

### 3.7 Visual and Aesthetic Resources

This section documents the visual environment surrounding the OMF South project alternatives and assesses the extent to which the viewer experience of visual and aesthetic resources may be affected by the project. The visual analysis assesses the existing visual quality and character of the landscape and then considers how typical viewers may respond to what they see around them. Assessment methods include defining viewsheds from where a build alternative can potentially be seen, characterizing the visual quality in landscape units within the viewshed, and selecting key observation points of the affected areas.

Visual and aesthetic impacts are defined by the extent to which the proposed project would change the environment in terms of visual quality and viewer sensitivity. Sound Transit adapted FHWA and WSDOT guidelines for visual quality analysis, which refers to the evaluation of the visual experience of the public described in terms of vividness (distinctive and memorable views), intactness (consistent or contrasting elements within view), and unity (overall compositional harmony) and is ranked as high, medium, or low. Viewer sensitivity refers to how viewers perceive the environment and what they find important, and is also rated as high, medium, or low.

Landscape units are geographic units in which visual quality impacts to viewers are assessed, are defined both by viewshed area and landscape type, and are generally visually homogenous (i.e., one viewshed and one landscape type). Key observation points were selected within each landscape unit to illustrate views that are typical of the build alternatives, locations from where project features are particularly prominent, or views from sensitive viewpoints that would have views of the operating build alternative. At each key observation point, views of existing conditions are compared with simulated views of the build alternatives.

Please see Appendix H3, Visual and Aesthetic Resources Technical Appendix, for more detail about the methodology and terms used in this analysis.

#### 3.7.1 Affected Environment

This section describes the affected environment for visual and aesthetic resources by landscape unit and by build alternative. There are three landscape units. The first landscape unit is the section of the I-5 corridor and adjacent areas where the mainline and test tracks serving the Preferred and South 344th Street alternatives would be built. The second landscape unit encompasses the OMF sites of the Preferred and South 344th Street alternatives. The third landscape unit encompasses the Midway Landfill Alternative. Table 3.7-1 below lists the landscape units and describes the visual quality rating and viewer groups for each.

Most views of the build alternatives are foreground views from vantages immediately adjacent to the sites and are typically within 400 to 500 feet. Views of the sites from beyond 500 feet and background vantages are mostly blocked by either vegetation, terrain, buildings, or infrastructure. Figures 3.7-1 through 3.7-4 show each build alternative, the associated landscape unit, and the location of the key observation points.

**Table 3.7-1 Existing Visual Quality for the OMF South Alternatives**

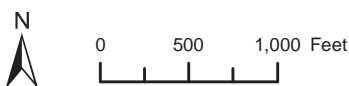
Alternative	Landscape Unit	Vividness	Intactness	Unity	Existing Visual Quality	Predominant Viewer Groups (Sensitivity)
Preferred	Mainline: Landscape Unit 1	Medium	Low to Medium	Medium	Medium	Residential (High) Woodbridge Corporate Park visitors (Medium-high) I-5 Commuting Drivers (Low) I-5 Sightseeing Drivers (High)
Preferred	Site: Landscape Unit 2	Low to Medium	Medium	Medium	Medium	Residential (High) I-5 and SR 99 Commuting Drivers (Low) I-5 and SR 99 Sightseeing Drivers (High) Business Patrons and Workers (Medium) Pedestrians and Cyclists (Medium)
South 344th Street	Mainline: Landscape Unit 1	Medium	Low to Medium	Medium	Medium	Residential (High) Woodbridge Corporate Park visitors (Medium-high) I-5 Drivers (Low) Sightseeing Drivers (High)
South 344th Street	Site: Landscape Unit 2	Low to Medium	Low to Medium	Low to Medium	Low to Medium	Residential (High) I-5 and SR 99 Commuting Drivers (Low) I-5 and SR 99 Sightseeing Drivers (High) Business Patrons and Workers (Medium) Pedestrians and Cyclists (Medium)
Midway Landfill	Site: Landscape Unit 3	Medium	Low to Medium	Low to Medium	Medium	Residential (High) I-5 and SR 99 Commuting Drivers (Low) I-5 and SR 99 Sightseeing Drivers (High) Business Patrons and Workers (Low to Medium) Pedestrians and Cyclists (Medium)



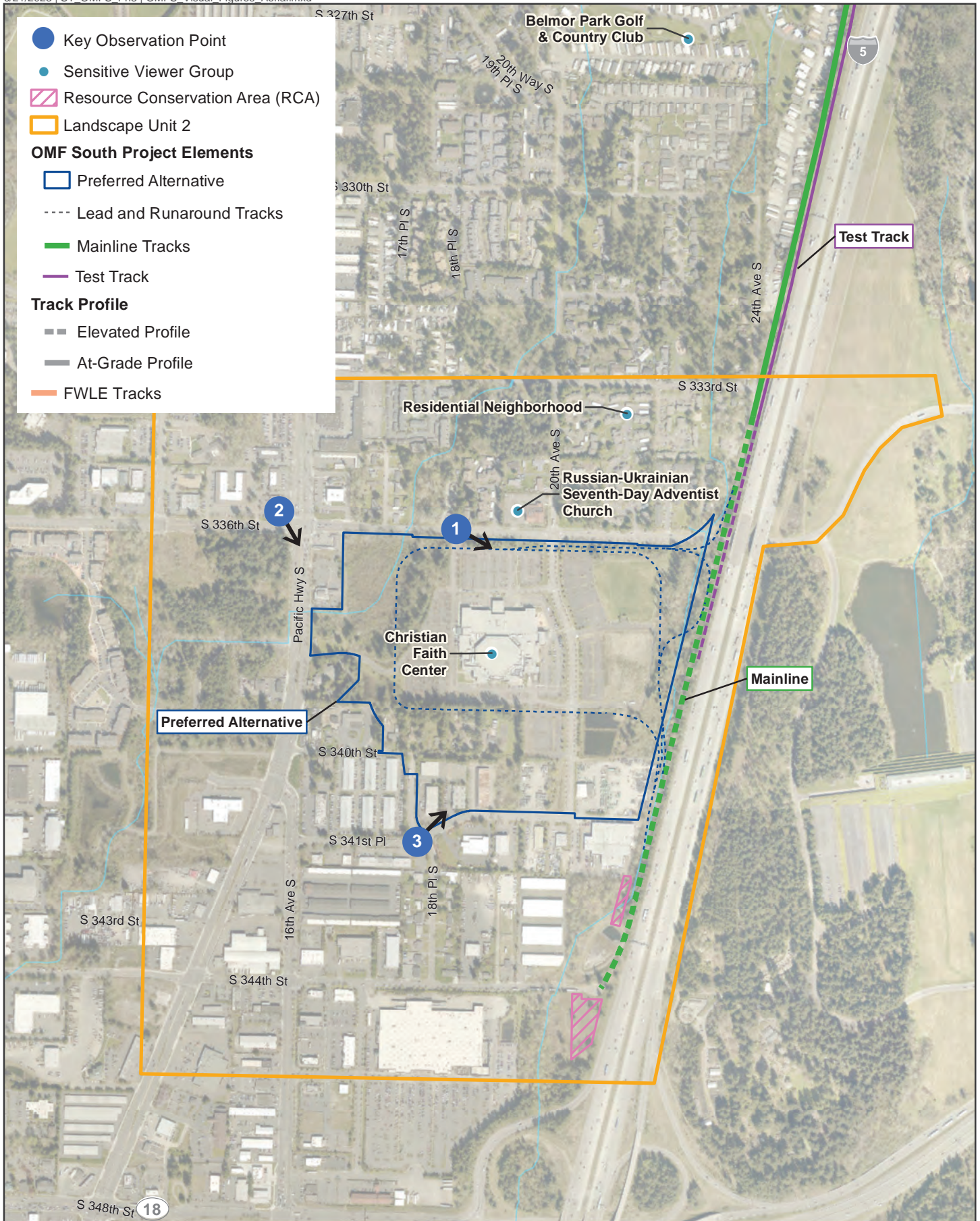


Data Sources: King County; Cities of Des Moines, Federal Way, Kent (2019).

**FIGURE 3.7-1**  
Visual Conditions and Key Observation Points  
Mainline Track Options



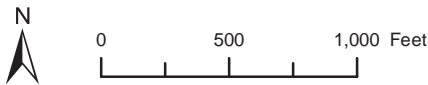




Data Sources: King County; Cities of Des Moines, Federal Way, Kent (2019).

**FIGURE 3.7-2**  
Visual Conditions and Key Observation Points  
Preferred Alternative

OMF South

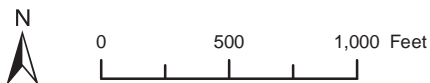




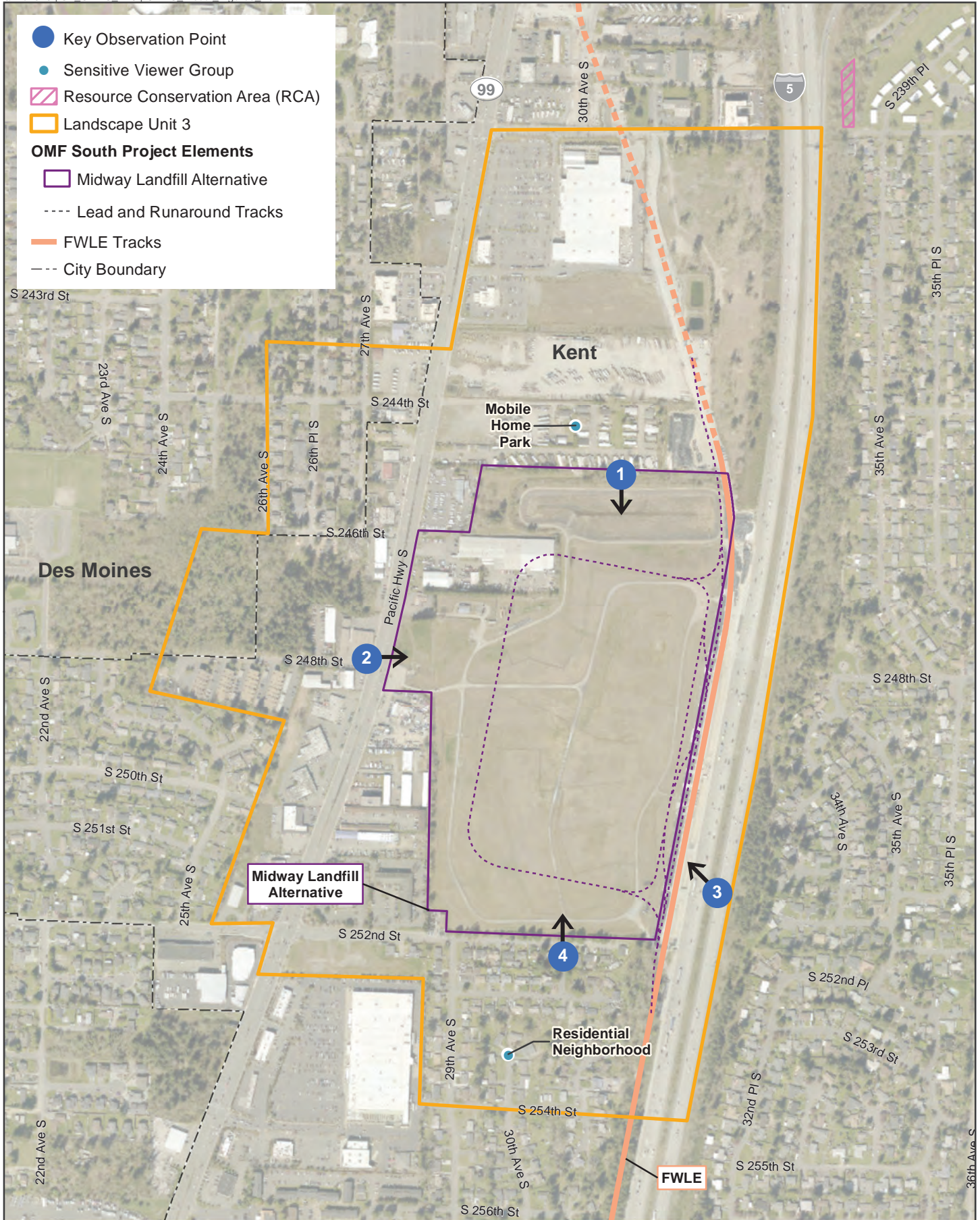


Data Sources: King County; Cities of Des Moines, Federal Way, Kent (2019).

**FIGURE 3.7-3**  
Visual Conditions and Key Observation Points  
South 344th Street Alternative

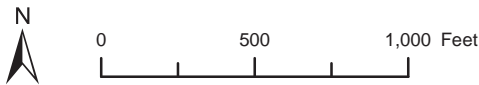






Data Sources: King County; Cities of Des Moines, Federal Way, Kent (2019).

**FIGURE 3.7-4**  
Visual Conditions and Key Observation Points  
Midway Landfill Alternative



### 3.7.1.1 Mainline Tracks

Landscape Unit 1 encompasses the mainline alignments that would connect the Preferred and South 344th Street alternatives to the terminus of FWLE, including the tail tracks and test track (Figure 3.7-1). This area is well south of and separate from the Midway Landfill Alternative and shares adjacency with the Preferred and the South 344th Street alternatives. However, the visual character of the mainline study area is unique and distinct from that of the OMF sites.

The northern portion of Landscape Unit 1 is near the future Federal Way Downtown Station and includes the Federal Way downtown area, the Federal Way Performing Arts Center, The Commons at Federal Way shopping center, and the Federal Way/S 320th Street Park & Ride. The central portion includes residential areas, including Belmor, a 63-acre mobile home park for adults 55 years and older that contains over 300 mobile home units and a nine-hole golf course located south of S 324th Street, and the visually prominent BPA transmission line towers. The southern portion of this area extends south of S 348th Street and includes the I-5/SR 18 interchange and a shopping center with big-box and medium-scale retail shops.

Belmor residents are high-sensitivity viewers. Relatively unobstructed views of Mount Rainier can be seen from locations in Belmor. The residents between Belmor and S 336th Street would have high visual sensitivity as well, with views of mature trees within and surrounding the neighborhood. The vividness and unity ratings of Landscape Unit 1 are medium, and intactness is rated low to medium.

I-5 runs adjacent to the mainline. The mature vegetation along the edge of I-5 serves as a backdrop for many adjacent neighborhoods that, along with noise walls in some locations, provides a visual barrier to the freeway and provides natural beauty along the highway for the traveling public. Where I-5 can be seen from adjacent areas, its presence influences the character of adjacent land uses and the visual quality of surrounding areas.

The southern tail track alignments extend to S 348th Street at the I-5/SR 18 interchange. This area includes two WSDOT-designated RCAs and is bordered by the I-5/SR 18 interchange on the east and south and a retail store parking lot on the west (Figure 3.7-4). The northernmost of the two RCAs is approximately 0.3 acre and is covered in mature native trees. The second area, 500 feet to the south, is approximately 1 acre and is primarily covered in Himalayan blackberry, with just a few trees. Both are seen as a green background for travelers on I-5 and for visitors to the stores to the west.

Lighting within the landscape unit varies from the higher levels of commercial and streetscape lighting in the Federal Way Downtown area to more the subdued neighborhood lighting in Belmor to the I-5 corridor, which is continuously illuminated from high-mast overhead lighting.

### 3.7.1.2 Preferred Alternative

The Preferred Alternative is located within Landscape Unit 2, which encompasses the combined areas of the Preferred and South 344th Street alternative OMF sites and their surroundings. Landscape Unit 2 is defined by residential uses to the north, a commercial business district to the south, retail businesses and residential and light industrial land uses to the west, and I-5 to the east (Figure 3.7-2). The OMF site itself is bounded on the north by S 336th Street, with residential areas beyond, and to the east by the I-5 corridor, which is lined with mature conifer trees. The site is bounded on the west by SR 99 and commercial properties. To the south, the site borders S 340th Street and S 341st Place and a mix of warehouses, light industrial land uses, and residential properties.



The site is primarily occupied by the approximately 55-foot-tall building for the Christian Faith Center church, with surrounding surface-level parking west of 20th Avenue S, and overflow parking lots, a soccer field, and open areas east of 20th Avenue S. Given the mix of visual character elements of parking areas, landscaping, and more natural perimeter vegetation along with the building scale, the Christian Faith Center campus has medium visual intactness and unity. The southern portion of the site, with a mix of building forms, scales, and uses, has a lower level of unity and intactness. Overall views in the area lack vividness, and the overall visual quality is medium.

Lighting visible within the study area consists of exterior lighting for the Christian Faith Center parking areas; limited interior lighting and street lighting associated with residential areas to the north and commercial areas to the south of the site; and high-mast lighting on I-5 to the east of the site that is somewhat obscured by mature vegetation next to the interstate.

Viewers of the OMF site include nearby residents in surrounding neighborhoods; patrons and workers at nearby commercial and industrial establishments; motorists, pedestrians, and cyclists using nearby streets; and motorists driving on I-5.

### 3.7.1.3 South 344th Street Alternative

The South 344th Street Alternative partially overlaps with the Preferred Alternative within Landscape Unit 2 (Figure 3.7-3). A portion of the OMF site extends north to S 336th Street, with residential areas beyond, and to 20th Avenue S on the west, with the Christian Faith Center building and parking areas beyond. The entire site is bordered on the east by the I-5 corridor, which is lined on both sides with mature conifer trees, and the southern boundary of the site is defined by S 344th Street and commercial uses beyond. The majority of the proposed OMF site is south of the Christian Faith Center and consists of two residential streets with approximately 20 residences. The remainder of the southern area is occupied with various office and warehouse light industrial buildings and associated surface-level parking, bounded on the west by warehouse and light industrial properties.

The northern portion of the site, which covers the Christian Faith Center campus property east of 20th Avenue S, is visually open and uncluttered and therefore has a medium level of intactness and unity. The main southern portion of the site contains a mix of building forms and uses and has a lower level of unity and intactness. Overall views in the area lack vividness, and the overall visual quality is medium to low.

As with the Preferred Alternative, lighting visible within the study area consists of exterior lighting for the Christian Faith Center parking areas and high-mast lighting on I-5 to the east. Due to its proximity to the commercial areas to the south, the South 344th Street Alternative is subject to higher lighting levels as compared to the Preferred Alternative.

Viewers of the OMF South alternative site include nearby residents in surrounding neighborhoods; patrons and workers at nearby commercial and industrial establishments; motorists, pedestrians, and cyclists using nearby streets; and motorists driving on I-5.

### 3.7.1.4 Midway Landfill Alternative

Within Landscape Unit 3, the Midway Landfill Alternative OMF site is bordered to the north by S 244th Street and the Midway RV and Mobile Home Park. I-5 borders the site on the east, with a continuous vegetative buffer east of the interstate screening views of the project site from residential neighborhoods to the east of I-5. To the south, the site is bordered by S 252nd Street, a residential neighborhood, and a large superstore to the southwest. SR 99 and



automobile-dependent businesses with parking areas, including hotels, restaurants, auto mechanics, and other small commercial uses in strip mall developments, border the site to the west. Residential neighborhoods lie further west beyond the SR 99 commercial zone.

The site itself is a closed landfill and stands out as distinct from surrounding areas with an open, gently rolling landscape covered in tall grass. Gravel access roads and landfill gas collection piping crisscross the site, and a stormwater detention pond is located on the northern part of the property. Observed on its own, the site would be rated a higher visual quality, with uniform fields providing higher vividness, intactness, and unity and a different visual character from its surroundings, which are mainly developed. But as seen by most viewers, including the more sensitive residential viewers to the north and south, views include a mix of on-site and off-site built and natural elements that give the broader landscape unit medium vividness and low to medium visual intactness and unity.

Lighting within the study area consists of limited exterior lighting for the landfill operations area in the northwest corner of the site, lighting for businesses adjacent to and roadway lighting on SR 99, interior and exterior lighting and street lighting associated with residential areas to the north and south of the site, and high-mast lighting on I-5 to the east.

The view on both sides of I-5 within Landscape Unit 3 is of mature, mainly native mixed forest dominated by conifer trees with some open, tall grass areas, including the Midway Landfill. The view on the west side includes the FWLE mainline in places. For motorists and passengers traveling through the corridor, the vegetation and open grass areas provide for a pleasant backdrop with higher visual intactness and unity. The mature vegetation along the edge of I-5 serves as a backdrop for many adjacent neighborhoods that, along with noise walls in some locations, provides a visual barrier to the freeway. Where I-5 can be seen from adjacent areas, its presence influences the character of adjacent land uses and the visual quality of surrounding areas.

### 3.7.2 Environmental Impacts

#### 3.7.2.1 No-Build Alternative

Under the No-Build Alternative, impacts to visual and aesthetic resources from construction or operation of OMF South would not occur. However, other planned projects would have impacts in the OMF South study areas. The construction of the elevated mainline tracks associated with FWLE has affected visual resources in the Midway Landfill Alternative study area to the east of the landfill next to I-5 and through removal of some mature vegetation that screens views of I-5 south of the landfill. Without OMF South, TDLE would construct the mainline track associated with the Preferred and South 344th Street alternatives later in time. Impacts associated with construction of the mainline track are addressed within the build alternatives impacts discussion below. All other TDLE-related impacts are addressed in Chapter 4, Cumulative Effects Analysis.

#### 3.7.2.2 Long-Term Impacts

This section qualitatively assesses the level of visual change and visual quality for each landscape unit that could occur as a result of OMF South, based on simulations that were prepared for this assessment. The simulations use photographs of existing views from key locations from around each build alternative and show proposed conceptual designs. Building, wall, and landscaping details would be determined in the final design phase.

Visual impacts are defined as a change from a higher visual quality to a lower visual quality where sensitive viewers have exposure to the view. The following criteria are used to

characterize the degree of visual quality change from existing conditions in terms of changes in the elements of vividness, intactness, and unity.

- **High change and impact to visual quality** would remove existing features and/or introduce visually prominent features that alter the visual character of the area for sensitive viewers with exposure to the change. High visual change could have high, medium, or low visual impact, depending on the level of sensitivity and exposure of viewers effected.
- **Medium change and impact to visual quality** would alter visual features but not in a way that would be perceived as intrusive or incompatible by most viewers, and it would not substantially change intactness and visual unity. Medium visual change would have medium or low visual impact, depending on the level of sensitivity and exposure of viewers effected.
- **Low change and impact to visual quality** generally includes relatively minor new features or relatively minor alteration of existing features, such as vegetation cover. Low visual change would generally have low visual impact, depending on affected viewers.

### Impacts Common to All Build Alternatives

All the build alternatives would add new at-grade buildings, elevated light rail track, overhead catenary wires, at-grade parking lots and access roads, as well as tree and shrub landscape plantings and fences around the perimeter with limited-access gates. On-site lighting would be as prominent or more prominent than existing lighting at the alternative sites; however, light sources would be shielded to control glare and light escaping from the site.

### Mainline Tracks

Viewers of the mainline and test tracks include residents at Belmor and residential neighborhoods to the south of Belmor (high-sensitivity viewers), sightseeing drivers on I-5 (high-sensitivity viewers), commuting drivers on I-5 (low-sensitivity viewers), and patrons and employees of businesses (low-sensitivity viewers). The test track would be at the same level as the mainline tracks and generally follow the same alignment. Figures 3.7-5 through 3.7-8 show visual simulations of the proposed facility from three key observation points along the mainline tracks.

Figure 3.7-5 represents the view Belmor residents would have of the 40 mph Alignment and 55 mph Design Option for the mainline tracks. The mainline and test tracks would connect to the Preferred and South 344th Street alternative OMF sites roughly 0.75 mile south of this location. The elevated mainline and test tracks would have a high impact on the visual intactness, unity, and vividness of this view for the high-sensitivity viewers at Belmor. Residents would have views of the elevated mainline and test tracks due to their height, with views of the test track facility east of the track. Plantings to screen views of the mainline would not be possible due to the clear zones required around the tracks.





Existing Condition



Simulation of Mainline with 40 mph Alignment



Existing Condition



Simulation of Mainline with 55 mph Design Option

**Figure 3.7-5 Mainline Tracks Key Observation Point 1**

Figure 3.7-6 shows the retaining wall supporting the mainline tracks looking north from the intersection of S 333rd Street and 24th Ave S. The existing mix of mature conifer and deciduous trees provide a naturalistic visual screen combined with an existing noise wall to block views of I-5. The clearing of vegetation and construction of walls for the elevated mainline and test tracks would have a high impact on the visual intactness of this view for high-sensitivity viewers west of 24th Ave S. Vegetation would be added to provide visual screening of the mainline in this area but would not fully obscure the mainline.



Existing Condition



Simulation of Proposed Conditions approximately 10 years after planting

**Figure 3.7-6 Mainline Tracks Key Observation Point 2**

Figure 3.7-7 presents the driver viewpoint looking southwest on southbound I-5. The Preferred and South 344th Street Alternative OMF sites would be just out of sight to the right of this view, where the grade drops down west of the interstate. The mainline tracks would have a high impact on the visual intactness, unity, and vividness of this view for lower-sensitivity commuting viewers and high-sensitivity sightseeing viewers traveling I-5. The potential exists to retain vegetation west of the elevated mainline tracks in this view and to plant new trees along portions of the alignment; however, retained and new vegetation would not be very visible in this view because it would be on the opposite side and downslope from the mainline tracks.



Existing Condition



Simulation of Proposed Conditions

**Figure 3.7-7 Mainline Tracks Key Observation Point 3**

Figure 3.7-8 captures the driver viewpoint looking northwest at the rendering of the mainline tracks and facility from the entrance ramp where westbound SR 18 merges onto northbound I-5. The South 344th Street Alternative OMF site is behind the trees on the other side of I-5. Building detail will be determined during the final design phase. This view looks directly toward two RCAs, some trees visible in this view would be impacted by the project. The project would have a low to medium impact on the visual intactness, unity, and vividness of this view for low-sensitivity commuting viewers and high-sensitivity viewers traveling I-5.



Existing Condition



Simulation of Proposed Conditions

**Figure 3.7-8 Mainline Tracks Key Observation Point 4**



### *Summary of Mainline Track Impacts*

Overall the mainline would result in a high impact to visual quality. Construction of the mainline would displace a number of mobile homes along the eastern portion of the Belmor community and require the removal of trees and vegetation within the clear zone of the tracks. The elevated mainline and test tracks would have a high impact for the high-sensitivity viewers at Belmor from their homes and when using the private golf course. Depending on final design clearing requirements, the mainline would also have a high impact for the high-sensitivity residential viewers living on the west side of 24th Avenue S and the residential communities between Belmor and the existing Christian Faith Center.

The removal of vegetation along I-5 for the mainline would have a lesser impact to high-sensitivity sightseeing travelers and lower-sensitivity commuters along I-5.

### **Preferred Alternative**

Viewers of the Preferred Alternative site include residents to the north of the site (high-sensitivity viewers), visitors to and employees at the Russian-Ukrainian Seventh-Day Adventist Church (medium-sensitivity viewers), sightseeing drivers on I-5 (high-sensitivity viewers), commuters on I-5 (low-sensitivity viewers), and patrons and employees of nearby businesses to the south and southwest of the site (low-sensitivity viewers).

The project would remove the landscaping in the parking areas for the Christian Faith Center and street trees and all landscaping along 20th Avenue S, as well as mature trees and much of the vegetation around the perimeter of the site. The north side of the site would have two existing driveways removed and replaced with a pathway and landscaped vegetation, trees, and other improvements along the roadway frontage. The current drive entry on SR 99 would be removed and replaced with landscaping. Mature trees and vegetation would be cleared in order to extend 18th Place S northward to connect to S 336th Street and extend 21st Avenue S southward to connect to S 344th Street. Residences, mature trees, and landscaping on the properties south of the Christian Faith Center would be removed to support future site improvements. Open space and fields east of 20th Avenue S would also be removed.

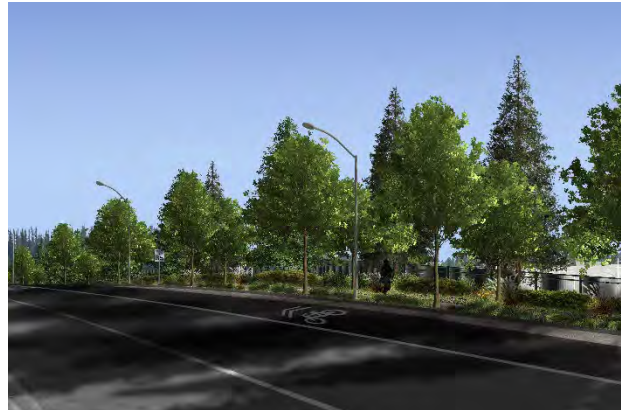
Lead tracks would be contained within the Preferred Alternative OMF site boundary, except for a small segment of track that would pass over S 336th Street to connect with mainline tracks near I-5. Lead tracks on the southern end of the site would also be mostly contained within the site boundary, with a small segment passing over vacant and industrial parcels. These changes would not lead to additional visual impacts beyond those listed above under Impacts Common to All Build Alternatives and Mainline Tracks.

Figures 3.7-9 through 3.7-11 show visual simulations of the proposed facility from three key observation points around the site. In general, visual impacts would be highest immediately following construction and, in areas where there is landscaping, would lessen over time as vegetation grows.

Figure 3.7-9 captures the view of the facility along S 336th Street, looking southeast from across the street. This represents the site as it would be seen by viewers in residences north of the site who would have a high sensitivity to change to this view. While existing trees and shrubs would be removed, new street trees and frontage improvements along the perimeter of the site and vegetation planted within the proposed site would grow over time and reduce impacts. Views of the storage tracks on the north end of the site would be screened by landscaping and frontage improvements along S 336th Street and the differing grades of roadway and site. OMF buildings would be located in the center of the site and would not be prominent in views from S 336th Street. The result would be a medium impact to visual intactness and unity for views from this location.



Existing Condition



Simulation of Proposed Conditions approximately 10 years after planting

**Figure 3.7-9 Preferred Alternative Key Observation Point 1**

Figure 3.7-10 shows a shared pedestrian and driver viewpoint looking southwest toward the site from the corner of SR 99 and S 336th Street. The removal of tall conifer trees will be apparent from this location; however, site development features, including the extension of 18th Place S, retaining walls, and buildings, will be partially obscured by existing vegetation. New street trees and site landscaping as seen from this view would, over time, grow and further screen views of the site development resulting in a low to medium visual change from this location for low to medium sensitivity viewers, who are mainly drivers and nonmotorized users along SR 99.



Existing Condition



Simulation of Proposed Conditions approximately 10 years after planting

**Figure 3.7-10 Preferred Alternative Key Observation Point 2**



Figure 3.7-11 represents the driver and pedestrian viewpoint looking northeast toward the entrance of the site from S 341st Street near the intersection with 18th Place S. Buildings and site development visible in this view would be similar in scale and character to existing commercial buildings. Streetscape and site landscaping would, over time, grow and screen site development to a similar degree as the existing trees and landscaping. Visual change would be minimal from this observation point for medium and higher sensitivity viewers.



*Existing Condition*



*Simulation of Proposed Conditions approximately 10 years after planting*

#### **Figure 3.7-11 Preferred Alternative Key Observation Point 3**

##### *Summary of Preferred Alternative Impacts*

Overall, the Preferred Alternative OMF site would result in a medium impact to visual quality. Visual features would be altered in a way that could be perceived as intrusive or incompatible for a medium change to visual quality and impact for higher-sensitivity residential viewers to the north. However, alterations to visual features to the south and west would not substantially change intactness and visual unity with surroundings and would largely maintain consistency with existing conditions.

The Preferred Alternative would also result in visual impacts associated with the mainline, as described above.

##### **South 344th Street Alternative**

Viewers of the South 344th Street Alternative include residents to the north (high-sensitivity viewers), visitors and employees of the Christian Faith Center and the Russian-Ukrainian Seventh-Day Adventist Church (medium-sensitivity viewers), sightseeing drivers on I-5 (high-sensitivity viewers), and commuters on I-5 (low-sensitivity viewers). Other viewers include residents of two properties directly west of the site (high-sensitivity viewers) and patrons and employees of businesses to the south and west of the proposed alternative site (low-sensitivity viewers).

The visual impacts from the mainline and test tracks would be the same as those of the Preferred Alternative at the north end of the site. Additionally, the two RCAs in the study area would be impacted by either of the alignments for the mainline tail tracks in the area northwest of the I-5/SR 18 interchange (see Figure 3.7-1). The tail tracks would be built adjacent to the eastern boundary of the northernmost RCA, which could impact some vegetation, and pass directly through and partially impact the southernmost RCA.

Site development would result in a low degree of visual quality change compared with the existing commercial area, which has built elements and buildings of similar scale to those that

surround the site to the south and southwest. Site development in the northern portion of the site would replace parking and open areas with new structures in proximity to residential viewers north of S 336th Street and to visitors and employees of the Christian Faith Center and the Russian-Ukrainian Seventh-Day Adventist Church. The increased scale of development in this area would result in a medium degree of change.

Lead tracks would be contained within the South 344th Street Alternative OMF site and would require clearing of some mature vegetation along I-5. Therefore, the OMF site would have visual impacts for low-sensitivity viewers from I-5 beyond those listed above under Impacts Common to All Build Alternatives.

Figures 3.7-12 through 3.7-15 show visual simulations of the proposed facility from three key observation points around the OMF site.

Figure 3.7-12 represents the driver viewpoint looking southeast from S 336th Street and 20th Avenue S from the opposite side of the street from the facility. This view represents the site as it would be seen by viewers in residences north of the site who would have a high sensitivity to change to this view. Architectural design and façade treatments on the buildings would reduce visual massing of those structures, and retention of existing or new vegetation planted around the site perimeter and nearer to the proposed on-site structures would screen and mitigate impacts to these views. Together this would result in a low impact to visual intactness and unity for views from this location.



Existing Condition



Simulation of Proposed Conditions

**Figure 3.7-12 South 344th Street Alternative Key Observation Point 1**

Figure 3.7-13 shows the pedestrian viewpoint of OMF South looking east from the east entrance to the Christian Faith Center. Views for congregants and employees of the Christian Faith Center would include new buildings and fencing. The presence of the proposed OMF buildings and fencing would result in a high degree of change in visual intactness, vividness, and unity for this view. However, new vegetation planted around the site perimeter and nearer to the proposed on-site structures would over time grow to screen and reduce impacts resulting in a medium to high visual impact for the medium sensitivity viewers at this location.





Existing Condition



Simulation of Proposed Conditions

**Figure 3.7-13 South 344th Street Alternative Key Observation Point 2**

Figure 3.7-14 presents a rendering of OMF South looking east on S 341st Place from the driver viewpoint. Changes to the site entrance would result in low visual changes as seen by low- to medium-sensitivity viewers, who are mainly drivers and nonmotorized users along on S 341st Place.



Existing Condition



Simulation of Proposed Conditions

**Figure 3.7-14 South 344th Street Alternative Key Observation Point 3**

*Summary of South 344th Street Alternative Impacts*

Overall, the South 344th Street Alternative would result in a medium impact to visual quality because of the increased scale of constructed features. The customers and employees (medium-sensitivity viewers) and residents (high-sensitivity viewers) next to the southern portion of the site would experience a low degree of change. The residents and church visitors to the north of the site would have views similar to what they have now, given that existing vegetation would be retained and new trees and shrubs would be planted to provide a vegetative screen along S 336th Street. Views from the Christian Faith Center would include new buildings and fencing. Impacts to these views would be reduced over time with vegetative screening, such as the planting of trees and shrubs. Like the Preferred Alternative, views from I-5 under the South 344th Street Alternative would be affected by vegetation removal.

The Preferred Alternative would also result in visual impacts associated with the mainline, as described above.

**Midway Landfill Alternative**

The primary viewers of the Midway Landfill Alternative OMF site include the residents in the neighborhood south of the site and residents of the Midway RV and Mobile Home Park north of the site (high-sensitivity viewers), sightseeing drivers (high-sensitivity viewers), and commuting drivers on I-5 and SR 99 (lower-sensitivity viewers). Other viewers include patrons and employees of businesses along SR 99, pedestrians, and cyclists — all of whom are considered to have medium or low viewer sensitivity.

The proposed facility would introduce prominent buildings and retaining wall structures. Retaining walls are needed to create the level areas required for operations on this sloping site. This would constitute a high degree of change when compared with existing conditions; however, the resulting development would not be drastically out of character with the visual character of the broader landscape unit east and west of the site.

Lead tracks would be seen by residential neighbors in the mobile home park to the north as well as by nearby residents in the neighborhood to the south. The lead tracks would appear somewhat closer to viewers than the mainline tracks. However, they would be at essentially the same elevations and, therefore, should not appear distinct or prominent separate from the mainline tracks.

Figures 3.7-15 through 3.7-18 show visual simulations of the proposed facility from four key observation points around the site.

Figure 3.7-15 provides an approximation of the residential view looking south from the Midway RV and Mobile Home Park across the stormwater detention pond to the OMF site. The photographer was unable to access the mobile home park, so this picture was taken from the northern edge of the landfill property. An existing fence and tree line that separate the landfill and the mobile home park are not visible because they are located directly behind the photographer in this view.



*Existing Condition*

*Simulation of Proposed Conditions*

**Figure 3.7-15 Midway Landfill Alternative Key Observation Point 1**

The residential viewers to the north of the site would have a high sensitivity to changes, and the proposed retaining walls for the site development would result in a medium to high degree of change to visual intactness, vividness, and unity in this view. However, the retention of the existing fence and vegetation along the property boundary would provide foreground visual screening. New landscaping around the site perimeter and near the proposed on-site structures would further screen and mitigate impacts to these views. Viewers would be over 300 feet from



the wall, which would lower the wall's visual prominence. Together this would result in a low to medium visual impact for views from this location.

Figure 3.7-16 presents the pedestrian and driver views of the facility and wall from the corner of S 248th Street and SR 99, looking east. Views of the site from SR 99 by low- to medium-sensitivity viewers are the most prominent due to the lack of vegetation. The proposed retaining walls and visible elements beyond would result in a medium to high degree of change to visual intactness and unity in this view. Views of the wall seen in the simulation would be enhanced with aesthetic treatments to the wall surface as well as with tree and shrub plantings to screen the view of the wall. This would result in a low to medium level of impact.



Existing Condition



Simulation of Proposed Conditions

**Figure 3.7-16 Midway Landfill Alternative Key Observation Point 2**

Figure 3.7-17 represents the facility building and wall that a driver would see looking northwest as they drive northbound on I-5. Travelers on I-5, who are considered to have low viewer sensitivity, would experience a low level of visual change or impact because the FWLE elevated mainline tracks in the foreground obstruct views of development on the site.



Existing Condition



Simulation of Proposed Conditions

**Figure 3.7-17 Midway Landfill Alternative Key Observation Point 3**

Figure 3.7-18 shows the view from the closest houses in the residential neighborhood just south of the Midway Landfill. This photo was taken in the middle of S 252nd Street, at the intersection of 30th Avenue S, looking north. Residential viewers to the south of the site would have a high sensitivity to changes. But retention of some existing screening vegetation and planting of new screening vegetation would mitigate visual impacts from changes to the site perimeter adjacent to the residents as well as from the OMF buildings that would be over 500 feet in the distance. This would result in a low to medium visual impact to visual intactness and unity for these areas. Shielding of light sources would be used to control glare and light escaping from the site.



*Existing Condition*



*Simulation of Proposed Conditions*

**Figure 3.7-18 Midway Landfill Alternative Key Observation Point 4**

#### *Summary of Midway Landfill Alternative Impacts*

Overall, the Midway Landfill Alternative would result in a medium impact to visual quality. Visual features would be altered in a way that could be perceived as intrusive or incompatible by higher-sensitivity residential viewers to the north and south, but they would not substantially change intactness and visual unity with surroundings as seen by the lower-sensitivity viewers to the east from I-5 or the west along SR 99. The preservation of existing vegetative screening in combination with the planting of new trees and shrubs would cause the residents to the north and south of the site (as sensitive viewers) to have similar views of the Midway Landfill Alternative as before the project. The views from I-5 would not change much with the Midway Landfill Alternative because views of the site include and are somewhat obscured by the FWLE mainline tracks in the foreground.

#### **3.7.2.3 Construction Impacts**

There would be temporary visual impacts due to construction for the viewer groups identified for each build alternative. Construction would last approximately 3.5 years for the Preferred and South 344th Street alternatives and up to approximately 8.5 years for the Midway Landfill Alternative. While visual impacts from construction of the Midway Landfill Alternative would potentially be longer in duration, the nature of the impacts would be the same as for the other sites. The existing visual character and form of the site would be altered due to the removal of existing structures; vegetation, including trees and shrubs; and roads.

The construction site would include staging areas; reserves of building materials; fencing; lighting; large vehicles or pieces of equipment, such as cranes, dump trucks, scaffolding, bulldozers, or excavators; and detours or temporary roads. Other large vehicles could move to and from the site. The visual impact of construction would be a temporary decrease in visual quality, typical for a large construction project. Where practical, Sound Transit would place



construction screens or barriers to limit the visibility of work areas from sensitive viewers, such as nearby residents. If necessary, Sound Transit would reduce the glare during nighttime construction by shielding light sources.

### 3.7.2.4 Avoidance and Minimization of Impacts

When developing the OMF South build alternatives during conceptual design, Sound Transit worked to minimize the elevation or height of structures to avoid and minimize potential visual impacts. This included incorporating at-grade track profiles to reduce visual and aesthetic impacts where practical. Early conceptual design also considered where mainline track alignments could avoid or reduce acquisitions and clearing of right-of-way where the project would be near or in existing arterial and highway rights-of-way or utility corridors.

Each alternative site's context varies with the surrounding community, with the influence of comprehensive plans and zoning, and with development standards that govern building setbacks, heights and massing, landscaping, facade treatment, and urban design character. The project designers would consider site context and adhere to the landscape guidelines in Sound Transit's Design Criteria Manual. Context-sensitive design measures would be developed and refined during final design with input from the affected communities and cities and could include the following items:

- Preservation of existing vegetation and addition of new vegetation and street frontage improvements, where possible.
- Adherence to required design standards, guidelines, and design review processes for Federal Way, Kent, and WSDOT, as applicable, to promote visual unity in treatments at the site and along corridors. Landscaping treatments would be used to enhance the visual character of the build alternative at the perimeter of the site. Streetscape elements, such as sidewalks, street trees, and other aesthetic features, would be added along adjacent frontage streets. These measures would help maintain the local character, improve aesthetics, and reduce the visual scale of the proposed project.
- Architectural treatment of buildings, including varying materials and articulation of the building façade to minimize visual massing, provide visual interest, and reduce scale, in accordance with the Federal Way Revised Code.
- Design treatment of retaining walls, such as texture, pattern, color, and screening vegetation, where practical.
- Preparation of a Roadside Master Plan in accordance with WSDOT guidelines for the portion of the route within I-5 right-of-way and RCAs.
- Design of exterior lighting at the OMF site to minimize height and use of source shielding to avoid direct visibility of luminaries (bulbs) from residential areas, streets, and highways. Shielding would also limit spillover light and glare in residential areas.
- Replacement of trees removed for the project in accordance with tree-replacement requirements for Federal Way, Kent, and WSDOT to meet minimum replacement ratios. Some of these requirements encourage native species for the ecosystem benefit and the planting of younger trees because of the higher likelihood for survival as compared with transplanting more mature, larger trees.

It is important to note that, even when using larger or faster-growing trees or plants, it can take 15 to 20 years for the plants to grow large enough to screen large facilities such as elevated

structures, buildings, or retaining walls. As a result, some visual impacts may not be able to be immediately avoided or minimized.

### 3.7.2.5 Indirect Impacts

No indirect impacts related to visual and aesthetic resources would result from construction and operation of the proposed project.

### 3.7.3 Potential Mitigation Measures

In addition to the avoidance and minimization measures considered during the development of the design and in place during construction, mitigation measures would be implemented in areas near residences and other areas with sensitive viewers, where appropriate, to reduce impacts.

Sound Transit would refine the mitigation measures as the project design is further developed and feedback from reviewing agencies and the public is received. Most of the potential mitigation measures for visual impacts are related to the use of landscaping, berms, and aesthetic treatments to help screen views of the mainline and test tracks, OMF site, or other project components. Mitigation measures would be compatible with Sound Transit's maintenance and operations requirements, which include long-term maintenance, safety, and security considerations.

Mitigation measures could include the following:

1. In areas adjacent to residents, where there is adequate space, add on-site landscaping adjacent to residential areas to help screen views of project components while ensuring safety and security.
2. In areas adjacent to residences where not enough room exists for landscaping to screen views of retaining or noise walls, Sound Transit would treat the walls with visually interesting elements, such as design treatments that incorporate textures, patterns, color, or climbing vines.
3. Within the WSDOT right-of-way, Sound Transit would consult with WSDOT to develop appropriate site-specific measures for roadside vegetated areas and mitigate the conversion of these areas to right-of-way with replacement property or with other measures agreed to by WSDOT and FHWA, consistent with the WSDOT Roadside Policy Manual (WSDOT 2022). The manual describes the extent of mitigation that would be required for lost vegetation, vegetation types, and tree replacement ratios, including irrigation requirements and plant establishment criteria. Replacement parcels would meet the intended function of the original RCA.

Table 3.7-2 shows the primary locations where impacts could be mitigated for higher sensitivity viewers:



**Table 3.7-2. Mitigation for Impacts to Visual and Aesthetic Resources**

Landscape Unit and Alternative	Location	Mitigation Measure(s)	Notes
Landscape Unit 1, Mainline, Preferred and South 344th Street Alternatives	West side of the mainline through Belmor	Mitigation Measure 1	These measures would add, where possible, trees and vegetation adjacent to the mainline and between columns to screen views of the tracks for sensitive viewers within the Belmor residential area.
Landscape Unit 1, Mainline, Preferred and South 344th Street Alternatives	West side of the mainline along 24th Avenue S	Mitigation Measure 1 Mitigation Measure 2	These measures would add new vegetation to provide screening, where possible, or architectural treatments to walls to add visual interest. Both measures address the loss of vegetation and the introduction of guideway retaining walls for sensitive viewers living along 24th Avenue S.
Landscape Unit 1, Mainline, Preferred and South 344th Street Alternatives	Within WSDOT right-of-way adjacent to I-5	Mitigation Measure 3	This measure would mitigate the loss of vegetation in WSDOT right-of-way.
Landscape Unit 1, Mainline, South 344th Street Alternative	RCAs adjacent to I-5	Mitigation Measure 3	Sound Transit will consult with WSDOT staff to develop appropriate site-specific and off-site mitigation measures to address impacts to RCA areas.
Landscape Unit 2, Preferred Alternative	Along South 336th Street adjacent to OMF South site	Mitigation Measure 1	This measure would add trees and other vegetation to provide screening to address the loss of mature trees and the introduction of OMF site buildings and structures for sensitive residential viewers on the north side of S 336th Street.
Landscape Unit 2, South 344th Street Alternative	OMF site frontage west of Christian Faith Center	Mitigation Measure 1	This measure would add new trees and other vegetation to address vegetation loss and introduction of OMF site buildings and fencing for sensitive viewers at the church.
Landscape Unit 3, Midway Landfill Alternative	Within northern portion of the site, surrounding buildings	Mitigation Measure 1	This measure would enhance the screening of OMF buildings for sensitive residential viewers to the north of the site.
Landscape Unit 3, Midway Landfill Alternative	Along southern border of OMF site	Mitigation Measure 1	This measure would enhance screening of OMF buildings for sensitive residential viewers to the south of the site.

### 3.8 Air Quality and Greenhouse Gas Emissions

This section discusses the potential air quality and greenhouse gas (GHG)-related impacts associated with the construction and operation of the OMF South project alternatives.

Regional impacts on air quality would be caused by criteria air pollutants that would be emitted directly or indirectly as a result of the proposed project. “Criteria air pollutants” are six common air pollutants that can harm health and the environment, cause property damage, and are subject to certain federal air quality standards known as the National Ambient Air Quality Standards. Three agencies have jurisdiction over the ambient air quality in the OMF South study area: EPA, the Washington State Department of Ecology (Ecology), and the Puget Sound Clean Air Agency.

The impacts of the OMF South project’s air quality and GHG emissions are not limited to the build alternative sites. Therefore, the study area for this analysis is the Puget Sound Clean Air Agency’s jurisdiction, which includes King, Pierce, Snohomish, and Kitsap counties.

Please see Appendix H4, Air Quality and Greenhouse Gas Technical Appendix, for more information on the regulatory requirements for air quality, including the National Ambient Air Quality Standards and efforts by Washington State and Sound Transit to reduce GHG emissions.

#### 3.8.1 Affected Environment

##### 3.8.1.1 Climate Conditions and Local Air Quality

Washington is located on a windward coast in the mid-latitudes, producing a predominantly marine-type climate west of the Cascade Mountains. East of the Cascades, the climate possesses both continental and marine characteristics. The Puget Sound region’s climate is mild, with wet and cloudy winters and cool and comparatively dry summers. In the interior valleys, measurable rainfall is recorded on 150 days each year; in the mountains and along the coast, there is rain 190 days each year.

Prevailing winds are typically from the south or southwest during the winter and from the north or northeast during the summer. Wind speeds are generally sufficient to disperse air pollutants released into the atmosphere. Air pollution is most noticeable in the late fall and winter under conditions of clear skies and light winds.

Typical air pollution sources near the study area include vehicular traffic, commercial and retail businesses, light industry, and residential wood-burning devices. While many types of pollutant sources are present, the largest contributors of criteria pollutant emissions are on-road vehicles, which contribute the majority of the carbon monoxide and ozone precursors. Secondary sources of emissions are commercial and industrial land uses.

Based on monitoring information for criteria air pollutants collected over a period of years, Ecology and EPA designate regions as being attainment or nonattainment areas for the criteria pollutants. Once a nonattainment area achieves compliance with the National Ambient Air Quality Standards, the area is considered an air quality maintenance area. Although portions of the Puget Sound region are in maintenance areas for PM<sub>2.5</sub> and PM<sub>10</sub>, none of the build alternatives are located within nonattainment or maintenance areas.



### 3.8.2 Environmental Impacts

#### 3.8.2.1 No-Build Alternative

Under the No-Build Alternative, impacts to air quality and GHGs from construction or operation of OMF South would not occur. However, other planned projects would have impacts in the OMF South study areas. FWLE will have a minor benefit to air quality from reduced traffic volumes and congestion to the extent that it leads to a reduction in vehicle miles traveled, which would lower GHG emissions. Other planned projects in the area could have air quality impacts, depending on their nature. Without OMF South, TDLE would construct the mainline track associated with the Preferred and South 344th Street alternatives later in time. Impacts associated with construction of the mainline track are addressed within the build alternatives impacts discussion below. All other TDLE-related impacts are addressed in Chapter 4, Cumulative Effects Analysis.

#### 3.8.2.2 Long-Term Impacts

##### Impacts Common to All Build Alternatives

Because all the build alternatives would have the same programming and function, there are no discernable differences between them in terms of potential long-term air quality impacts. As such, the description of impacts below applies to all OMF South build alternatives.

##### *Air Quality*

Operational air quality emissions include emissions from mobile sources associated with the facility, natural gas usage, electricity usage, architectural coatings, consumer products, and landscaping equipment. Because electrical utilities in the project area primarily rely on hydropower and thus have very low emissions, the primary sources of long-term air quality emissions would be associated with employee commutes, material deliveries, and on-site vehicle maintenance, which includes the use of an enclosed paint booth. Spray painting would occur infrequently and be limited in quantity. Welding would also occur in a dedicated space with the proper ventilation systems. The potential impacts from painting and welding would be minor and addressed by implementing standard minimization measures. The on-road emissions associated with project operations would be distributed throughout the OMF South study area.

Because the build alternatives are located within attainment areas for the PM<sub>2.5</sub>, PM<sub>10</sub>, and carbon monoxide standards, carbon monoxide and PM hot-spot analyses are not required. A conformity determination under federal regulations would not be needed.

##### *Climate Change*

The maintenance and operational GHG emissions for OMF South were calculated using FTA's Transit Greenhouse Gas Emissions Estimator v3.0 (FTA 2022). Each phase of operation was considered separately and included both upstream and downstream sources of emissions. Upstream emissions are the emissions associated with the extraction, transportation, and production of the fuels and materials used in the operation of the facilities (e.g., natural gas for heating, paint and solvents, fuel for maintenance equipment, etc.). Downstream emissions are generated within the facility during daily operations (e.g., the burning of natural gas for heating, the use of paint and solvents, the burning of fuel for maintenance equipment, etc.).

In total, the OMF South facility would generate between 1,183 and 1,191 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>e) per year. Sound Transit and Puget Sound Energy (PSE) have entered into an agreement that all electricity accounts related to the operations of Link light rail be sourced solely from renewable wind power via PSE’s Green Direct program. Therefore, there would be no upstream emissions associated with the project’s electricity use. Table 3.8-1 summarizes the project’s annual GHG emissions from operation and maintenance. Maintenance activities include routine transit way, pavement, and vehicle maintenance. The annual operational emissions are far below the 10,000 MTCO<sub>2</sub>e per year mandatory reporting threshold for facilities in Washington State (Ecology 2020).

**Table 3.8-1 Annual Operational Greenhouse Gas Emissions**

Emission Source	Preferred Alternative	South 344th Street Alternative	Midway Landfill Alternative
Operations – Upstream	0	0	0
Operations – Downstream	1,149	1,149	1,149
Maintenance	41	42	34
<b>Total Annual GHG Emissions</b>	<b>1,190</b>	<b>1,191</b>	<b>1,183</b>

Note: Emissions are reported in MTCO<sub>2</sub>e.

**3.8.2.3 Construction Impacts**

**Impacts Common to All Build Alternatives**

Because all the build alternatives would have a similar footprint and, as a result, similar on-site construction activities, the description of impacts below applies to all OMF South build alternatives. However, the large number of truck trips required for two of the Midway Landfill subsurface construction design options — Hybrid and Full Excavation — would result in additional off-site emissions. The emissions associated with those additional haul truck trips are reflected in Table 3.8-2 below.

*Air Quality*

During construction, short-term degradation of air quality may occur due to the release of particulate emissions generated by excavation, grading, hauling, and other activities. Emissions from construction equipment would include carbon monoxide, nitrogen oxides, sulfur dioxide, volatile organic compounds, and directly emitted particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>).

Site preparation and project construction would involve clearing, cut-and-fill activities, grading, and building activities. Construction-related effects on air quality from the proposed project would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soil to and from the site.

Sources of fugitive dust (primarily consisting of PM<sub>10</sub>) could include disturbed soil at the construction sites and trucks carrying uncovered loads of soil. Unless properly controlled, vehicles leaving the site could deposit dirt and mud on local streets, which could be an additional source of airborne dust after it dries. PM<sub>10</sub> emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM<sub>10</sub> emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of operating equipment. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.



Water or other soil stabilizers can be used to control dust, resulting in emission reductions of 50 percent or more. With the implementation of standard construction measures, such as frequent watering (e.g., two times per day at a minimum), fugitive dust emissions from construction activities would not result in adverse air quality impacts.

In addition to dust-related PM<sub>10</sub> emissions, heavy trucks and construction equipment powered by gasoline and diesel engines would generate carbon monoxide, sulfur dioxide, nitrogen oxides, volatile organic compounds, and some soot particulate (PM<sub>2.5</sub> and PM<sub>10</sub>) in exhaust emissions. If construction activities were to increase traffic congestion in the area, carbon monoxide and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction sites.

#### *Climate Change*

The construction GHG emissions for OMF South were calculated using the FTA's Transit Greenhouse Gas Emissions Estimator (FTA 2022). These emission estimates are based on the size of the proposed facilities and the number of truck trips required to complete the excavation of each alternative and design option. Each phase of construction was considered separately and included both upstream and downstream sources of emissions.

In the construction phase of a transit project, upstream emissions are the emissions associated with the extraction, transportation, and production of the materials used in the construction of the facilities (e.g., asphalt, concrete, base stone, and steel). Downstream construction emissions are tailpipe emissions resulting from the operation of construction vehicles and equipment. In total, construction of the project would generate up to 1,944 MTCO<sub>2e</sub> per year. This total reflects an amortization of construction emissions over a 50-year period, which corresponds to the minimum useful life span of facilities (FTA 2017).

As shown in Table 3.8-1, operation and maintenance of OMF South would generate up to 1,191 MTCO<sub>2e</sub> per year. Although construction emissions are not included in the Washington State Agency Greenhouse Gas Calculator, the amortized emissions from construction have been added to the operational emissions to determine the total annual impact of the OMF South build alternatives. Table 3.8-2 summarizes the annual GHG emissions from construction, operation, and maintenance for each of the build alternatives. The largest impact would be from the Midway Landfill Alternative using the Full Excavation subsurface construction design option, which would generate up to 3,127 MTCO<sub>2e</sub> per year. This amount is less than the 10,000 MTCO<sub>2e</sub> per year mandatory reporting threshold for facilities in Washington State (Ecology 2020). Therefore, no additional analysis is required.

**Table 3.8-2 Total Annual Greenhouse Gas Emissions**

Build Alternative	Mainline Track Construction <sup>1</sup>		OMF Site Construction		Haul Truck Emissions	Operation and Maintenance	Annual GHG Emissions
	Upstream	Downstream	Upstream	Downstream			
Preferred	108	4	1,165	23	60	1,190	2,550
South 344th Street	129	5	1,165	23	75	1,191	2,588
Midway Landfill – Platform	N/A	N/A	1,165	23	284	1,183	2,655
Midway Landfill – Hybrid	N/A	N/A	1,165	23	684	1,183	3,055
Midway Landfill – Full Excavation	N/A	N/A	1,165	23	756	1,183	3,127

Notes: Construction emissions, including truck haul trips, have been amortized over a 50-year period prior to being added to the annual operations and maintenance emissions. Emissions are reported in MTCO<sub>2</sub>e.

(1) The mainline would be constructed regardless of which alternative is selected to be built. Under the Midway Landfill Alternative, it would be constructed later, as part of the TDLE project.

**3.8.2.4 Avoidance and Minimization of Impacts**

Sound Transit would implement construction BMPs to minimize the impact on existing residential and recreational uses from construction-related emissions and nuisance dust. BMPs to reduce construction impacts could include the following:

- Complying with the BMPs required in WAC 173-400-040 (general standards for maximum emissions)
- Complying with applicable dust control policies and plans
- Spraying dry soil with water to reduce dust
- Using temporary ground covers
- Minimizing idling of equipment when not in use
- Planning construction areas to minimize soil exposure for extended periods
- Covering dirt and gravel piles
- Establishing wheel wash stations at exits from spoils handling and truck-loading sites
- Sweeping paved roadways to reduce mud and dust
- Replanting exposed areas as soon as practical after construction

Sound Transit would implement the following measures to minimize, reduce, or control air emissions from the on-site paint booth:

- Install exhaust ventilation to remove particulates
- Dispose of paint materials appropriately
- Provide personal protective equipment to staff



### 3.8.2.5 Indirect Impacts

Indirect impacts are changes to air quality that may occur for reasons related to the project but are not part of it and that may occur separated by distance or time. The air quality analysis includes the indirect effects of the project and other traffic growth that would be associated with the project. Indirect construction GHG emissions are also known as embodied and life-cycle emissions. Both embodied and life-cycle emissions were included in the direct construction GHG methodology. No additional indirect impacts related to air quality are anticipated.

### 3.8.3 Potential Mitigation Measures

Overall, existing air quality in the project area meets the national standards for criteria pollutants. With implementation of the controls required for the various aspects of construction activities and consistent use of BMPs to minimize on-site emissions, construction and operation of the proposed project would not be expected to substantially affect air quality. No additional mitigation is anticipated.

## 3.9 Noise and Vibration

This section contains the noise and vibration impact assessment for the OMF South project alternatives. Sound Transit uses FTA noise and vibration guidance in its environmental methodology to assess impacts from transit projects.

For the purposes of the noise analysis, sound is defined as small changes in air pressure above and below the standard atmospheric pressure, and noise is usually considered to be unwanted sound. The three parameters that define noise include:

- **Level:** The level of sound is the magnitude of air pressure change above and below atmospheric pressure and is expressed in decibels (dB). Typical sounds fall within a range between 0 dB (the approximate lower limit of human hearing) and 120 dB (the highest sound level generally experienced in the environment).
- **Frequency:** The frequency (pitch or tone) of sound is the rate of air pressure change and is expressed in cycles per second, or hertz (Hz). Human ears can detect a wide range of frequencies from around 20 to 20,000 Hz. The A-weighting system, which reduces the sound levels of higher- and lower-frequency sounds, is used to provide a measure (A-weighted decibels, or dBA) that correlates with human response to noise.
- **Time Pattern:** Because environmental noise is constantly changing, it is common to condense all this information into a single number, called the “equivalent” sound level (Leq). The Leq represents the changing sound level over a period of time, typically 1 hour or 24 hours in transit noise assessments. For assessing the noise impact of rail projects at residential land uses, the day-night sound level (Ldn) is used, which is a 24-hour cumulative noise exposure metric that accounts for increased noise sensitivity at night.

FTA criteria are based on both the existing level of noise and the change in noise exposure due to a project and depend on the land use category of the sensitive receptor. The descriptors and criteria for assessing noise impact vary according to land use categories adjacent to the project. For Category 2, land uses where people live and sleep (e.g., residential neighborhoods, hospitals, and hotels), the Ldn is the assessment parameter. For other land use types (Category 1 or 3) where there are noise-sensitive uses (e.g., outdoor concert areas, schools, and libraries), the Leq for an hour of noise sensitivity that coincides with train activity is the assessment parameter.

In addition, the noise assessment evaluates the noise impacts of the OMF at each build alternative under WAC 173-60, Maximum Environmental Noise Levels, which is used by Federal Way and Kent. WAC 173-60 defines the maximum allowable noise level (expressed as Leq) for each noise abatement designation, or land use zone, which can also be defined as residential, commercial, or industrial. As the WAC regulations only apply to stationary noise sources, the mainline track transit operations were not evaluated under these criteria.

For the purposes of the vibration analysis, ground-borne vibration from trains refers to the fluctuating or oscillatory motion experienced by persons on the ground and in buildings near railroad tracks. The response of humans, buildings, and equipment to vibration is most accurately described using velocity or acceleration. Because the human body tends to respond to an average of the vibration impulses, the root mean square (RMS) velocity is used to describe the “smoothed” vibration amplitude. RMS velocities are normally described in inches per second (in/sec) in the U.S., which can be expressed in decibel notation as vibration decibels (VdB).



Typical vibration levels can range from below 50 to 100 VdB, and the human threshold of perception is approximately 65 VdB. The operational vibration impact criteria used for the project are based on the information contained in Section 6 of the FTA Transit Noise and Vibration Impact Assessment Manual (FTA 2018). The criteria for a general vibration assessment are based on land use and train frequency.

See Appendix G2, Noise and Vibration Technical Report, for further information on FTA noise and vibration criteria, WAC limits and applicability to the project, and more detail about the noise and vibration assessment.

### **3.9.1 Affected Environment**

#### **3.9.1.1 Noise- and Vibration-Sensitive Land Uses**

Sensitive receptors near the build alternatives sites include single-family and multi-family residences, hotels, and religious facilities. There are no commercial or industrial land uses nor any special buildings, such as recording studios or buildings with specialized equipment highly sensitive to vibration, known to be near any of the build alternatives.

#### **Preferred Alternative**

The noise-sensitive land uses adjacent to the mainline track options and the test track between the Federal Way Downtown Station and the Preferred Alternative are a mix of single- and multi-family residences.

The study area around the Preferred Alternative OMF site includes a mix of commercial and noise-sensitive residential land uses. To the north of the OMF site is a noise-sensitive residential community with a mix of single- and multi-family residences and the Russian-Ukrainian Seventh-Day Adventist Church. To the south is a mix of commercial uses with a few scattered noise-sensitive residences and the Restoration Life Church. To the west are commercial uses on both sides of SR 99, along with the KAC Baptist Church, and I-5 is to the east.

#### **South 344th Street Alternative**

The land uses around the mainline track options and the test track between the Federal Way Downtown Station and the South 344th Street Alternative are the same as described above for the Preferred Alternative. The land uses around the mainline tail track alignments to the south of the South 344th Street Alternative are commercial, with no noise-sensitive land uses.

The study area around the South 344th Street Alternative includes a mix of commercial, institutional, and noise-sensitive residential land uses. To the north of the OMF site is a noise-sensitive residential community with a mix of single- and multi-family residences, the Christian Faith Center and associated school, the Russian-Ukrainian Seventh-Day Adventist Church, and the KAC Baptist Church. To the south are commercial uses. To the west are commercial uses on both sides of SR 99, and I-5 is to the east.

#### **Midway Landfill Alternative**

The land use around the Midway Landfill Alternative includes primarily commercial land uses to the west on both sides of SR 99, along with three religious facilities that are noise sensitive: the Great Commission Presbyterian Church, the New Jerusalem Haitian Baptist Church, and the

Seattle Full Gospel Church. Noise-sensitive uses also include a mobile home park to the north and hotels and a single-family residential community to the south.

**3.9.1.2 Existing Noise Conditions**

Existing ambient noise levels were characterized through 24-hour direct measurements at selected sites in the areas near the OMF South alternatives during November 2019. Noise sources in the project area include traffic on I-5, local roadway traffic, aircraft overflights, and local community activities. The existing ambient sound levels vary by location, depending on the proximity to I-5, and are generally typical of a suburban environment near a busy interstate highway. The results of the existing noise measurements are shown in Table 3.9-1, and the locations of the measurements are shown in Figures 3.9-1 through 3.9-3.

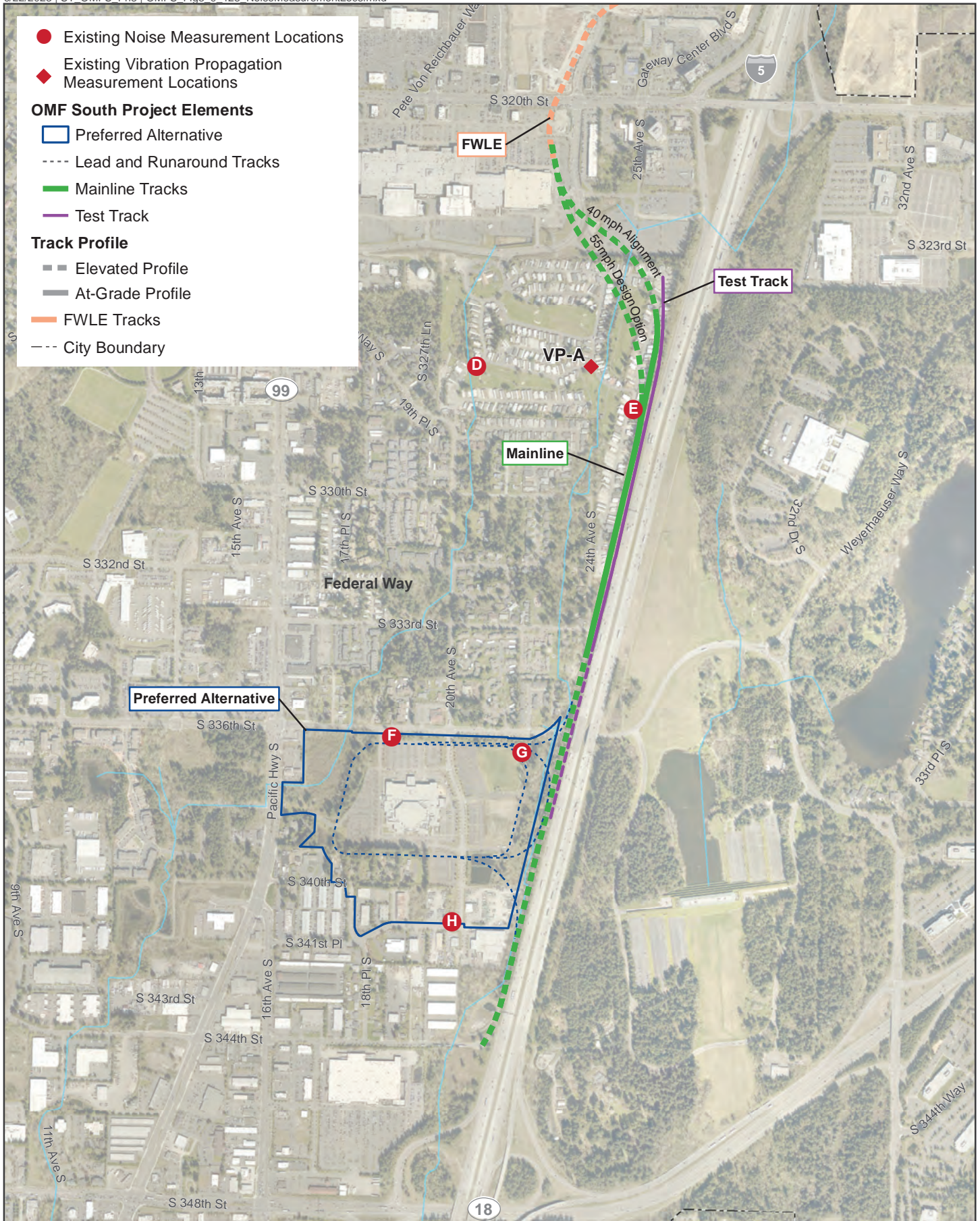
**Table 3.9-1 Summary of Existing Ambient Noise Measurement Results**

Site	Measurement Location Description	Meas. Duration (hours)	Noise Exposure (dBA) Ldn	Noise Exposure (dBA) 1 Hour Leq
D	Mainline Track – 11 The Dunes Court, Belmor	24	65	59
E	Mainline Track – 326 Oakland Hills Boulevard, Belmor	24	70	65
F	Preferred Alt/S 344th – Christian Faith Center West	24	67	62
G	Preferred Alt/S 344th – Christian Faith Center East	24	72	66
H	Preferred Alt – 20th Avenue S and S 31st Place	24	73	67
A	Midway Landfill – Southwest Corner	24	65	62
B	Midway Landfill – Southeast Corner	24	71	66
C	Midway Landfill – North Side	24	67	62

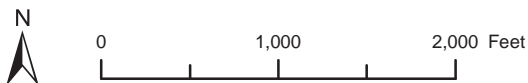
**3.9.1.3 Existing Vibration Conditions**

Vibration-sensitive land uses for the build alternatives are the same as the noise-sensitive land uses described above. Existing vibration sources include auto, bus, and truck traffic on local streets. However, vibrations from street traffic are not generally perceptible at receivers in the study area unless streets have substantial bumps, potholes, or other uneven surfaces. Furthermore, the FTA vibration impact criteria are not ambient based; that is, future project vibrations are not compared with existing vibrations to assess impact. Therefore, the vibration measurements for the project focused on characterizing the vibration propagation properties of the soil along the mainline track design options rather than characterizing the existing vibration levels. One vibration propagation test site, Site VP-A in Belmor, was selected for the 2019 measurements. The location of the site is shown on Figures 3.9-1 and 3.9-2.

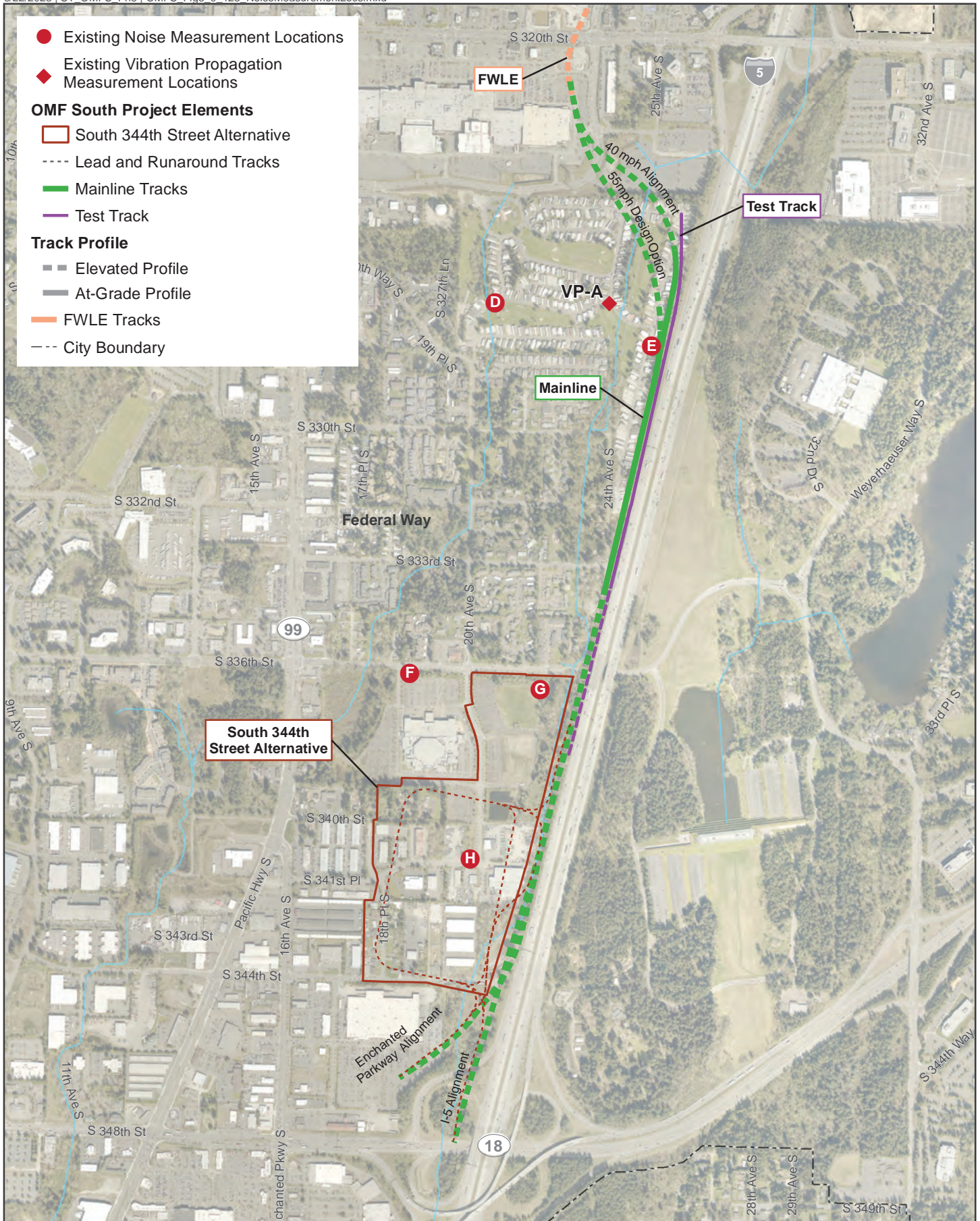




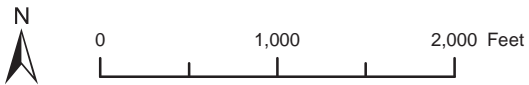
**FIGURE 3.9-1**  
Measurement Locations for Existing Ambient Noise and Vibration: Preferred Alternative







**FIGURE 3.9-2**  
Measurement Locations for Existing Ambient Noise and Vibration: South 344th Street Alternative







**FIGURE 3.9-3**  
Measurement Locations for Existing Ambient Noise:  
Midway Landfill Alternative

## 3.9.2 Environmental Impacts

### 3.9.2.1 No-Build Alternative

Under the No-Build Alternative, impacts to noise and vibration from construction or operation of OMF South would not occur. However, other planned projects would have impacts in the OMF South study areas. The noise and vibration effects of FWLE on sensitive receptors near the Midway Landfill Alternative were addressed in the 2016 Federal Way Link Extension Final Environmental Impact Statement. FWLE constructed noise walls adjacent to the residential areas near the Midway Landfill to mitigate the anticipated noise impacts from that project. No vibration impacts from FWLE are anticipated in the area. The noise and vibration effects of TDLE on sensitive receptors near the mainline tracks and the Preferred or South 344th Street alternatives are discussed in Chapter 4, Cumulative Impact Analysis, and will be further detailed in the TDLE Draft EIS, which is expected to be published in mid-2024.

### 3.9.2.2 Long-Term Impacts

#### Impacts Common to All Build Alternatives

Noise-generating activities at OMF South would include vehicles moving within the OMF site, vehicle washing and drying, limited testing of train bells and horns, a traction power substation, and vehicles moving on the mainline tracks (for the Preferred and the South 344th Street alternatives) into service in the morning and back to the OMF in the late evening, and test track operations.

Wheel squeal is possible on curves with a radius of less than 600 to 1,000 feet, depending on the speed and type of trackway. Wheel squeal is not included in the noise model because Sound Transit has committed to reducing any potential wheel squeal by installing wayside lubricators on all curves with a radius of less than 600 feet in noise-sensitive areas and by preparing all curves for wayside lubricators that have a radius of between 600 and 1,000 feet. There are numerous tight radius curves within the OMF sites for all three build alternatives that would also be prepared for wayside lubricators.

The slow speeds within the OMF South site would reduce any impact noise associated with crossover connections between tracks within the facility. Crossover tracks connecting to the mainline tracks would have higher speed operations and the potential for additional noise from vehicles traveling over them.

There are no FTA noise impacts or WAC exceedances associated with the OMF sites for any of the build alternatives. Noise impacts for the mainline tracks are discussed below. There are no vibration impacts associated with any of the build alternatives for all project elements including the mainline tracks.

#### Preferred Alternative

There are no FTA noise impacts for the 40 mph Alignment, but there are FTA noise impacts at four single-family residences for the 55 mph Design Option, all due to their proximity to the proposed mainline tracks. The noise impact locations are described in Table 3.9-2 for the 40 mph Alignment and are described in Table 3.9-3 and shown in Figure 3.9-4 for the 55 mph Design Option.

Tables 3.9-2 and 3.9-3 compare the estimated noise levels from the project against existing noise levels to determine the locations and severity of any noise impacts based on the FTA



noise criteria. The existing noise level was measured at locations near the OMF and mainline tracks, as described in the Affected Environment section above. The project noise level was determined based on project parameters, such as the speed of the trains, headways and hours of operation, and the distance to sensitive receptors from the tracks. FTA moderate and severe noise criteria are based on the existing noise level (see Appendix G2, Noise and Vibration Technical Report, for information regarding the determination of the impact criteria). There are no noise or vibration sensitive receptors near the mainline tail tracks and no FTA noise impacts, WAC exceedances, or vibration impacts. There are no FTA noise impacts, WAC exceedances, or vibration impacts for the Preferred Alternative OMF site. The only activity that would generate vibration would be vehicles moving on the mainline or test tracks. Details regarding the model and assumptions used for the noise and vibration impact assessment are included in Appendix G2, Noise and Vibration Technical Report.

**Table 3.9-2 Summary of Noise Impacts: 40 mph Alignment Mainline Track**

Location	Existing Noise Level (Ldn, dBA)	Project Noise Level (Ldn, dBA)	Moderate Noise Criteria	Severe Noise Criteria	# of Moderate Impacts	# of Severe Impacts
S 324th Street to Burning Tree Boulevard	70	62	64	69	0	0
Burning Tree Boulevard to S 330th Street	70	56	64	69	0	0
S 330th Street to S 333rd Street	72	58	65	71	0	0
S 333rd Street to S 336th Street	72	64 (58) <sup>1</sup>	65	71	0 (0) <sup>1</sup>	0 (0) <sup>1</sup>
<b>Total:</b>					<b>0 (0)<sup>1</sup></b>	<b>0 (0)<sup>1</sup></b>

Note: The mainline would be constructed regardless of which alternative is selected to be built. Under the Midway Landfill Alternative, it would be constructed later, as part of the TDLE project.

(1) The lead tracks and crossovers from the OMF would be further south for the South 344th Street Alternative in comparison to the Preferred Alternative.

**Table 3.9-3 Summary of Noise Impacts: 55 mph Design Option Mainline Track**

Location	Existing Noise Level (Ldn, dBA)	Project Noise Level (Ldn, dBA)	Moderate Noise Criteria	Severe Noise Criteria	# of Moderate Impacts	# of Severe Impacts
S 324th Street to Burning Tree Boulevard	65	61	64	69	2	0
S 324th Street to Burning Tree Boulevard	65	63	61	66	2	0
Burning Tree Boulevard to S 330th Street	70	57	64	69	0	0
S 330th Street to S 333rd Street	72	58	65	71	0	0
S 333rd Street to S 336th Street	72	64 (58) <sup>1</sup>	65	71	0 (0) <sup>1</sup>	0 (0) <sup>1</sup>
<b>Total:</b>					<b>4 (0)<sup>1</sup></b>	<b>0 (0)<sup>1</sup></b>

Note: The mainline would be constructed regardless of which alternative is selected to be built. Under the Midway Landfill Alternative, it would be constructed later, as part of the TDLE project.

(1) The lead tracks and crossovers from the OMF would be further south for the South 344th Street Alternative in comparison to the Preferred Alternative.

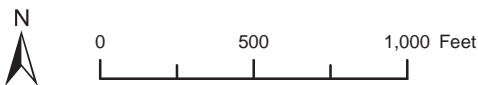
Construction of either mainline alignment would modify a portion of an existing berm and remove noise walls adjacent to I-5 that screen residences from traffic noise between S 320th Street and S 336th Street. The berm and noise walls were anticipated to be removed by the City of Federal Way's City Center Access Project, which would construct a new interchange with roundabouts and a new bridge over I-5 at S 324th Street. However, the City Center Access Project is now anticipated to be constructed after OMF South. As a result, Sound Transit would modify the existing berm and remove approximately 1,390 linear feet of noise walls as part of the OMF South project.

Based on the City Center Access Improvement 2021 noise analysis, the replacement noise wall on the west side of I-5 would need to be similar heights to the existing wall (14 to 18 feet) to prevent noise impacts to adjacent residents from I-5 traffic. In final design, Sound Transit would conduct additional noise analysis in coordination with Federal Way and WSDOT to verify the findings of the noise analysis and to ensure that the location of the new noise walls would be consistent with the plans for the City Center Access Project.



Data Sources: King County; Cities of Des Moines, Federal Way, Kent (2019).

**FIGURE 3.9-4**  
 Noise Impact Locations  
 55 mph Design Option  
 OMF South





**South 344th Street Alternative**

Impacts due to the mainline tracks and test track would be the same as those discussed above for the Preferred Alternative, described in Tables 3.9-2 and 3.9-3 and shown in Figure 3.9-4.

There are no noise or vibration sensitive receptors near either of the mainline tail track options and no FTA noise impacts, WAC exceedances, or vibration impacts. There are no FTA noise impacts, WAC exceedances, or vibration impacts for the South 344th Street Alternative OMF site.

**Midway Landfill Alternative**

There are no FTA noise impacts, WAC exceedances, or vibration impacts for the Midway Landfill Alternative.

**3.9.2.3 Construction Impacts**

**Impacts Common to All Build Alternatives**

*Noise*

Elevated noise levels from construction activities are, to a degree, unavoidable for this type of project. For most construction equipment, diesel engines are typically the dominant noise source. For other activities, such as impact pile driving and jackhammering, noise generated by the actual process dominates. Noise during construction of the project can be intrusive to residents near the construction sites. Most of the construction would consist of site preparation and laying new tracks and should occur primarily during daytime hours, except when required and within city noise ordinance procedures for a variance. At some locations, more extensive work would occur, such as pile driving for elevated structures and retaining walls.

Construction noise predictions at noise-sensitive locations depend on the amount of noise during each construction phase, the duration of the noise, and the distance from the construction activities to the sensitive receptor. Conducting a construction noise impact assessment requires knowledge of the equipment likely to be used, the duration of its use, and the way it would be used by a contractor. Table 3.9-4 provides an example of a construction noise projection for typical at-grade track construction. Construction for other project features, such as buildings, would have similar results. Using these assumptions, an 8-hour Leq of 88 dBA would be projected at a distance of 50 feet from the construction site.

**Table 3.9-4 Typical Construction Scenario, At-Grade Track**

Equipment Type	Typical Noise Level at 50 Feet (dBA)	Equipment Utilization Factor	Leq (dBA)
Grader	85	50%	82
Backhoe	80	40%	76
Compactor	82	20%	75
Loader	85	20%	78
Roller	74	20%	67
Truck	88	40%	84
Crane, mobile	83	20%	76
<b>Total 8-hour workday Leq at 50 feet:</b>			<b>88</b>

Within residential land uses, the potential noise impacts from short-term, at-grade track construction could extend to approximately 120 feet from the corridor; however, if nighttime construction is conducted (when sensitivity to noise is higher and the criteria for impacts are lower), the potential for short-term noise impacts from at-grade track construction could extend to approximately 380 feet from the corridor. The distances of noise impacts would likely be similar for OMF site construction. For elevated structure construction, the distance for noise impacts during the daytime could be up to 250 feet for impact pile driving, assuming a usage factor of 20 percent during the day. If alternative methods of piling are used, the impact distance could be less.

Based on the distances above, there would be sensitive receptors within the screening distances for all three OMF South build alternatives and both mainline track design options. Noise impacts perceived by residents and other sensitive receptors would vary, depending on the proximity of the construction activity, the type of equipment being used, the time of day, and the overall duration of construction. While the noise levels would be similar for construction of any of the build alternatives, the Midway Landfill Alternative would have the greatest impact due to the extended period of time and number of daily truck trips needed for site preparation work.

### *Vibration*

Unlike typical light rail transit operations, there is the potential for damage to nearby structures at close distances due to vibration from construction activities, such as pile driving, hoe rams, vibratory compaction, and loaded trucks. Most limits on construction vibration are based on reducing the potential for damage to nearby structures. Although construction vibrations are only temporary, it is still reasonable to assess the potential for human annoyance and damage.

As a conservative approach, the potential for construction vibration impacts was assessed based on the vibration damage criteria for the non-engineered timber and masonry building category (Category III) in the FTA guidance manual (FTA 2018). A vibration criterion of 94 VdB was used to assess potential damage impact, and the operational vibration criterion of 72 VdB was used to assess potential vibration annoyance from construction activities. With the exception of impact pile driving, the potential for vibration damage is limited to within 25 feet of construction activities. For impact pile driving, the screening distance for potential vibration damage is 55 feet. There are no sensitive receptors within 25 feet of the project alternatives, but there are several within 55 feet of both mainline alignments (40 mph Alignment and 55 mph Design Option) in Belmor. However, any potential for impacts would depend on the method of pile installation.

Because the exact location of construction equipment is important in projecting vibration levels, a more detailed assessment of potential vibration damage will be performed during final design when more accurate equipment locations are known.

#### **3.9.2.4 Avoidance and Minimization of Impacts**

For the Preferred and South 344th Street alternatives, the curves of the mainline 40 mph Alignment north of S 324th Street and from S 324th Street to Oakland Hills Boulevard would have a radius between 600 and 1,000 feet and would be prepared for wayside lubricators.

Construction activities would be carried out in compliance with Sound Transit specifications and applicable local noise regulations. Construction noise is exempt from the WAC noise limits, except at residential land uses during nighttime hours (10 p.m. to 7 a.m.). If construction is performed during nighttime hours, the contractor must meet the WAC noise level requirements or obtain a noise variance from the governing jurisdiction.

Noise-control for nighttime or daytime work may include the following measures, as necessary, to meet required noise limits and minimize temporary vibration impacts:

- Avoiding nighttime construction in residential neighborhoods when possible
- Locating stationary construction equipment as far as possible from noise-sensitive sites
- Constructing noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers
- Routing construction-related truck traffic to roadways that would cause the least disturbance to residents
- Using alternative construction methods to minimize the use of impact and vibratory equipment (e.g., pile-drivers and compactors). If pile driving is necessary, it would be limited to daytime hours

In addition to the measures listed above, a detailed Noise and Vibration Control Plan would be required from the contractor as part of construction. Key elements of a plan would include:

- Contractor's specific equipment types
- Schedule (dates and times of day) and methods of construction
- Maximum noise limits for each piece of equipment with certification testing
- Prohibitions on certain types of equipment and processes during the night or daytime hours per local agency coordination and approved variances
- Identification of specific sensitive receptors near construction sites
- Methods for predicting construction noise levels
- Implementation of noise and vibration control measures where appropriate
- Methods for responding to community complaints in compliance with Sound Transit outreach requirements

### 3.9.2.5 Indirect Impacts

No indirect impacts related to noise and vibration would result from construction and operation of the proposed project. Most vehicle traffic and other sources of environmental vibration are below the levels of human perception and would not cause an indirect impact.

## 3.9.3 Potential Mitigation Measures

### 3.9.3.1 Long-Term Measures

When noise would exceed FTA moderate or severe impact criteria, Sound Transit would provide noise mitigation measures consistent with its Link Noise Mitigation Policy (Motion No. M2004-08) and the Transit Noise and Vibration Impact Assessment Manual (FTA 2018). The Sound Transit Link Noise Mitigation Policy provides the hierarchy for implementation of mitigation measures. It prioritizes reduction at the noise source, followed by measures to disrupt the noise path, such as sound walls. Lastly it considers residential sound insulation.

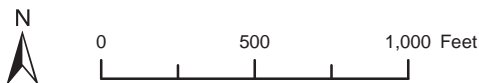
For the Preferred and South 344th Street alternatives, noise barriers are proposed for mitigation along the 55 mph Design Option elevated mainline track (Figure 3.9-5).





Data Sources: King County; Cities of Des Moines, Federal Way, Kent (2019).

**FIGURE 3.9-5**  
 Noise Barrier Locations  
 55 mph Design Option  
 OMF South



Sound Transit would replace noise walls and berms that would be removed as part of the Preferred And South 344th Street alternatives. The replacement wall is anticipated to be similar in height to the existing wall of 14 to 18 feet. Sound Transit will conduct additional noise analysis to confirm noise wall heights and coordinate with Federal Way and WSDOT on compatibility with the City Center Access Project.

Noise barriers locations and lengths are described in Table 3.9-5. Typical noise barriers are 4 feet in height on elevated structures. Assuming 4-foot barriers on the elevated structure at the locations described below, the barriers would provide approximately 8 dB of noise reduction, and there would be no residual impacts after mitigation. No mitigation would be necessary for the Midway Landfill Alternative.

**Table 3.9-5 Summary of Potential Noise Barrier Locations**

Mainline Track Options	Approximate Location	Noise Barrier Length (ft)
55 mph Design Option	Northbound side from south of Park & Ride to south of Burning Tree Boulevard	360
55 mph Design Option	Southbound side from south of Park & Ride to south of Burning Tree Boulevard	325

During final design, the noise analysis will be updated based on the more advanced design. All predicted noise levels and mitigation measures would be reviewed and mitigation would be modified as needed to reduce noise levels to below the FTA impact criteria. If equivalent mitigation could be achieved by a less costly means or if the final design analysis shows no impact, then the mitigation measure may be modified or eliminated. After light rail operations begin, if the resulting noise were to exceed FTA criteria, Sound Transit would evaluate the need for additional mitigation.

The noise mitigation for the cumulative effects of TDLE on sensitive receptors for the Preferred and South 344th Street alternatives, including the mainline tracks, and the City Center Access Project are discussed in Chapter 4, Cumulative Effects Analysis, and will be further detailed in the TDLE Draft EIS, which is expected to be published in mid-2024, and the City Center Access Project Noise Discipline Report.

**3.9.3.2 Construction Measures**

Through compliance with applicable construction permits and implementation of avoidance and minimization measures described in Section 3.9.2.4, Avoidance and Minimization of Impacts, no mitigation for construction noise impacts would be needed.