated. The *Point Defiance Bypass Project Social Elements (including Environmental Justice) Technical Memorandum* (2007) is incorporated by reference.

Multiple sources were used to collect information on demographics, potentially sensitive receptors and neighborhood information. They included:

- Publicly available and verifiable data and mapping.
 - Pierce County websites and mapping¹⁰
 - Lakewood (West Pierce County)¹¹ and Tacoma¹² Fire District websites
 - Google Earth¹³

The 2010 Census and 2005-2009 American Community Survey data were collected from www.census.gov and www.factfinder.census.gov.

- Data, including geographic information system (GIS) when available, from local jurisdictions through personal communications and their websites.
- Site visits, conducted on March 17, 2011, and December 9, 2011, and June 4, 2012.

¹⁰ Accessed June 15, 2011

¹¹ www.westpierce.org Accessed June 15, 2011

¹² www.cityoftacoma.org Accessed June 15, 2011

¹³ Accessed June 2011

Data on homeownership and family size were not collected, as the Project does not include a residential or commercial element that might be affected.

The literature search included identifying publically available studies for projects similar to the Project and rail projects in urban settings. The key points of the studies were identified, including those factors that most affected property values. The Project attributes were then evaluated against these key factors to determine effects.

The analysis also included review of previous documentation, and review of public and agency comments. The Point Defiance Bypass public involvement strategy emphasized open, inclusive and ongoing communication with residents and businesses within close proximity to the rail bypass. Messages and materials were timed to coincide with major milestones in the EA process. Outreach included WSDOT hosted open houses, participation in partner agency open houses, status updates at community and neighborhood association meetings, online project pages and email updates. EJ populations within the project corridor were contacted as part of the larger information distribution efforts. A number of outreach events occurred within EJ population centers, like those held at Lakewood's Tillicum Community Center and South Tacoma's South Park Community Center.

What methodology is used to evaluate environmental justice impacts?

The federal Executive Order 12898 supplements the existing requirements of Title VI of the Civil Rights Act. Each Federal agency is required to ensure that no person on grounds of race, color, or national origin is excluded from participation in, denied the benefits of, or in any other way subjected to discrimination under any program or activity receiving Federal assistance. Accordingly, Title VI prohibits recipients of Federal funds from actions that reflect "intentional discrimination" or that exhibit "adverse disparate impact discrimination" on the basis of race, ethnicity or national origin. Supplemental legislation provides these same protections from discrimination based on sex, age, disability or religion.

The concept of environmental justice is intended to ensure that procedures are in place to further protect groups, which have been traditionally underserved. The fundamental principles of environmental justice are:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.

- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

Disproportionately high and adverse effects on Minority and Low-Income Populations are specifically considered in the evaluation. The evaluation considers that an adverse effect is disproportionate if it:

- is predominately borne by a minority population and/or a low-income population, or
- will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population

A low-income person is defined as an individual whose household income falls below the federal poverty guidelines, as defined by the US Department of Health and Human Services.

For 2011, the federal poverty guideline for a household of four in one for the 48 contiguous states and Washington, DC is \$22,350.

To aid evaluations prepared under Executive Order 12898, the US Department of Transportation (USDOT) issued Order 5610.2(a) to ensure the effects to EJ populations were addressed. The USDOT Order provides guidelines for how EJ analyses should be performed and how EJ should be incorporated into the transportation decision-making process.

As provided for in FHWA and WSDOT guidance, to prepare this evaluation, WSDOT collected demographic data, verified and mapped that data, considered the effects and findings developed through the discipline reports prepared to support the NEPA EA, and assessed potential effects and Project-related effects and how they may affect EJ populations. Direct and indirect effects of the Project were considered for their potential adverse or disproportionate effects on EJ communities

In addition, in accordance with EO 13166, WSDOT used demographic data to inform public outreach efforts and to ensure that those with limited English proficiency have open access to the project information and to project-related engagement opportunities. As more fully discussed following, and in the public outreach descriptions, populations with limited English proficiency were also identified, and Project materials were translated and made available to those populations to assure equal access to Project information.

What additional studies and coordination were used in the socioeconomic and environmental justice analysis?

As noted above, in developing this report, WSDOT relied on the prior analysis contained in other *Technical Memorandum* prepared for the EA,¹⁴ and then updated that information to include more recent statistical information.

WSDOT also developed a *Public Involvement Plan* guide the project's continuing outreach efforts¹⁵ and has conducted over 40 public and stakeholder meetings for the Project.¹⁶ Public and agency comments received during past comment periods have been incorporated into the Project, and additional opportunities for comment will be afforded through the NEPA process.¹⁷

WSDOT coordinated all other discipline report authors on the Project team, including those responsible for analyzing transportation, noise and vibration, land use, energy, cultural resources, hazardous materials, visual resources, air quality, and public services and utilities. Coordination efforts included review of documentation on the affected environment, effects, and proposed minimization for Project effects and for potential effects on socioeconomic conditions and EJ populations.

¹⁴ WSDOT 2007

¹⁵ WSDOT 2011e

¹⁶ WSDOT 2011e

¹⁷ WSDOT 2011d

Chapter 3 – Affected Environment

What are the social elements in the study area?

Social elements are the part of the built environment, including people, places, or things, that affect quality of life for people living and working in the study area. This section discusses the existing social elements within the study area and also identifies EJ populations and their characteristics.

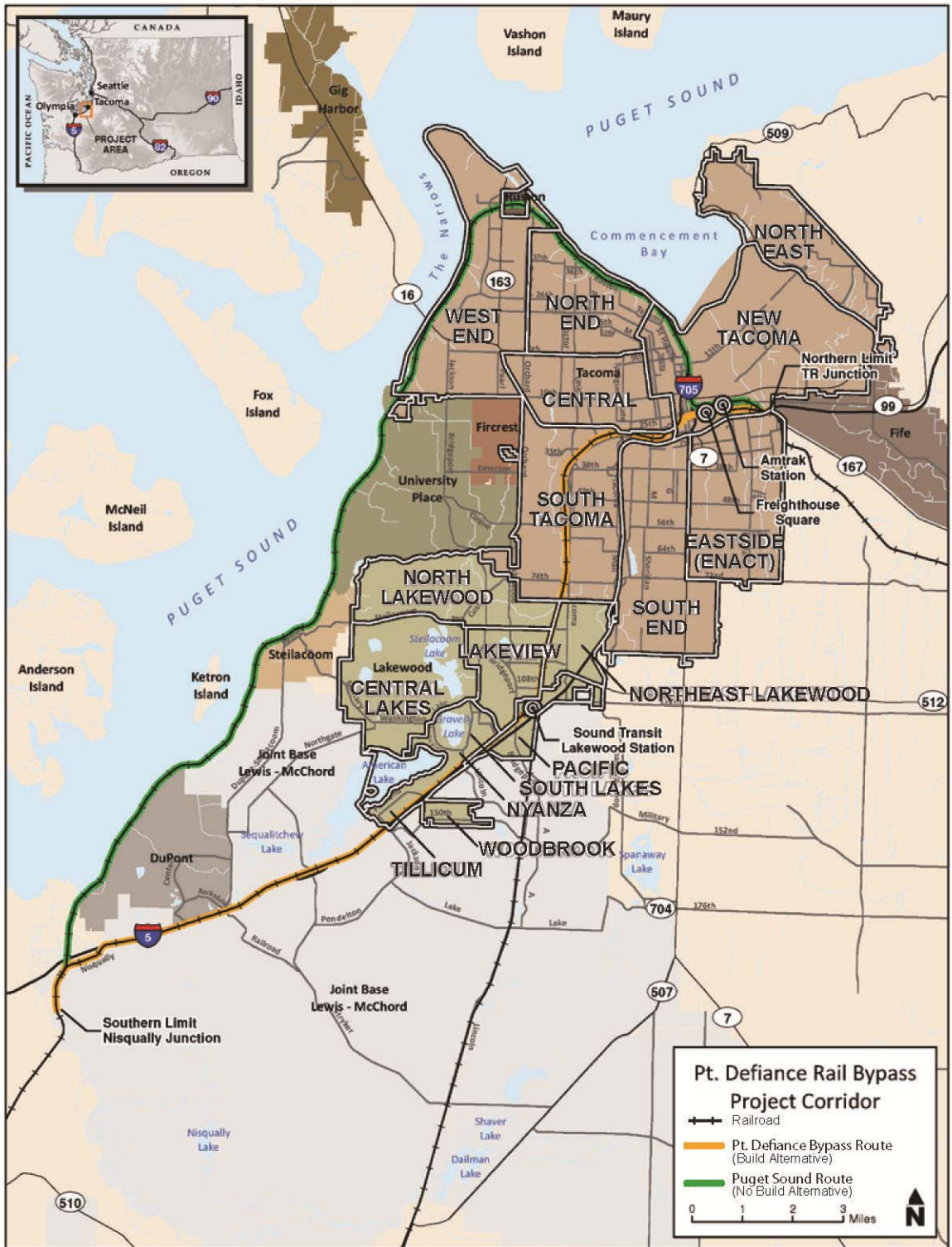
Community Characteristics

There are several neighborhoods along the project corridor, including, from north to south, the greater Tacoma area, Lakewood, Lakeview, Pacific South Lakes, Nyanza, Woodbrook and Tillicum. Most of the southern portion of the study area surrounding the corridor is occupied by JBLM. The neighborhoods are shown in Exhibit 2.

Land uses along the project corridor include industrial and commercial with few residential properties from the north termini at TR Junction to about South 66th Street Southwest in Tacoma; industrial, commercial and vacant land with some park land between South 66th Street in Tacoma to South 80th Street in Lakewood; predominantly commercial mixed with some industrial uses between South 80th Street and 100th Street Southwest in Lakewood; single and multi-family residences, commercial, educational, and recreational uses from 100th Street Southwest to Berkeley Street Southwest in Lakewood; and commercial, residential, forested land, open space and recreation, and the military installations from Berkeley Street Southwest to the southern termini (the majority of the eastern half of the project corridor).¹⁸ The neighborhoods along the project corridor are served by a full array of public services; refer to the *Public Utilities and Services Design Report* (page 15) for the complete listing and discussion.

¹⁸ WSDOT 2011g

Exhibit 2. Tacoma and Lakewood Neighborhoods



Source: Tacoma 2010 and Lakewood 2011

Community Connectivity and Cohesion

Historical development patterns, including transportation corridors such as railroads and highways, can affect communities in many ways, often defining the boundaries of the neighborhoods. The patterns that result from geographic and built features can significantly alter connectivity options, and redirect the development pattern and perception of place. This can ultimately affect quality of life for people living and working in the affected neighborhoods.

Community Cohesion is the ability of people to communicate and interact with each other in ways that lead to a sense of community, as reflected in the neighborhood's ability to function and be recognized as a singular unit.

Within the Project study area, connectivity through neighborhoods is generally good, although there are some neighborhoods that have reported limited connections to adjacent areas. The limitations to connection, and thus some isolation are due to geographic, land use, and transportation features such as I-5. This characterization is noted in the Tillicum, Nyanza, and Woodbrook neighborhoods, where in the existing condition there are physical, historic and travel constraints that contribute to the reduction of community connectivity and cohesion.

Physical separations between neighborhoods are a result of major land uses within the study area. The Woodbrook neighborhood area is surrounded by Fort Lewis and McChord Air Force Base (now JBLM); the Tillicum neighborhood area is essentially an “island,” surrounded by major land features including Camp Murray, American Lake, the Tacoma Country Club, American Lake Line railroad,¹⁹ and I-5. Tillicum is also unique in that no local roadways are available to connect it with adjacent communities to the north or south without first traveling on I-5. The Nyanza neighborhood area is bordered by Gravelly Lake and I-5, and there are four local roads that are the primary access points to the neighborhood area. The project corridor is generally parallel to I-5, resulting in a large transportation right-of-way that separates neighborhoods that flank the Point Defiance Bypass route and I-5. The combined transportation right-of-way creates a major edge, and contributes to the physical separation between neighborhoods.

Access to the several military installations is restricted, these large land areas act to constrain local travel, as local traffic may not enter onto base roadways. In addition, I-5 constructed in Washington State in the 1960s²⁰

¹⁹ *The American Lake Line was one of several names associated with the portion of the Northern Pacific Railroad between Nisqually and Lakewood. Construction on the Northern Pacific Railroad started in 1871 with construction of the American Lake Line completed in December 1873. See the Cultural Resources Survey/Discipline Report, for additional information.*

²⁰ http://www.historylink.org/index.cfm?DisplayPage=output.cfm&file_id=9393

and subsequently expanded has increased the physical isolation of neighborhood areas from each other and reduced connectivity from the Woodbrook, Tillicum and Nyanza neighborhoods. For a significant portion of the study area, I-5 and South Tacoma Way are parallel to the rail corridor, and the resultant transportation corridor is quite wide, separating communities to the east and west. On the west side of I-5, the geographic barriers created by Gravelly Lake and American Lake also separate these neighborhoods from adjacent areas.

Public Access and Safety

As described and illustrated in the *Public Services and Utilities Discipline Report* there are 27 public and private schools in three school districts, several medical facilities, two hospitals, 11 recreational facilities, and two facilities for disadvantaged people in the study area. There are 52 religious facilities and four cemeteries. Pierce Transit and Sound Transit provide public transportation services. Traffic congestion affects public access to public services in several locations along the Point Defiance Bypass route. Existing congestion also affects emergency services such as fire, police, and ambulance services.

Permitted access points along the Project rail corridor occur at at-grade crossings, where there can be traffic delays due to train pass-bys, and some public safety risk to pedestrians or unsafe traffic movements. Currently, there are some locations where pedestrians cross the tracks illegally, and not all at-grade rail crossings are improved with crossing areas. There have been two accidents in the project corridor in the last 12 years at intersections when automobiles were driven through the closed intersection when a train was passing.

Illegal use of the Point Defiance Bypass rail corridor as a footpath or by non-motorized vehicles is a safety concern.

How does existing traffic congestion or noise affect community connectivity and cohesion?

Traffic congestion can affect community connectivity. Along rail and highway corridors traffic congestion is primarily related to underperforming at-grade intersections, especially during peak travel times.²¹ As reported in the *Transportation Discipline Report*, while existing measured AM and PM levels of service are generally in the very

²¹ WSDOT 2001c

acceptable Levels of Service A-C range²², the queue-length metric reveals some notable indicators of congestion. Vehicle queues caused by train pass-bys can affect traffic operations by blocking access to roadway turn pockets, through lanes, and driveways. At some grade crossings, freight train switching operations cause vehicle delays.

There are 21 at-grade railroad/roadway crossings located within the study area (see Exhibit 1 and the *Transportation Discipline Report*). Sound Transit has upgraded the crossings in the Project study area from Bridgeport Way Southwest and north to Freighthouse Square. See the *Transportation Discipline Report*²³ for additional information on crossings. The remaining five at-grade railroad/roadway crossings in the study area do not have modern safety upgrades, (these upgrades are part of the Project). They include:

- Clover Creek Drive Southwest (Chicago Avenue Southwest), Lakewood
- North Thorne Lane Southwest, Lakewood
- Berkeley Street Southwest, Lakewood
- 41st Division Drive, JBLM
- Barksdale Avenue, DuPont.

As noted above, the communities along the corridor experience noise from roadway and rail operations, especially south of Lakewood station where train mounted horns on Tacoma Rail freight trains still sound. The train mounted horns are louder than wayside horns and would be expected to be more disruptive to community cohesion. Between Tacoma and Lakewood, Sound Transit installed wayside horns, thus the noisier train-mounted horns are no longer sounded in the northerly section of the project corridor from Freighthouse Square to Bridgeport Way Southwest.

Noise and vibration associated with the existing Puget Sound route are detailed in the *Noise and Vibration Discipline Report*.²⁴

How do the rail rights-of-way affect community connectivity?

The existing rail right-of-way, primarily the American Lake and Prairies lines, was constructed in 1891 and 1873, respectively. Historically, the corridor has been used for freight operations, and more recently,

²² *Level of Service or LOS, is an indicator of how freely traffic flows. LOS A indicates little or no delay/little congestion; LOS B signifies short delays, and LOS C indicates moderate delays. See the Transportation Discipline Report (p. 17).*

²³ *WSDOT 2011c.*

commuter service has been added. In particular, Sound Transit has completed the track and signalization upgrades from Freighthouse Square to the Sound Transit Lakewood Station for the service extension by the end of 2012.^{25,26}

The railroad right-of-way is parallel and adjacent to I-5. Community connectivity is reduced in this portion of the corridor due to existing conditions noted above, including historical land use, security restrictions at the military bases, geographic conditions and the condition of rail corridor crossings. Limitations to connectivity likely started during the height of freight operations and company town development in the 19th and early 20th centuries (refer to the *Section 106 Discipline Report* for a complete overview of corridor development). Further, the construction of I-5, following the acquisition of the right-of-way for the interstate underscored the separation of the communities to the west, especially south of Lakewood.

In general, while there are historic constricting points to neighborhood access near the southerly portion of the project corridor, there are sufficient access points allow for mobility to and from the neighborhoods and services within the study area (refer to the traffic discussion below and the *Transportation Discipline Report*). As discussed above there is existing safety conditions associated with these access points.

With respect to the Point Defiance Bypass route, it is noted that there is illegal use of the corridor as a footpath or for use by non-motorized vehicles. Site visits confirmed there is evidence of corridor trespass: graffiti, homeless use, and foot paths along the tracks and shortcutting across tracks in some areas. However, a railroad is different from a roadway, as use and access to the properties are strictly limited to trains operating within the right-of-way, with the operations at crossings allowed but controlled.

Along the portion of the corridor to Lakewood, Sound Transit has provided no-trespassing signage. Near Lakewood Station, the City of Lakewood is constructing a pedestrian overcrossing of the Point Defiance Bypass route known as the Lakewood Station Connection Project. The Lakewood Station Connection Project would provide a new pedestrian overpass connecting the Lakewood Station to Kendrick Street on the north side of the Point Defiance Bypass tracks.

²⁵ *Sound Transit 2011b*

²⁶ *Sound Transit 2011c*

The Puget Sound Route corridor runs along the water, and while there are but few crossings providing water, ship or ferry access, the route does not divide communities.

What is the demographic character of the study area?

The demographic character in the Point Defiance Bypass route reflects greater diversity of race, ethnicity, and income than either the Puget Sound route or Pierce County. Census data from the 2010 Census were used to assess minority and income characteristics in the study area (shown for the existing Puget Sound route and Point Defiance Bypass route), which were then compared to statistics for Pierce County as a whole. This comparison of data allows for the identification of areas that may have a high concentration of minority or low-income residents, the first step in an EJ evaluation.

Exhibit 3. Population and Race/Ethnicity Statistics²⁷

	Existing Puget Sound BNSF Route	Existing Puget Sound BNSF Route (%)	Project Route	Project Route (%)	Pierce County	Pierce County (%)
White	98,376	69.86	66,824	51.52	559,160	70.3
Hispanic or Latino	10,305	7.32	17,453	13.45	72,849	9.2
Black or African American	10,079	7.16	14,567	11.23	51,436	6.5
Two or More Races	8,510	6.04	10,274	7.92	44,497	5.6
Asian	7,633	5.42	8,426	6.50	46,520	5.9
Some Other Race	2,895	2.06	7,457	5.75	1,415	0.2
Native Hawaiian and other Pacific Islander	1,053	0.75	2,445	1.88	10,205	1.3
American Indian and Alaska Native	1,971	1.40	2,268	1.75	9,143	1.2
Total Population²⁸	140,842	100	129,714	100	795,225	100

The data show that, in terms of minority and non-minority population, the existing Puget Sound route is roughly comparable to Pierce County as a whole. This compares to the Point Defiance Bypass route, where significantly higher concentrations of minority persons are found, and non-minority population is significantly lower.

Exhibit 4 shows the percent of all minority populations for the project study area. The study area from the north terminus at TR Junction to approximately the Sound Transit Lakewood Station shows the Project is within but along the edge of the higher minority populations associated with

²⁷ 2010 100% Data Tables (Block Group; P7)

²⁸ Total populations, not Hispanic or Latino for which races were tallied

the greater Tacoma area. This extends to and includes a higher minority populations south of the Sound Transit Lakewood Station. There is a low percentage of minorities within the Puget Sound route study area, except nearer to downtown Tacoma and the Port of Tacoma.

Exhibit 4. Minority Populations by Census Tract



Data on income was derived from the 2005-2009 American Community Survey (ACS), the most recent data available at the census tract level. Income is a relevant descriptor for identifying persons at or below the poverty level. Exhibit 5 shows persons below the poverty level for the existing Puget Sound Route, the project corridor, and Pierce County. The data show that, as for minority status, the existing Puget Sound route study area is quite similar to Pierce County as a whole. This compares to the census tracts comprising the Point Defiance Bypass route, which indicate a greater concentration of persons at or below the poverty level when compared to Pierce County.

Exhibit 5. Poverty Status²⁹

Area	Existing Puget Sound BNSF Route	Project Route	Pierce County
Population for Whom Poverty Status is Determined	130,039	110,408	748,122
Living Below Poverty Level	17,600	21,883	86,468
Living Below Poverty Level (%)	13.5%	19.8%	12%

Exhibit 6 maps the census tracts where the greatest concentrations of persons at or below poverty were located. There are several areas with higher percentages of low-income households in the area south of the Sound Transit Lakewood Station. The Tillicum and Woodbrook neighborhood areas also have a higher percentage and a greater density of low-income households, on either side of Interstate 5. The existing Puget Sound route has a low percentage of low-income households and no communities that would be considered EJ communities.

²⁹ 2005-2009 American Community Survey 5-Year Estimates (Census Tract)

Exhibit 6. Poverty by Census Tract



Proficiency in English was reviewed for the project corridor to identify LEP populations. The most recent ACS information was used to identify these populations in the study areas.³⁰ English proficiency was determined using the data that described linguistically isolated populations meaning that they understand, speak, and write little to no English.³¹ If a person is linguistically isolated, they would meet the LEP criteria. As shown in Exhibit 7, according to the data for the project corridor, there is some linguistic isolation for people who speak Spanish, a Pacific Island or Asian language as their primary language. The data indicate that the LEP populations were not concentrated in specific areas, but are spread along the project corridor. As in Pierce County, English proficiency is higher along the existing Puget Sound route compared to the Project study area. WSDOT's Public Involvement Plan provides for outreach for linguistically isolated persons, through the translation of printed materials and website information into Spanish, Korean, Russian and Vietnamese.

Limited English Proficiency (LEP)
populations include people who have difficulty speaking, reading, writing, or understanding the English language and whose difficulties may deny that individual the opportunity for meaningful engagement in the decision-making process.

Exhibit 7. English Proficiency³²

	Existing Puget Sound BNSF Route	Existing Puget Sound BNSF Route (%)	Project Route	Project Route (%)	Pierce County	Pierce County (%)
Speak English Only (Estimate)	110,890	86.9	165,826	84.41	629,183	86.35
Speak Other Languages			17,931	9.13	59,934	8.23
Speak Spanish (Estimate)	5,363	3.7%	12,692	6.46	39,532	5.43
Speak English "very well" (Estimate)			10,218	5.2	34,804	4.78
Speak English "very well" (Estimate)			7,094	3.61	23,374	3.21
Speak English less than "very well" (Estimate)			5,598	2.85	16,158	2.22
Speak English less than "very well" (Estimate)			7,713	3.93	25,130	3.45
LEP Population			13,311	6.78	41,288	5.67
Total (Estimate)	127,961	100	196,449	100	728,649	100

Data from the American Community Survey and the Census were used to identify persons with disabilities and the elderly. These data indicate that

³⁰ American FactFinder 2010

³¹ ACS 2005-2009

³² This exhibit shows the individuals who are linguistically isolated, meaning that they understand, speak, and write little to no English. This table estimates the LEP population and the primary language. 2005-2009 American Community Survey 5-Year Estimates (Census Tract)

the populations in the study areas are similar to county-wide populations. No areas with larger concentrations of people with disabilities or the elderly were noted. While the study area contained a slightly higher percentage of persons with disabilities compared with either Pierce County or the Puget Sound route, there is a lower percentage of the elderly on the Project route compared to the existing route and county-wide data. The lower percentage of elderly persons nearer to the project corridor may reflect the relatively young work force at JBLM. See Exhibit 8 and Exhibit 9, following.

Exhibit 8. Disability Status^{33,34}

Area	Existing Puget Sound BNSF Route	Project Route	Pierce County
Total Population Which Disability was Tallied	70,704	54,301	389,033
Total Population With Disability	14,230	13,348	14,230
With Disability (%)	20.9%	24.3%	20.9%

Exhibit 9. Elderly Status³⁵

Area	Existing Puget Sound BNSF Route	Project Route	Pierce County
Total Population for Which Age was Determined	130,517	112,261	795,225
Total Population Over Age 65	18,398	9,509	87,785
Over Age 65 (%)	14.1%	8.5%	11.0%

What are the economic conditions in the study area?

Pierce County's employment figures follow the state and national trend including declining employment trends starting in 2007.³⁶ The most recent statistics for July 2011 show that Pierce County had an unemployment rate of 9.6 percent compared to 9.0 percent for Washington, and 9.3 percent for

³³ 2000 SF3 Sample Data (Block Group)

³⁴ Disability data is created by questions on the ACS including those on hearing, blindness, and unspecified physical, mental or emotional conditions that affect a person's ability to care for themselves.

³⁵ 2010 100% Data Tables (Block Group; P7)

³⁶ WA-REAP 2009

the U.S.³⁷ Economic trends show that Pierce County is expected to continue to grow in population and economic activity into the future at modest rates. Government, including JBLM, is a major employer in Pierce County, and the planned increase in personnel stationed at JBLM would likely continue that trend. Office and administrative support staff and sales-related occupations are projected to be the primary occupation types in the county in the next 5-10 years, continuing the current trend.

In the project corridor, the railway is owned by BNSF, Sound Transit and Tacoma Rail. Within the project corridor, Tacoma Rail is an active freight railroad operator, and BNSF uses the tracks for deliveries, intermittently. Tacoma Rail is owned by the City of Tacoma through Tacoma Public Utilities. Tacoma Rail's three divisions combine to move over 165,000 rail shipments per year along 204 miles of track with 14 locomotives and 90 employees. Tacoma Rail is a self-funded public agency which collects freight rates, associated fees and property leases. Tacoma Rail contributes almost \$2.6 million annually to the City of Tacoma's revenue stream through contributions toward shared City services and an 8% Gross Receipts Tax. Tacoma Rail provides rail freight service in 3 Washington counties, including the Tacoma and Olympia areas, as well as the ports of Olympia and Tacoma. (footnote: <http://www.mytpu.org/tacomarail/>, accessed August 2012)

According to the Pierce County Assessor-Treasurer, property values have declined county-wide with an average value decline from 2010 to 2011 of about 7 percent for residential and commercial properties.³⁸ For residential properties, Lakewood and Tacoma values declined by 7.1 percent and 7.2 percent, respectively, with DuPont faring better with a 5.9 percent decline. For commercial properties, Tacoma faired best with a 6.2 percent decline in value. DuPont saw a 10.2 percent decline in commercial property value, which is similar to the 10.0 percent decline in commercial property value in Lakewood.

A review of real estate market information indicates that there is still a depressed real estate market with foreclosures and short sales dragging prices down, along with poor consumer confidence.^{39,40} However, there are indications that property values and sales may could trending upward into 2012. On September 1, 2011, there were over 2,000 homes for sale in Tacoma, ranging in price from \$20,000 to nearly \$7 million.⁴¹ There were 66 listings for DuPont with prices ranging from \$150,000-\$400,000. There were over 300 listings in Lakewood with prices ranging from \$30,000-

³⁷ ESD-WA 2011

³⁸ Pierce County 2011

³⁹ RealtyTimes 2011

⁴⁰ News Tribune 2011

⁴¹ MLSonline.com 2011

\$3.5 million. Generally older stock houses (pre-1950s) without a view were priced lowest, with newer houses, those with views of the Puget Sound, and historic homes being priced higher.

What is the ownership of the rail corridor?

The Project right-of-way is owned by BNSF, Sound Transit, and Tacoma Rail. During WSDOT's public outreach and scoping, several letters from public agencies, including the cities of Lakewood and DuPont, identified concerns about the possible displacement of adjacent landowners and businesses due to existing use of the right-of-way by the adjacent landowner. In a 2010 survey, there were approximately 50 such commercial and industrial use encroachments into the railroad right-of-way. Since that time, all encroachments have been resolved through negotiation of leases and removal of the encroachment.^{42,43}

Relocation is the assistance provided when a permanent displacement occurs. A displacement occurs when a property is purchased for a project and the resident or business is moved.

Disruption refers to any disturbance of access, parking, landscape, etc., that is not associated with displacement or relocation.

Sound Transit holds a permanent leasehold interest for the platform and access through the atrium at Freighthouse Square, to which the Amtrak station would be relocated with the Project. The leasehold right is an agreement between Sound Transit and the building owner, and is documented in the title to the property. Freighthouse Square itself is privately held, and tenants are located within it by leasehold agreement.

The Puget Sound Route is owned by BNSF.

⁴² WSDOT 2011g.

⁴³ http://www.wsdot.wa.gov/Projects/Rail/PNWRC_PtDefiance/AdvTeamMaterials.htm

Chapter 5 – Potential Project Effects

How would social elements be affected by the project?

This chapter presents potential effects related to social elements in the for the No-Build Alternative, where Amtrak passenger rail operations would continue on the Puget Sound Route, and for the Build Alternative, which is Point Defiance Bypass Project. The social and economic elements evaluated include community cohesion and connectivity, including public access and safety due to emergency service travel delays at railroad crossings, construction-related effects, operational effects, and EJ. The EJ evaluation includes these issues, plus noise, vibration, transportation, air quality, and hazardous materials effects on communities that have lower potential mobility and who may be disproportionately adversely affected by the Project.

Would there be effects to community cohesion and connectivity?

Community Characteristics

This assessment finds that community characteristics would remain unchanged under the Project and under the No Build Alternative.

The Project would not cause a direct change in the demographics, land use patterns, neighborhoods, community services or other related community characteristics. The Project would add 14 train trips on the existing railroad right-of-way, which was constructed in 1873 and 1891, and which has been in service since then. No additional rail right-of-way would be required to construct or operate the project, although some additional parking lots would be acquired in Tacoma, to provide additional parking for the Project in the vicinity of Freighthouse Square.

Community Cohesion and Connectivity

Under the No Build Alternative (operations would continue on the Puget Sound Route), there would be no changes to community cohesion and connectivity, as no changes to the corridor or operations would occur. However, as described in the *Transportation Discipline Report*, along the project corridor, in the no-action condition, traffic flow at the southern at-grade intersections would continue to worsen as traffic volumes from

increased population and employment in the area increases over the next 10-20 years. Levels of service would worsen, and community cohesion and connectivity would be reduced.

Currently there are infrequent freight trains along the Point Defiance Bypass route south of Lakewood station, and there is illegal use of the railroad right-of-way for non-vehicular purposes. With the Project, the increased frequency and speed of trains may slightly increase the perception of isolation between and within neighborhood areas due to train pass-bys that close intersections sequentially and which generate noise. The sense of separation between adjacent communities that has developed over time as a result of geography, land use actions and most recently, base security requirements may be somewhat increased.

There would be no right-of-way acquisitions required, and therefore there would be no physical increase in the size or width of the rail corridor, and its appearance would be very similar to the existing condition. There may be minor effects with the Project to community connectivity during a train pass-by, but the Project's grade crossing improvements may contribute to an improvement to connectivity.

With the Project, there would be grade crossing improvements made at five locations south of the Lakewood Station: Clover Creek Drive Southwest (Chicago Avenue Southwest), North Thorne Lane Southwest, and Berkeley Street Southwest in Lakewood; 41st Division Drive at JBLM, and Barksdale Avenue in DuPont. The *Transportation Discipline Report* provides a complete discussion of the improvements, below is a summary of the improvements effects on connectivity.

TR Junction to (and including) Bridgeport Way Southwest

The increase of trains due to Amtrak Cascades service would not change the LOS at the intersection within this portion of the Project from the No Build Alternative conditions.⁴⁴ All of the crossings north of Bridgeport Way Southwest have been upgraded, and efficiency and safety improved so disruption to community connectivity has been minimized.

South of Bridgeport Way Southwest to Camp Murray, South to Nisqually Junction

South of Bridgeport Way Southwest, the crossings would be upgraded as part of the Project.

The net effect of the Project would be that 43 intersections approaches in the AM peak hour and 41 intersections in the PM peak hour would

⁴⁴ WSDOT 2011c

experience slight to no noticeable effect (a delay change of five seconds or less per vehicle). Three intersections in both peak hours would experience improved functioning (delay improvements of more than five seconds per vehicle).

Only one intersection in the AM peak hour and three intersections in the PM peak hour would be adversely affected (delay increases greater than five seconds per vehicle); only one of these intersections operates substandard LOS F in the PM peak hour (Thorne Lane Southwest and Union Avenue Southwest); the increased delay would be counterbalanced by the reduced delays at the two Thorne Lane Southwest interchange ramp intersections in the Tillicum neighborhood.⁴⁵

With the Project, improvements to the traffic signals at the grade crossings would minimize effects to the neighborhoods and reduce delays at the intersections. The improvements proposed for the intersections south of Bridgeport Way Southwest that would be upgraded as part of the Project would, in general, maintain or improve traffic flow. The intersection improvements would improve connectivity in the study area when compared to No Build conditions.

The improvements at these intersections would improve the physical condition by providing areas where pedestrians and bicycles may safely wait during train pass-bys, and by providing flush-level track crossings at intersections. Therefore, there could be a contribution to the improvement of pedestrian and bicycle access across the tracks. Bringing these intersections to the same type of improvement as has been made for the *Sounder* extension project, north of the Lakewood station would also contribute to community safety along the corridor.

During construction, the existing crossings would be open to traffic. Once construction is completed and during rail operation, improvements to the traffic control systems and intersections would improve traffic flow on the adjacent roadways. Overall, intersections with delay reductions outnumber those with delay increases. Therefore, with the Project and the proposed traffic improvements, community connectivity would experience a benefit.

While there would be increased train noise levels as Amtrak trains are added to the corridor, the noise from train pass-bys would not be a significant new source of noise. With the project, there would be wayside horns added from Lakewood to Nisqually, like those installed with the Sound Transit extension of service to Lakewood. Wayside horns have a much lower noise effect than train-mounted horns. Although there would be an increase in noise levels, the noise analysis demonstrates that the

⁴⁵ WSDOT 2011c

noise level effects to sensitive noise receptors would be moderate. There would be a corollary benefit from the use of wayside horns, which would be that freight trains from Lakewood to Tacoma would no longer sound their train-mounted horns through intersections equipped with wayside horns, which would reduce this particular source of noise in the communities. There would be no effect in community cohesion due to noise.

What are the potential effects to public access and safety?

Under the No Build Alternative the Puget Sound route would remain unchanged from the existing condition. Amtrak delays would continue, and would likely be exacerbated due to the existing conditions within that corridor.

It would be expected that under the No Build Alternative, illegal use of the Point Defiance Bypass route right-of-way would continue, but would likely be more closely monitored and reduced in the portion of the corridor already improved by Sound Transit for the *Sounder*. There would be no improvements at intersections south of Lakewood Station and existing public access and safety conditions would persist.

As fully discussed above under community connectivity and in the *Public Services and Utilities Discipline Report*, the minor traffic effects from the Project would also pertain to emergency service vehicles travelling across the corridor during construction and operation.

According to the schedule developed adding the Amtrak Intercity and Cascades service to the Point Defiance Bypass Route, there would be a total of four of the fourteen added trains crossing north or southbound on the corridor during the regular school day (personal communication STV). It may also affect the ability of people to access schools and public or social facilities. FRA and WSDOT considered train events in light of school bus and other scheduled transit runs and there do not appear to be significant conflicts resulting from the current train timetables for Amtrak.

A train event means a train is crossing an at-grade roadway and the intersection is closed to traffic. The typical gate down period lasts from 41 to 88 seconds depending on the train.

While the Project would slightly increase the average delay (seconds per vehicle) at some intersections, a number of intersections would experience reduced delays, including reduced delays at the two Thorne Lane Southwest interchange ramp intersections in the Tillicum neighborhood. Improvements to the traffic signals at the grade crossings would minimize effects to the neighborhoods and reduce delays at the intersections. Further, proposed safety features at specific at-grade crossings would be improved, which would benefit both roadway and rail traffic mobility. The

effects are expected to be minor during construction and negligible during operation.

The proposed intersection and traffic signal upgrades south of Bridgeport Way Southwest would also improve safety at these crossings for vehicles, non-motorized vehicles, and pedestrians.⁴⁶ As more fully discussed in the *Transportation Discipline Report*, the predicted safety ratings of the at-grade intersections would improve even though there would be more frequent train service. In conjunction with education programs such as Operation Lifesaver⁴⁷ and safety signs, the improvement in traffic flow would increase safety and access at the intersections for all users.

What are the potential economic effects?

FRA and WSDOT examined both construction-related economic effects and operational-related economic effects.

Construction-related Economic Effects

The No Build alternative would not require any construction, and the Puget Sound route would remain unchanged from the existing condition.

Construction employment associated with the Build Alternative is expected to be limited and specialized. While there would be some benefit for employment and gross income during construction due to housing, food, and entertainment expenditures by construction crews, this benefit would be temporary and likely not significant in terms of direct or indirect economic benefits.

There is no anticipated effect to local businesses due to disruption during construction. Most of the construction occurs within the railroad right-of-way, away from intersections. WSDOT would develop a traffic control plan that minimizes effects during peak travel times, and maintain access to businesses. Further, WSDOT would coordinate with Tacoma Rail to assure continued freight access during construction.

Operation-related Economic Effects

The No Build Alternative would remain unchanged from the existing condition. The No Build Alternative would not be effective in meeting the Purpose and Need for the project, in that Amtrak trip times would not be improved. Over the long term, it would be expected that the inability to improve trip times would lead to a long-term reduction of economic

⁴⁶ WSDOT 2011c

⁴⁷ Washington Operation Lifesaver

competitiveness, which would be an adverse effect of the No Build Alternative. There would be no direct effects to employment.

While not likely measurable, there may be a slight beneficial economic effect to the regional economy from operation of the Project due to more reliable passenger train service.

Through public outreach, WSDOT received comments and questions about potential adverse economic effects to property values adjacent to the rail corridor. WSDOT conducted a literature review and synthesis of available studies on economic effects on value for properties located near a track.^{48,49,50,51,52,53} One of the studies included the Sound Transit Tacoma to Seattle commuter rail line, but the majority of the studies were for other regions of the nation including Minnesota, Texas, Colorado, Oregon, California, Ohio, and other metropolitan areas. The studies looked at property value adjustments based on residential and business property proximity to commuter rail, high speed passenger rail, and freight rail; the conditions and services reflected a wide range of project conditions and requirements, including new right-of-way, and transit-oriented development. The conclusions from these studies indicate that there is a marked increase in property value for residential and commercial property in close proximity to stations (the distance varies in the literature but generally within ½ mile) with high- and middle-income neighborhoods receiving a greater boost in value compared to low-income neighborhoods. Commercial properties in close proximity to stations had an increased value.

Less clear from the literature are the potential effects to home values outside of a station and along the rail line. Generally, it appeared that proximity, noise and vibration were studied as potential factors, but the findings are not conclusive. One study indicated that there may be a discount for houses within approximately 984 feet of the tracks. However, another study indicated that the issue was nuisance noise from train horns and that discounts in home values was not due specifically to the proximity of the home to tracks. This type of effect should be somewhat reduced with the Project, as wayside horns would be used as a signal for any train running along the corridor; freight trains would no longer have to blow louder train mounted horns through the improved grade crossings. The Project is projected to increase noise at two locations on the Point Defiance Bypass route (Site 6M located near the at-grade railway crossing

⁴⁸ *Cervero 2004*

⁴⁹ *Diaz 1999*

⁵⁰ *Levinson 2010*

⁵¹ *PB 2001*

⁵² *Simons et al 2004*

⁵³ *URS 2007*

on 108th Street Southwest, just east of the intersection of 108th Street Southwest and Lakewood Drive Southwest in the City of Lakewood, WA; and Site 16N located near the at-grade railway crossing on Bridgeport Way Southwest, just north of the intersection of Bridgeport Way Southwest and Pacific Highway Southwest in the City of Lakewood, WA). The moderate increase in noise at these locations would not exceed FRA criteria and thus would not require mitigation. The use of wayside horns would minimize nuisance noise while maintaining safety at crossings. In addition, the use of continuous welded rail would further facilitate quieter train pass-bys. The Project is not anticipated to affect property values, given that the rail corridor already exists, is used for freight and commuter service, and measures to minimize or eliminate noise and vibration would be implemented by the Project.

The Project does not include a new station, but would relocate the Amtrak Puyallup Station to Freighthouse Square. The Project does not alter the use of that property which is committed as a station for *Sounder*, under legal agreement with Sound Transit. There may be opportunities for indirect economic benefits tied to the station relocation. These are further considered in the indirect effects section of this report.

Tacoma Rail may experience improved access to Tacoma suppliers through improvements to the rail infrastructure associated with the project. The Project would not increase freight traffic on the Point Defiance Bypass route. The use of the corridor by freight is negotiated through agreement with the rail owner, Sound Transit.

In conclusion, the Project is unlikely to have a direct adverse effect on property values, businesses or local economic conditions.

What are the effects due to relocation and disruption?

With the No Build Alternative, there would be no effects due to relocation or disruption, as there would be no changes in activities along the Puget Sound route.

With the Project, FRA and WSDOT examined potential relocations and disruptions along the project corridor. No right-of-way acquisitions or relocations are required for the Project. As noted earlier, prior encroachments along the corridor have been resolved.

With the Project, disruption would be limited to the temporary disturbance of railroad property and potential disruption of Tacoma Rail activities during construction. WSDOT will coordinate with Tacoma Rail to maintain continued freight access during construction and limit disruption to Tacoma Rail activities. Given that most of the construction occurs

within the railroad right-of-way, away from intersections, there would be no anticipated effect to local businesses due to disruption during construction.

Project elements include relocation of the Tacoma Amtrak Station currently located at Puyallup Avenue East to the Tacoma Dome Station at Freighthouse Square in Tacoma. Additional improvements to the Freighthouse Square building and surrounding area may be necessary as part of the Project. Relocation to Freighthouse Square would have minor effects during construction due to expansion of the platform, reconfiguration of the building, and street and parking improvements. All improvements would be ADA-compliant. Operationally, there may be a slight beneficial effect for transit and rail passengers because adding Amtrak service to Freighthouse Square would improve multi-modal connectivity to Sound Transit's *Sounder* commuter rail, Sound Transit, Pierce Transit, and Intercity Transit buses, and Tacoma Link.

The operation of the Project is not anticipated to result in disruptions to Tacoma Rail or local businesses.

Environmental Justice

FRA and WSDOT examined the potential effects on EJ populations from the perspective of social elements (community cohesion, community connectivity, economics, and public access and safety) as well as from the results of the other discipline reports. A detailed explanation of each element and associated effects as it relates to EJ populations is provided in this report.

What are the potential project effects on environmental justice populations?

No Build Alternative

Existing EJ conditions would persist under the No Build Alternative. The No Build Alternative would remain physically unchanged from the existing condition along the Puget Sound route. Air quality conditions would remain unchanged, and no effects are expected. EJ communities near Tacoma could be affected in terms of connectivity from delays of train movement along the Puget Sound route, as congestion along the route continues to grow.

Over time, the no-action conditions along the Point Defiance Bypass route would continue to result in increased traffic delays and the related reduction in connectivity and isolation. This would affect all communities

along the corridor, including the Tillicum and Nyanza communities, which are identified as EJ communities.

Build Alternative

As noted in the methods section, if the Project is likely to result in direct adverse effects, then the analysis requires a determination whether there are disproportionately high and adverse effects on EJ populations. Using the specific discipline reports prepared for the Point Defiance Bypass EA, FRA and WSDOT sought to determine whether the anticipated effects may be experienced differently for minority and low-income populations than for the community as a whole. The determination of a disproportionate effect is made considering where the effect:

- is predominately borne by a minority population and/or a low-income population; or
- will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the nonminority population and/or non-low-income population.

The section below summarizes resource specific effects and if the effect would be considered a disproportionately high and adverse to EJ populations.

Transportation – Minor benefits (intersection improvements) and minor disruptions (queues at some intersections increasing) are associated with operation of the Project. However, overall the Project would result in more intersections with delay decreases than delay increases. The transfer of passenger rail service from the existing BNSF main line route to the Point Defiance Bypass route may decrease traffic congestion along the existing BNSF main line route. This may result in a negligible benefit to persons living along the Puget Sound route. These transportation related effects would affect low-income and minority populations, however the effects would not be appreciably more severe or greater in magnitude than the effect on non-minority or non-low-income populations in the vicinity of the project.

Air Quality –All air quality conditions were considered, and the Project would not result in a violation of the National Ambient Air Quality Standards. For the with-Project condition, Mobile Source Air Toxics (MSATs) were considered closely for potential effect on EJ populations, because the with-Project condition would add 14 diesel-powered train trips to the project corridor, which would not operate on the project corridor with the No Build Alternative. The MSAT evaluation indicates that there would be no significant contribution to MSAT emissions and

there would be no significant effect for any portion of the corridor, and thus no disproportionate effect on EJ populations.

Noise and Vibration-Noise affected criteria are determined based on the type of use (e.g. tracts of land where quiet is an essential element of the intended use; residences and buildings where people normally sleep; and institutional lands with primarily daytime and evening uses, such as schools, libraries, theaters, and churches), existing noise levels, and the Project's contribution (additional information provided in the *Noise and Vibration Discipline Report*). Minority and low-income populations would experience moderate project related noise effects at two noise monitoring sites. Moderate noise effects are predicted at Site 6M and Site 16N. Site 6M is located near the at-grade railway crossing on 108th Street Southwest, just east of the intersection of 108th Street Southwest and Lakewood Drive Southwest in the City of Lakewood, WA. Site 16N is located near the at-grade railway crossing on Bridgeport Way Southwest, just north of the intersection of Bridgeport Way Southwest and Pacific Highway Southwest in the City of Lakewood, WA. Both sites exhibit a high percentage of minority and low-income population present.

The moderate increase in noise is due to the project component of wayside horns. Wayside horns have a significantly lower noise signature than train-mounted horns and focus the audible safety warning to the intersection traffic as opposed to the broadcast sound generated by a train-mounted horn. The use of wayside horns significantly reduces the number of properties potentially affected by the Project. The noise increases would be similar to those for the project corridor south of Lakewood station, where the project includes wayside horns, and north of Lakewood station, where Sound Transit has already evaluated effects and installed wayside horns. Noise effects would not require mitigation. The conditions would be similar along the corridor, with similar treatment to all populations living along the Point Defiance Bypass route.

The transfer of passenger rail service from the existing BNSF main line route to the Point Defiance Bypass route may decrease noise along the existing BNSF main line route. This may result in a negligible benefit to persons living along the Puget Sound route.

As reported in the *Noise and Vibration Discipline Report*, with the Project, there would be vibration effects at two receptors.⁵⁴ The two receptor sites where potential vibration effects would be above the FTA vibration affected criteria of 80 VdB are also identified as areas with a high percentage of minority/ethnic and low-income populations. Site 3 is located at the south end of Kline Street Southwest and Site 11 is located

⁵⁴ WSDOT 2011f

on the south side of Union Avenue Southwest. These sites also exhibit a high percentage of minority populations present. These populations would experience minor vibration effects under the Build Alternative. Additional effects resulting from a 3 VdB or more increase over the existing vibration levels in the corridor shared with Sound Transit *Sounder* service (Lakewood Station to TR Junction) were predicted at Sites 2, 4, 5 and 10. With respect to vibration effects, avoidance would be achieved with track treatments that reduce or eliminate vibration, reducing vibration effect to be below the FTA vibration affected criteria as recommended in the *Noise and Vibration Discipline Report*.⁵⁵

The noise and vibration related effects would affect low-income and minority populations, however the effects would not be appreciably more severe or greater in magnitude than the effect on non-minority or non-low-income populations in the vicinity of the project.

Hazardous Materials – No adverse construction or operational effects are anticipated. If encountered during construction, the presence of contaminated soil or groundwater could result in public health or environmental effects, however the Project would employ standard measures that help avoid, control, and manage potential effects from hazardous materials during construction. These effects would not be appreciably more severe or greater in magnitude than the effect on non-minority or non-low-income populations in the vicinity of the project.

Other Social Elements

Connectivity and Cohesion – When compared to the No Build, the Project does not split or isolate areas, generate new development, or separate neighborhoods from services. The Tillicum, Woodbrook, and Nyanza neighborhoods would continue to experience some isolation because of the lack of existing non-vehicular pathways and trails. The operation of the Project may increase residents' sense of isolation in a few neighborhoods during train pass-bys, which would be very short in duration. However, overall the Project would result in more intersections with delay decreases than delay increases. Therefore, with the Project and the proposed traffic improvements, community connectivity would experience a minor benefit.

Effects to community connectivity and cohesion would not be appreciably more severe or greater in magnitude than the effect on non-minority or non-low-income populations in the vicinity of the project.

⁵⁵ WSDOT 2011f

Economic – When compared to the No Build Alternative, the Project would not cause changes in employment or the local economy. It is also not anticipated to affect property values given that the rail corridor already exists, is used for freight and commuter service, and measures to minimize or eliminate noise and vibration will be implemented by the Project. There would be no construction or operation effects resulting in disruption to Tacoma Rail or local businesses. No relocation of businesses or residences is proposed by the project, with the exception of the Amtrak Station. Relocation of the Amtrak Station to Freighthouse Square would allow connection to Amtrak from other transit services without the use of a personal vehicle, a benefit to the community. The economic effects to EJ populations within would not be appreciably more severe or greater in magnitude than the effect on non-minority or non-low-income populations in the vicinity of the project.

Public Access and Safety –No public services would be displaced by the Project, and services would continue to be available to individuals in the study area. Operational effects would be similar for all the public service sectors, including schools, emergency services, access to medical centers and government offices, and transit. The most common effect is intersection traffic delays due to the addition of the Amtrak service, which could delay public services.

Public access and safety near to the neighborhoods of Tillicum, Woodbrook, Nyanza and DuPont would be improved because of signaling and intersection improvements. There would be minor effects to public access in the Tillicum, Woodbrook, and Nyanza neighborhoods, but the five at-grade crossings that would be improved would also be safer for pedestrian and bicycle crossings.

In the existing condition there is occasional illegal use of the railroad right-of-way as a path; the Project would not formalize a public use of the rail corridor for safety reasons. However, because of the safety issue related to the illegal use of the railroad right-of-way as a pedestrian trail, WSDOT has and will implement a public outreach program that includes outreach to LEP populations.⁵⁶ WSDOT would also implement the track safety program Operation Lifesaver throughout the study area. The proposed minimization procedures for public access and safety reduce the public access and safety effects for all in the study area, including EJ populations.

⁵⁶ WSDOT 2011e

Environmental Justice Effect Finding

The construction and operational effects of the Project as described above would affect low-income and minority populations in the study area. FRA and WSDOT examined whether or not the effects on the EJ populations would be disproportionate. The agencies determined that there are sufficient offsetting benefits to improved traffic flow and safety as well as minimization measures to address direct effects from noise and vibration at specific locations along the Point Defiance Bypass route. FRA and WSDOT found that these effects would not be appreciably more severe or greater in magnitude than the effect on non-minority or non-low-income populations in the vicinity of the project. Therefore, no disproportionately high or adverse effect on EJ populations would result from the Project and the Project is consistent with the requirements of Executive Order 12898 and the USDOT Environmental Justice Order, as it is supported by Title VI of the Civil Rights Act.

Are there indirect effects on socioeconomic or environmental justice?

The redevelopment near Freighthouse Square would generally take place in the existing footprint of vacant lots or renovating existing buildings and would not affect community characteristics, cohesion or connectivity. Construction could provide some short-term employment and commercial development could provide longer term jobs to community members in the study area.

EJ communities in the vicinity of Freighthouse Square and could benefit from improved transportation access. Redevelopment could provide a minor beneficial indirect effect to EJ communities.

Are there cumulative effects related to socioeconomic or environmental justice?

Cumulative effects are the sum of a 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 (typically 30 years into the future) of the resource. The cumulative effects study area is generally larger than a project's study area to capture effects distant in space and time from a project. The cumulative effects study area for the Project is Pierce County. The time line for the cumulative effects ends in 30 years from proposed construction, which is 2043.

Reasonably Foreseeable Actions

Reasonably foreseeable actions are projects likely to be constructed during the cumulative effects time period that are likely to influence future conditions. There would be many projects constructed by the public and private sectors that would be part of the trend of development for an area, so only projects that are likely to have a measurable effect are identified for the cumulative effects analysis. A list of reasonably foreseeable future actions is provided in the *Land Use Discipline Report*.

Reasonably foreseeable future actions related to transportation projects in the study area include construction of the Cross-Base Highway (SR 704) and improvements to alleviate congestion around the military installations of Camp Murray and JBLM. These improvements include moving the Camp Murray main gate to the vicinity of Portland Avenue and Boundary Street, and the potential Berkeley Street Southwest overpass project.

Cumulative Effects on Social Elements (Including Environmental Justice)

FRA and WSDOT considered the Project's anticipated direct and indirect effects on social elements including environmental justice populations to evaluate whether the project contributes to any adverse cumulative effects. For most of the social elements (community character & cohesion, relocation/disruption, environmental justice), FRA and WSDOT found no contributions to cumulative effects.

Connectivity in the study area north of Bridgeport Way Southwest would be unchanged by the Project and any other reasonably foreseeable future action; Sound Transit has already installed wayside horns that reduce train noise in all communities between Tacoma and Lakewood. South of Bridgeport Way Southwest, construction of the Cross-Base Highway and moving the Camp Murray main gate would improve connectivity by relieving congestion. Improvements as part of the Camp Murray Gate Relocation would divert traffic away from the Berkeley Street Southwest interchange to the North Thorne Lane Southwest interchange thus alleviating congestion at Berkeley Street Southwest. In conjunction with the Project's intersection and signaling improvements, the result would be a slight beneficial contribution to the cumulative effect on community connectivity.

The Tillicum, Woodbrook, and Nyanza neighborhoods have a long history of isolation due to the geographic and land use patterns around them. Neighborhood areas lack walkways and bike paths except for the travel lane and there are few entry/exit points to the neighborhood areas. Occasional, illegal pedestrian use of the railroad tracks as a trail is a safety concern. The future projects to improve mobility in the area (i.e., SR-704

and improvements around the military installations) would not improve connectivity within neighborhoods, but may enhance connectivity between neighborhoods. The lack of connecting streets and non-motorized pathways in the Tillicum, Woodbrook, and Nyanza neighborhoods, combined with increased train activity with the Project, would result in a minor contribution to the isolation associated with the cumulative effects of past and present land use and transportation patterns in these areas.

Consistent with NEPA guidance⁵⁷, FRA and WSDOT reviewed past project proposals to see where similar concerns have been addressed. For example, measures to improve local mobility and non-motorized access are discussed in the JBLM Growth Coordination Plan, and several other local and regional planning efforts. The Cross-Base Highway (State Route 704) environmental documents contain possible measures to improve bicycle and pedestrian mobility in this area. Federal, state, and local entities are engaged in efforts to improve transportation modes including non-motorized access through the area.

⁵⁷ CEQ 1997

Chapter 6 – Recommended Minimization Measures

As described in Chapter 5, the construction and operation of the Project would not have a significant adverse effect on socioeconomics and EJ requiring mitigation, effects associated with construction activities and Project operation would be reduced by minimization measures associated with other resources.

The Project includes improvements to at-grade crossings, such as replacement of traveling surfaces, upgrades to traffic signal systems, and increased or improved roadway approaches to the track. These improvements would provide a benefit to the communities in the study area by improving public safety and traffic flow.

The construction of the project would have minor, temporary effects on mobility or access to neighborhoods or services in the study area. During construction of the Project, there may be lane closures at grade crossings, which would temporarily affect traffic flow. WSDOT is committed to minimizing lane and grade crossing closures during construction in order to maintain traffic flow.

With respect to noise and vibration effects, minimization and avoidance would be achieved with wayside horns that are quieter than train mounted horns and track treatments that reduce or eliminate vibration. Track treatments reduce the vibration effect to below the FTA vibration impact criteria as recommended in the *Noise and Vibration Discipline Report*.⁵⁸

To minimize effects related to community connectivity related to the Project, WSDOT has committed to implementing the education program Operation Lifesaver, and is conducting outreach to the community including an emphasis on reaching non-English speaking (LEP) populations using alternative methods.⁵⁹ The proposed minimization measures for public access and safety reduce the public access and safety effects for EJ populations.

⁵⁸ WSDOT 2011f

⁵⁹ WSDOT 2011e

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- WSDOT 2011g. Point Defiance Bypass Preliminary Draft Land Use Discipline Report, September 2011.
- Add Environmental Procedures Manual and cumulative effects guidance <http://www.wsdot.wa.gov/NR/rdonlyres/1F0473BD-BE38-4EF2-BEEF-6EB1AB6E53C2/0/CumulativeEffectGuidance.pdf>