

3 AFFECTED ENVIRONMENT, ENVIRONMENTAL IMPACTS, AND POTENTIAL MITIGATION MEASURES

3.1 Introduction

This chapter discusses the affected environment, impacts, and potential mitigation measures for each element of the environment. Each section contains a brief introductory description of the subject matter along with a description of the study area, followed by three sections: affected environment, environmental impacts, and potential mitigation measures. The affected environment section includes a description of the potentially impacted resources within the study area. The environmental impacts section discusses impacts to the environment in the following order: No-Build Alternative, long-term impacts (for all build alternatives), construction impacts (for all build alternatives), avoidance and minimization of impacts, and indirect impacts. The potential mitigation measures section describes proposed steps to address the identified environmental impacts.

The elements of the environment included in this chapter are listed below:

- 3.2 Transportation
- 3.3 Acquisitions
- 3.4 Land Use
- 3.5 Economics
- 3.6 Social Resources, Community Facilities, and Neighborhoods
- 3.7 Visual and Aesthetic Resources
- 3.8 Air Quality and Greenhouse Gas Emissions
- 3.9 Noise and Vibration
- 3.10 Ecosystem Resources
- 3.11 Water Resources
- 3.12 Geology and Soils
- 3.13 Hazardous Materials
- 3.14 Public Services
- 3.15 Utilities, Energy, and Electromagnetic Fields
- 3.16 Historic and Archaeological Resources
- 3.17 Parks and Recreational Resources

3.2 Transportation

This section describes the existing transportation environment and potential impacts associated with the OMF South project alternatives. It addresses multiple elements of the transportation system, including arterial and local street operations, freight mobility and access, transit operations, nonmotorized facilities and access, parking, and safety. Operational, construction, and indirect impacts are also discussed. A more detailed discussion of the transportation analysis is provided in Appendix G1, Transportation Technical Report.

The transportation analysis evaluates the potential operational and construction impacts of OMF South, including the traffic activity resulting from employees coming to and departing from the site and truck trips and haul routes needed during construction. For the transportation analysis, two study areas were defined: the Midway Landfill Alternative study area and the South 336th Street and South 344th Street alternatives study area. The study areas for each build alternative are shown in Figures 3.2-1 and 3.2-2.

The Midway Landfill Alternative study area encompasses nine key intersections between SR 99 to the west, I-5 to the east, S 240th Street to the north, and S 260th Street to the south. Due to their close proximity and anticipated impacts to similar intersections, a single study area was identified for the South 336th Street and South 344th Street alternatives. The study area for the South 336th Street and South 344th Street alternatives encompasses nine key intersections between SR 99 to the west, I-5 to the east, S 336th Street to the north, and S 344th Street to the south.

The boundaries of the study areas were defined based on standard transportation and traffic impact analysis practices and were determined in consultation with WSDOT, King County, and the cities of Kent and Federal Way. The approach to the analysis and study areas for each build alternative reflects federal, state, and local laws and regulations. Analysis of transportation impacts associated with construction included the boundaries of the study area and the mainline tracks where applicable. The analyses were performed based on the conceptual site layouts included in Chapter 2.

3.2.1 Affected Environment

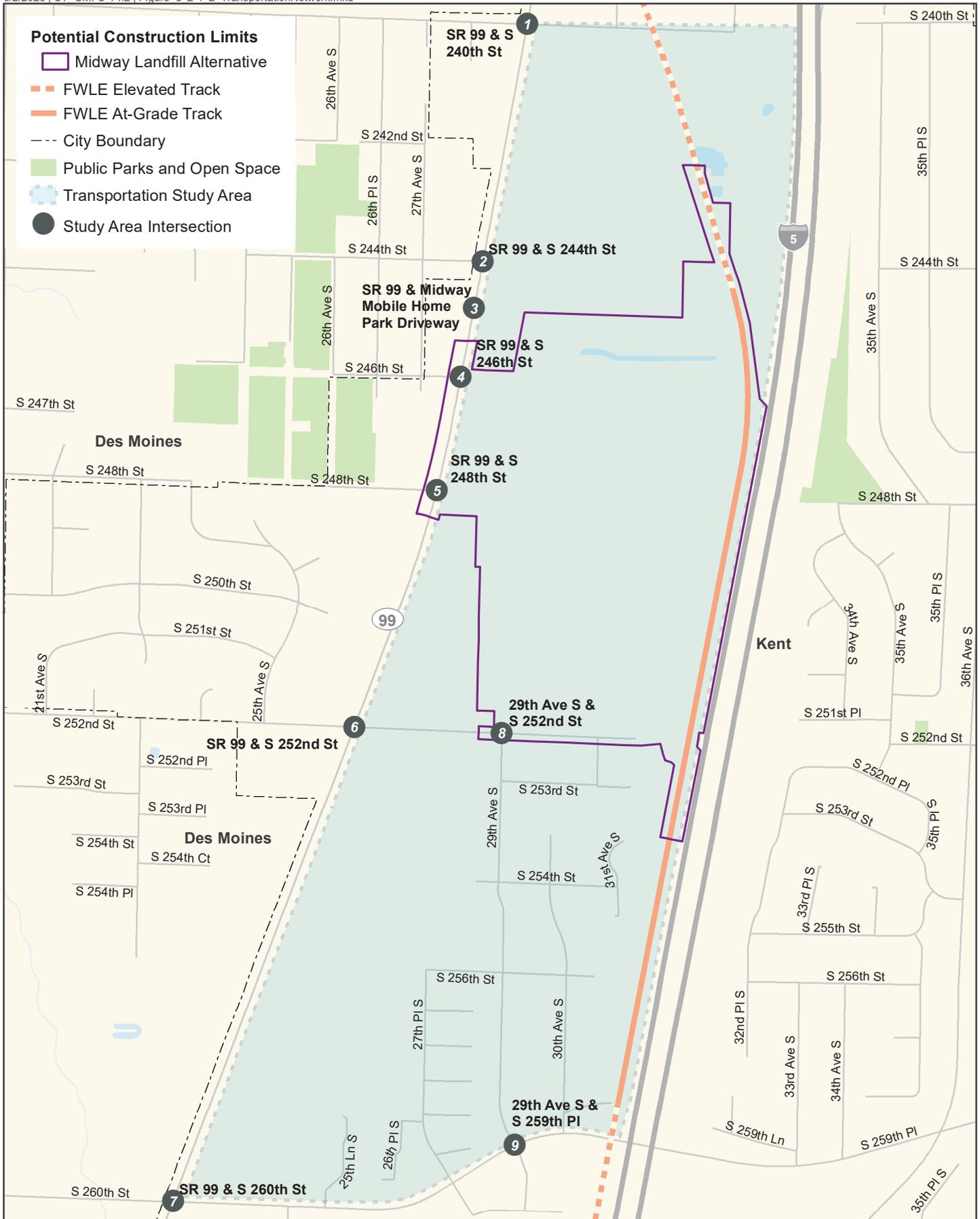
This section presents a summary of existing conditions within the study areas without the proposed project. More details about the affected environment, including a detailed summary of the traffic analysis results for the existing AM and PM peak hour conditions, signal control, and the applicable intersection level of service (LOS) standards, are included in Appendix G1, Transportation Technical Report.

3.2.1.1 Transportation Network

Midway Landfill Alternative Study Area

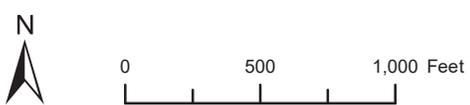
The street network and classifications in the Midway Landfill Alternative study area include arterial, collector, and local streets. Speed limits range from 25 to 45 miles per hour (mph), with the exception of I-5, which has a speed limit of 60 mph through the study area.

Nine intersections in the Midway Landfill Alternative study area were analyzed, seven of which are located on SR 99. They include uncontrolled intersections and those controlled by a traffic signal or stop signs. Figure 3.2-1 shows the Midway Landfill Alternative study area, street network, and intersections studied. Although S 244th Street is located in Des Moines, the intersection of S 244th Street and SR 99, which is one of the intersections evaluated, is located in Kent.



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

FIGURE 3.2-1
 Transportation Study Area
 Midway Landfill Alternative



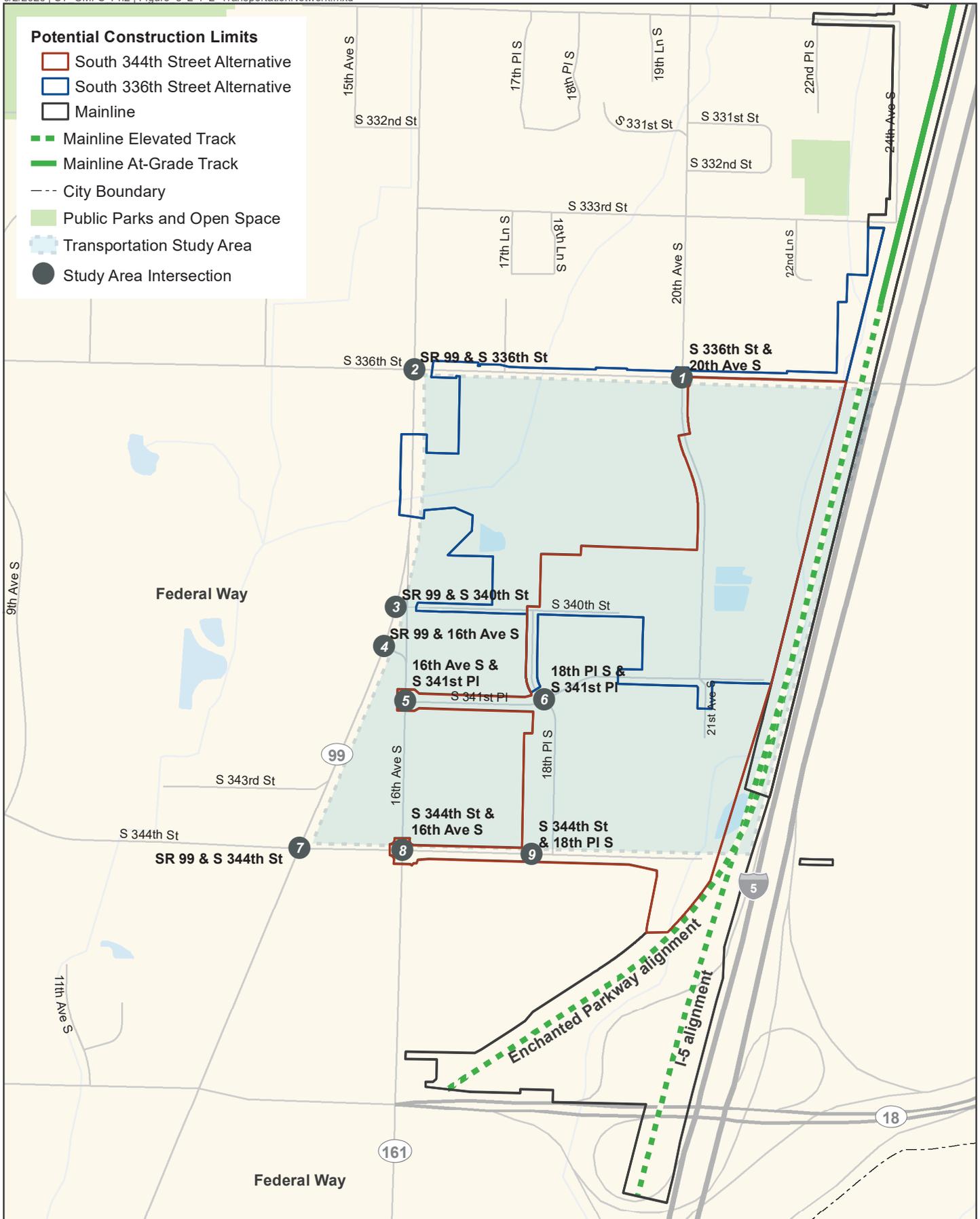
South 336th Street and South 344th Street Alternatives Study Area

All streets in the South 336th Street and South 344th Street alternatives study area are in Federal Way. The street network and classifications in the study area include arterial, collector, and local streets. Speed limits range from 25 to 40 mph, with the exception of I-5, which has a speed limit of 60 mph through the study area.

Nine intersections were analyzed in the South 336th Street and South 344th Street alternatives study area, four of which are located on SR 99. They include uncontrolled intersections and those controlled by a traffic signal or stop signs. Figure 3.2-2 shows the South 336th Street and South 344th Street alternatives study area, street network, and intersections studied.

3.2.1.2 Arterial and Street Operations

Within the study areas, intersections were chosen for analysis based on their potential to be directly affected, such as by a change in channelization, signal control, or station trips, as well as their potential to be indirectly affected by changes in volume due to trips accessing the system. Intersections were classified as signalized, stop controlled, or uncontrolled. All intersection operations were analyzed in the AM and PM peak periods. The AM peak period is between 6 and 9 a.m. and the PM peak period is between 3 and 6 p.m. Intersections with stop signs were all classified as two-way stop controlled (TWSC), meaning that only one street comprising the intersection is stop controlled. There are no intersections that are four-way stop controlled in either of the study areas.



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

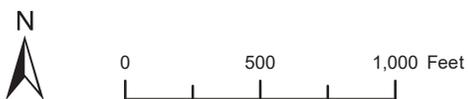


FIGURE 3.2-2
 Transportation Study Area
 South 336th Street and
 South 344th Street Alternatives
 OMF South

Traffic operations were measured using the LOS method, which is defined in terms of average intersection delay on a scale ranging from A to F, depending on the delay conditions at the intersection. LOS A represents the best conditions with minimal delay, and LOS F represents the worst conditions with severe congestion. Table 3.2-1 summarizes the criteria used to define LOS.

Table 3.2-1 Average Control Delay Used in Level of Service

LOS ¹	Signalized Intersections (seconds per vehicle)	Unsignalized Intersections (seconds per vehicle)	Traffic Flow Characteristics (seconds per vehicle)
A	< 10	< 10	Virtually free flow; completely unimpeded
B	> 10 and < 20	> 10 and < 15	Stable flow with slight delays; less freedom to maneuver
C	> 20 and < 35	> 15 and < 25	Stable flow with delays; less freedom to maneuver
D	> 35 and < 55	> 25 and < 35	High density but stable flow
E	> 55 and < 80	> 35 and < 50	Operating conditions at or near capacity; unstable flow
F	> 80	> 50	Forced flow; breakdown conditions

Source: Highway Capacity Manual 2010 (Transportation Research Board 2010)

Note:

- (1) The LOS criteria are based on control delay, which includes initial deceleration delay, final deceleration delay, stopped delay, and queue move-up time.

Traffic operations were also measured by volume-to-capacity (v/c) ratio, defined as a fraction representing the ratio of traffic volume to the capacity of a given roadway. The v/c ratio is measured on a decimal scale, with 0.0 representing excessive capacity and anything greater than 1.0 representing congestion, as volume has exceeded roadway capacity. A v/c ratio can be calculated for either the intersection as a whole or by approach. Table 3.2-2 shows the relationship between v/c ratio and the aforementioned LOS analysis procedure by average vehicle delay.

Table 3.2-2 Planning and Operational Level of Service

Analysis Procedure	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
Planning (v/c ratio)	0.00-0.60	0.61-0.70	0.71-0.80	0.81-0.90	0.91-1.00	>1.00
Operational delay(s) (seconds per vehicle)	0-10	10-20	20-40	40-60	60-80	>80

Sources: Interim Materials on Highway Capacity (Transportation Research Board 1980) and Highway Capacity Manual 2000 (Transportation Research Board 2000)

Impact Thresholds

Traffic impacts were determined for arterials and local streets by comparing the overall intersection LOS for the No-Build Alternative and the build alternatives. Impacts would occur if the build alternatives would result in traffic operations performing below the acceptable LOS when the intersection or roadway segment would operate at or above the acceptable LOS under the No-Build Alternative. Impacts may also occur if traffic operations under the build alternative reduce the LOS from E to F or if the delay in an LOS F condition is worsened by more than 10 seconds.

Washington State Department of Transportation

Impacts for state highways of statewide significance (e.g., SR 99) would occur if the roadway segment in the build alternatives would increase traffic operations to a LOS E or worse condition when the roadway segment would operate at LOS D or better under the No-Build Alternative. Impacts may also occur if the build alternative traffic operations reduce the LOS from E to F or if the delay in an LOS F condition is worsened by more than 10 seconds.

City of Kent

Within the Midway Landfill Alternative study area, Kent evaluates LOS at the roadway corridor level. Additionally, Kent calculates the LOS operation for key corridor intersections (in seconds of delay) during the PM peak period and then calculates an average based on a weighting of the corridor intersection volumes. This method provides a corridor-wide result, allowing some intersections to operate at a congested LOS as long as the overall corridor operation is maintained. Kent's adopted LOS standard requires that all corridors operate at LOS E or better during the PM peak hour, with the exception of the SR 99 corridor and the Downtown zone, which are allowed to operate at LOS F (City of Kent 2008). No intersections evaluated as part of this analysis are located in the Kent Downtown zone.

City of Federal Way

Within the study area for the South 336th Street and South 344th Street alternatives, Federal Way has adopted the following LOS standards for its street and highway system:

- Signalized intersections outside of City Center will experience a 1.2 or lower v/c ratio.
- Unsignalized intersections outside of City Center will experience a 1.0 or lower v/c ratio.
- The City Center area will experience an average of 1.1 or lower v/c ratio (City of Federal Way 2015).

No intersections evaluated as part of this analysis are located in the Federal Way City Center.

Current Levels of Service

All intersections in the Midway Landfill Alternative study area operate at or better than the standards for the roadway in the AM peak hour. The intersections at SR 99/S 244th Street and SR 99/S 248th Street currently operate at LOS E in the PM peak hour, which is below WSDOT standards.

In the South 336th Street and South 344th Street alternatives study area, all intersections operate at or better than the standards for the roadway in the AM peak hour. The intersection at SR 99/S 336th Street currently operates below WSDOT standards in the PM peak hour.

3.2.1.3 Freight

WSDOT has designated roadways as freight routes and has classified them based on the annual tonnage that is transported along a road in a particular year. This classification system is called the Freight Goods Transportation System. The classifications range from roadways that carry more than 20,000 tons in 60 days to more than 10 million tons annually, as summarized in Table 3.2-3. Existing freight routes within the study areas are shown on figures provided in Appendix G1, Transportation Technical Report.

Table 3.2-3 Freight Goods Transportation System Classification System

FGTS Classification	Annual Gross Tonnage
T-1	Over 10,000,000
T-2	4,000,000 to 10,000,000
T-3	300,000 to 4,000,000
T-4	100,000 to 300,000
T-5	Over 20,000 in 60 days

Source: WSDOT 2020

Midway Landfill Alternative Study Area

There are four designated freight routes in the Midway Landfill Alternative study area: I-5 is designated as a T-1 route, and SR 99, S 259th Place, and S 260th Place are designated as T-3 routes. SR 99 is also a designated truck/freight route by the city of Kent.

South 336th Street and South 344th Street Alternatives Study Area

There are two designated freight routes in the South 336th Street and South 344th Street alternatives study area: I-5 is designated as T-1 route, and SR 99 is designated as a T-3 route. SR 99 is also a designated truck/freight route by the city of Federal Way, as is 16th Avenue S.

3.2.1.4 Transit

King County Metro Transit (Metro), Sound Transit, and Pierce Transit provide transit service in and through the study areas, with regional and local bus fixed route service to transit centers, park-and-rides, and bus stops, although there are no transit centers or park-and-rides within the study areas. Bus stops are located primarily on SR 99. Neither light rail nor commuter rail service is currently provided. Existing transit routes are shown on figures provided in Appendix G1, Transportation Technical Report.

Midway Landfill Alternative Study Area

Metro Route 166 and the RapidRide A Line provide bus service in the Midway Landfill Alternative study area. Table 3.2-4 summarizes the weekday frequency and routing for each route.

Table 3.2-4 Midway Landfill Alternative Study Area Transit Service

Service Provider	Route	Weekday Frequency	Routing
King County Metro Transit	RapidRide A Line	10-15 minutes all day	Federal Way Transit Center to Tukwila International Boulevard Station
	166	30 minutes all day	Kent Station to Highline College to Des Moines to Burien Transit Center

Source: King County Metro Transit

South 336th Street and South 344th Street Alternatives Study Area

Metro Route 182 and Pierce Transit Routes 402, 500, and 501 provide bus service in the South 336th Street and South 344th Street alternatives study area. Table 3.2-5 summarizes the weekday frequency and routing for each route.

Table 3.2-5 Study Areas Transit Service

Service Provider	Route	Weekday Frequency	Routing
King County Metro Transit	182	20-30 minutes during the AM and PM peak periods; 60 minutes midday	Northeast Tacoma to Federal Way Transit Center
Pierce Transit	402	30 minutes all day	Meridian to Federal Way Transit Center
	500	30 minutes all day	Tacoma to Federal Way Transit Center
	501	60 minutes all day	Milton to Federal Way Transit Center

Sources: King County Metro Transit; Pierce Transit

3.2.1.5 Nonmotorized Network

In general, the opportunities for nonmotorized (bicycle and pedestrian) circulation in the study areas are limited. Sidewalks are provided on most arterial streets, and marked crosswalks are provided at signalized intersections. I-5 restricts most opportunities for pedestrian and bicycle connections east of the study areas, and most east-west streets are dead ends. Each study area has only one crossing of I-5: S 259th Street in the Midway Landfill Alternative study area and S 336th Street in the South 336th Street and South 344th Street alternatives study area. Existing bicycle and pedestrian facilities are shown on figures provided in Appendix G1, Transportation Technical Report.

Midway Landfill Alternative Study Area

The Midway Landfill and other large developments restrict north-south nonmotorized circulation in the Midway Landfill Alternative study area north of S 252nd Street, and SR 99 provides the only north-south pedestrian connection between S 240th Street and S 252nd Street. The street network south of S 252nd Street has a more developed grid and offers better opportunities for nonmotorized circulation. East-west circulation is similarly restricted. While SR 99 is considered a shared bicycle facility, there are no designated bicycle facilities that travel within or through the Midway Landfill Alternative study area. Figure 3.2-3 shows the existing pedestrian and bicycle facilities within the Midway Landfill study area and its vicinity.

South 336th Street and South 344th Street Alternatives Study Area

In the South 336th Street and South 344th Street alternatives study area, north-south pedestrian circulation is provided via SR 99, 16th Avenue S, 18th Place S, and 20th Avenue S. East-west pedestrian travel is facilitated by S 336th Street, S 340th Street, S 341st Place, and S 344th Street. The only existing bicycle facilities in the South 336th Street and South 344th Street alternatives study area are east- and westbound bicycle lanes on S 336th Street, east of 20th Avenue S. Figure 3.2-4 shows the existing pedestrian and bicycle facilities within the South 336th Street and South 344th Street alternatives study area and its vicinity.



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

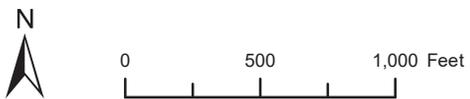


FIGURE 3.2-3
Existing Bicycle and Pedestrian Facilities
Midway Landfill Alternative



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

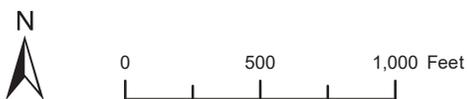


FIGURE 3.2-4
 Existing Bicycle and Pedestrian Facilities
 South 336th Street and
 South 344th Street Alternatives
 OMF South

3.2.1.6 Parking

All private parking is associated with businesses in the study areas, and there are no pay-for-parking facilities. Several off-street private business parking lots are available for use by employees and patrons within the study areas.

Midway Landfill Alternative Study Area

Unrestricted (free, with no time restrictions) on-street parking is permitted on most residential streets south of the landfill property in the Midway Landfill Alternative study area. On-street parking is not permitted on SR 99, S 240th Street, S 259th Street, or S 260th Street.

South 336th Street and South 344th Street Alternatives Study Area

Unrestricted on-street parking is limited in the South 336th Street and South 344th Street alternatives study area and is available only on 18th Place S north of S 341st Place, 21st Avenue S, S 341st Place, and S 344th Street east of 18th Place S.

3.2.1.7 Safety

Historical intersection collision data was collected from WSDOT for the 3-year period from January 2016 to December 2018. This data was then reviewed to identify whether any of the study area intersections or roadway segments have existing safety concerns that could be exacerbated by the project alternatives, which are discussed further in Section 3.2.2, Environmental Impacts.

Most collisions at the study intersections and roadway segments resulted in property damage only (approximately 65 percent in the Midway Landfill Alternative study area and nearly 69 percent in the South 336th Street and South 344th Street alternatives study area). Almost all remaining collisions (approximately 30 percent in each study area) resulted in minor or possible injuries.¹ In both study areas, no notable mitigating factors were provided for the fatal and serious injury crashes other than two: one due to driver inattention and one due to driver disregard for a traffic signal. The most common types of collisions in the study areas were rear end; angle (T-bone) collisions represented the second most common type of collision.

Collision locations within the study areas are shown by severity and type on figures provided in Appendix G1, Transportation Technical Report.

Midway Landfill Alternative Study Area

During the 3-year study period (January 2016 to December 2018), four fatal crashes and six serious injury crashes occurred in the Midway Landfill Alternative study area. Of these, two fatal crashes and two serious injury crashes occurred at the intersection of SR 99 and S 240th Street. A total of 261 collisions occurred at intersections and roadway segments in the study area. The intersections at SR 99/S 240th Street and SR 99/S 260th Street had the highest number of collisions over the 3-year period, with 56 and 57 collisions, respectively, equating to a rate of approximately 19 collisions per year at each intersection. The intersection at SR 99/S 252nd Street had the next highest number of collisions (47) and a rate of approximately

¹ WSDOT defines minor injury as “One or more persons in a crash had a non-life threatening injury such as: lump on the head, abrasion, bruise, or minor laceration” and possible injury as “One or more persons in a crash had: momentary unconsciousness, claim of injury, limping, complaint of pain, or nausea. These injuries are those reported by the person or indicated by their behavior, but where no wounds or injuries are readily evident”.

16 collisions per year. Collisions at these three intersections comprise 61 percent of the total collisions in the study area.

SR 99 between S 240th Street and S 260th Street had the highest number of roadway segment collisions (63) and a rate of approximately 21 collisions per year. Two collisions involved a bicyclist and 12 involved a pedestrian.

One collision in the Midway Landfill Alternative study area involved a school bus. It occurred along the S 260th Street roadway segment (SR 99 to 29th Avenue S) and resulted from a sideswipe collision.

Eleven collisions occurred in the SR 99 business access transit lane, representing 17 percent of total collisions along roadway segments in the Midway Landfill Alternative study area.

South 336th Street and South 344th Street Alternatives Study Area

During the 3-year period (January 2016 to December 2018), no fatal crashes and two serious injury crashes occurred in the South 336th Street and South 344th Street alternatives study area. A total of 224 collisions occurred at intersections and roadway segments in the study area. The intersection at SR 99/S 336th Street had the highest number of collisions (64), equating to a rate of more than 21 collisions per year. The next highest number of collisions (45) occurred at the SR 99/16th Avenue S intersection, resulting in a rate of 15 collisions per year. Collisions at these two intersections comprise almost 49 percent of the total collisions in the study area.

Collisions on SR 99 and 16th Avenue S accounted for more than 75 percent of all roadway segment collisions in the study area. Rear-end and sideswipe collisions accounted for more than 56 percent of all collisions on roadway segments. The numbers of angle (T-bone) collisions and rear-end collisions were almost the same. Bicyclists and pedestrians were involved in four collisions each. One of the two serious injury collisions in the South 336th Street and South 344th Street alternatives study area involved a bicyclist.

Three collisions involved buses. One involved a school bus at the SR 99/S 344th Street intersection and two involved transit buses at the SR 99/16th Avenue S and SR 99/S 336th Street intersections. The three collisions were rear-end, angle, and approach-turn collisions, respectively. One collision resulted in minor injuries, and the other two bus collisions had no injuries.

In the South 336th Street and South 344th Street alternatives study area, 19 collisions occurred in the SR 99 business access transit lane, representing 30 percent of all roadway segment collisions.

3.2.2 Environmental Impacts

The long-term effects in the following sections compare the No-Build Alternative with the build alternatives for the 2042 design year. Changes and effects described in this section are based on the conceptual layouts for each build alternative (see Chapter 2). Additional information on the impacts described below can be found in Appendix G1, Transportation Technical Report.

3.2.2.1 No-Build Alternative

Under the No-Build Alternative, impacts to transportation from construction or operation of OMF South would not occur. Because TDLE would open after OMF South, transportation impacts associated with TDLE that would overlap with OMF South, such as from the mainline tracks that would connect to the South 336th Street and South 344th Street alternatives, are addressed

within the build alternative impacts discussion below. All other TDLE-related impacts are addressed in Chapter 4, Cumulative Impact Analysis.

Arterial and Street Operations

Sound Transit reviewed agency and jurisdictional long-range plans to identify planned and funded transportation projects. The following list of future projects was developed through coordination with WSDOT, Kent, and Federal Way staff. Few improvements are planned by the cities of Kent and Federal Way that would alter the roadway network and intersections in the study areas under the No-Build Alternative. In the Midway Landfill Alternative study area, the following projects are planned by Kent. Only the first project listed has secured funding.

- Construct two new streets, 32nd Avenue S from S 240th Street to S 244th Street and S 244th Street from SR 99 to 32nd Avenue S, including sidewalks and bike lanes.
- Change the signal phasing at the S 240th Street/SR 99 intersection.
- Add westbound dual left-turn lanes and an eastbound right-turn pocket at the S 260th Street/SR 99 intersection.

The following projects are planned by Federal Way in the South 336th Street and South 344th Street alternatives study area. Only the first project listed has secured funding.

- Add a southbound auxiliary lane on 16th Avenue S from S 344th Street to S 348th Street.
- Extend 20th Avenue S from S 341st Place to S 344th Street.

Traffic volumes are forecast to increase throughout both study areas between existing conditions and the 2042 AM and PM peak hours. Future (2042) volumes at the study intersections under the No-Build Alternative were forecast using specific growth rates for Kent and Federal Way. For the Midway Landfill Alternative study area, growth rates of 1.11 and 1.12 percent per year were applied to AM and PM peak hour existing volumes, respectively. For the South 336th Street and South 344th Street alternatives study area, a singular growth rate of 0.8 percent per year was applied to existing volumes.

The traffic operations analysis compared the No-Build Alternative at the same study intersections analyzed under existing conditions. Figures showing the forecast 2042 AM and PM peak hour operations and turning movements for the No-Build Alternative are provided in Appendix G1, Transportation Technical Report.

In the Midway Landfill Alternative study area, three intersections (SR 99/S 244th Street, SR 99/Midway Mobile Home Park Driveway, and SR 99/S 248th Street) are forecast to operate below the LOS standards for the roadway during the 2042 AM peak hour for the No-Build Alternative. None of these intersections currently operate below the LOS standards for the roadway during the AM peak hour. During the 2042 PM peak hour, two of the Midway Landfill Alternative study area intersections (SR 99/S 244th Street and SR 99/S 248th Street) are forecast to continue operating below the LOS standards for the study area, as they both currently operate below standard.

No intersections in the South 336th Street and South 344th Street alternatives study area are forecast to operate below the LOS standards for the roadway during the 2042 AM or PM peak hours for the No-Build Alternative. LOS at the SR 99/S 336th Street intersection is forecast to slightly improve from LOS E to LOS D.

Freight

Under the No-Build Alternative, freight would experience the same levels of delay as general-purpose traffic on roadways and at intersections with increased congestion.

Transit

Under the No-Build Alternative, FWLE and TDLE will expand light rail service to Tacoma through the study areas, and other projects will expand service to Redmond, West Seattle, Ballard, Northgate, Lynnwood, Everett, south Kirkland, and Issaquah. Bus service on the northern and southern boundaries of the Midway Landfill Alternative study area is expected to increase with the opening of the Kent/Des Moines station near Highline College as part of FWLE. No additional service is planned on SR 99. Some additional bus service is planned along 16th Avenue S in the South 336th Street and South 344th Street alternatives study area. Metro plans to provide less peak-oriented bus service on I-5 through the study areas in 2042.

It is assumed that Sound Transit will reduce bus service levels on I-5 through the study areas in 2042 because Link light rail will replace much of the current north-south service from south Puget Sound cities towards downtown Seattle and the University District. Existing Sound Transit bus routes that currently provide service to cities north of Tacoma will generally be truncated at the Tacoma Dome and Fife Link stations, where riders will transfer to or from Link. It is also assumed that Pierce Transit will continue to provide bus service via Routes 402 and 500 in the South 336th Street and South 344th Street alternatives study area at frequencies comparable to those under existing conditions. Route 501 would no longer provide service in the South 336th Street and South 344th Street alternatives study area.

Under the No-Build Alternative, Sound Transit would not have the capacity to receive, test, commission, store, maintain, and deploy the expanded fleet of LRVs needed to support existing and planned future expansions of the light rail system at planned service levels. As a result, light rail operations would be less efficient than they would otherwise be with the facility and Sound Transit would not be able to meet expected ridership demand.

Nonmotorized Network

Under the No-Build Alternative, pedestrian and bicycle facilities would be improved in accordance with adopted local plans. Nonmotorized volumes are expected to increase in the Midway Landfill Alternative study area as a result of land use regulations that encourage mixed uses and higher residential densities in Kent's Midway Subarea. The Midway Subarea Plan envisions a conceptual, expanded pedestrian and bike path framework in the study area, including north-south improvements connecting S 244th Street to S 252nd Street through the conceptual layout of the Midway Landfill Alternative project site.

The Transportation Element of the Federal Way Comprehensive Plan (2015) calls for the installation of shared lanes for bicycles along 20th Avenue S, 18th Place S, S 341st Place, and S 344th Street within the conceptual layout of the South 336th Street and South 344th Street alternatives. Please see Appendix G1, Transportation Technical Report, for more detail.

Parking

Under the No-Build Alternative, the quantity of on-street parking along streets within the study areas, detailed in Appendix G1, Transportation Technical Report, is not assumed to change. On-street parking utilization is expected to stay the same as well because the land uses within the study areas are not expected to change (the comprehensive plans for Kent and Federal

Way show the underlying zoning remaining the same). Any new developments within the study areas would be expected to provide adequate off-street parking for their use.

Safety

As noted in the Arterial and Street Operations section, traffic and nonmotorized volumes in the study area are expected to increase by 2042. This could increase collision frequencies for both motor vehicles and nonmotorized users in the study area. The planned roadway and intersection projects previously described could improve safety through rechannelization, improved sight lines, or the addition of turn lanes. The construction of new bicycle and pedestrian facilities would improve safety for both motor vehicles and nonmotorized users in the study area. Dedicated pedestrian and bicycle facilities would improve predictability at conflict points among motor vehicles, pedestrians, and cyclists, and would reduce the likelihood of collisions because potential conflict points would be clearly identifiable by all users.

3.2.2.2 Long-Term Impacts

Impacts Common to All Build Alternatives

Arterial and Street Operations

For all build alternatives, all track crossings of existing or planned roadways would be elevated. Because there would be no impacts to traffic operations, these track crossings were not included in the intersections evaluated in this analysis.

All access points to the OMF South sites would be controlled by fenced rolling gates, one of which would be located at a guard house, with access to the OMF South site granted via approval by staff stationed at the guard house or by an automated system, such as electronic key cards. Two scenarios were evaluated to help understand whether there would be operational flexibility at the gates through the peak hour. The first assumed free-flow movement into each OMF South site and did not consider the effect of opening and closing the rolling gate. The second approach calculated the capacity for vehicles to enter a site based on estimated timing for each gate opening and closing. This evaluation was completed without the use of the Synchro software because staffed guard houses and gate operations cannot be evaluated with the software.

An estimated 476 people would be employed at the facility, arriving and departing over the course of three shifts. Employees would arrive at staggered times throughout each shift. A portion of the day and graveyard shift staffing estimates was applied to the AM and PM peak hour analyses, with 48 employees arriving and nine employees departing during the AM peak hour. During the PM peak hour, 39 employees were forecast to depart, with no arrivals forecast. All employees were assumed to arrive in single-occupancy vehicles to evaluate a worst-case scenario.

The peak hour vehicle trips generated at the facility were assigned to study area roadways and intersections based on existing travel patterns. Traffic volumes were forecast to increase throughout the study areas during both the 2042 AM peak hours and the 2042 PM peak hours. With the presence of gate-controlled access, the actual delay and queuing could be worse than described for operations without the gate. However, even if 75 percent of inbound and outbound vehicles arrive at gate-managed driveways during a peak 15-minute period, either before shift change (AM peak hour) or after shift change (PM peak hour), the second analysis indicates that operation of the access gates would not cause additional queuing or delays to inbound and outbound vehicles.

Figures showing peak hour vehicle trips and traffic volumes for all build alternatives are provided in Appendix G1, Transportation Technical Report.

Freight

The build alternatives are not anticipated to negatively affect truck circulation or truck routes on the local street network in the study area. There are no at-grade light rail track profiles that would result in additional crossings or delays for trucks. Freight would experience the same levels of delay as general-purpose traffic on roadways and at intersections throughout the study area.

Transit

It is assumed the bus service network under the build alternatives would be the same as the No-Build Alternative. Additional bus service levels or rerouting to the facility are not anticipated for any alternatives.

Development of OMF South would provide Sound Transit with additional capacity to receive, test, commission, store, maintain, and deploy an expanded fleet of LRVs for planned Link service. This capacity would provide for more efficient operation of the existing system and allow Sound Transit to accommodate the planned future expansions of the light rail system to meet the expected ridership demand.

Parking

Under the build alternatives, some existing off-street parking would be removed as part of the property acquisition process if the parking is located within the acquired parcels. Construction of the OMF sites and improvements to the surrounding roadways would result in the loss of on-street parking in the study areas as well. However, the loss of on-street parking is anticipated to be minimal.

The locations of existing on-street parking areas impacted by the build alternatives are provided in Appendix G1, Transportation Technical Report.

Up to 450 spaces would be needed for on-site parking for employees, visitors, and nonrevenue vehicles. See Chapter 2 for conceptual layouts, including parking, for each alternative.

Safety

As with the No-Build Alternative, traffic and nonmotorized volumes in the study area are forecast to increase by 2042, which could increase collision frequencies for both motor vehicles and nonmotorized users in the study area. However, the roadway, intersection, and nonmotorized improvements identified under the No-Build Alternative would similarly improve safety for motor vehicles and nonmotorized users in the study areas under the build alternatives.

With the exception of site driveways, OMF South, including the mainline tracks from the Federal Way Transit Center to the South 336th Street and South 344th Street alternatives sites, would not intersect with existing roadways, highways, sidewalks, bicycle lanes, or nonmotorized trails. All tracks would be elevated over these transportation facilities and would not present conflicts for drivers, buses, freight, pedestrians, or cyclists. All vertical support elements would be sited to comply with transportation safety requirements.

The alignment of the mainline tracks would be constructed immediately adjacent to the southbound I-5 clear zone (the area beyond the edge of the traveled roadway) within the I-5 right-of-way. While the mainline alignment would generally maintain clear zone standards, there

may be locations where the minimum widths cannot be met. In such instances, deviations from clear zone distances would require approval from WSDOT or FHWA. Failure to meet the standard width of the clear zone could result in impacts to safety conditions and an increase in crash rates. In areas where minimum clear zone conditions cannot be maintained, guardrails, barriers, or impact attenuators, such as water-filled jersey barriers or sand filled barrels, would be provided to shield vehicles from roadside hazards. As a result, the mainline along I-5 is not anticipated to have any quantifiable impact to safety along I-5.

The site driveways would be designed to meet or exceed all local and state safety standards; thus, no new safety issues would be introduced, and existing safety issues would not be exacerbated.

Midway Landfill Alternative

Arterial and Street Operations

Development of the Midway Landfill Alternative would not change the existing roadway network or interfere with the potential for development of planned improvements within the study area as described for the No-Build Alternative. Three access points to the site would be provided: a visitor/employee access with a guard house at SR 99/S 246th Street, a gated employee-only access at SR 99/S 248th Street, and a gated access at S 252nd Street/30th Avenue S. Neither the S 246th Street nor S 248th Street entrance would be signalized.

The project would modify the existing S 246th Street driveway to allow left turns into the site by southbound drivers. Due to the presence of existing medians, left turns out of the site would not be permitted at S 246th Street or S 248th Street. It is assumed that most employees would enter and exit through the SR 99/S 246th Street entrance, while the remaining employees using the parking area closest to the MOW and Link System-Wide Storage facilities would use the southernmost driveway at SR 99/S 248th Street.

Tables 3.2-6 and 3.2-7 show AM and PM peak hour LOS predictions for the Midway Landfill Alternative study area intersections compared to the No-Build Alternative. Four intersections are forecast to operate below the LOS standards during the AM peak period. The only impact from the project would be at the SR 99/S 246th Street intersection, which is forecast to operate at LOS F as a result of the project, as opposed to LOS B under the No-Build Alternative.

The Midway Landfill Alternative would add 1 second or less of delay at the SR 99/S 224th Street and SR 99/Midway RV and Mobile Home Park driveway intersections, which are already forecast to operate at LOS E under the No-Build Alternative.

The Midway Landfill Alternative would improve the LOS at the SR 99/S 248th Street (new driveway) intersection to LOS E as opposed to LOS F under the No-Build Alternative. Operations would improve because trips currently using the driveway would no longer do so in the future, although LOS would still remain below standards. Southbound queueing at the SR 99 intersections is not anticipated to extend beyond the current and constructed storage lengths of the left-turn lanes.

Table 3.2-6 Midway Landfill Alternative 2042 AM Peak Hour Traffic Operations

ID	Intersection	Control Type	Agency Standard	No-Build Alternative LOS 1, 2, 3, 4	No-Build Alternative Delay (seconds) 1, 2, 3, 4	Midway Landfill Alternative LOS 1, 2, 3, 4	Midway Landfill Alternative Delay (seconds) 1, 2, 3, 4
1	SR 99/S 240th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	C	23	C	23
2	SR 99/S 244th Street	TWSC	WSDOT Highways of Statewide Significance (LOS D)	<i>E</i>	<i>43</i>	<i>E</i>	<i>43</i>
3	SR 99/Midway Mobile Home Park Driveway	TWSC	WSDOT Highways of Statewide Significance (LOS D)	<i>E</i>	<i>38</i>	<i>E</i>	<i>39</i>
4	SR 99/S 246th Street (New Driveway)	TWSC	WSDOT Highways of Statewide Significance (LOS D)	B	11	<i>F</i>	<i>77</i>
5	SR 99/S 248th Street (New Driveway)	TWSC	WSDOT Highways of Statewide Significance (LOS D)	<i>F</i>	<i>53</i>	<i>E</i>	<i>39</i>
6	SR 99/S 252nd Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	A	7	A	7
7	SR 99/S 260th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	47	D	49
8	29th Avenue S/ S 252nd Street	TWSC	City of Kent (LOS E)	A	9	A	9
9	29th Avenue S/ S 259th Street	TWSC	City of Kent (LOS E)	C	22	C	22

Notes:

- (1) Synchro analyzes intersections in isolation and does not take into account downstream congestion. Actual intersection operations may have more delay based on intersection interactions and queuing propagating upstream and downstream between intersections.
- (2) Intersections were analyzed using the Synchro outputs for signalized intersections and Highway Capacity Manual 2010 outputs for unsignalized intersections (Transportation Research Board 2010).
- (3) At signalized intersections utilizing HCM 6th Edition methodology (Transportation Research Board 2016), U-turn movements were added to left-turn movements to allow for analysis.
- (4) Cells highlighted in ***gray bold and italicized*** identify intersections that operate below the LOS standard for the roadway/highway.

Table 3.2-7 Midway Landfill Alternative 2042 PM Peak Hour Traffic Operations

ID	Intersection	Control Type	Agency Standard	No-Build Alternative LOS 1, 2, 3, 4	No-Build Alternative Delay (seconds) 1, 2, 3, 4	Midway Landfill Alternative LOS 1, 2, 3, 4	Midway Landfill Alternative Delay (seconds) 1, 2, 3, 4
1	SR 99/S 240th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	37	D	40
2	SR 99/S 244th Street	TWSC	WSDOT Highways of Statewide Significance (LOS D)	<i>F</i>	<i>122</i>	<i>F</i>	<i>129</i>
3	SR 99/Midway Mobile Home Park Driveway	TWSC	WSDOT Highways of Statewide Significance (LOS D)	C	15	C	15
4	SR 99/S 246th Street	TWSC	WSDOT Highways of Statewide Significance (LOS D)	A	0	C	15
5	SR 99/S 248th Street	TWSC	WSDOT Highways of Statewide Significance (LOS D)	<i>F</i>	<i>97</i>	<i>F</i>	<i>103</i>
6	SR 99/S 252nd Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	36	D	37
7	SR 99/S 260th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	41	D	41
8	29th Avenue S/ S 252nd Street	TWSC	City of Kent (LOS E)	A	9	A	9
9	29th Avenue S/ S 259th Street	TWSC	City of Kent (LOS E)	E	38	E	39

Notes:

- (1) Synchro analyzes intersections in isolation and does not take into account downstream congestion. Actual intersection operations may have more delay based on intersection interactions and queuing propagating upstream and downstream between intersections.
- (2) Intersections were analyzed using the Synchro outputs for signalized intersections and Highway Capacity Manual 2010 outputs for unsignalized intersections (Transportation Research Board 2010).
- (3) At signalized intersections utilizing HCM 6th Edition methodology (Transportation Research Board 2016), U-turn movements were added to left-turn movements to allow for analysis.
- (4) Cells highlighted in ***gray bold and italicized*** identify intersections that operate below the LOS standard for the roadway/highway.

During the PM peak hour, the intersections at SR 99/S 244th Street and SR 99/S 248th Street are forecast to operate at LOS F, which is below the standard for SR 99. While both intersections are forecast to operate below standard under the No-Build Alternative, the Midway Landfill Alternative would increase delay by 7 and 6 seconds, respectively, beyond no-build conditions. No other intersections within the Midway Landfill Alternative study area are forecast to operate below the LOS standards.

Figure 3.2-5 shows the 2042 AM and PM peak hour operations at the Midway Landfill Alternative study intersections.

Transit

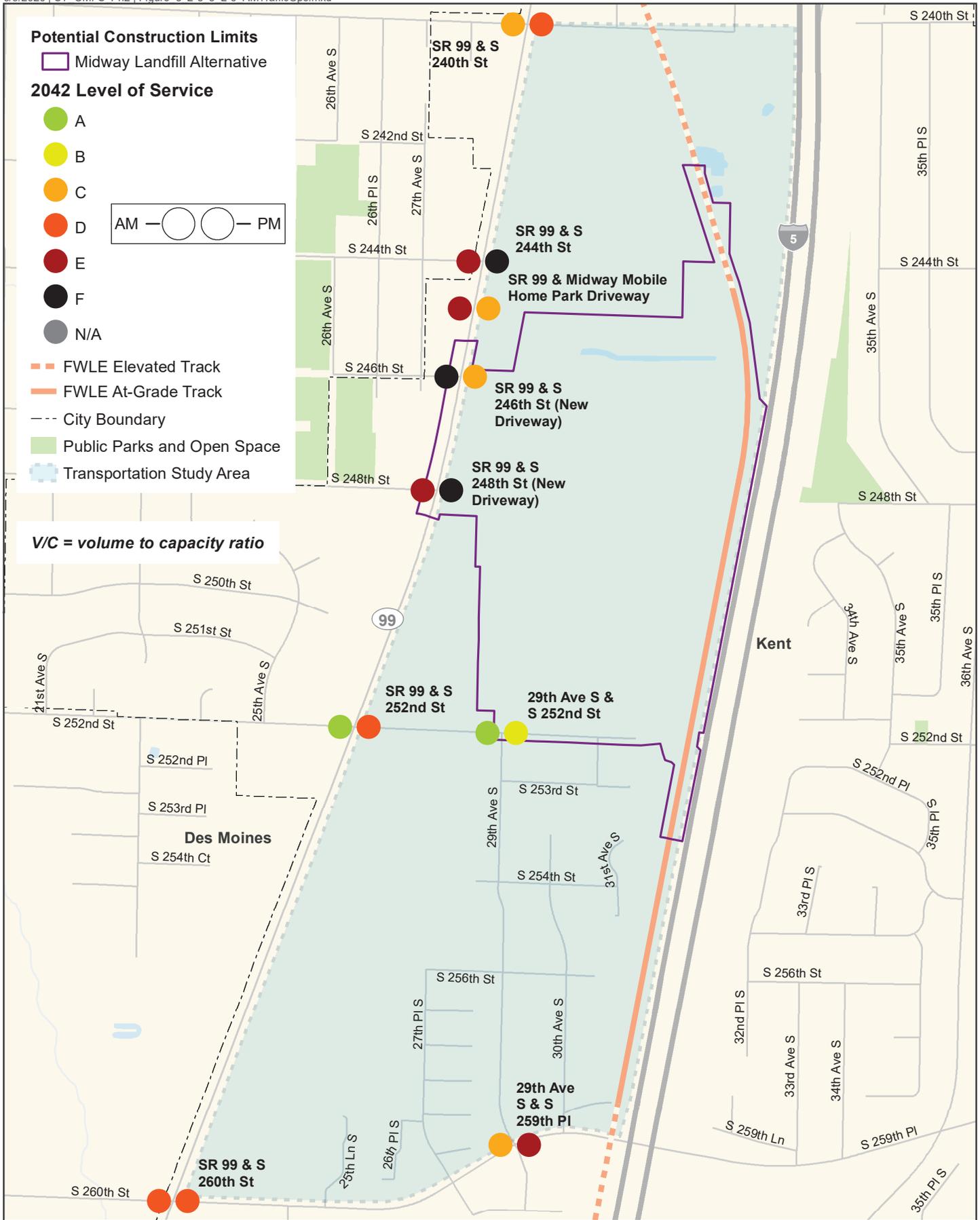
The existing pair of Metro RapidRide stops at SR 99/S 246th Street would need to be permanently relocated in order to accommodate development of the Midway Landfill Alternative.

Nonmotorized Network

Under the Midway Landfill Alternative, nonmotorized volumes would increase similarly to the No-Build Alternative. As shown in Figure 3.2-3, there are limited existing nonmotorized facilities in the study area, none of which would be eliminated by the project. Pedestrian and bicycle facilities would generally be developed in a manner comparable to the No-Build Alternative. However, facilities that were planned to cross through the site area, as described in the No-Build Alternative, would not be developed. These include the unfunded north-south improvements that would connect S 244th Street to S 252nd Street through the Midway Landfill Alternative study area.

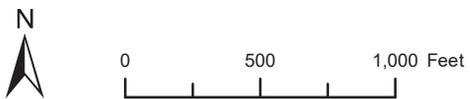
Parking

There would be no loss of formal on-street parking areas as a result of the Midway Landfill Alternative. Depending on the extent of roadway improvements, there could be a loss of intermittent gravel shoulder areas on the north side of S 252nd Street, which may currently be used for parking by residents on the south side of the street. However, this would result in a minimal impact as the residences have private driveways, and there are informal parking areas that would remain on the south side of the street.



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

FIGURE 3.2-5
2042 Build Alternative AM and PM Peak Hour Traffic Operations
Midway Landfill Alternative



South 336th Street Alternative

Arterial and Street Operations

The South 336th Street Alternative would have two access points. The first would be a visitor/employee entrance with a guard house at SR 99 south of S 336th Street, at the existing location of the driveway to the Christian Faith Center. All employees would access the site at this location. Access would remain as left- and right-in and right-out at SR 99. A second access would be provided at the intersection of S 341st Place and 21st Avenue S; however, the entrance would not be used for daily employee access to the site. There would be no turn restrictions at this location. Access to SR 99 would be available via 16th Avenue S or S 344th Street.

The South 336th Street Alternative would close 20th Avenue S from S 336th Street to S 341st Place would be closed. The city of Federal Way identified this as a concern because it would eliminate an alternative route to SR 99 to access properties north and south of the proposed site. Please see Section 3.14, Public Services, for discussion about how this may affect emergency service provision. However, development of the South 336th Street Alternative would not preclude extension of 20th Avenue S from S 341st Place to S 344th Street as described for the No-Build Alternative, nor would it interfere with the potential to add a southbound auxiliary lane on 16th Avenue S from S 344th Street to S 348th Street.

Tables 3.2-8 and 3.2-9 show AM and PM peak hour LOS predictions for the South 336th Street Alternative intersections compared to the No-Build Alternative. Under the South 336th Street Alternative, no intersections are forecast to operate below the LOS standard for the roadway or SR 99 during the AM or PM peak hours. Figure 3.2-6 shows the 2042 AM and PM peak hour operations at intersections within the study area.

Table 3.2-8 South 336th Street Alternative 2042 AM Peak Hour Traffic Operations

ID	Intersection	Control Type	Agency Standard	No-Build Alternative LOS 1, 2, 3	No-Build Alternative Delay (seconds) 1, 2, 3	No-Build Alternative V/C Ratio 1, 2, 3	South 336th Street Alternative LOS 1, 2, 3	South 336th Street Alternative Delay (seconds) 1, 2, 3	South 336th Street Alternative V/C Ratio 1, 2, 3
1	S 336th Street/ 20th Avenue S	Signal	City of Federal Way (v/c 1.2)	N/A	N/A	0.52	N/A	N/A	0.52
2	SR 99/ S 336th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	44	N/A	D	44	N/A
3	SR 99/ S 340th Street	TWSC	WSDOT Highways of Statewide Significance (LOS D)	C	20	N/A	C	20	N/A
4	SR 99/ 16th Avenue S	Signal	WSDOT Highways of Statewide Significance (LOS D)	C	29	N/A	C	28	N/A
5	16th Avenue S/ S 341st Place	TWSC	City of Federal Way (v/c 1.2)	N/A	N/A	0.15	N/A	N/A	0.15
6	18th Avenue S/ S 341st Place	Uncontrolled	City of Federal Way (v/c 1.2)	N/A	N/A	0.04	N/A	N/A	0.04
7	SR 99/ S 344th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	B	18	N/A	B	18	N/A
8	S 344th Street/ 16th Avenue S	Signal	City of Federal Way (v/c 1.2)	N/A	N/A	0.39	N/A	N/A	0.40
9	S 344th Street/ 18th Place S	Uncontrolled	City of Federal Way (v/c 1.2)	N/A	N/A	0.07	N/A	N/A	0.07
10	SR 99/ Driveway	TWSC	WSDOT Highways of Statewide Significance (LOS D)	-	-	-	C	22	N/A

Notes:

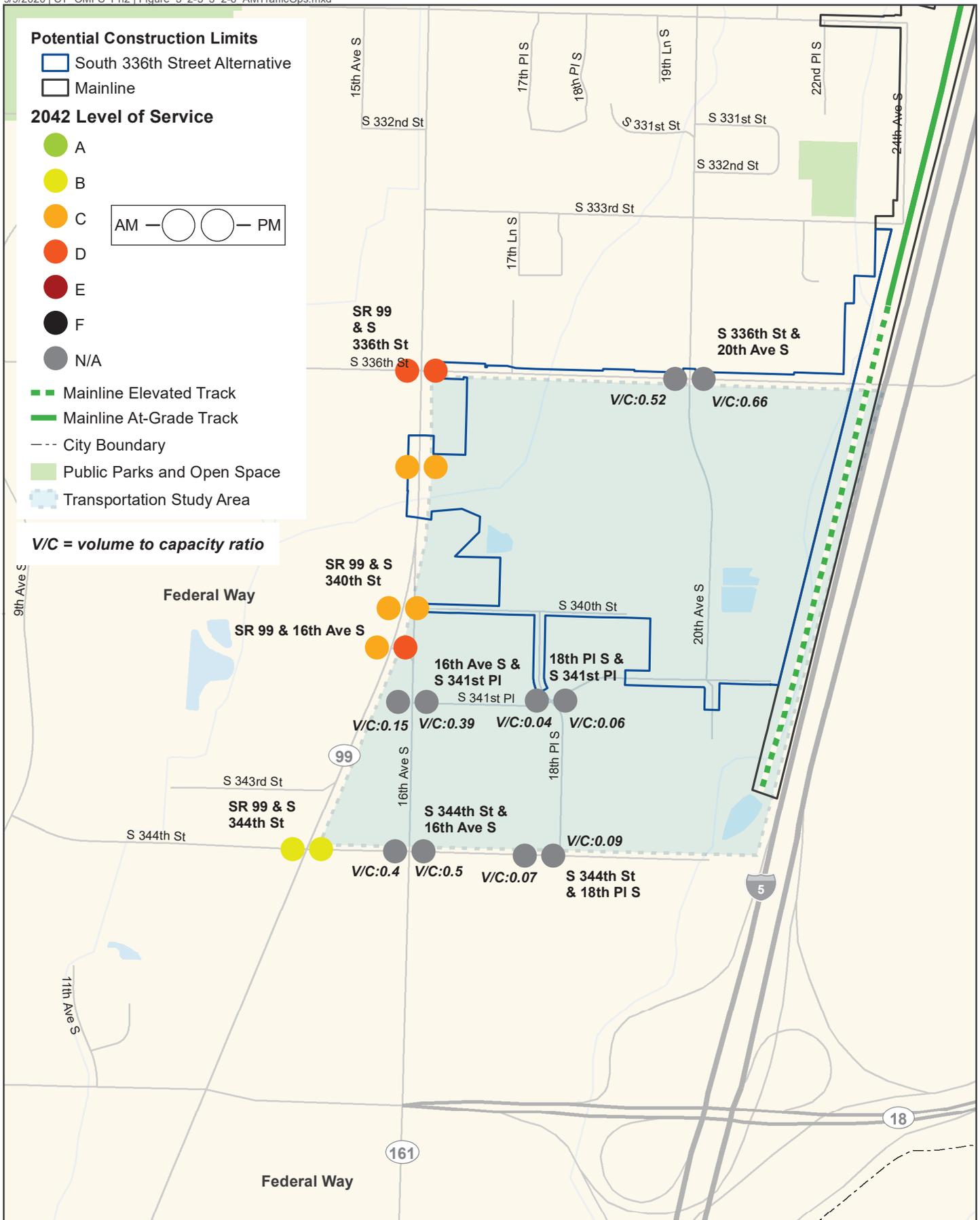
- (1) Synchro analyzes intersections in isolation and does not take into account downstream congestion. Actual intersection operations may have more delay based on intersection interactions and queuing propagating upstream and downstream between intersections.
- (2) Intersections were analyzed using the Synchro outputs for signalized intersections and Highway Capacity Manual 2010 outputs for unsignalized intersections (Transportation Research Board 2010)
- (3) At signalized intersections utilizing HCM 6th Edition methodology (Transportation Research Board 2016), U-turn movements were added to left-turn movements to allow for analysis.

Table 3.2-9 South 336th Street Alternative 2042 PM Peak Hour Traffic Operations

ID	Intersection	Control Type	Agency Standard	No-Build Alternative LOS 1, 2, 3	No-Build Alternative Delay (seconds) 1, 2, 3	No-Build Alternative V/C Ratio 1, 2, 3	South 336th Street Alternative LOS 1, 2, 3	South 336th Street Alternative Delay (seconds) 1, 2, 3	South 336th Street Alternative V/C Ratio 1, 2, 3
1	S 336th Street/ 20th Avenue S	Signal	City of Federal Way (v/c 1.2)	N/A	N/A	0.66	N/A	N/A	0.66
2	SR 99/ S 336th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	53	N/A	D	53	N/A
3	SR 99/ S 340th Street	TWSC	WSDOT Highways of Statewide Significance (LOS D)	C	16	N/A	C	16	N/A
4	SR 99/ 16th Avenue S	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	36	N/A	D	36	N/A
5	16th Avenue S/ S 341st Place	TWSC	City of Federal Way (v/c 1.2)	N/A	N/A	0.39	N/A	N/A	0.39
6	18th Avenue S/ S 341st Place	Uncontrolled	City of Federal Way (v/c 1.2)	N/A	N/A	0.05	N/A	N/A	0.05
7	SR 99/ S 344th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	B	15	N/A	B	15	N/A
8	S 344th Street/ 16th Avenue S	Signal	City of Federal Way (v/c 1.2)	N/A	N/A	0.50	N/A	N/A	0.50
9	S 344th Street/ 18th Place S	Uncontrolled	City of Federal Way (v/c 1.2)	N/A	N/A	0.05	N/A	N/A	0.06
10	SR 99/ Driveway	TWSC	WSDOT Highways of Statewide Significance (LOS D)	–	–	–	C	18	N/A

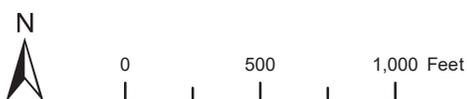
Notes:

- (1) Synchro analyzes intersections in isolation and does not take into account downstream congestion. Actual intersection operations may have more delay based on intersection interactions and queuing propagating upstream and downstream between intersections.
- (2) Intersections were analyzed using the Synchro outputs for signalized intersections and Highway Capacity Manual 2010 outputs for unsignalized intersections (Transportation Research Board 2010).
- (3) At signalized intersections utilizing HCM 6th Edition methodology (Transportation Research Board 2016), U-turn movements were added to left-turn movements to allow for analysis.



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

FIGURE 3.2-6
 2042 Build Alternative AM and PM Peak Hour Traffic Operations
 South 336th Street Alternative



Nonmotorized Network

Under the South 336th Street Alternative, nonmotorized volumes would increase as described for the No-Build Alternative. As shown in Figure 3.2-4, there are limited existing nonmotorized facilities in the study area, none of which would be eliminated by the project. Pedestrian and bicycle facilities would generally be developed in a manner comparable to the No-Build Alternative outside the project footprint. However, this alternative would eliminate the north-south connection currently provided via 20th Avenue S, and the planned, but unfunded, shared-lane markings on 20th Avenue S from S 336th Street to S 341st Place could not be developed.

Parking

The South 336th Street Alternative may displace on-street parking adjacent to developments along 21st Avenue S. These developments currently use this parking, but since these properties would be acquired as part of the project, no adverse impacts are expected.

South 344th Street Alternative

Arterial and Street Operations

The South 344th Street Alternative would have two access points. The first would be a visitor/employee access with a guard house at the intersection of S 344th Street/18th Place S, allowing for access to SR 99 via 16th Avenue S or S 344th Street. All employees would access the site at this location. A second access would be provided at 20th Avenue S, south of S 336th Street, with direct access to the signalized intersection at S 336th Street; however, it would not be for daily employee access to the site. At the intersection at 18th Avenue S/S 341st Place, the south and east legs would be removed, as they would be occupied by the OMF site.

This alternative would close 20th Avenue S just south of S 336th Street and preclude the planned extension of 20th Avenue S from S 341st Place to S 344th Street described under the No-Build Alternative. Drivers and nonmotorized travelers wishing to access the remaining streets in the southern part of the study area would be required to do so via 16th Avenue S or SR 99. The project would not interfere with the potential to add a southbound auxiliary lane on 16th Avenue S from S 344th Street to S 348th Street, as described for the No-Build Alternative.

Tables 3.2-10 and 3.2-11 show AM and PM peak hour LOS predictions for the South 344th Street Alternative intersections compared to the No-Build Alternative. Under the South 344th Street Alternative, no intersections are forecast to operate below the LOS standard for the roadway or highway during the AM or PM peak hours. Nearby uses, such as the Christian Faith Center, generate large traffic volumes outside of the weekday AM or PM peak hours. Given the planned arrival and departure times for staff at the facility, traffic generated by the facility is not anticipated to interfere with church events. Figure 3.2-7 shows the 2042 AM and PM peak hour operations at the intersections within the study area.

Table 3.2-10 South 344th Street Alternative 2042 AM Peak Hour Traffic Operations

ID	Intersection	Control Type	Agency Standard	No-Build Alternative LOS 1, 2, 3	No-Build Alternative Delay (seconds) 1, 2, 3	No-Build Alternative V/C Ratio 1, 2, 3	South 344th Street Alternative LOS 1, 2, 3	South 344th Street Alternative Delay (seconds) 1, 2, 3	South 344th Street Alternative V/C Ratio 1, 2, 3
1	S 336th Street/ 20th Avenue S	Signal	City of Federal Way (v/c 1.2)	N/A	N/A	0.52	N/A	N/A	0.52
2	SR 99/ S 336th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	44	N/A	D	44	N/A
3	SR 99/ S 340th Street	TWSC	WSDOT Highways of Statewide Significance (LOS D)	C	20	N/A	C	20	N/A
4	SR 99/ 16th Avenue S	Signal	WSDOT Highways of Statewide Significance (LOS D)	C	29	N/A	C	28	N/A
5	16th Avenue S/ S 341st Place	TWSC	City of Federal Way (v/c 1.2)	N/A	N/A	0.15	N/A	N/A	0.15
6	18th Avenue S/ S 341st Place	Uncontrolled	City of Federal Way (v/c 1.2)	N/A	N/A	0.04	N/A	N/A	0.00
7	SR 99/ S 344th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	B	18	N/A	B	18	N/A
8	S 344th Street/ 16th Avenue S	Signal	City of Federal Way (v/c 1.2)	N/A	N/A	0.39	N/A	N/A	0.40
9	S 344th Street/ 18th Place S	Uncontrolled	City of Federal Way (v/c 1.2)	N/A	N/A	0.07	N/A	N/A	0.00

Notes:

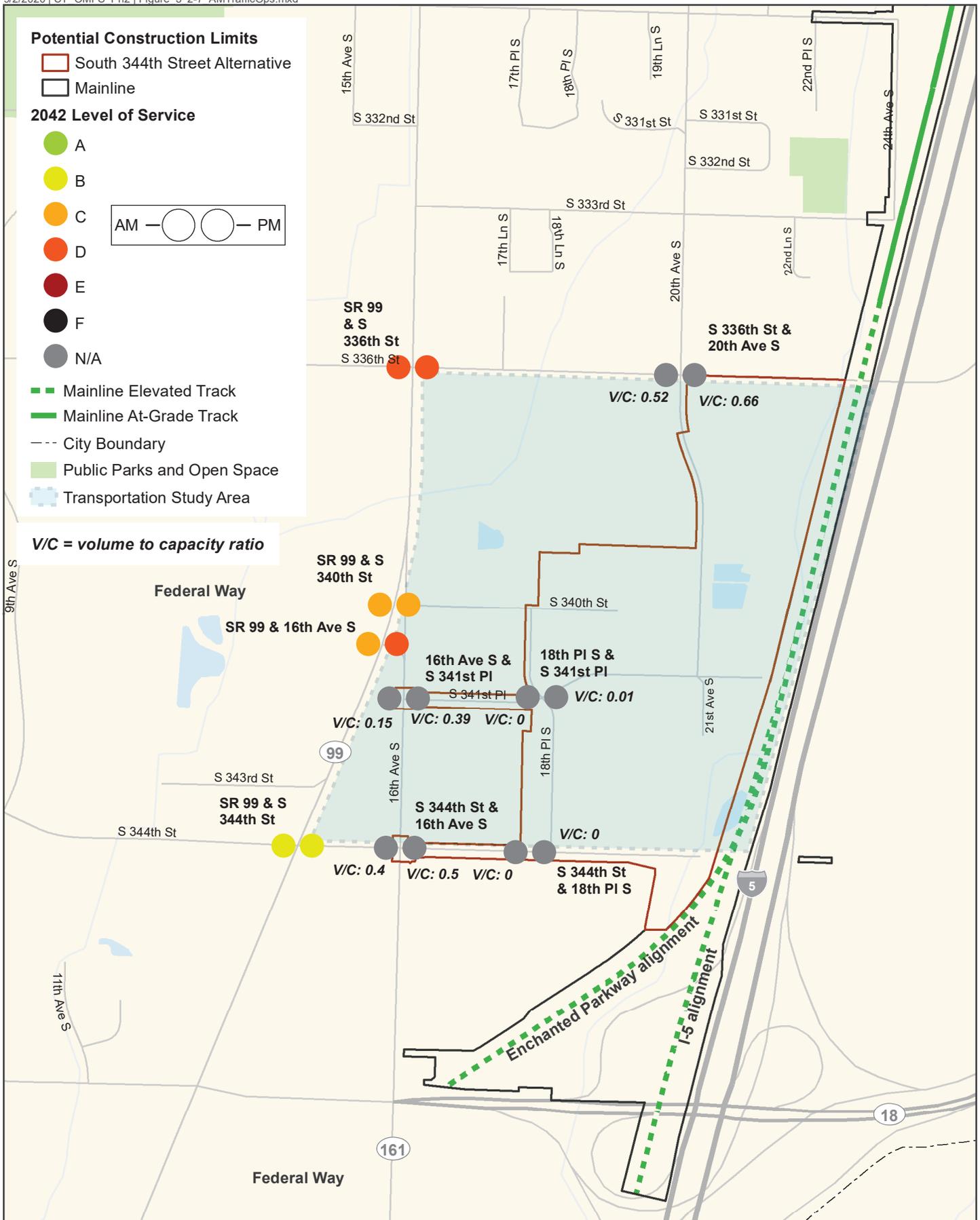
- (1) Synchro analyzes intersections in isolation and does not take into account downstream congestion. Actual intersection operations may have more delay based on intersection interactions and queuing propagating upstream and downstream between intersections.
- (2) Intersections were analyzed using the Synchro outputs for signalized intersections and Highway Capacity Manual 2010 outputs for unsignalized intersections (Transportation Research Board 2010).
- (3) At signalized intersections utilizing HCM 6th Edition methodology (Transportation Research Board 2016), U-turn movements were added to left-turn movements to allow for analysis.

Table 3.2-11 South 344th Street Alternative 2042 PM Peak Hour Traffic Operations

ID	Intersection	Control Type	Agency Standard	No-Build Alternative LOS 1, 2, 3	No-Build Alternative Delay (seconds) 1, 2, 3	No-Build Alternative V/C Ratio 1, 2, 3	South 344th Street Alternative LOS 1, 2, 3	South 344th Street Alternative Delay (seconds) 1, 2, 3	South 344th Street Alternative V/C Ratio 1, 2, 3
1	S 336th Street/ 20th Avenue S	Signal	City of Federal Way (v/c 1.2)	N/A	N/A	0.66	N/A	N/A	0.66
2	SR 99/ S 336th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	53	N/A	D	53	N/A
3	SR 99/ S 340th Street	TWSC	WSDOT Highways of Statewide Significance (LOS D)	C	16	N/A	C	16	N/A
4	SR 99/ 16th Avenue S	Signal	WSDOT Highways of Statewide Significance (LOS D)	D	36	N/A	D	36	N/A
5	16th Avenue S/ S 341st Place	TWSC	City of Federal Way (v/c 1.2)	N/A	N/A	0.39	N/A	N/A	0.39
6	18th Avenue S/ S 341st Place	Uncontrolled	City of Federal Way (v/c 1.2)	N/A	N/A	0.05	N/A	N/A	0.01
7	SR 99/ S 344th Street	Signal	WSDOT Highways of Statewide Significance (LOS D)	B	15	N/A	B	15	N/A
8	S 344th Street/ 16th Avenue S	Signal	City of Federal Way (v/c 1.2)	N/A	N/A	0.50	N/A	N/A	0.50
9	S 344th Street/ 18th Place S	Uncontrolled	City of Federal Way (v/c 1.2)	N/A	N/A	0.05	N/A	N/A	0.00

Notes:

- (1) Synchro analyzes intersections in isolation and does not take into account downstream congestion. Actual intersection operations may have more delay based on intersection interactions and queuing propagating upstream and downstream between intersections.
- (2) Intersections were analyzed using the Synchro outputs for signalized intersections and Highway Capacity Manual 2010 outputs for unsignalized intersections (Transportation Research Board 2010).
- (3) At signalized intersections utilizing HCM 6th Edition methodology (Transportation Research Board 2016), U-turn movements were added to left-turn movements to allow for analysis.



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

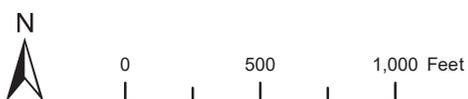


FIGURE 3.2-7
 2042 Build Alternative AM and PM Peak Hour Traffic Operations
 South 344th Street Alternative

Nonmotorized Network

Under the South 344th Street Alternative, nonmotorized volumes would increase similarly to the No-Build Alternative. As shown in Figure 3.2-4, there are limited existing nonmotorized facilities in the study area, none of which would be eliminated by the project. Pedestrian and bicycle facilities would generally be developed in a manner comparable to the No-Build Alternative outside the project footprint. However, this alternative would eliminate the north-south connection currently provided via 20th Avenue S and the following planned but unfunded shared lane markings:

- 20th Avenue S south of S 336th Street
- S 341st Place from 18th Place S to 20th Place S
- 18th Place S from S 341st Place to S 344th Street
- S 344th Street from 18th Place S to the west out of the study area

The South 344th Street Alternative would also close portions of 18th Place S and S 341st Place, effectively eliminating much of the existing street grid network in the southern part of the study area. Pedestrians and cyclists would continue to be able to travel on the existing sidewalks on SR 99 between S 336th Street and S 344th Street.

Parking

The South 344th Street Alternative would displace on-street parking adjacent to developments along 21st Avenue S, S 341st Place east of 18th Place S, and S 344th Street east of 18th Place S. These developments may currently use this on-street parking but, since these properties would be acquired as part of the project, no adverse impacts are expected.

3.2.2.3 Construction Impacts

Impacts Common to All Build Alternatives

Each build alternative would require some preparatory demolition and earthwork that would generate truck trips in addition to material delivery and general construction vehicle activity throughout the duration of construction. Because most construction-period traffic would occur during import and export of material to and from the site during site preparation, the estimated volumes of truck traffic presented in the following sections for each alternative focus on that period of peak construction traffic in order to present the worst-case scenario.

Impacts associated with construction truck activities were calculated by assigning a passenger car equivalent (PCE) to each truck trip. For the purposes of this analysis, it was assumed that all export and import material would be transported to and from the site in dump trucks with trailers, with a capacity of 20 cubic yards. Given their size and slower operating speeds, trucks were assigned a PCE value of 2.5, meaning one construction truck is equivalent to two-and-a-half passenger cars. Table 3.2-12 summarizes the peak daily and hourly truck trips and PCE values anticipated for the three build alternatives during site preparation, including the three Midway Landfill Alternative subsurface construction design options. More detail is discussed for each build alternative below.

Table 3.2-12 Estimated Truck Activity and Passenger Car Equivalency Values Associated with Site Preparation for the Build Alternatives

Alternative	Peak Daily Truck Trips	Peak Daily PCE ¹ Value	Peak Hourly Truck Trips	Peak Hourly PCE ¹ Value
Midway Landfill Alternative				
Platform	71	178	7	18
Hybrid	564	1,410	48	120
Full Excavation	554	1,385	48	120
South 336th Street Alternative				
Mainline ²	120	300	10	25
OMF Site	73	183	7	18
Total	193	483	17	43
South 344th Street Alternative				
Mainline ²	120	300	10	25
OMF Site	77	193	7	18
Total	197	493	17	43

Notes:

- (1) Passenger Car Equivalency. Given their size and slower operating speeds, trucks were assigned a PCE value of 2.5, meaning one construction truck is equivalent to two-and-a-half passenger cars.
- (2) The mainline is the principal track that connects stations and OMFs. The mainline in Federal Way is planned to be constructed as a part of TDLE and therefore would be built regardless of which OMF South alternative is selected.

Midway Landfill Alternative

There are three subsurface construction design options for site preparation of the Midway Landfill Alternative: Platform, Hybrid, and Full Excavation. These are described in detail in Chapter 2, Alternatives Considered, and would have different transportation impacts. In addition to earthwork, the Platform and Hybrid subsurface construction design options would include drilled shaft and concrete slab elements. Shaft and slab installations are assumed to occur concurrently and in coordination with the earthwork process. Depending on which subsurface construction design option is chosen, site preparation at the Midway Landfill Alternative could take up to approximately 5 years and 7 months, assuming 12-hour workdays, 6 days per week.

It is estimated there could be up to 564 combined round-trip truck trips per day for export and import activities during construction, with as many as 280 truck trips per day associated with just the excavation needed for the Hybrid and Full Excavation subsurface construction design options. The Platform subsurface construction design option would require less excavation with up to 20 truck trips per day.

Excavated material exported from the Midway Landfill would require disposal at a Subtitle D landfill due to the anticipated extent of contaminated material. Within the Pacific Northwest, there are three possible landfill facilities in Washington and Oregon with between approximately 120 and 329 million tons of remaining capacity. Excavated material would be first be hauled by truck to one of a number of regional transfer facilities in the region before travelling to one of the landfills by rail.

Soil and concrete import activity would vary among the subsurface construction design options as well, with as few as 51 import truck trips per day for the Platform subsurface construction design option and up to 284 per day for the Hybrid subsurface construction design option. The

estimates of truck traffic are conservative because at this time it is unknown how much excavated material could be reused as fill material elsewhere on the site.

The traffic analysis assumes all excavated material would be transported off site and all fill material would be imported to the site. Table 3.2-13 summarizes forecast truck activity associated with export and import for each of the Midway Landfill Alternative construction design options.

Table 3.2-13 Estimated Truck Activity Associated with Site Preparation for Midway Landfill Alternative Subsurface Construction Design Options

Subsurface Construction Design Option	Export Material (tons)	Total Export Truck Trips per Day	Soil Import (cubic yards)	Concrete Import	Total Import Truck Trips per Day	Total Truck Trips per Day	Site Preparation Duration (years, months)
Platform	678,000	20	0	531,000	51	71	4 y, 1 m
Hybrid	2,592,000	280	1,240,000	165,000	284	564	5 y, 7 m
Full Excavation	2,956,500	280	1,610,000	0	274	554	4 y, 4 m

Each truck round trip includes an outbound and inbound segment, resulting in a total of between 178 PCE daily trips (71 truck trips x 2.5 PCE) in the study area associated with the Platform subsurface construction design option and 1,410 PCE daily trips (564 truck trips x 2.5 PCE) for the Hybrid subsurface construction design option. Table 3.2-14 summarizes forecast hourly truck activity associated with export and import for the Midway Landfill Alternative.

Table 3.2-14 Estimated Hourly Truck Activity Associated with Midway Landfill Alternative Subsurface Construction Design Options

Subsurface Construction Design Option	Hourly Trucks Export	Hourly Trucks Import	Hourly Trucks Total	Hourly PCE
Platform	2	5	7	18
Hybrid	24	24	48	120
Full Excavation	24	24	48	120

Construction access to the site would be limited to a single driveway at SR 99 and S 246th Street. Outbound trucks exiting the site to transport excavated materials would travel north on SR 99 and access I-5 via SR 516 (Kent-Des Moines Road) to reach the intermodal terminal. Inbound trucks would travel south on I-5, exiting at S 272nd Street. They would travel westbound on S 272nd Street to SR 99, where they would turn north and travel to the site. Access to the site for outbound and inbound trucks would be via right turns into and out of the site. No left turns into or out of the site are assumed. Trucks importing material would follow the same routes.

Table 3.2-15 summarizes average annual daily trips (AADT) on streets that are part of the Midway Landfill Alternative haul routes as well as the estimated truck trips as a percentage of existing single direction AADT. The haul routes would be located predominantly on state facilities, including SR 99, SR 516, and I-5, as well as S 272nd Street. Trucks would travel in a single direction on roadways along the haul routes. Because the location of the intermodal

facility and the origin of the import material are unknown at this time, the volumes forecast on the I-5 on- and off-ramps represent the maximum forecast for a given direction and would not be present on all ramps. For example, if the intermodal facility and the origin of the import material are located to the north of the Midway Landfill Alternative, there would be no truck activity on the southbound I-5 on-ramp from SR 516 or the S 272nd Street off-ramp from northbound I-5.

Table 3.2-15 Estimated Daily Truck Activity for the Midway Landfill Alternative Compared with Existing AADT

Intersection /Roadway Segment	AADT (Both Directions) ¹	AADT (Single Direction) ¹	Daily Truck Trips as a Percentage of Single Direction AADT – Platform Option	Daily Truck Trips as a Percentage of Single Direction AADT – Hybrid Option	Daily Truck Trips as a Percentage of Single Direction AADT – Full Excavation Option
SR 99: South of SR 516	35,000	17,500	1.0%	8.1%	7.9%
SR 516: East of SR 99	35,000	17,500	1.0%	8.1%	7.9%
SR 516: East of 30th Avenue S	36,000	18,000	1.0%	7.8%	7.7%
I-5 On-Ramp: Eastbound SR 516 to I-5 Southbound	N/A	10,000	1.8%	14.1%	13.9%
I-5 On-Ramp: Eastbound SR 516 to I-5 Northbound	N/A	6,800	2.6%	20.7%	20.4%
I-5: S 240th Street	215,000	107,500	0.2%	1.3%	1.3%
I-5: S 224th Street	225,000	112,500	0.2%	1.3%	1.2%
I-5: S 252nd Street	215,000	107,500	0.2%	1.3%	1.3%
I-5: S 265th Street	215,000	107,500	0.2%	1.3%	1.3%
I-5 Off-Ramp: I-5 SB to S 272nd Street	N/A	12,000	1.5%	11.8%	11.5%
I-5 Off-Ramp: I-5 NB to S 272nd Street	N/A	6,200	2.9%	22.7%	22.3%
S 272nd Street: I-5 to SR 99	22,100	11,050	1.6%	12.8%	12.5%
SR 99: North of S 272nd Street	32,000	16,000	1.1%	8.8%	8.7%
SR 99: South of 252nd Street	29,000	14,500	1.2%	9.7%	9.6%

Sources: WSDOT Traffic GeoPortal, 2018. City of Kent Average Daily Traffic Volume, 2009

Note:

- (1) WSDOT and Kent report annual average daily trips (AADT) for roadways. Where roadways are bi-directional, the AADT reported reflects both directions. Single direction volumes were determined by dividing bi-directional volumes in two.

The estimated daily PCE truck trips associated with site preparation for the Platform subsurface construction design option would represent no more than 2.9 percent of the existing single direction AADT for all roadway segments. For the Hybrid and Full Excavation subsurface construction design options, estimated daily PCE truck trips on all segments of the haul route, except I-5 and the ramps, would range from 7.7 percent to 12.8 percent of existing single direction AADT. Daily PCE truck trips could range from 11.5 percent to 22.7 percent of single direction AADT on I-5 on- and off-ramps. However, daily PCE truck trips would range from 0.2 percent to 1.3 percent on I-5. Figure 3.2-8 displays the location of AADT counts.



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

FIGURE 3.2-8
Existing Annual Average Daily Traffic Along Truck Haul Routes
Midway Landfill Alternative



South 336th Street Alternative

Site preparation work for the OMF is expected to take approximately 1 year and 5 months, assuming 12-hour workdays, 6 days per week. The development scenario for the South 336th Street Alternative assumes reuse of 80 percent of on-site material, resulting in lower truck volumes than if all excavated material is exported and all fill material is imported. Export activity would result in approximately 53 truck trips per day, and import activity would result in approximately 20 truck trips per day. Trucks would traverse the haul routes during the entirety of the 12-hour daily construction period, to and from the site during AM and PM peak periods. With 73 truck trips during the daily construction period, the average number of truck trips per hour would be 6 to 7. This equates to 183 PCE daily trips (73 truck trips x 2.5 PCE) and 15 to 18 PCE per hour.

Construction access at the South 336th Street Alternative would be provided at three locations: S 336th Street at 20th Avenue S, SR 99 at the existing driveway to the Christian Faith Center, and S 341st Place at 20th Avenue S. Construction access for mainline track construction from the Federal Way Transit Center to the site would occur at S 324th Street, S 330th Street, and S 336th Street. Trucks would access northbound and southbound I-5 at the S 320th Street and S 348th Street interchanges via SR 99.

Table 3.2-16 summarizes AADT on streets that are part of the haul routes as well as the estimated truck trips as a percentage of AADT. The haul routes would be located on state facilities, including SR 99, SR 18 (S 348th Street), and I-5, as well as several collector and arterial streets. Because the construction staging, origin of the import material, and destination for export material are unknown at this time, the volumes forecast on each roadway segment represent the highest possible volumes for all daily construction activity. A single potential roadway identified as a haul route could be used for all daily truck trips or the total daily volumes could be distributed among multiple roadways. The estimated daily truck PCE trips associated with site preparation could represent up to 36.6 percent of existing single direction traffic on collector and arterial roadways and up to 3.1 percent of the existing single direction AADT for all state facilities, with the highest percentages at on- and off-ramps. Figure 3.2-9 displays the location of AADT counts.

Table 3.2-16 Estimated Hourly Truck Activity at the South 336th Street Alternative Compared with Existing AADT

Intersection /Roadway Segment	AADT (Both Directions) ¹	AADT (Single Direction) ¹	Daily Truck Trips as a Percentage of Single Direction AADT
S 320th Street: SR 99 to I-5	>35,000	>17,500	<1.0%
S 324th Street: SR 99 to 23rd Avenue S	5,000-15,000	2,500-7,500	2.4-7.3%
S 330th Street: SR 99 to 24th Avenue S	1,000-5,000	500-2,500	7.3-36.6%
S 336th Street: SR 99 to I-5	5,000-15,000	2,500-7,500	2.4-7.3%
S 344th Street: SR 99 to I-5	<1,000	<500	>36.6%
I-5 Off-Ramp: I-5 SB to SW 320th Street	N/A	15,000	1.2%
I-5 On-Ramp: EB SW 320th to NB I-5	N/A	9,900	1.8%
I-5 On-Ramp: EB SW 320th to SB I-5	N/A	9,400	1.9%
I-5 Off-Ramp: NB I-5 to SW 320th	N/A	9,100	2.0%

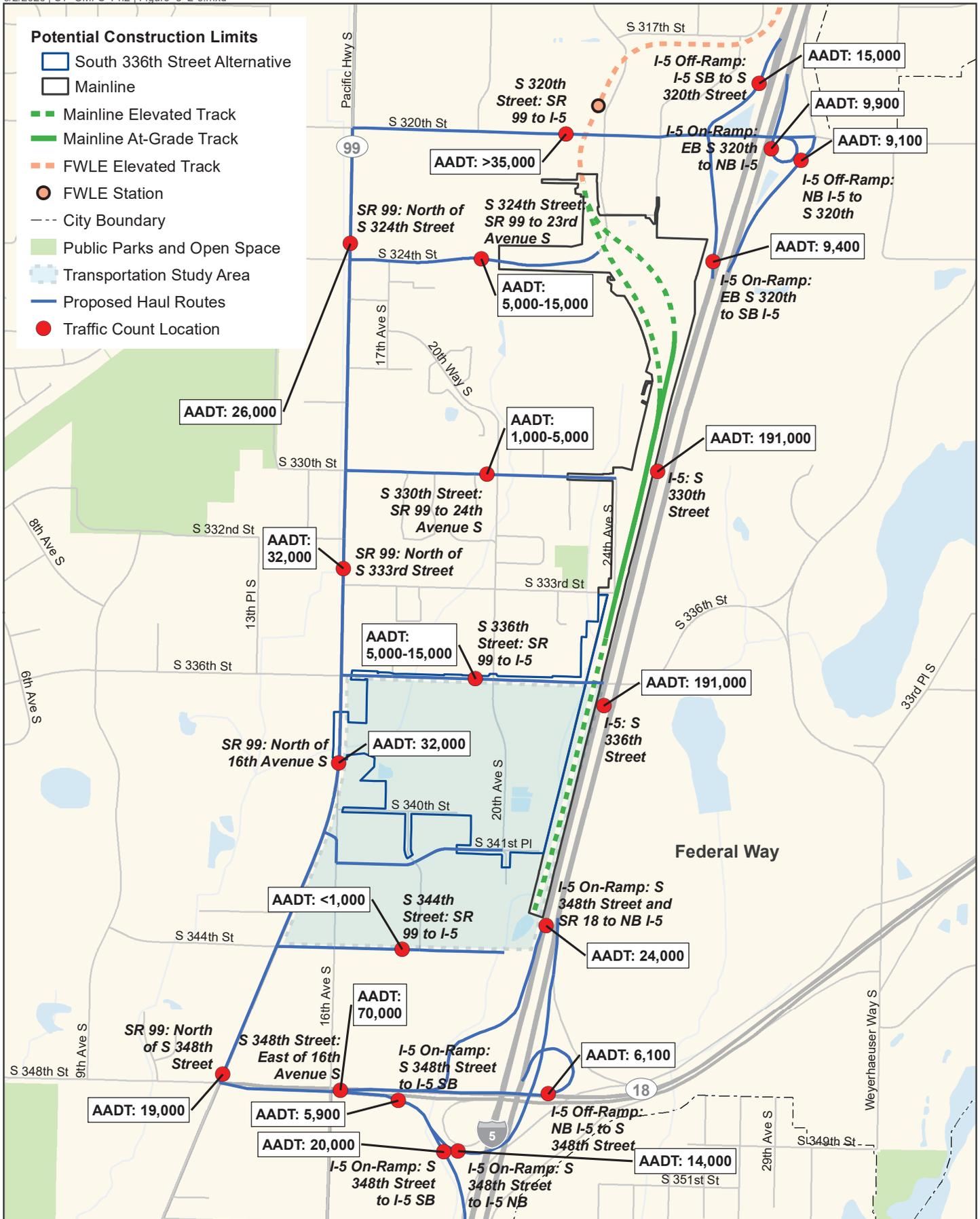
Table 3.2-16 Estimated Hourly Truck Activity at the South 336th Street Alternative Compared with Existing AADT (continued)

Intersection /Roadway Segment	AADT (Both Directions) ¹	AADT (Single Direction) ¹	Daily Truck Trips as a Percentage of Single Direction AADT
I-5: S 330th Street	191,000	95,500	0.2%
I-5: S 336th Street	191,000	95,500	0.2%
I-5 On-Ramp: S 348th Street and SR 18 to NB I-5	N/A	24,000	0.8%
I-5 Off-Ramp: NB I-5 to S 348th Street	N/A	6,100	3.0%
I-5 On-Ramp: S 348th Street to I-5 NB	N/A	14,000	1.3%
I-5 On-Ramp: S 348th Street to I-5 SB	N/A	5,900	3.1%
I-5 On-Ramp: S 348th Street to I-5 SB	N/A	20,000	0.9%
S 348th Street: East of 16th Avenue S	70,000	35,000	0.5%
SR 99: North of S 348th Street	19,000	9,500	1.9%
SR 99: North of 18th Avenue S	32,000	16,000	1.1%
SR 99: North of S 333rd Street	32,000	16,000	1.1%
SR 99: North of S 324th Street	26,000	13,000	1.4%

Sources: WSDOT Traffic GeoPortal, 2018. City of Federal Way 2010 Estimated Weekday Average Daily Traffic, 2011.

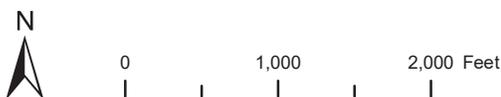
Note:

- (1) WSDOT and Federal Way report annual average daily trips (AADT) for roadways. Where roadways are bi-directional, the AADT reported reflects both directions. Single direction volumes were determined by dividing bi-directional volumes in two.



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

FIGURE 3.2-9
Existing Annual Average Daily Traffic Along Truck Haul Routes
South 336th Street Alternative



Mainline construction, including the mainline tail tracks, is expected to take 15 months. Construction of the mainline would require temporary full and/or partial closures to streets that travel beneath the mainline. Peak truck trips during mainline construction are estimated to be up to 10 trucks per hour for concrete delivery, or up to 120 trips per day (300 PCE), assuming 12 hours per day of active construction, some of which may occur at night. A similar level of truck activity is expected for earthwork activities, but this would be focused on trucks hauling material during excavation and would not overlap with concrete delivery trucks. Haul routes for mainline construction are anticipated to be the same as described above for OMF site construction.

Should mainline and site construction occur concurrently, truck trips on roadways would be expected to increase proportionately as compared with site construction only. Streets with the lowest existing AADT, such as S 336th Street and S 344th Street, would experience the highest relative growth in traffic compared to existing volumes. If driveway closures are required, access to these properties would be maintained to the extent practical. If access to a business could not be maintained during construction, the specific construction activity would be reviewed to determine whether it could occur during non-business hours.

South 344th Street Alternative

Site preparation work is expected to take approximately 1 year and 6 months, assuming 12-hour workdays, 6 days per week. The development scenario for the South 344th Street Alternative assumes reuse of 80 percent of on-site material, resulting in lower truck volumes than if all excavated material is exported and all fill material is imported. Export activity would result in approximately 67 truck trips per day and import activity would result in approximately 10 truck trips per day. Trucks would traverse the haul routes during the entirety of the 12-hour daily construction period, to and from the site during AM and PM peak periods. With 77 truck trips during the daily construction period, the average number of truck trips per hour would be seven. This equates to 193 PCE daily trips (77 truck trips x 2.5 PCE) and 18 PCE per hour.

Construction access at the South 344th Street Alternative would be provided at two locations: S 336th Street at 20th Avenue S and via direct access from S 344th Street. Construction access for mainline track construction from the Federal Way Transit Center to S 344th Street would occur at S 324th Street, S 330th Street, and S 336th Street. Trucks would access northbound and southbound I-5 at the S 320th Street and S 348th Street interchanges via SR 99.

Table 3.2-17 summarizes AADT on streets that are part of the haul routes as well as the estimated truck trips as a percentage of AADT. The haul routes would be located on state facilities, including SR 99, SR 18 (S 348th Street), and I-5, as well as several collector and arterial streets. Because the construction staging, origin of the import material, and destination for export material are unknown at this time, the volumes forecast on each roadway segment represent the highest possible volumes for all daily construction activity. A single potential roadway identified as a haul route could be used for all daily truck trips, or the total daily volumes could be distributed among multiple roadways. The estimated daily truck PCE trips associated with site preparation could represent up to 38.6 percent of existing traffic on collector and arterial roadways. Daily truck PCE trips could represent as much as 3.2 percent of the existing single-day AADT for all state facilities, with the highest percentages at on- and off-ramps. Figure 3.2-10 displays the location of AADT counts.

Impacts from construction of the mainline would be the same as described above for the South 336th Street Alternative.

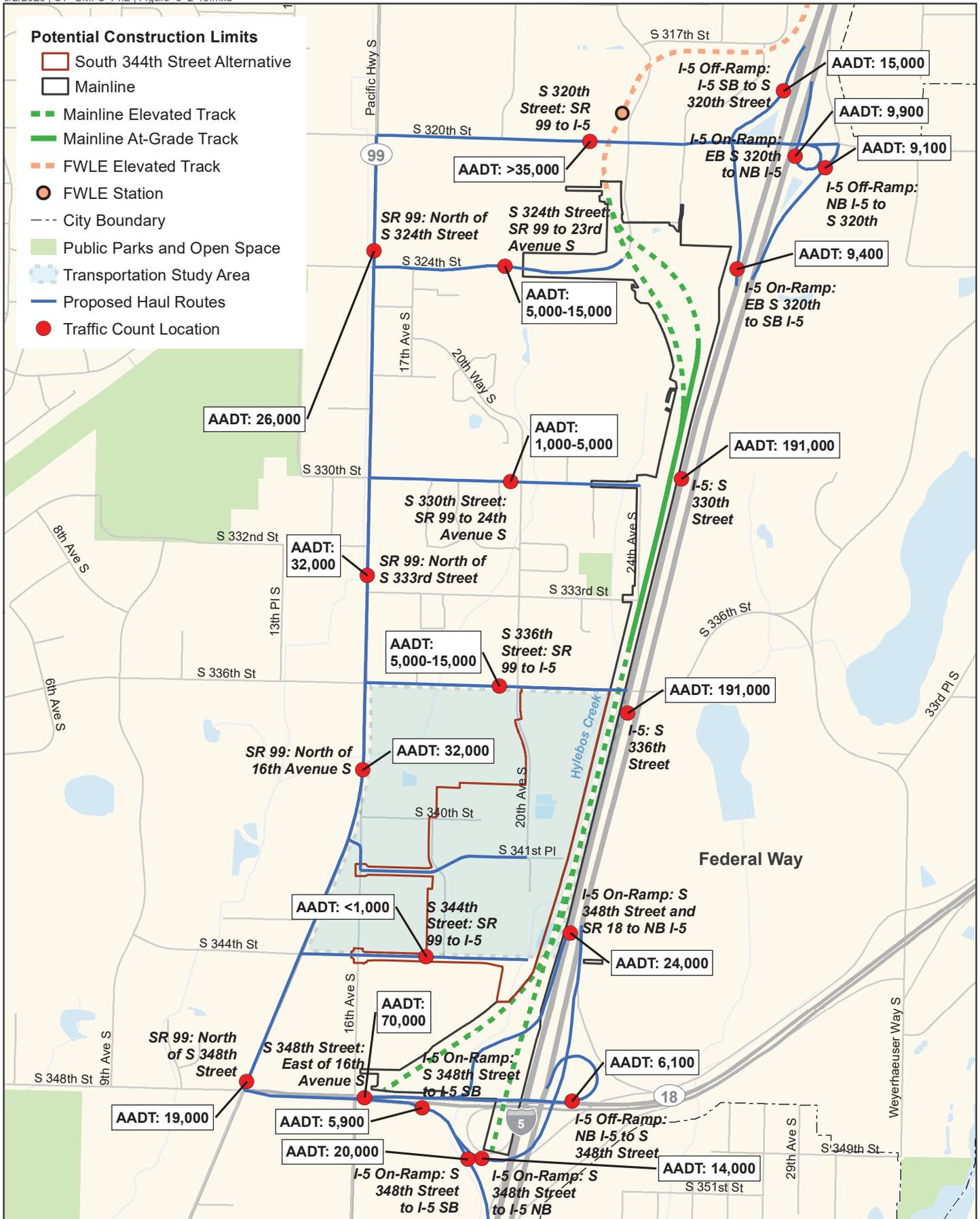
Table 3.2-17 Estimated Hourly Truck Activity at the South 344th Street Alternative Compared with Existing AADT

Intersection /Roadway Segment	AADT (Both Directions)	AADT (Single Direction)	Daily Truck Trips as a Percentage of Single Direction AADT
S 320th Street: SR 99 to I-5	>35,000	>17,500	<1.1%
S 324th Street: SR 99 to 23rd Avenue S	5,000-15,000	2,500-7,500	2.3-7.7%
S 330th Street: SR 99 to 24th Avenue S	1,000-5,000	500-2,500	7.7-38.6%
S 336th Street: SR 99 to I-5	5,000-15,000	2,500-7,500	2.3-7.7%
S 344th Street: SR 99 to I-5	<1,000	<500	>38.6%
I-5 Off-Ramp: I-5 SB to SW 320th Street	N/A	15,000	1.3%
I-5 On-Ramp: EB SW 320th to NB I-5	N/A	9,900	1.9%
I-5 On-Ramp: EB SW 320th to SB I-5	N/A	9,400	2.1%
I-5 Off-Ramp: NB I-5 to SW 320th	N/A	9,100	2.1%
I-5: S 330th Street	191,000	95,500	0.2%
I-5: S 336th Street	191,000	95,500	0.2%
I-5 On-Ramp: S 348th Street and SR 18 to NB I-5	N/A	24,000	0.8%
I-5 Off-Ramp: NB I-5 to S 348th Street	N/A	6,100	3.2%
I-5 On-Ramp: S 348th Street to I-5 NB	N/A	14,000	1.4%
I-5 On-Ramp: S 348th Street to I-5 SB	N/A	5,900	3.3%
I-5 On-Ramp: S 348th Street to I-5 SB	N/A	20,000	1.0%
S 348th Street: East of 16th Avenue S	70,000	35,000	0.6%
SR 99: North of S 348th Street	19,000	9,500	2.0%
SR 99: North of 18th Avenue S	32,000	16,000	1.2%
SR 99: North of S 333rd Street	32,000	16,000	1.2%
SR 99: North of S 324th Street	26,000	13,000	1.5%

Sources: WSDOT Traffic GeoPortal, 2018. City of Federal Way 2010 Estimated Weekday Average Daily Traffic, 2010.

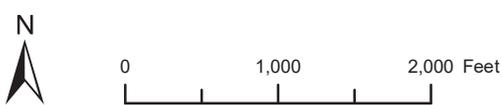
Note:

- (1) WSDOT and Federal Way report annual average daily trips (AADT) for roadways. Where roadways are bi-directional, the AADT reported reflects both directions. Single direction volumes were determined by dividing bi-directional volumes in two.



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

FIGURE 3.2-10
Existing Annual Average Daily Traffic Along Truck Haul Routes
South 344th Street Alternative



3.2.2.4 Avoidance and Minimization of Impacts

For all build alternatives, a construction transportation management plan addressing site access, traffic control, hauling routes, construction employee parking, impacts to local businesses, and pedestrian and bicycle control in the area would be prepared per city of Kent or city of Federal Way requirements, and in coordination with WSDOT and FHWA, as applicable. If driveway closures are required, access to these properties would be maintained to the extent practical. If access to a business could not be maintained during construction, the specific construction activity would be reviewed to determine whether it could occur during non-business hours or whether the parking and users of this access could be accommodated at an alternative location.

Other avoidance and minimization measures could include:

- Install advance warning signs and highly visible construction barriers and use flaggers where needed.
- Clearly sign and provide reasonable detour routes when cross streets are closed.
- Use lighted or reflective signage to direct drivers to truck-haul routes to ensure visibility during nighttime work hours. Use special lighting for work zones and travel lanes, where required.
- Use tools such as print, radio, posted signs, websites, and email to communicate information regarding street closures, hours of construction, business access, and parking impacts.
- Post advance notice signs prior to construction in areas where construction activities would affect access to surrounding businesses.
- Schedule traffic lane closures and high volumes of construction truck traffic during off-peak hours to minimize delays, where practical.
- Cover potholes and open trenches, where possible, and use barriers to protect drivers from open trenches.

3.2.2.5 Indirect Impacts

Indirect impacts are reasonably foreseeable impacts that could occur as a result of an action at some future time and in areas beyond the action's direct impacts. As an example, indirect impacts often relate to additional changes in land use that could occur beyond those changes immediately caused by a development's construction and operation, which could result in a change to overall traffic patterns. The OMF South build alternatives are not expected to induce future land use changes beyond their respective sites, which could otherwise result in indirect impacts to transportation.

Development of OMF South would provide Sound Transit with capacity to receive, test, commission, store, maintain, and deploy the fleet of light rail vehicles to support the Sound Transit 3 expanded light rail system. This capacity would provide for more efficient operation of the existing system and allow Sound Transit to accommodate the planned future expansions of the light rail system to meet the expected ridership demand. This would have positive indirect impacts to transportation to the extent that people choose to use the light rail system for trips instead of driving in general traffic.

3.2.3 Potential Mitigation Measures

OMF South is not anticipated to result in long-term operational impacts or construction impacts to freight, transit, nonmotorized transportation, parking, or safety. Therefore, no mitigation is proposed for those transportation elements.

Across all three build alternatives, the only location forecast to result in operational impacts is at the entrance to the Midway Landfill Alternative at SR 99 and S 246th Street during the AM peak period. Because the site has three vehicle access points, these impacts could be mitigated by opting to not construct the southbound left-turn access into OMF South at S 246th Street. This would require employees and visitors traveling south on SR 99 to perform a U-turn at S 252nd Street and then make a right-turn entrance into the site. Another option would be to close the southbound left turn but allow access into OMF South for employees through the other two access points. Mitigation could also include signalization of the SR 99/S 246th Street intersection.

If the Midway Landfill Alternative is chosen, Sound Transit would work with Kent during the project permitting process to determine Sound Transit's contribution to develop, fund, and construct improvements at the S 246th Street intersection or other measures as described above. This may include contributing a proportionate share of costs to improve intersections affected by the project.

To minimize potential impacts to traffic on SR 99 at the access point for the Midway Landfill Alternative, a short acceleration lane could be constructed to accommodate outbound trucks and a short deceleration lane could be constructed to accommodate inbound trucks. Additional strategies to reduce impacts to local traffic could include limiting truck activity during the peak traffic hours, which could extend the construction duration, or providing a direct connection to the I-5 corridor from the construction site. Such a connection would require approval by WSDOT and FHWA.

In locations where the mainline tracks to the South 336th Street or South 344th Street alternative reduce the available clear zone below standards and relocation of the mainline is not feasible, Sound Transit would work with WSDOT and FHWA to meet roadway standards, such as regrading to reestablish a clear zone or installing guardrails, barriers, or impact attenuators. These measures would not adversely affect transportation safety in the study area.

3.3 Acquisitions, Displacements, and Relocations

The following section discusses the potential impacts of acquisitions, displacements, and relocations associated with the OMF South project alternatives. The study area for the acquisitions analysis includes parcels that would be affected by construction and operation of OMF South. This includes parcels required for the mainline and OMF site for each of the build alternatives. The study area for the relocation analysis includes the cities of Kent and Federal Way, where the build alternatives are located.

The acquisitions analysis considers two types of potentially permanently affected parcels — partial and full acquisitions — described below:

- **Partial acquisition** – A portion of a parcel would be acquired, but the current use and occupants would usually not be displaced. In some instances, such as with larger parcels that hold multiple uses, a business or residence on a parcel could be displaced while other uses and occupants might remain.
- **Full acquisition** – The entire parcel would be acquired, and all current occupants would be displaced. In some instances, full acquisitions include parcels that may not be entirely needed for the project but would be affected to the extent that current occupants would be substantially impacted.

For the purposes of this analysis, full and partial acquisitions are analyzed together as “potentially affected parcels.” All potentially affected parcels within the study area and their existing land uses are identified in the sections below and are shown in figures located in Appendix F1, Potentially Affected Parcels.

The acquisition and displacement data presented in this section are estimates based on 2019 King County assessor’s data and conceptual designs for the alternatives (Appendix C, Conceptual Design Drawings and Engineering Information). Occupant types described in this report are based on available information at the time of this analysis and could change as the project is developed and constructed.

In addition to the permanently affected parcels, the project would require temporary construction easements (TCEs), permanent easements for maintenance, and the permanent use of right-of-way owned by WSDOT and local jurisdictions. TCEs and permanent easements have not yet been determined and are not included in the analysis data for potentially affected parcels, but the impacts of the easements have been considered in the analysis for this Draft Environmental Impact Statement. Final determinations of affected properties will be based on the project’s final design, following Sound Transit’s completion of the environmental review process and selection of the project to be built. Property acquisitions described are intended to be used for comparison across alternatives and are not final determinations.

3.3.1 Affected Environment

The study areas for the OMF South build alternatives are almost entirely developed and contain residential, commercial, industrial, public, institutional, and vacant properties.

3.3.1.1 Midway Landfill Alternative

The Midway Landfill Alternative is located between S 246th Street and S 252nd Street and between I-5 and SR 99. The OMF site is approximately 68 acres and is located along the western edge of the Midway Subarea Plan. The Midway Landfill site is a former gravel quarry

and former municipal solid waste landfill that is designated as an EPA Superfund site and is currently capped and covered. This alternative also includes parcels north of the landfill with existing commercial and industrial uses.

3.3.1.2 South 336th Street Alternative

The South 336th Street Alternative is located between S 336th Street and S 341st Place and between SR 99 and I-5 within the city of Federal Way. The OMF site is approximately 59 acres and includes parcels with existing commercial, institutional, and vacant land uses. Several parcels within this alternative are owned by the Christian Faith Center and include a large church facility, school and daycare center, parking lots, and vacant fields designated as a future development site for athletic fields and an academic center.

The mainline would begin at the future Federal Way Transit Center Station, which is the terminus of FWLE, and extend south toward the OMF site. The mainline would travel southeast through Belmor Park Golf & Country Club (Belmor) towards I-5, where it transitions to WSDOT right-of-way along the southbound lanes of the freeway. The mainline is adjacent to the eastern side of the OMF site and the mainline tail tracks extend approximately 600 feet south of the OMF site. The mainline alignment, including the tail tracks, would be adjacent to existing single- and multi-family residential, commercial, and institutional land uses.

3.3.1.3 South 344th Street Alternative

The South 344th Street Alternative is located between S 336th Street and S 344th Street and between 18th Place S and I-5. The OMF site is approximately 65 acres and partially overlaps with the South 336th Street Alternative, which is directly to the north. Both alternatives share the same mainline connection to FWLE and therefore also share many of the same affected parcels and existing land uses. The South 344th Street Alternative differs south of S 341st Place, where it includes additional residential, commercial, and institutional land uses. Additionally, the two mainline tail track options for the South 344th Street Alternative — the Enchanted Parkway alignment and the I-5 alignment — extend approximately 1,500 feet and 1,800 feet respectively south of the OMF site. The mainline tail track options are adjacent to primarily commercial properties.

3.3.2 Environmental Impacts

Sound Transit would acquire public and private property for the construction and operation of OMF South. This includes parcels required for both the OMF South site and its associated tracks, including the mainline, lead tracks, and tail tracks.

Acquisition estimates are based on the conceptual plans Sound Transit developed for the build alternatives. The level of acquisitions discussed in this section provides information useful for comparing alternatives. Estimates of displaced properties reflect the conditions at the time the analysis was conducted. Because property uses change over time, the number and/or type of displacements could vary between what is disclosed in this Draft Environmental Impact Statement and what would actually be required.

3.3.2.1 No-Build Alternative

Under the No-Build Alternative, acquisitions for construction or operation of OMF South would not occur. FWLE will acquire and displace parcels and existing land uses in the Midway Landfill Alternative study area, primarily north of the Midway Landfill where the alignment crosses from

30th Ave S toward I-5. In addition, there could also be other smaller public or private projects in the project study areas that would acquire new properties and displace existing uses. Because TDLE would open after OMF South, impacts associated with TDLE that would overlap with OMF South, such as the mainline tracks that would connect to the South 336th Street and South 344th Street alternatives, are addressed within the build alternative impacts discussion below. All other TDLE-related impacts are addressed in Chapter 4, Cumulative Impact Analysis.

3.3.2.2 Long-Term Impacts

Impacts Common to All Build Alternatives

In order to determine potential acquisitions and displacements for each build alternative, Sound Transit laid its proposed OMF South footprints over King County parcel data and high-resolution aerial imagery. Because property rights would be needed from the parcels identified in this section, they are referred to as potentially affected parcels, and the number of displaced residences and businesses is estimated.

The acquisitions analysis produced results for each build alternative separated by mainline impacts (including tail tracks) and OMF site impacts (including lead tracks). For all of the build alternatives, the majority of the affected properties were associated with the OMF site. For the South 336th Street and South 344th Street alternatives, the affected parcels and displacements associated with the mainline would also occur as a result of TDLE.

Table 3.3-1 below summarizes the total number of potentially affected parcels and displacements by alternative. The South 344th Street Alternative has two mainline tail track options, the Enchanted Parkway alignment and the I-5 alignment; however, the number of affected parcels and displaced businesses and residences would be the same for either option.

Table 3.3-1 Potentially Affected Parcels and Displacements

Alternative	Number of Affected Parcels	Number of Displaced Businesses	Number of Displaced Residences ¹	Number of Displaced Religious Facilities
Midway Landfill Alternative	42	4	0	0
South 336th Street Alternative with TDLE Preferred Alternative	36	2	61	1
South 336th Street Alternative with TDLE Design Option	36	2	73	1
South 344th Street Alternative with TDLE Preferred Alternative ²	65	12 ⁽³⁾	67	3
South 344th Street Alternative with TDLE Design Option ²	65	12 ⁽³⁾	79	3

Notes:

- (1) Residential displacements include individual apartment/condo units and mobile homes.
- (2) With either the Enchanted Parkway or I-5 mainline tail track options.
- (3) Includes GarageTown, comprised of approximately 60 owners.

Table 3.3-2 below presents the potentially affected parcels by land use for each build alternative and impact type (e.g., mainline, OMF site).

Table 3.3-2 Affected Parcels by Land Use

Alternative	Single-Family Residential	Multi-Family Residential ¹	Commercial/Industrial	Public/Institutional ²	Vacant	Total
Midway Landfill Alternative						
OMF Site	13	0	11	8	10	42
South 336th Street Alternative						
Mainline ^{3,4}	0	1	1	1	2	5
OMF Site	10	1	11	3	6	31
Total	10	2	12	4	8	36
South 344th Street Alternative						
Mainline ^{3,4,5}	0	1	4	1	3	9
OMF Site	21	0	24	3	8	56
Total	21	1	28	4	11	65

Source: King County Assessor (2019)

Notes:

- (1) Belmor is categorized as one “Multi-Family Residential” parcel but contains over 300 individual mobile home units (reflected in residential displacements).
- (2) “Public/Institutional” land uses include religious facilities and utility properties.
- (3) With either the TDLE Preferred Alternative or TDLE Design Option.
- (4) The mainline is the principal track that connects stations and OMFs. The mainline in Federal Way is planned to be constructed as a part of TDLE and therefore would be built regardless of which OMF South alternative is selected.
- (5) With either the Enchanted Parkway or I-5 mainline tail track options.

The following sections detail property impacts to existing land uses for each of the build alternatives. Appendix F1, Potentially Affected Parcels, includes figures and tables with parcel reference information.

Midway Landfill Alternative

For the Midway Landfill Alternative, all affected parcels and displacements are associated with the OMF site because mainline impacts were evaluated with the FWLE project.

The OMF site would impact approximately 42 parcels, with a relatively even split between single-family residential, commercial/industrial, public/institutional, and vacant land uses. This alternative would displace four businesses, and there would be no residential displacements. A majority of the affected public/institutional parcels are associated with the Midway Landfill, which is owned by the city of Seattle and managed by SPU.

South 336th Street Alternative

The South 336th Street Alternative would impact 36 parcels, displacing two businesses, one religious facility, and between 61 and 73 residences, depending on the mainline design option.

The South 336th Street Alternative mainline would impact five parcels, including Belmor, which is a 63-acre mobile home park that contains over 300 mobile home units and a nine-hole golf course. The number of displaced residences in Belmor varies with the track design option. The TDLE Preferred Alternative would displace approximately 47 mobile home units, and the TDLE Design Option would displace approximately 59 mobile home units. Other parcels that would be affected by the mainline include part of The Commons at Federal Way shopping center and the Federal Way/S 320th Street Park-and-Ride. The mainline would also use WSDOT right-of-way along I-5.

The South 336th Street Alternative OMF site would impact 31 parcels. Most of the affected parcels are single-family residential or commercial/industrial existing uses. The OMF site would displace approximately 14 residences, including 10 single-family residences and one four-unit multi-family residential property. Most of these residences are located adjacent to the I-5 right-of-way between S 333rd Street and S 336th Street, where the lead tracks would connect to the mainline. The OMF site would also displace two businesses and one religious facility, the Christian Faith Center.

South 344th Street Alternative

The South 344th Street Alternative would affect 65 parcels, displacing 12 businesses, 3 religious facilities, and between 67 and 79 residences depending on the mainline design option. This alternative would have the highest number of property acquisitions and displacements of all the OMF South build alternatives.

The property impacts associated with the South 344th Street Alternative mainline are almost identical to those discussed above as part of the South 336th Street Alternative mainline, including impacts to The Commons at Federal Way shopping center, the Federal Way/S 320th Street Park-and-Ride, and Belmor. The number of displaced mobile homes varies based on the track design option — approximately 47 displacements for the TDLE Preferred Alternative and approximately 59 displacements for the TDLE Design Option. The South 344th Street Alternative mainline tail tracks would affect four additional parcels south of the OMF South site and would displace one business, Red Lion Inn and Suites. Both mainline tail track options, the Enchanted Parkway alignment and the I-5 alignment, would affect the same number of parcels. The mainline would also use WSDOT right-of-way along I-5.

The South 344th Street Alternative OMF site would impact approximately 56 parcels. Most of the affected parcels are single-family residential or commercial/industrial existing uses. The OMF site would displace approximately 20 residences located along S 340th Street and 18th Place S. The OMF site would also displace 11 businesses, including Ellenos Yogurt and GarageTown, which includes approximately 60 individual owners. Additional displacements include three religious facilities: Voice of Hope Church, Family Life Community Church, and Cross Life Community Church.

Additionally, this alternative would require conversion of WSDOT Resource Conservation Areas (originally acquired under the Highway Beautification Act of 1965) to a transportation use within the I-5 right-of-way. Impacts are discussed in more detail in Section 3.7, Visual and Aesthetic Resources.

3.3.2.3 Construction Impacts

During construction, properties would be affected by staging area acquisitions and TCEs for each of the build alternatives. Most construction would be accommodated within areas of permanent acquisition, although some activities would require TCEs. A TCE allows for temporary use of a property during construction. When construction is complete, the property is restored as closely as possible to its previous condition or better, and the easement is terminated. TCEs would be necessary at various locations surrounding each alternative.

The size of permanent and temporary easements would depend on the type of activity the project requires on the property and the type of land uses in the area. For example, a vacant property would provide a feasible opportunity for a larger easement than a developed property, where the easement would likely be smaller to avoid impacts to existing structures. All acquisitions and displacements summarized above in Tables 3.3-1 and 3.3-2 would be required during project construction, and TCEs are not included in the analysis data.

3.3.2.4 Avoidance and Minimization of Impacts

When developing the OMF South alternatives, Sound Transit used several measures to avoid and minimize potential acquisition impacts. The prospective OMF South sites were analyzed for potential property impacts, and the build alternatives evaluated in this Draft Environmental Impact Statement were ultimately chosen, in part, to avoid or minimize impacts to residents and businesses. During design, the OMF South sites were configured to meet programming requirements while minimizing, to the extent feasible, acquisitions, displacements, and relocations. Where available, the mainline would be located near or within public rights-of-way to reduce the number of private property impacts.

Any properties temporarily impacted during construction would be restored to their previous condition or better.

3.3.2.5 Indirect Impacts

The project could contribute to indirect impacts where existing land uses on acquired properties are converted to transportation uses following construction, thereby potentially influencing adjacent properties. These potential indirect impacts are discussed in Section 3.4, Land Use.

3.3.3 Relocation Opportunities

To determine the relocation opportunities in the project vicinity, Sound Transit researched market conditions for available residential and commercial real estate in Kent and Federal Way. Available property information is summarized in Tables 3.3-3 and 3.3-4. Although property uses may change before construction of OMF South, research indicates that there would be opportunities for displaced businesses, residents, and other property owners to be successfully relocated within the same general area. Some properties with unique characteristics, such as religious facilities, hotels, and industrial facilities, could be more challenging to relocate.

Table 3.3-3 Property Available for Relocation in the Study Area¹

Type of Property	Total Buildings/ Units	Total Square Feet ²	Vacancy Rate ²	Buildings Listed for Sale ³	Estimated Units Available ⁴
Apartment	31,586	27,110,900	4.71%	1	1,488
Office	442	6,914,331	13.17%	7	52
Industrial	808	48,582,430	6.45%	17	51
Retail	939	12,324,257	4.45%	16	44
Religious Facility	21	-	-	0	0
Hotel	45	-	-	1	0

Source: CoStar (March and August 2020)

Notes:

- (1) The study area or market is defined by the cities of Kent and Federal Way.
- (2) CoStar does not collect data for area of available properties ("Total Square Feet") for religious facilities or hotels. Similarly, vacancy data is calculated using rentable building area which is not applicable to religious facilities or hotels.
- (3) Includes properties listed as "for sale" in CoStar for apartment, office, industrial, retail, and hotel properties in Kent and Federal Way (March 11, 2020) and religious facilities in Federal Way (August 28, 2020).
- (4) Estimates the number of units available for rent on the market using the vacancy rate and total number of units.

Table 3.3-4 Residential Property Available for Relocation in the Study Area

Type of Property	Occupied Units	Available Units	Vacancy Rate
Owner-Occupied	42,526	441	1.03%
Renter-Occupied	33,473	1298	3.73%

Source: 2014-2018 ACS 5-year Estimates (U.S. Census Bureau 2019)

Note: The study area or market is defined by the cities of Kent and Federal Way.

3.3.3.1 Commercial and Industrial

Adequate commercial and industrial spaces are available in the market to relocate building owners and tenants displaced as part of the project. Industrial users requiring specific lot sizes and utilities may be more difficult to relocate, including properties such as GarageTown and Ellenos Yogurt that have specific needs like storage facilities or specialized machinery.

3.3.3.2 Single-Family Residential

There is a sufficient supply of comparable single-family homes available to accommodate the few residents displaced by the project. While comparable homes are available in the general area, displaced residents may have to choose a location in a different neighborhood. Mobile home residents, including affected residents of the Belmor development, would likely experience difficulty relocating within the same neighborhood if they are seeking to relocate to or move mobile homes to another mobile home park. Because mobile home parks are often full and not a plentiful source of housing, these types of relocations could be challenging.

3.3.3.3 Religious Facilities

Generally, there is adequate space available in the study area to relocate religious facilities that would be displaced by the OMF South build alternatives. Most of the religious facilities that would be displaced are currently located in commercial or industrial buildings and could be relocated to comparable properties. The exception is the Christian Faith Center, which is a large-capacity church located on S 336th Street between SR 99 and I-5. There are four parcels associated with the Christian Faith Center, which total approximately 25 acres, including over 200,000 square feet of building space and numerous parking lots. This church would be uniquely difficult to relocate because of its size.

3.3.3.4 Hotels

There are several hotels within the study area, and only one would be displaced by the OMF South build alternatives — the Red Lion Inn in Federal Way. Displaced hotel owners would have to locate properties that are for sale or locate suitable sites and develop new hotels. Although hotels do come up for sale, the unique location and layout demands of the displaced hotel may make finding an existing comparable hotel property difficult. New development sites may provide the best opportunity for replacement.

3.3.4 Sound Transit Acquisition and Relocation Policy Summary

Sound Transit would compensate affected property owners according to the provisions specified in Sound Transit’s Real Property Acquisitions and Relocation Policy, Procedures, and Guidelines (Sound Transit 2017); the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (the “Uniform Act”); and the State of Washington’s relocation and property acquisition laws and regulations, including Revised Code of Washington (RCW) 8.26 and Washington Administrative Code (WAC) 468-100. Compensation and entitlements would vary by

property, depending on the project effects, the economy, number of available relocation opportunities, and factors outlined in the policies, laws, and regulations.

As a public agency, Sound Transit must pay “just compensation” to property owners for land and improvements acquired for public purposes. Determination of just compensation is based on an independent appraisal and appraisal review and must not be less than the fair market value of the property acquired. This value includes any measurable loss in value to the remaining property as a result of a partial acquisition. For TCEs, the affected property owner would be compensated for the temporary use of the property, and the property would be restored as close as possible to its previous condition.

Sound Transit would pay normal expenses of sale, including escrow fees, title insurance, prepayment penalties, mortgage release fees, recording fees, and typical costs incurred as part of conveying title. In addition to compensating owners for property rights, other forms of compensation could include moving expenses, replacement housing payments, nonresidential reestablishment, and other eligible expenses. Sound Transit would also provide support services that consider the unique needs of those being displaced, to reduce the inconveniences and hardships of relocation. Sound Transit’s property acquisition and relocation handbooks for residential and nonresidential properties detail the agency’s compensation and acquisition procedures (Sound Transit 2014a and 2014b).

Sound Transit has notified property owners whose property would be directly affected by any of the alternatives; however, property acquisitions would begin after the Final Environmental Impact Statement process is complete and the Sound Transit Board selects the project to build. Once approved, Sound Transit would work closely with affected residents, businesses, and organizations to determine their relocation needs.

Sound Transit staff will be available to answer questions and provide additional information regarding just compensation, advisory services, and relocation payments and expenses, as well as the timing of the processes. Sound Transit would also provide information on the current availability, purchase price, or rental rates of comparable replacement properties. Sound Transit uses interpreters to help those with limited English proficiency understand their choices and options.

Affected residents and businesses owners would make the final decision on their relocation sites. Generally, owners would not have to relocate until they have been paid the agreed-upon purchase price or an amount equal to Sound Transit’s estimate of just compensation has been deposited with the court. Businesses and tenants would not be required to move or relocate without receiving at least 90 days’ notice via written communication.

3.3.5 Potential Mitigation Measures

Sound Transit’s policies and procedures comply with federal, state, and local property acquisition and relocation policies and, in some cases, provide advisory services to property owners above the minimum requirements of federal and state law. Sound Transit would compensate affected property owners according to the provisions specified in Sound Transit’s adopted Real Property Acquisition and Relocation Policy, Procedures, and Guidelines (see Section 3.3.4). Benefits would depend on the level of impact, available relocation options, and other factors. No additional mitigation would be necessary.

For the South 344th Street Alternative, Sound Transit would mitigate the conversion of Resource Conservation Areas by providing replacement property. Sound Transit would consult with WSDOT staff to develop appropriate site-specific measures and offsite mitigation, agreed to by WSDOT and FHWA, that would meet the intended function of the original Resource Conservation Areas.

3.4 Land Use

The following section assesses the land use impacts of the proposed OMF South project alternatives by discussing the surrounding zoning compatibility, consistency with regional and local jurisdictional plans and policies, and conversions of land use to a public transportation use that would occur as a result of property acquisition for the proposed project.

This analysis evaluates the direct and indirect impacts on land use from operation and construction, and it identifies options to avoid, minimize, or mitigate potential adverse impacts. The study area for analyzing land use effects includes the properties and local jurisdictions within 0.5 mile of the potential construction limits of each OMF South alternative. Cumulative impacts are discussed in Chapter 4. The methods, resources, and regulations guiding this analysis are described in Appendix F2, Land Use Technical Appendix.

3.4.1 Affected Environment

The OMF South project alternatives are located within the cities of Kent and Federal Way, and their study areas include portions of Des Moines and unincorporated King County. The portions of unincorporated King County within the study area have been identified by Kent and Federal Way as part of the cities' Potential Annexation Areas. The most common land uses in the vicinity of the alternatives include commercial, institutional, and single- and multi-family residential.

The following subsections describe existing land uses on and within 0.5 mile of each alternative as well as applicable zoning designations. In general, existing land uses provide more detail on how land has actually developed to current conditions, while the zoning and comprehensive plan land use designations offer a vision for what the local jurisdiction has planned for the future. A complete list of all the zones within their respective jurisdictions in the study areas are provided Appendix F2, Land Use Technical Appendix.

3.4.1.1 Midway Landfill Alternative

Existing Land Uses

The Midway Landfill is a former gravel quarry and municipal solid waste landfill that had accepted demolition materials, wood, and industrial wastes from approximately 1966 to 1983. The landfill is designated as an EPA Superfund site and is currently capped; an EPA Superfund Record of Decision (EPA 2000) as well as a Midway Landfill Consent Decree (King County Superior Court 1990) have allowed for ongoing operation and maintenance of a landfill gas extraction system and groundwater monitoring. The site includes public/institutional (landfill facilities) and commercial land uses as well as vacant land.

Land uses that are adjacent to or abut the Midway Landfill Alternative site boundaries consist of vacant land (located to the north and west), residential (located north and south), and commercial (located to the west). OMF South would abut I-5 to the east. Within a 0.5-mile distance of the site, prominent uses include an elementary school to the west, military facilities and an elementary school beyond I-5 to the east, and automobile retail shops and a shopping center anchored by a large grocery store to the south. To the north of the site are a mobile home park (abutting the site), a community health center, and a college.

Figure 3.4-1 shows the existing land use patterns within the Midway Landfill Alternative study area. There is a mix of residential (over 50 percent, both single-family and multi-family), commercial (less than 20 percent), public/institutional land uses (almost 20 percent) and vacant land (less than 20 percent). The residential uses, comprising approximately 66 percent of the study area, are primarily located east beyond I-5 and west of the SR 99-adjacent commercial uses and vacant land. Residential uses also exist north of the site, primarily north of S 240th Street and between SR 99 and I-5. More residential uses are located south of the site from S 252nd Street to just south of S 260th Street and in between SR 99-adjacent commercial uses and I-5. Commercial uses and vacant land in the study area surround SR 99 from north to south with some vacant land adjacent to I-5 north of the OMF site. Public/institutional land uses make up the majority of space within the potential construction limits of the site and are also located closer to the outer boundary of the study area to the northwest, west, and east.

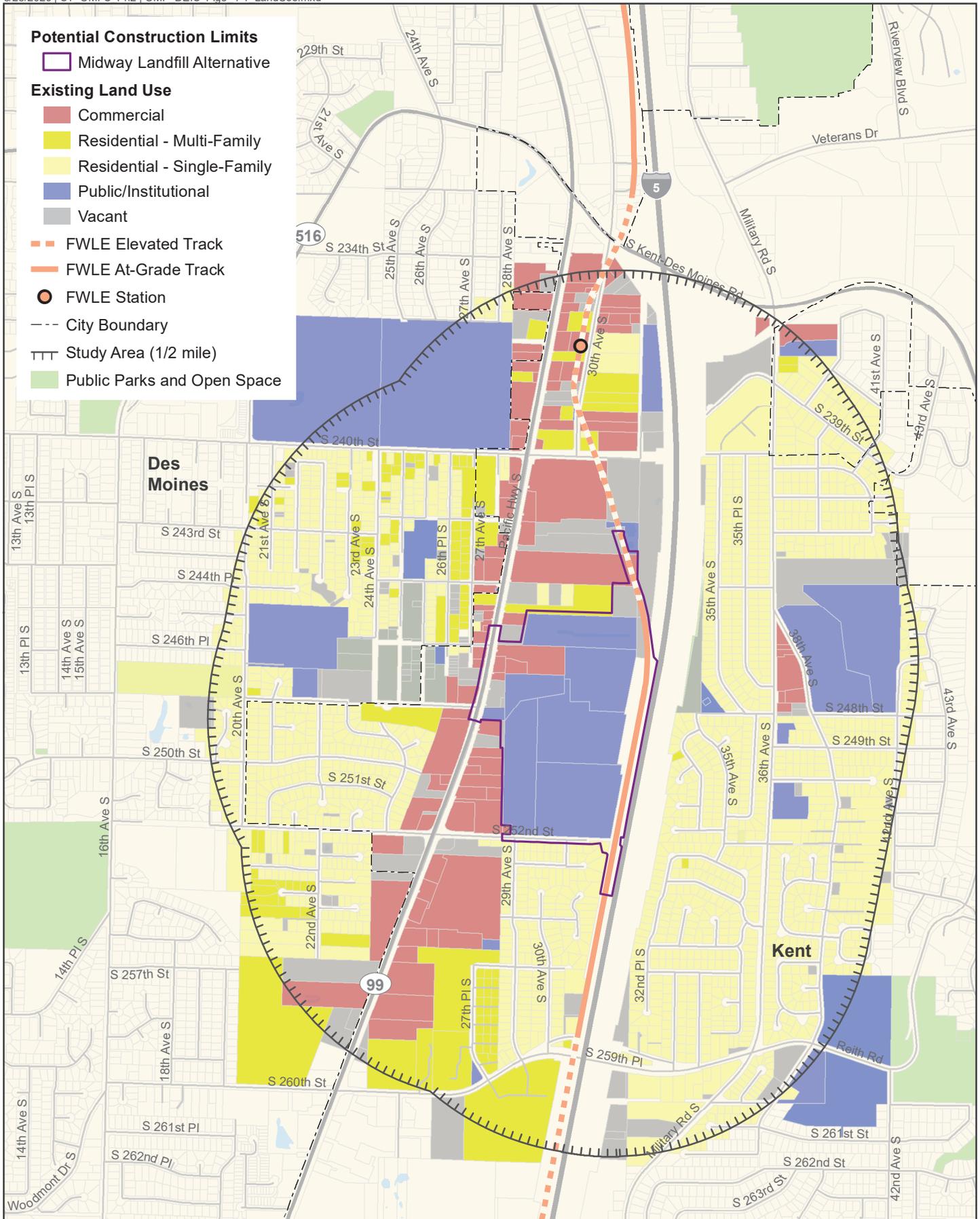
Zoning

Figure 3.4-2 shows the general zoning patterns within and around the Midway Landfill Alternative, designated by the cities of Kent and Des Moines and by King County. The zones within the Midway Landfill Alternative study area include primarily commercial, mixed uses, and multi-family residential in the central areas near SR 99 and I-5 and single-family residential zones beyond. In total, approximately 59 percent of the 0.5-mile study area (excluding the project footprint) is single-family residential, 19 percent is commercial/office, 15 percent is mixed-use, and 7 percent is multi-family residential generalized zones.

The Midway Landfill Alternative OMF site is primarily within the city of Kent Commercial Manufacturing II (CM-2) zone that runs north and south along SR 99 between S 268th Street and S 244th Street. The purpose of the Commercial Manufacturing II zone is to provide locations for developments that combine characteristics of retail establishments, small-scale light industrial operations, heavy commercial and wholesale uses, and specialty manufacturing.

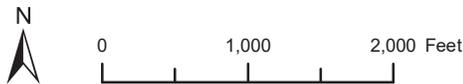
The lead tracks of the Midway Landfill Alternative are located in a small portion of the Midway Commercial Residential (MCR) zone. The purpose of this zone is to encourage the location of dense and varied retail, office, or residential activities in support of light rail and mass transit options; enhance a pedestrian-oriented character; and implement the goals and policies of the Midway Subarea Plan.

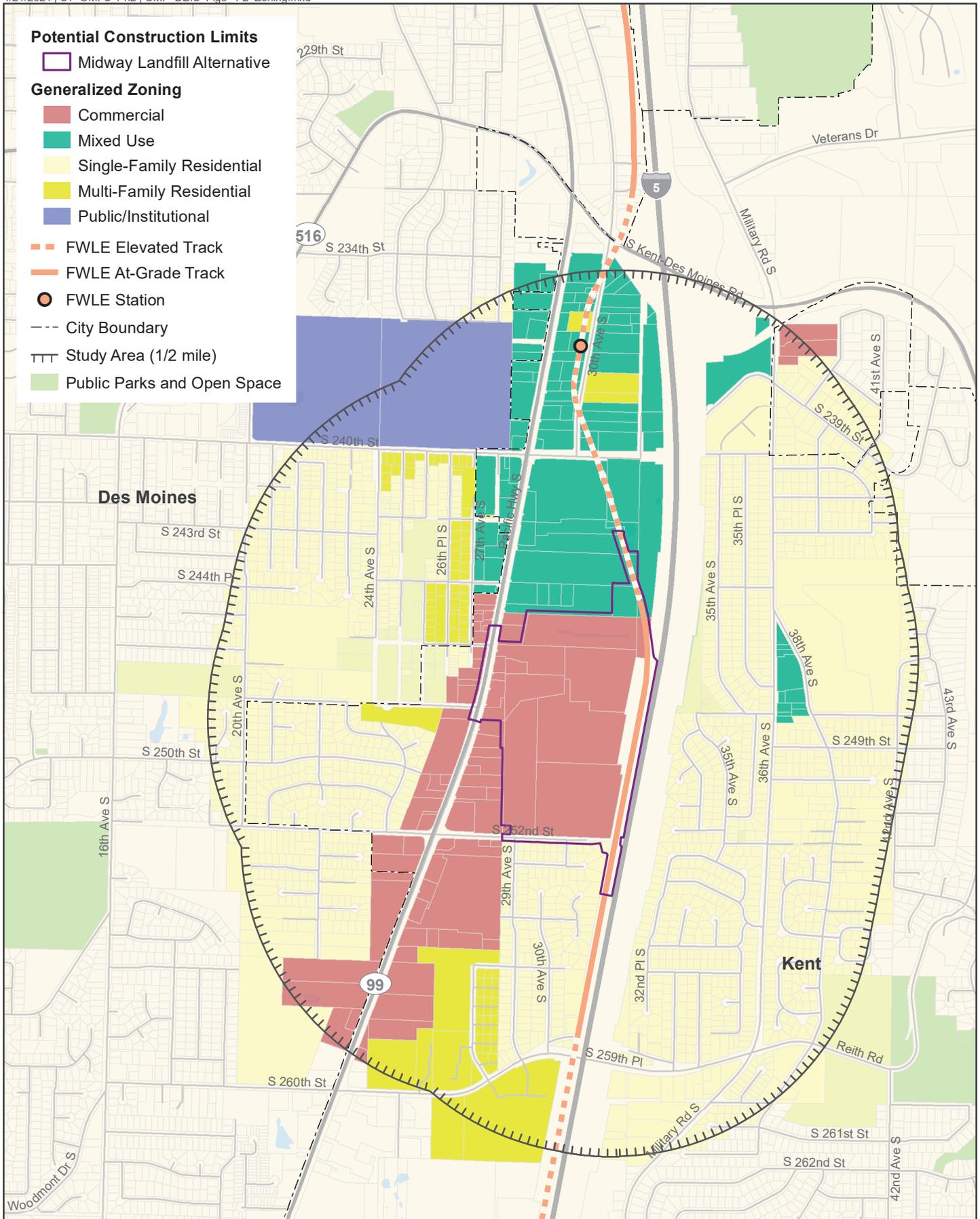
For additional details on the purpose of each zone for the Midway Landfill Alternative, see Table F2-1 of Appendix F2, Land Use Technical Appendix.



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

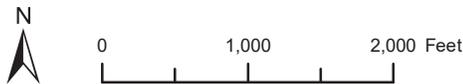
FIGURE 3.4-1
Existing Land Uses
Midway Landfill Alternative
 OMF South





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

FIGURE 3.4-2
 Generalized Zoning
 Midway Landfill Alternative
 OMF South



3.4.1.2 South 336th Street Alternative

Existing Land Uses

The South 336th Street Alternative, including the OMF site and the mainline, extends from the south of S 320th Street to just south of S 341st Place and is situated between SR 99 and I-5 within the southern part of Federal Way. The OMF site is located between S 336th St and S 341st Place, where existing land uses include vacant land, public/institutional, and single-family and multi-family residential land uses. The public/institutional land uses primarily include parcels associated with the Christian Faith Center and its associated private school, Pacific Christian Academy.

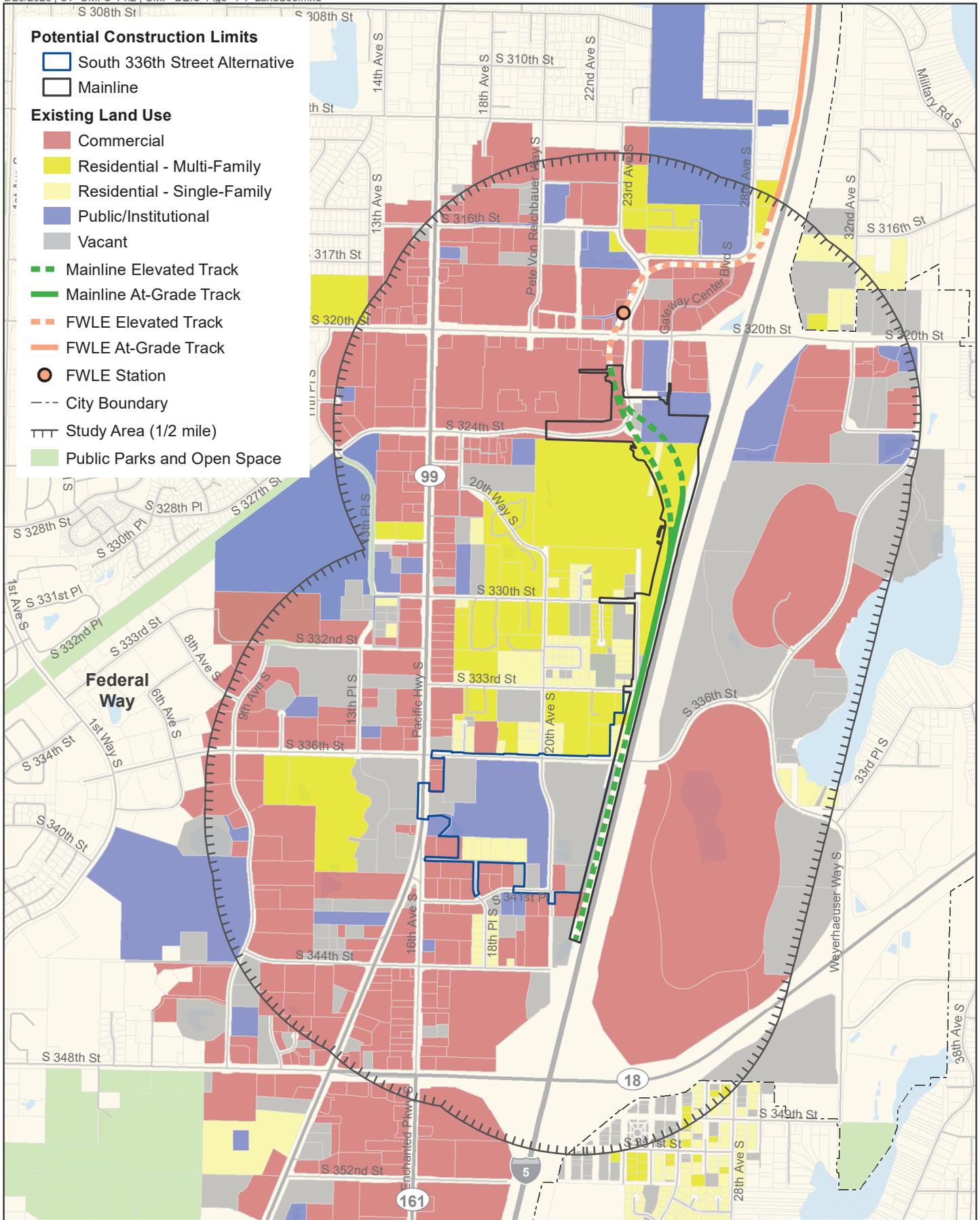
The mainline track alignment associated with the South 336th Street Alternative parallels I-5, from a large retail store that is located just south of S 320th Street to just north of S 344th Street. The existing land uses underlying and abutting the mainline and mainline tail tracks include mostly multi-family residential land uses to the west, vacant land to the south, and commercial land uses to the north, southwest, and southeast. Underlying multi-family residential uses are mostly associated with Belmor, a mobile home park and private golf course that extends west from the mainline track.

Land uses that are adjacent to or abut the OMF site boundaries (excluding the mainline tracks) consist primarily of commercial land use and vacant land mostly located to the south and west of the alternative boundaries, with some to the north and northwest. Single- and multi-family residential existing uses are located primarily to the north of the site boundaries. Within a 0.5-mile distance of the South 336th Street Alternative, prominent uses include cafes, restaurants, a park, school facilities, and single- and multi-family residential buildings to the north; a church, an automobile repair shop, and a bank to the west; and I-5 to the east, with the Pacific Bonsai Museum and the Woodbridge Corporate Park (the former Weyerhaeuser campus) beyond. Another automobile repair shop, mini-storage facility, and a storage facility for recreational vehicles are located to the south.

Figure 3.4-3 shows existing land use patterns within the South 336th Street Alternative study area and the mix of vacant land and commercial, residential, and public/institutional existing land uses. The study area consists primarily of commercial uses (nearly 66 percent of the area) and, to a lesser extent, vacant land (almost 20 percent) scattered throughout the entire area, barring most of the land between the borders of S 324th Street, South 336th Street, SR 99, and I-5, where the public/institutional and residential land uses are primarily clustered. The public/institutional uses are mostly associated with religious facilities, and multi-family residential uses are mostly associated with Belmor.

Zoning

Figure 3.4-4 shows the general zoning patterns within and around the South 336th Street Alternative, designated by Federal Way and King County. Commercial and office are the predominate zones, followed by multi-family residential and mixed-use zones, which are located in the center and west sections of the study area. In total, approximately 64 percent of the study area (excluding the project footprint) is commercial or office, 18 percent is multi-family, 12 percent is mixed-use, and 6 percent is single-family residential generalized zones. A complete list of all the zones within their respective jurisdictions in the South 336th Street Alternative study area is provided in Appendix F2, Land Use Technical Appendix.



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

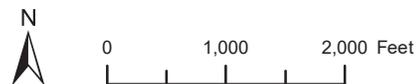
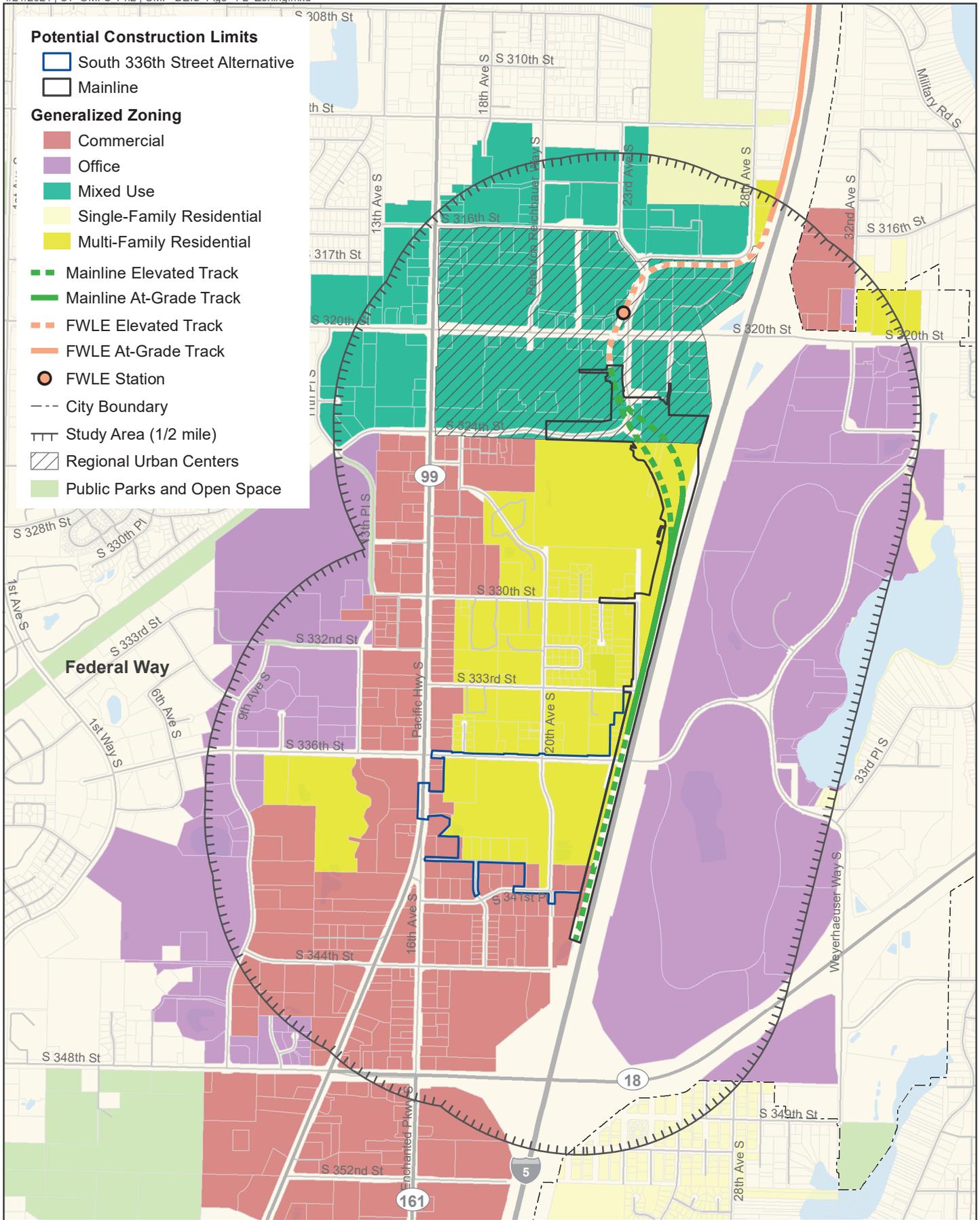
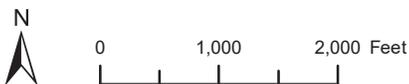


FIGURE 3.4-3
Existing Land Uses
South 336th Street Alternative
OMF South



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

FIGURE 3.4-4
 Generalized Zoning
 South 336th Street Alternative
 OMF South



The South 336th Street Alternative is located in the following Federal Way zones: City Center Core (CC-C), Community Business (BC), Commercial Enterprise (CE), and Multi-Family (RM-2400 and RM-3600). The OMF site is primarily located in the RM-3600 Multi-Family zone, with the southeastern yard area mostly in the Commercial Enterprise zone and the gate/guard house area in the Community Business zone. The mainline tracks are in the City Center Core, Commercial Enterprise, and RM-3600 Multi-Family zones.

The intent of the City Center Core zone is to create a higher density, mixed-use designation where office, retail, government, and residential uses are concentrated. The Community Business zone is designed to allow a broad mix of uses, encouraging mid-rise, high-quality developments containing a vibrant and compatible mix of well-integrated and designed pedestrian- and auto-oriented uses. The purpose of the Commercial Enterprise zone is to capture the demand for a diverse mix of industrial, office, and retail sales and services, arrayed in well-integrated, high-quality developments. Both multi-family residential zones are intended to provide opportunity for a range of housing types to accommodate anticipated residential growth. For additional details on the purpose of each zone for the South 336th Street Alternative, see Table F2-2 of Appendix F2, Land Use Technical Appendix.

3.4.1.3 South 344th Street Alternative

Existing Land Uses

The South 344th Street Alternative is located in much of the same area as the South 336th Street Alternative; however, its mainline tail tracks extend south of S 341st Place to just south of S 348th Street. Like the South 336th Street Alternative, the South 344th Street Alternative sits between SR 99 and I-5.

The South 344th Street Alternative OMF site is located between S 336th Street and S 344th Street, where existing land uses include vacant land and commercial, single-family residential, and public/institutional land uses. This alternative slightly differs from the South 336th Street Alternative in that existing uses also include two smaller church properties and more commercial uses, such as the GarageTown and Ellenos Yogurt properties.

The South 344th Street Alternative would also connect to the same mainline tracks as the South 336th Street Alternative, which would extend from just south of S 320th Street to just south of S 348th Street. The existing land uses underlying and adjacent to the mainline for the South 344th Street Alternative are the same as those described above for the South 336th Street Alternative; however, the elevated mainline tail tracks would extend farther south for the South 344th Street Alternative. The I-5 alignment would continue south in WSDOT right-of-way, and the Enchanted Parkway alignment would intersect with commercial land uses between S 344th Street and S 348th Street.

Land uses that are adjacent to or abut the OMF site boundaries (excluding the mainline tracks) consist mostly of commercial land use surrounding the south and west of the alternative boundaries, with smaller areas of public/institutional existing uses to the west and single- and multi-family residential to the north of the site boundaries. Within a 0.5-mile distance of the South 344th Street Alternative, notable uses include a church, retail and shopping centers, banking and automobile services, and a few single-family homes to the north; more shopping centers, restaurants, services businesses, and the Federal Way Public Academy are located to the west and south. The I-5/SR 18 interchange is also located south of the site, and the Pacific Bonsai Museum and the Woodbridge Corporate Park (the former Weyerhaeuser campus) are located just across I-5 to the east.

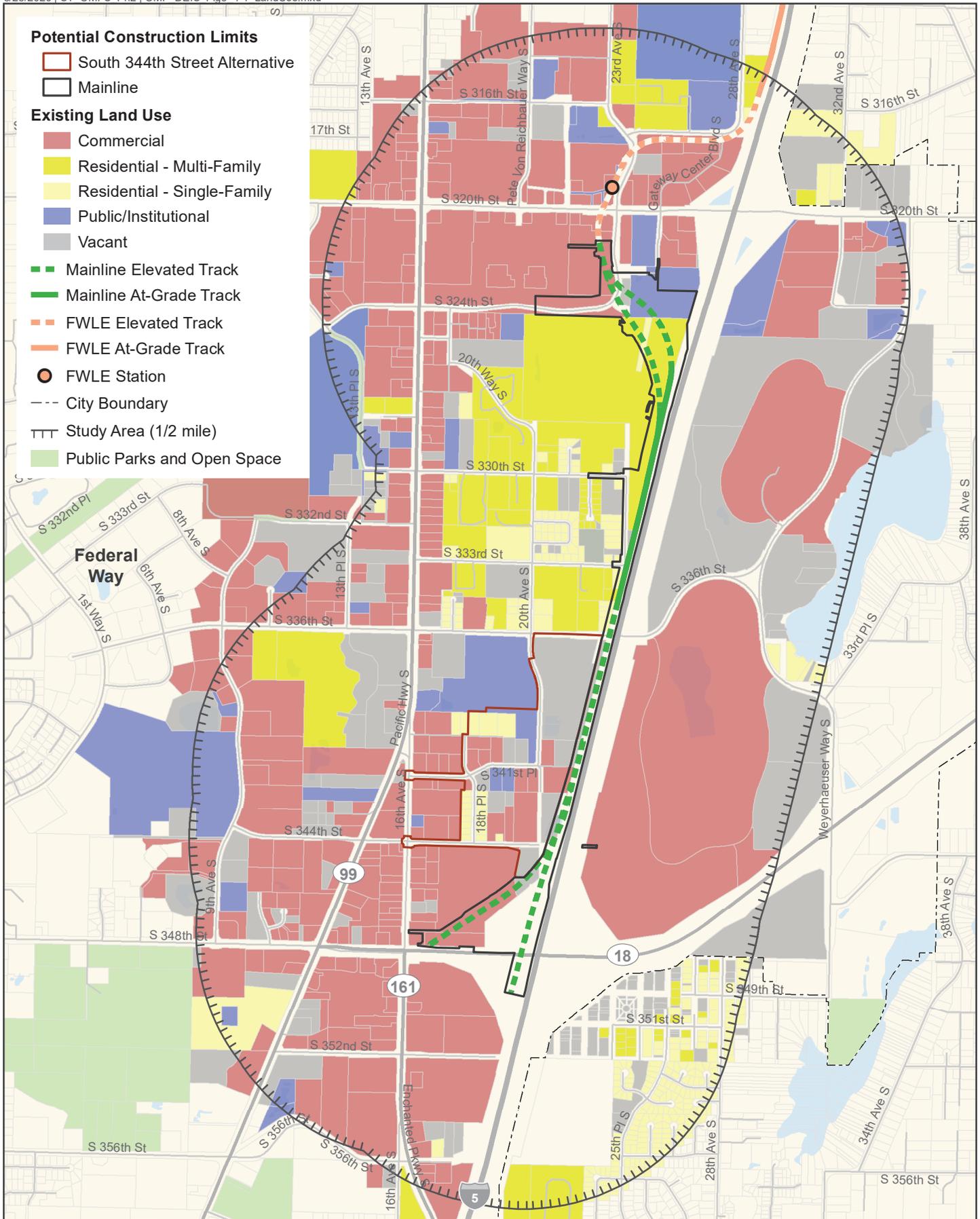
Figure 3.4-5 shows existing land use patterns within the South 344th Street Alternative study area. Existing land uses are nearly the same as those in the South 336th Street Alternative study area, with the addition of more commercial land uses existing below S 352nd Street.

Zoning

Figure 3.4-6 shows the general zoning patterns within and around the South 344th Street Alternative. Like the South 336th Street Alternative, commercial and office zones are the largest, followed by mixed-use zones to the north and multi-family residential zones situated in the central and west sections of the 0.5-mile study area.

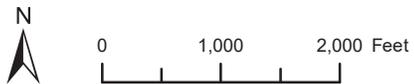
The South 344th Street Alternative is located within the following Federal Way zones: Commercial Enterprise, City Center Core, and RM-3600 and RM-2400 Multi-Family Zones. The OMF site and lead tracks spread across Commercial Enterprise and RM-3600 zones. The northeastern yard area is primarily within the RM 3600 zone, and the southern yard areas and gate/guard house areas are within the Commercial Enterprise zone.

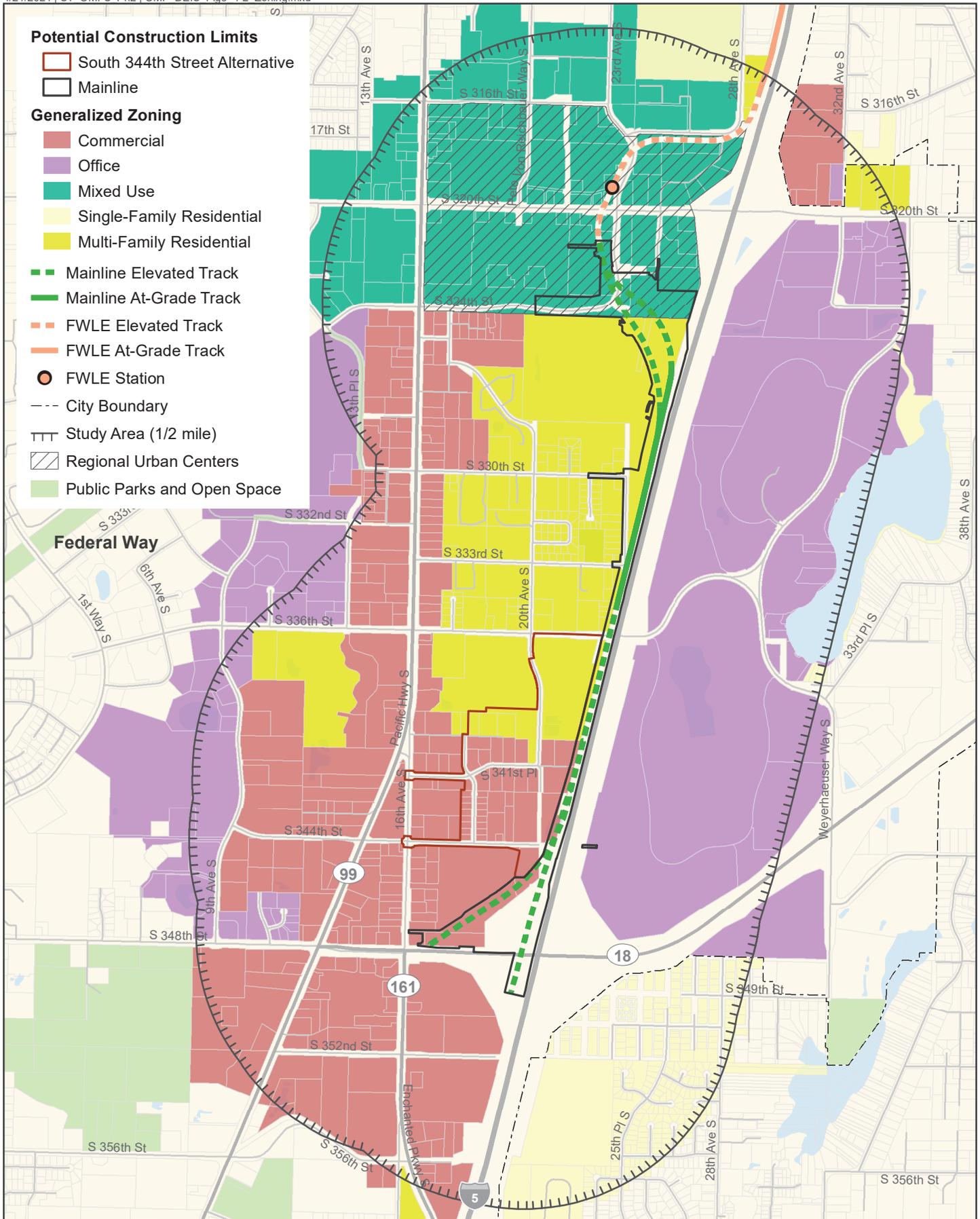
The mainline tracks, including both tail track options, are primarily within the City Center Core, Commercial Enterprise, and RM-3600 Multi-Family zones (very small portions of less than 0.5-acre are within the RM-2400 Multi-Family Zone). The purpose of each of these zones are described in the Zoning subsection for the South 336th Street Alternative, above, and in Table F2-2 of Appendix F2, Land Use Technical Appendix.



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

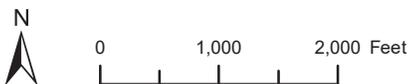
FIGURE 3.4-5
 Existing Land Uses
 South 344th Street Alternative
 OMF South





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

FIGURE 3.4-6
 Generalized Zoning
 South 344th Street Alternative
 OMF South



3.4.2 Consistency with Regional and Local Comprehensive Plans and Zoning

This subsection evaluates the proposed project's general consistency with applicable comprehensive plan goals and policies and land use regulations, and it specifies potential planning considerations for each build alternative.

The regional and local land use plans for the study areas all encourage increased transit options, reduced vehicle transportation dependency, and expansion of regional growth centers. Regional plans and comprehensive plans for Kent and Federal Way identify the need to use transit to connect urban activity centers to facilitate efficient development patterns, as transit and other multimodal system improvements offer a sustainable approach to growing transportation demand. The Puget Sound Regional Council (PSRC) Vision 2050 (PSRC 2020c) includes several goals within its Growing Transit Communities Strategy that would be served by developing an OMF to support the expansion of the light rail system and service.

OMF South is necessary to enable the delivery of mobility improvements associated with the expansion of the Sound Transit regional light rail system, which will serve the cities of Kent and Federal Way. The project would ensure that there is enough storage capacity for, and a location from which to efficiently deploy, the number of vehicles needed to meet Sound Transit's service goals. As a maintenance system for high-capacity transit serving Kent and Federal Way, OMF South could help advance each city's comprehensive plan and land use goals and policies meant to improve high-capacity transit infrastructure and service. See Tables F2-8 and F2-9 in Appendix F2, Land Use Technical Appendix, for a detailed outline of Kent and Federal Way's comprehensive plan land use goals and policies and OMF South's project consistency.

While the tables show various specific goals and policies, many policies that are not applicable or relevant to OMF South are not listed. Some of the OMF South alternatives have features that vary in their consistency with a select few local policies but overall, the OMF South project alternatives are largely consistent with relevant plans and policies, particularly where commercial and higher intensity development is encouraged. The proposed project would be similar in development intensity to a light commercial or office development, covering an area similar in size to a shopping center or office complex (approximately 60 to 70 acres). The facility would also support high-capacity transit service relevant for higher intensity development.

The Washington State Growth Management Act requires that zoning be consistent with comprehensive plans. It also prohibits local governments from precluding the siting of essential public facilities through their comprehensive plans or zoning. OMF South is a "regional transit authority facility" and is, therefore, explicitly recognized as an essential public facility in the Growth Management Act (RCW 36.70A.200). Once an OMF South alternative is selected, jurisdictions have a "duty to accommodate" the project in their land use plans and development regulations. Recognizing the "duty to accommodate" essential public facilities, the sections below discuss whether OMF South or similar uses are permitted in the underlying zoning and compares OMF South to other permitted uses and the purpose and intent of the zones.

Midway Landfill Alternative

The Midway Landfill Alternative is consistent with the city of Kent Comprehensive Plan, Midway Subarea Plan, and the purposes of the zones that are located within the potential construction footprint.

Within Kent, the Midway Subarea Plan promotes preparation for future high-capacity light rail transit within its boundaries. The Midway Subarea Plan contains the commercial spine for Kent's West Hill residents and residents from Des Moines. The city of Kent developed the Midway

Subarea Plan — titled “Envision Midway” — and the plan notes that the city of Des Moines is expected to develop a similar subarea plan. The overall goal of the plan is to develop a walkable, compact community, including a mix of uses that “thrive in an economically and environmentally sustainable future supported by high-capacity transit.” The existing SR 99 (Pacific Highway South) commercial transportation corridor is planned to remain as an area appropriate for retail and light industrial uses while also accommodating pedestrian and transit users. The Midway Landfill Alternative would be located within the corridor. The proposed use (maintenance facility buildings) would be similar in scale and development intensity as light industrial uses and would be consistent with the urban character intended for this area. Sections 3.7, Visual and Aesthetic Resources, and 3.9, Noise and Vibration, describe how Sound Transit would minimize aesthetic and noise impacts that could otherwise affect adjacent land uses. Additional detail on the Midway Subarea Plan is provided in Appendix F2, Land Use Technical Appendix.

Most of the Midway Landfill Alternative (66 acres) is proposed for location in a Commercial Manufacturing II zone. The purpose of the Commercial Manufacturing II zone is to provide locations for those types of developments that combine some characteristics of both retail establishments and small-scale, light-industrial operations, heavy-commercial and wholesale uses, and specialty manufacturing. The proposed project would not conflict with targeted Commercial Manufacturing II uses since the maintenance facility would be similar in scale and development intensity as light industrial operations.

Furthermore, the OMF site would be consistent with a recently passed Transit Operations and Maintenance Facilities Interim Zoning Ordinance conditionally allowing OMFs within the Commercial Manufacturing II zone (City of Kent Code, KCC 15.04.060). Those portions of the facility planned for the Commercial Manufacturing II zone would be subject to a Conditional Use Permit except when a Development Agreement is pursued because land use approval would be included as a part of the Development Agreement requirements. The highest building height proposed for OMF South in draft plans is the OMF office building, at an estimated 36 feet. This proposed building height could necessitate a divergence from the code standard due to the 35-foot-height limitation for the Commercial Manufacturing II zone. In addition, the proposed development could result in approximately 11 percent of the site being covered with buildings and structures in the Commercial Manufacturing II zone, which is below the 50 percent maximum site coverage standard for this zone.

A small portion (0.6 acre) of the Midway Landfill Alternative would be located within the Single-Family Residential-6 (SR-6) zone at the southern edge of the potential construction limits. However, this area would not include elements of the facility itself; rather, it would be used primarily for landscaping and possibly for lead track and roadway improvements. Thus, it is not expected that the OMF site would conflict with the purpose of the Single-Family Residential-6 zone, which is to stabilize and preserve single-family residential neighborhoods. Impacts from the OMF South project could be minimized through building setbacks and landscaped buffers.

The northern lead tracks for the Midway Landfill Alternative would be located in the Midway Commercial Residential zone. The purpose and intent of this zone is to encourage the location of dense and varied retail, office, or residential activities in support of rapid light rail and mass transit options, enhance a pedestrian-oriented character, and implement the goals and policies of the Midway Subarea Plan. The Midway Commercial Residential zone lists transportation and transit facilities, including high-capacity transit, as conditional uses. While not listed as a permitted or conditional use, lead tracks are a part of a transportation facility that supports high-capacity transit. The lead tracks are consistent with the intent of the zone and, in scale and intensity, with the mainline tracks associated with transportation and transit facilities. Mainline tracks are a

conditional use within the Midway Commercial Residential zone. In addition, the proposed development would be consistent with the 80 percent maximum site coverage standard because the design would result in less than 3 percent of site being covered by buildings and structures in this zone.

The design of the tracks would be subject to high-capacity transit design requirements under Chapter 15.15 of Kent City Code. The design requirements are intended to ensure, in part, that high-capacity transit facilities are well designed, support transportation system connections, and adequately buffer different land uses.

Appendix F2, Land Use Technical Appendix, provides additional detail, including a list of each permitted transportation, public, and utility land use, for each type of zoning relevant to the Midway Landfill Alternative, as well as conditionally allowed uses, accessory uses, special uses, and uses that are not permitted in the applicable zones.

South 336th Street and South 344th Street Alternatives

OMF South is generally consistent with the city of Federal Way Comprehensive Plan as well as the intent of the zones that it would occupy within the footprints of the South 336th Street and South 344th Street alternatives. The city of Federal Way's Comprehensive Plan policies aim to support multi-family, commercial, and community business land use designations that encourage pedestrian walkability and transit use. Table F2-2 in Appendix F2, Land Use Technical Appendix, describes the zoning consistency of each of these alternatives. The alternatives would mostly affect multi-family residential- and commercial-zoned land.

The South 336th Street Alternative would acquire approximately 72 acres of multi-family zoned land and the South 344th Street Alternative would acquire approximately 42 acres of multi-family zoned land. These multi-family zones are intended to accommodate housing growth and meet a range of housing needs. Consequently, OMF South could reduce the land available for housing growth. If Federal Way needs greater housing capacity to accommodate growth, other areas suitable for residential development could be rezoned to accommodate higher intensities of housing production or infill incentives could be adopted to support more intense housing development in mixed-use zones. While the proposed use associated with OMF South could be inconsistent with Federal Way's multi-family land use designations, it is similar in scale and use to a government facility or public utility, which can be permitted with Process III approval from the city of Federal Way Community Development Director. Process III approvals are for large land use actions that require review under SEPA and by a Development Review Committee.

The South 336th Street Alternative would be mostly consistent with the 75 percent maximum site coverage standard because the overall design would result in approximately 76 percent of impervious surface coverage. The proposed development for the South 344th Street Alternative would be consistent with the 75 percent maximum site coverage standard because the overall design would result in approximately 65 percent of impervious surface coverage.

The South 336th Street Alternative would acquire approximately 6 acres of Commercial Enterprise zoned land, and the South 344th Street Alternative would acquire approximately 45 acres of Commercial Enterprise-zoned areas. The South 336th Street and South 344th Street alternatives would fit in with the Commercial Enterprise zone intent because the maintenance facility buildings are similar in scale and development intensity as office buildings and warehouses. This zone lists government facilities and public utilities as permitted land uses, which could encompass the use of transportation operation and maintenance facilities. The highest building height proposed for the operations and maintenance office building is estimated at 36 feet, which would exceed the public utility development standards of 30 to 35 feet. If public

utility standards are applicable to OMF South, Sound Transit would either need a divergence from the code standard or would need to design the building to avoid a height of 36 feet. The Commercial Enterprise zone is urban in character, with no maximum lot coverage.

Of all the zoning classifications within the South 336th Street and South 344th Street alternatives study areas, none explicitly list transportation and transit facilities or transit OMFs as a permitted land use. Most permitted uses are related to manufacturing, warehousing and storage, vehicles, and retail. However, all the zoning classifications do allow government facilities and public utilities as permitted land uses, which could include OMF South. Appendix F2, Land Use Technical Appendix, discusses the consistency of the South 336th Street and South 344th Street alternatives with each of the zones they are located in and highlights all the permitted uses associated with those zones.

As an essential public facility, the project would qualify for a Process IV land use approval, which requires a hearing examiner decision. Both the South 336th Street and South 344th Street alternatives would require a project-specific Process IV Hearing Examiner approval or a project-specific Development Agreement that includes land use approval, subject to a public hearing and approval by the Federal Way City Council. The OMF South project would be reviewed against the criteria listed for essential public facilities in Federal Way Revised Code Chapter 19.105, including demonstration of need, relationship of service area to population, minimum site requirements, concentration of essential public facilities to avoid undue burden on any one neighborhood, public participation, and proposed impact mitigation.

Proposed conceptual design and contiguous site layouts for the South 336th Street and South 344th Street alternatives would include removal of 20th Avenue S between S 336th Street and S 341st Place. Under Federal Way Revised Code Chapter 4.20, Vacation of Streets, Sound Transit would need to petition the Federal Way City Council to vacate 20th Avenue S because the street is public right-of-way. Alternatively, the City Council may initiate procedures by resolution.

The removal of street segments within the proposed South 336th Street and South 344th Street alternatives to create a contiguous facility may not comply with Federal Way development regulations concerning the size of blocks within the street network. Federal Way Revised Code Section 19.135.251, Block Perimeters, requires block perimeters to be no greater than 2,640 feet. However, this requirement and other general criteria may be modified if street connections cannot be made due to topographical constraints, environmentally sensitive areas, or adjacent development not being conducive. In addition, the Federal Way public works director may modify, defer, or waive Chapter 19 Zoning and Development Code requirements for various reasons, such as unusual physical conditions, the requirement not being harmonious with existing street improvements, or the project being part of the city's adopted six-year transportation improvement program (additional detail in Federal Way Revised Code Section 19.135.070 Modifications, Deferments and Waivers).

3.4.3 Environmental Impacts

3.4.3.1 No-Build Alternative

Under the No-Build Alternative, land use impacts from construction or operation of OMF South would not occur. FWLE will convert existing land uses in the Midway Landfill Alternative study area to transportation use. Other planned projects could also convert existing land uses since many of the areas are within commercial, multi-family residential, and mixed-use zones planned for development to accommodate future growth. Because TDLE would open after OMF South,

impacts associated with TDLE that would overlap with OMF South, such as the mainline tracks that would connect to the South 336th Street and South 344th Street alternatives, are addressed in the impacts discussion for build alternatives below. All other TDLE-related impacts are addressed in Chapter 4, Cumulative Impact Analysis.

Future population and employment growth are projected to increase in the respective cities' comprehensive plans. Both the Midway Subarea and Federal Way City Center plans have developed goals and strategies meant to support the development of high-capacity transit in their areas. Without the proposed OMF South project, the resulting level of service across the entire light rail system would potentially be lower than planned under Sound Transit 3. This could limit one of the driving factors behind land use conversion from existing lower-density, auto-oriented uses to transit oriented development or higher-density uses near future stations.

3.4.3.2 Long-Term Impacts

Impacts Common to All Build Alternatives

Direct land use impacts are those that occur as a result of transit operation and in locations where OMF South alternatives would require private or public property acquisitions to accommodate the facility, including the mainline, lead, and tail tracks.

All of the build alternatives would require property acquisitions. The discussion below describes the approximate share of each jurisdiction's zoning that would be acquired by each alternative as well as the acreage of land subject to possible land use conversions. The potentially affected properties are detailed in Section 3.3, Acquisitions, Relocations, and Displacements, and in Appendix F1, Potentially Affected Parcels.

For each build alternative, the existing land uses of acquired properties would be converted to a transportation-related use. Though surrounding properties generally would not face direct changes in their land use, they may experience proximity impacts related to the construction and operation of OMF South due to noise, visual, and air quality impacts. However, it is not expected that the identified visual, noise, and air quality impacts associated with OMF South would be severe enough to result in alteration of existing or potential future land uses. A study by an Urban Land Institute Advisory Services Panel addressed common concerns related to the effects of light rail transit maintenance facilities on air quality, pollutants, nighttime activity, noise, light, and aesthetics. The study conclusion noted that these concerns are likely unfounded for modern light rail maintenance facilities. Moreover, if the impacts are anticipated to be substantial, they could be addressed through the facility design process (ULI 2014).

As shown in Table 3.4-1, all build alternatives would acquire a share of their associated city's commercial, mixed-use, and residential zones. If not replaced, conversions of land within commercial and mixed-use zones can result in decreased commercially zoned property, which could possibly spur reductions in sales tax revenue. Land use conversions that reduce residentially zoned areas could decrease the amount of land available for housing growth.

Table 3.4-2 summarizes the existing land uses and the approximate acreage of affected properties for each alternative that would be converted to a transportation use. The South 344th Street Alternative would convert the most land (approximately 105 acres), the South 336th Street Alternative would convert less land (approximately 97 acres), and the Midway Landfill Alternative would convert the least amount of land (approximately 71 acres). Overall, these conversions would not notably change the local land use development patterns within the affected jurisdictions, but they could alter land use patterns in smaller localized areas.

Table 3.4-1 Estimated Share of Total Commercial, Mixed-use, and Residential Zoned Land to Be Acquired

Alternative	Commercial %	Mixed Use %	Residential %
Midway Landfill Alternative			
OMF Site	4.9%	0.3%	<0.1%
South 336th Street Alternative			
Mainline ^{1,2}	0%	2.5%	0.2%
OMF Site	0.4%	0%	0.6%
Total	0.4%	2.5%	0.8%
South 344th Street Alternative			
Mainline ^{1,2}	0.6%	2.4%	0.2%
OMF Site	1.7%	0%	0.3%
Total	2.3%	2.4%	0.5%

Sources: KCC Title 15; FWRC Title 19

Notes: This table shows the share of the project acreage within each city's commercial, mixed-use, and residential zones. See Table F2-10 in Appendix F2, Land Use Technical Appendix, for project acreages used to calculate percentages. These areas are approximate and were calculated using GIS tools based on conceptual designs and generalized zoning categories.

- (1) The South 336th Street and South 344th Street alternatives mainline track and tail track design options include similar existing land uses.
- (2) The mainline is the principal track that connects stations and OMFs. The mainline in Federal Way is planned to be constructed as part of TDLE and therefore would be built regardless of which OMF South alternative is selected.

Table 3.4-2 Existing Land Use Areas

Alternative	Commercial	Public/ Institutional	Multi-Family Residential	Single- Family Residential	Vacant Land	Total
Midway Landfill Alternative						
OMF Site	6.5	58.1	0.6	0.4	5.6	71.2
South 336th Street Alternative						
Mainline ¹	7.3	8.2	15.3	1.5	3.0	35.3
OMF Site	2.6	24.9	0.4	6.6	27.2	61.7
Total	9.9	33.1	15.7	8.1	30.2	97.0
South 344th Street Alternative						
Mainline ¹	15.9	7.7	15.3	1.5	5.0	45.4
OMF Site	17.0	5.7	0.0	8.0	28.6	59.3
Total	32.9	13.4	15.3	9.5	33.6	104.7

Source: King County Assessor (2019)

Notes: All areas in acres. The overall estimated total is 71 acres for the Midway Landfill Alternative, 97 acres for the South 336th Street Alternative, and 105 acres for the South 344th Street Alternative. This includes the areas within the project's potential construction limits. The acreage is approximate, calculated using graphic information system (GIS) tools. These are estimates based on conceptual designs. The South 336th Street and South 344th Street alternatives mainline track and tail track design options include similar existing land uses.

- (1) The mainline is the principal track that connects stations and OMFs. The mainline in Federal Way is planned to be constructed as part of TDLE and therefore would be built regardless of which OMF South alternative is selected.

Midway Landfill Alternative

Table 3.4-1 shows the estimated share of commercial, mixed-use, and residential zones that would be converted to transportation uses for the Midway Landfill Alternative. Specific acreage of zoning acquired by each alternative is referenced in Table F2-10 of Appendix F2, Land Use Technical Appendix. As shown in the table, the OMF site would convert less than 2 percent of Kent's commercial zoning and 0.32 percent of the mixed-use zoning to a transportation use. While the Midway Landfill Alternative would convert the largest share of a city's commercially zoned land compared to other build alternatives, the existing land use in these areas is mostly public/institutional (primarily the capped landfill) and vacant land. In contrast to all the other alternatives, the Midway Landfill Alternative would not convert any discernible amount of residentially zoned areas. Table 3.4-2 shows the existing land uses that would be converted to transportation uses for the Midway Landfill Alternative. Most land use conversions would be public/institutional land uses (approximately 58 acres) with smaller areas of commercial (under 7 acres) and vacant land (under 6 acres).

No permanent impacts are anticipated to the residential properties immediately adjacent to the north and south of the site. The residential uses along the north and south boundaries of the site would be near the Midway Landfill Alternative's landscaped yards and stormwater detention pond, which would provide a buffer between the residences and the site.

South 336th Street Alternative

As shown in Table 3.4-1, the mainline portion of the South 336th Street Alternative, including the tail track, would require conversion of 4.5 percent of mixed-use zoned land within Federal Way, the largest share of a city's mixed-use zone as compared to the other build alternatives. However, this area consists of approximately 16 acres of City Center Core-zoned property (Table F2-10, Appendix F2). The mainline would require the conversion of 0.02 percent of the city's commercially zoned land and 0.19 percent of residentially zoned land. As shown in Table 3.4-2, the mainline tracks would primarily convert residential land uses (17 acres), including portions of Belmor, and less than 19 acres of commercial land use, public/institutional land use, and vacant land. The number of mobile home displacements within Belmor varies by mainline design option, with an estimated 47 mobile home units displaced by the TDLE Preferred Alternative and 59 mobile home units displaced by the TDLE Design Option.

The South 336th Alternative OMF site would require conversion of 0.19 percent of the city's commercial-zoned land, 0.57 percent residentially zoned land, and no conversion of mixed-use land (Table 3.4-1). It would primarily convert existing vacant land (approximately 27 acres) and public/institutional land uses (approximately 25 acres), including the Christian Faith Center (Table 3.4-2).

The OMF site would convert approximately 54 acres of the city's multi-family residentially zoned property, an area intended to be used to accommodate housing growth (Tables F2-2 and F2-10, Appendix F2). Construction of the lead tracks would displace 14 residences adjacent to the I-5 right-of-way in order to connect the OMF site to the mainline. Additional detail is provided in Section 3.3, Acquisitions, Displacements, and Relocations.

South 344th Street Alternative

As shown in Table 3.4-1, the mainline, including either tail track option, would require conversion of 4.36 percent of Federal Way's mixed use-zoned land (or approximately 16 acres of City Center Core, similar to the South 336th Street Alternative), 0.28 percent of commercially zoned land, and 0.19 percent of residentially zoned land. Table 3.4-2 shows that the mainline track

would mostly convert existing residential, commercial, and public, institutional uses, as well as 5 acres of vacant land. As with the South 336th Street Alternative, a portion of Belmor would be affected. An estimated 47 mobile home units would be displaced by the TDLE Preferred Alternative, and 59 mobile home units would be displaced by the TDLE Design Option.

The OMF site, on the other hand, would not require any conversion of mixed-use zoned land but would require almost 0.9 percent of the city's commercially zoned land (or approximately 34 acres of commercial enterprise zoning). The OMF site would primarily convert existing vacant (29 acres), commercial (approximately 17 acres), and public/institutional land uses (almost 6 acres). Major existing commercial uses include GarageTown and Ellenos Yogurt. Two small church properties are located within areas designated as public/institutional. One of the properties is shared by two churches, so a total of three churches would be affected.

The multi-family residential-zoned area affected by the South 344th Street Alternative is similar to that of the South 336th Street Alternative. Approximately 8 acres of residential land uses would be converted as a result of the OMF site. The OMF site would displace 20 residences along S 340th Street and 18th Place S. Additional detail is provided in Section 3.3, Acquisitions, Displacements, and Relocations, and Section 3.5, Economics.

3.4.3.3 Construction Impacts

Construction impacts on adjacent land uses could arise from temporary impacts, such as noise, air quality, traffic, visual, and aesthetic changes, to nearby properties and economic impacts on businesses from construction-related activities. Construction impacts common to all alternatives are discussed below. There are no construction impacts specific to the build alternatives that would result in changes to land use.

Impacts Common to All Build Alternatives

For all build alternatives, there would be temporary noise and vibration impacts from construction activities. The South 336th Street and South 344th Street alternatives are expected to take approximately 3.5 years to construct, while the Midway Landfill Alternative could take over 8 years, depending on the subsurface construction design option chosen. Construction activities would be carried out in compliance with Sound Transit specifications and all applicable local jurisdiction noise regulations. In addition, the visual impact of construction is expected to be noticeable but temporary and no more impactful than other large construction projects. Changes in visual character are expected to be visible to surrounding viewers but would occur only within the project site boundaries. Sections 3.7, Visual and Aesthetic Resources, and 3.9, Noise and Vibration, discuss these construction impacts in more detail.

Because all construction activities, including staging, are expected to occur within the potential construction limits of the build alternatives, overall construction impacts on adjacent land uses are expected to be minimal. All build alternatives are anticipated to have minor impacts to property access and existing pedestrian and bicycle facilities. However, traffic volumes are estimated to increase throughout the study areas during peak hours. Increased traffic from construction could temporarily affect businesses in the project area but would not lead to long-term changes in land use because the construction haul routes would primarily use SR 99, I-5, and arterials that already experience large volumes of traffic. See Section 3.2, Transportation, for an analysis of construction impacts.

Given that most construction impacts are expected to be minimal and temporary, there would not be direct alteration of land use due to impairment or prevention of the primary function of such land.

3.4.3.4 Avoidance and Minimization of Impacts

The facility design process for OMF South would be developed according to Sound Transit's systemwide design goals and criteria as well as the design goals, criteria, and development patterns of the local municipality. The project would incorporate context-sensitive design considerations, which would likely vary in response to local comprehensive plans, overlay zones, and development standards related to building setbacks, landscaping, heights and massing, façade treatment, and urban design character. Site-specific design measures intended to increase compatibility with surrounding properties would be developed during final design, in consultation with the city of Kent or Federal Way through conditional land use approvals or development agreements.

Sound Transit would minimize construction and operation impacts that could otherwise affect adjacent land uses, as described in Sections 3.2, Transportation; 3.5, Economics; 3.7, Visual and Aesthetic Resources; 3.8, Air Quality and Greenhouse Gas Emissions; 3.9, Noise and Vibration; and 3.17, Parks and Recreational Resources.

Displacement of properties for the use of the proposed project would result in direct long-term changes to existing land use. Any land use conversions would comply with local government planning and permitting procedures before the project is built. Section 3.3, Acquisitions, Displacements, and Relocations, includes more information on how Sound Transit would minimize property impacts and relocations.

3.4.3.5 Indirect Impacts

Indirect impacts are changes that may occur as a result of the proposed project in the future and in areas beyond the project's direct and short-term impacts. Indirect proximity impacts may include traffic, noise, and visual impacts, as well as influences on transit oriented development and changes in adjacent land uses.

OMF South would provide Sound Transit with additional capacity to receive, test, commission, store, maintain, and deploy an expanded fleet of light rail vehicles, which would allow for more efficient operations of existing and future expansions of the light rail system than would occur without the facility. Improved light rail transportation service serving Kent and Federal Way could result in increased convenience and desirability of surrounding residential, commercial, and office properties. This may help advance parts of the cities' subarea and comprehensive plans, which include goals of increasing high-capacity transit and creating walkable, vibrant street life. Other benefits related to successful transit oriented development include improved mobility, increased transit ridership in a more efficient urban form, and opportunities for urban redevelopment. Higher-density land uses around stations can also bring increased economic activity. As noise and visual impacts are likely to be minimal in the long term, no indirect impacts on land use are expected.

3.4.4 Potential Mitigation Measures

In general, OMF South would be consistent with adopted comprehensive plans and land use policies, and no specific mitigation related to land use or zoning would be required.

3.5 Economics

This section describes the potential economic effects associated with the OMF South project alternatives. Transit facility projects can redefine property ownership and convert land use to a public transit use. They may disrupt businesses and communities but can also improve public transit service and support new economic activity. This economic analysis addresses the ways that land acquisition, construction, and operations of OMF South would impact economic conditions at and in the vicinity of the project sites and in the broader area.

For this effort, the alternatives were evaluated across several levels of geography. Site-specific effects were evaluated at each proposed OMF site and up to 0.5 mile from the potential construction limits of the build alternatives. Potential displacement of business activity and tax revenues were evaluated at the city level for Kent and Federal Way. Regional economic activity, such as jobs and labor income, were evaluated for the Puget Sound region, which includes King, Kitsap, Pierce, and Snohomish counties.

3.5.1 Affected Environment

3.5.1.1 Regional Demographic and Economic Trends

Employment in the Puget Sound region increased from 1.9 million in 2000 to 2.3 million jobs in 2018 (PSRC 2020a). During the same time period, median household income increased from approximately \$45,000 to over \$75,000 in Pierce County and from \$55,000 to \$95,000 in King County (PSRC 2020b).

Table 3.5-1 provides the population, household, and employment forecasts for the Puget Sound region and associated counties. The PSRC forecast for the region shows that the population will grow by over 1 million people between 2015 and 2040, reaching over 4.9 million by 2040. This amounts to an average 0.84 percent increase in population per year (PSRC 2017). PSRC data from 2017 shows that King County will grow at a slower pace of 0.69 percent, while Pierce County will grow at a faster rate of 1.04 percent.

The number of households in the Puget Sound region is predicted to grow by approximately 575,000 between 2015 and 2040 — or by 1.1 percent a year — which would be faster than the overall population growth of 0.84 percent; this essentially reflects faster growth in smaller households. Travel demand typically tracks more closely to growth in the number of households than to population, suggesting a possible increase in travel demand.

Table 3.5-1 Population, Household, and Employment Forecasts by Region and County

	2015 Forecast	2040 Forecast	Average Annual Growth Rate, 2015 to 2040
Puget Sound			
Population	3,914,972	4,957,920	0.84%
Household	1,533,067	2,107,8681	1.09%
Jobs	2,165,116	2,981,498	1.10%
King County			
Population	2,062,699	2,451,120	0.69%
Households	840,429	1,085,853	1.03%
Jobs	1,400,430	1,875,067	1.17%
Pierce County			
Population	837,111	1,085,041	1.04%
Households	311,137	466,202	1.63%
Jobs	350,208	498,086	1.42%

Source: PSRC (2017)

Note: While an updated regional economic forecast was published in 2018, this forecast does not include county-level data. For consistency purposes, the analysis used county and regional scale data from the PSRC Land Use Vision dataset, published in 2017.

Median household income in the Puget Sound region is higher than the state average. In 2018, King County had the highest median household income in the region, at about \$95,000, while Pierce County ranked fourth at about \$75,400 (PSRC 2019). From 2013 to 2018, incomes in King County grew by about 33 percent, while Pierce County incomes increased by about 31 percent. The U.S. Census Bureau reports that, in 2018, the median household income was \$68,880 for Kent and \$66,011 for Federal Way (PSRC 2020b).

Employment in the region is expected to grow at an approximate average rate of 1.10 percent through 2040. Pierce County is expected to have faster job growth than King County, at 1.42 percent per year versus King County at 1.17 percent per year. These trends support the predictions of increased travel demand in the region and along the project corridor.

3.5.1.2 Study Area Demographic and Economic Trends

Table 3.5-2 shows the growth of population, households, and jobs from 2015 to 2040 based on the PSRC Forecast Analysis Zone (FAZ) for the build alternatives. FAZs are geographic units used by PSRC to model and report its population, households, and employment forecasts. Figure 3.5-1 shows the location of FAZ 3046, which surrounds the Midway Landfill Alternative, and FAZ 3020, which surrounds both the South 336th Street and South 344th Street alternatives. PSRC's Vision 2050 anticipates population and employment in the Puget Sound region will continue to grow over the next 30 years. PSRC acknowledges that the current COVID-19 pandemic may have effects on the economy that could alter long-range forecasts. The next regional forecast is anticipated no earlier than 2023. For purposes of this Draft Environmental Impact Statement, the Vision 2050 forecasts were used for this analysis.

Table 3.5-2 Population, Household, Employment Forecast by FAZ

	2015 Forecast	2040 Forecast	Average Annual Growth Rate, 2015 to 2040
Des Moines (FAZ 3046)¹			
Population	23,479	26,972	0.40%
Households	9,188	11,548	0.66%
Jobs	7,792	14,079	1.70%
Central Federal Way (FAZ 3020)²			
Population	23,498	35,140	1.16%
Households	9,287	16,289	1.62%
Jobs	19,468	30,080	1.25%

Source: PSRC (2017)

Notes:

(1) Midway Landfill Alternative

(2) South 336th Street and South 344th Street Alternatives

The Midway Landfill Alternative is located in PSRC FAZ 3046, called the Des Moines area, although it includes a portion of Kent. As shown in Table 3.5-2, FAZ 3046 is forecast to experience a less than 1 percent growth rate in population and households between 2015 and 2040, along with a higher job growth rate of 1.7 percent.

The South 336th Street and South 344th Street alternatives are in the Central Federal Way FAZ 3020, which is bordered by I-5 and SR 99. Between 2015 and 2040, household growth in FAZ 3020 is expected to continue at about 1.6 percent annually. Population and jobs are expected to grow as well, at 1.16 and 1.25 percent annually, respectively.

Figure 3.5-1 also shows the census tracts in which each OMF South alternative is located. The Midway Landfill Alternative is in census tract 290.04, and the South 336th Street and South 344th Street alternatives are within census tract 303.13.

As shown in Table 3.5-3, employment in the census tract surrounding the Midway Landfill Alternative is split relatively evenly across the retail; manufacturing; and finance, insurance, real estate, and services employment sectors, each with substantial employment. Retail was the largest concentration in 2015, with approximately 37 percent of jobs. However, the finance, insurance, real estate, and services employment sector is expected to grow at a faster rate and overtake retail employment by approximately 2025.

Employment in the census tract containing both the South 336th Street and South 344th Street alternatives has a high concentration of finance, insurance, real estate, and services employment sector jobs, with over 50 percent falling into this category in 2015. By 2040, that share is expected to climb to over 60 percent — the largest growth rate of the sectors.

Table 3.5-3 Employment Forecasts by Census Tract

	2015 Forecast	2015 Share	2040 Forecast	2040 Share	Average Annual Growth Rate, 2015 to 2040
Census Tract 290.04¹					
Construction/Resources	91	4.2%	394	11.5%	6.0%
Manufacturing/WTU	653	30.4%	865	25.3%	1.1%
Retail/Food Services	793	36.9%	928	27.2%	0.6%
Finance, Insurance, Real Estate, and Services	546	25.4%	1,160	34.0%	3.1%
Government	68	3.2%	67	2.0%	-0.1%
Education	0	0.0%	0	0.0%	-
Total	2,151	100.0%	3,414	100.0%	1.9%
Census Tract 303.13²					
Construction/Resources	257	2.9%	412	2.8%	1.9%
Manufacturing/WTU	1,025	11.5%	1,574	10.5%	1.7%
Retail/Food Services	2,205	24.7%	2,874	19.2%	1.1%
Finance, Insurance, Real Estate, and Services	4,545	50.9%	9,011	60.2%	2.8%
Government	*	*	*	*	*
Education	*	*	*	*	*
Total	8,929	100.0%	14,969	100.0%	2.1%

Source: PSRC (2019a)

Notes: WTU = Wholesale, transportation, and utilities. Asterisk (*) indicates data suppressed to preserve confidentiality.

(1) Midway Landfill Alternative

(2) South 336th Street and South 344th Street alternatives

3.5.1.3 Local Revenue Sources

Table 3.5-4 shows the revenue sources for both Kent and Federal Way. The revenue sources are listed both by total dollar amounts and by percentage of total budget, based on the 2019 to 2020 adopted budget for each city. The latest budget information has been used in this analysis. However, it is unknown at this time what effect, if any, the COVID-19 pandemic may have on future revenues.

Table 3.5-4 General Fund Revenues for the Cities of Kent and Federal Way

Revenue Source	Kent Total	Kent Share	Federal Way Total	Federal Way Share
Property Tax	\$30,457,820	28.6%	\$11,077,213	19.5%
Sales Tax	\$19,890,180	18.7%	\$18,668,154	32.9%
Utility Tax	\$19,578,290	18.4%	--	--
Business and Occupation Tax	\$14,900,000	14.0%	--	--
Other	\$21,535,250	20.3%	\$26,978,875	47.6%
Total	\$106,361,540	100%	\$56,724,242	100%

Sources: City of Kent 2019-2020 Adopted Budget (City of Kent 2019b); City of Federal Way 2019/2020 Adopted Budget (City of Federal Way 2018)

Note: Utility and business and occupation taxes are not included in the city of Federal Way's General Fund.

Property taxes are the largest revenue source for Kent. For the 2020 adopted budget, property taxes represented 28.6 percent of the general fund revenue at more than \$30 million. Sales, utility, and business and occupation taxes are also important sources of revenue that collectively account for just over 50 percent of the city's general fund revenue. Kent's general fund finances the majority of the traditional services associated with local government.

Federal Way primarily collects its general fund revenue from "other" taxes, which include licenses and permits, intergovernmental taxes, charges for services, fines and penalties, etc. Sales tax brings in more revenue than property taxes, generating almost 33 percent of the general fund at nearly \$19 million. Federal Way's general fund supports 10 primary departments: city council; mayor's office; municipal court; law; finance; human resources; city clerk; community development; police department; and parks, recreation, and cultural services.

3.5.1.4 Regional Transportation of Goods and Services

I-5 is the primary corridor for regional and interstate commerce in the study region, while SR 99 is a designated freight route through Kent and Federal Way. The I-5 corridor is heavily congested during peak periods, which results in longer travel times, decreased reliability, and increased operating costs. While some businesses may choose to shift deliveries to non-peak hours, other companies may choose alternate routes to maintain reliable pickup and delivery times. Heavy congestion can also constrain access to labor as workers seek to minimize commute times. As a result, businesses may respond by expanding to other areas in the metropolitan region or by relocating outside of the region. A more detailed discussion about the existing freight use and throughput along the I-5 corridor is described in Section 3.2, Transportation.

3.5.2 Environmental Impacts

3.5.2.1 No-Build Alternative

Under the No-Build Alternative, economic impacts from construction or operation of OMF South would not occur. FWLE will likely encourage private, transit oriented development in the Midway Landfill Alternative study area, increasing property tax and sales tax revenues for local jurisdictions. Other planned projects may also have economic impacts, depending on the extent of business displacements and land use changes. Because TDLE would open after OMF South, impacts associated with TDLE that would overlap with OMF South, such as the mainline tracks that would connect to the South 336th Street and South 344th Street alternatives, are addressed within the build alternative impacts discussion below. All other TDLE-related impacts are addressed in Chapter 4, Cumulative Impact Analysis.

Under the No-Build Alternative, future economic development at the proposed sites would continue on its current course for the foreseeable future and in accordance with current planning goals. Sound Transit would be constrained due to the lack of enough light rail vehicles to meet the projected service needs of Sound Transit 3, which would result in increasing passenger loads as the population of transit users grows. These loads may continually meet or exceed capacity. Fleet constraints may also cause operational disruptions and inefficiencies, which could lead to economic effects resulting from reduced ridership and, as a result, could substantially affect each passenger's ability to travel throughout the Sound Transit service area. Increasing constraints on the transportation network could affect labor productivity as the costs (in time and expense) to commute to and from work increase.

3.5.2.2 Long-Term Impacts

Impacts Common to All Build Alternatives

For all build alternatives, long-term economic impacts are mainly associated with displacements and employment changes. The construction of OMF South may cause changes in the local area due to the acquisition of land that is currently used for other purposes, and impacts would primarily arise from displacement of employees and businesses on properties that are acquired and converted to public transit uses. Displacing those businesses would also initially change the amount of property tax burden and sales taxes collected in the local jurisdictions. If businesses are displaced outside of the region, business and occupation taxes and retail sales taxes could also be affected.

Once the project is constructed, staff would be employed to support the operation of OMF South. Based on estimates described in the OMF South Programming Technical Memorandum (Sound Transit 2020), approximately 476 total staff members would be employed, making it one of the larger employers in the area. These estimates are based on interviews, past experiences at other Sound Transit OMFs, and Sound Transit's projections on needed staff. This additional source of employment would help benefit the local economy and reduce the impact from employees displaced by the project alternatives (see Table 3.5-5).

Regional Transportation of Goods and Services

SR 99 is a designated freight route through the cities of Kent and Federal Way. The potential impacts associated with the OMF South build alternatives are not anticipated to negatively impact regional freight mobility in the study area. Freight traffic would experience similar travel times as the No-Build Alternative, and the cost of moving goods and services through the study region is not anticipated to increase as a result of the build alternatives. Similarly, it is not likely that the proposed alternatives for OMF South would result in increased congestion along the I-5 corridor. Section 3.2, Transportation, and Appendix G1, Transportation Technical Report, discuss potential transportation impacts in more detail.

Potential Business Displacement

Table 3.5-5 lists the number of businesses and employees that may be disrupted or displaced due to property acquisition. These estimates represent a likely upper bound of the potential direct displacement of employees across the proposed build alternatives. If firms can relocate within the existing community or the broader affected area, the economic effect of displacement may be small. On the other hand, if businesses choose to close or relocate outside of the region, the effect may be greater.

Table 3.5-5 Property Acquisition Impacts on Businesses and Employees

Alternative	Total Affected Businesses ¹	Business Displacements ²	Employee Displacements ³
Midway Landfill Alternative			
OMF Site	10	4	43
South 336th Street Alternative			
Mainline ^{4,5}	2	0	0
OMF Site	24	3	94
Total	26	3	94
South 344th Street Alternative			
Mainline ^{4,5,6}	5	1	31
OMF Site	55	14 ⁽⁷⁾	217
Total	60	15	248

Source: King County Assessor (2019)

Notes:

- (1) Total affected businesses include full and partial property acquisitions. Religious facilities (e.g., churches) are also included in affected business totals.
- (2) Business displacements include both businesses and religious facilities for fully acquired parcels only.
- (3) The number of displaced employees is based on the business building size (King County Department of Assessment data) and the type of business activity using square-foot-per-employee factors from the U.S. Department of Energy and the Institute for Transportation Engineers, and not on an actual survey of businesses. The analysis for estimating employees assumes that the businesses are not abandoned or vacant.
- (4) With either the TDLE Preferred Alternative or TDLE Design Option.
- (5) The mainline is the principal track that connects stations and OMFs. The mainline in Federal Way is planned to be constructed as part of TDLE and therefore would be built regardless of which OMF South alternative is selected.
- (6) With either the Enchanted Parkway or I-5 mainline tail track options.
- (7) Includes GarageTown, comprised of approximately 60 owners.

The effects of potential business displacements are complex. Substantial displacement of local businesses can affect residents and businesses alike. Often the direct impacts for displaced businesses are financial, but there can be other consequences as well.

Businesses are affected differently based on their characteristics. Firm size and community importance may determine the level of impact on employment and to the community. For example, small and minority-owned businesses that rely on a localized customer base may have more difficulty finding substitute locations. Many of these businesses support local economic growth and innovation in the communities they serve. Businesses that use machinery or hazardous substances may require large parcels or have additional challenges that may make relocation difficult. Further, a business may have a suitable place to relocate, but the new location could limit access to its existing labor pool.

Relative to the employment base in the study region, the estimated number of employees displaced from the proposed build alternatives is small. These estimates do not necessarily reflect potential job losses in the study region. Sound Transit would provide relocation assistance to businesses that are displaced, as described in Section 3.3, Acquisitions, Displacements, and Relocations.

This analysis cannot assess other characteristics of business vulnerability from displacement. Information about profitability or economic competitiveness of individual businesses is not publicly available. While these characteristics may be considered along with the broader social impacts of business disruption from the project alternatives, they are outside the scope of this

Draft Environmental Impact Statement (WAC 197-11-448). Other anticipated socioeconomic impacts related to business and employee displacement are discussed in Section 3.6, Social Resources, Community Facilities, and Neighborhoods.

Impact of Displacement on Tax Base

All the build alternatives would acquire parcels that have existing commercial or industrial activity. Businesses located within these parcels pay a sales tax. Businesses in Kent also pay a business and occupation tax, as shown in Table 3.5-4. Aside from general assumptions about the initial sales and business and occupation taxes that would occur as a result of property acquisition, calculating the specific reductions for such taxes is not possible, given the inability to know exactly how many businesses would relocate and remain within each city. The acquisitions for OMF South could result in initial reductions of sales and business and occupation taxes by displacing those existing businesses. If such businesses relocate to another area within the city, they would resume paying sales and business and occupation taxes.

Similar to sales and business and occupation taxes, it is not possible to calculate specific property tax impacts due to complex property tax policies in the state of Washington. The acquisitions would initially reduce property taxes in the cities of Kent and Federal Way; however, the impact is expected to be small. The reduction of developable properties may affect the property tax base in the region by lowering the potential for new construction on acquired properties. This may require changes in local government budgets or an increase in rates to taxpayers to recover budgeted funds. Local governments would be constrained to the annual 1 percent levy rate increases to cover existing costs unless certain exemptions apply.

These initial effects do not capture the full potential fiscal impacts related to OMF South and the proposed build alternatives. Some of the initial tax revenue displacement would be offset through sales taxes for construction-related purchases that occur within the local jurisdiction. The long-term implications of the fiscal impacts associated with the project depend on business location decisions. Some displaced businesses may choose to relocate to other sites in the local area. Retaining those displaced businesses could reduce the effect on local sales taxes.

In addition, if the project were to promote future development and investment in the local vicinity, property tax assessments could increase. However, the project could also result in shifting demand across the region, so that while assessments adjacent to new development may increase, property tax assessments in other areas of the city might stagnate. Overall, the impact is expected to be small given the reduction in taxable assessed valuation of acquired properties in relation to the area's overall tax base (see Table 3.5-6). For example, the total taxable assessed valuation of real property for full and partial acquisitions for the South 344th Street Alternative accounts for 0.79 percent of Federal Way's overall assessed valuation in 2019; none of the alternatives exceed 1 percent.

Table 3.5-6 Total Taxable Assessed Valuation by Alternative

Alternative	Total Parcels	Total Taxable Value	Jurisdiction Total Taxable Value ¹	Acquired Jurisdiction Taxable Share
Midway Landfill Alternative				
OMF Site	42	\$24.3 M	\$19.8 B	0.12%
South 336th Street Alternative				
Mainline ^{2,3}	5	\$28.1 M	\$11.0 B	0.26%
OMF Site	31	\$22.7 M	\$11.0 B	0.21%
Total	36	\$50.8 M	\$11.0 B	0.46%
South 344th Street Alternative				
Mainline ^{2,3,4}	9	\$57.5 M	\$11.0 B	0.52%
OMF Site	55	\$42.0 M	\$11.0 B	0.38%
Total	64	\$99.5 M	\$11.0 B	0.91%

Source: King County Assessor (2019)

Notes:

- (1) Jurisdiction is Kent for the Midway Landfill Alternative and Federal Way for the South 336th and South 344th Street alternatives.
- (2) With either the TDLE Preferred Alternative or TDLE Design Option.
- (3) The mainline is the principal track that connects stations and OMFs. The mainline in Federal Way is planned to be constructed as part of TDLE and therefore would be built regardless of which OMF South alternative is selected.
- (4) With either the Enchanted Parkway or I-5 mainline tail track options.

Midway Landfill Alternative

The Midway Landfill Alternative would have the smallest impact on employment displacements (see Table 3.5-5), and the identified businesses would likely be able to relocate to nearby properties. The affected businesses are an insurance business, an optometry clinic, and two warehouse businesses; the other affected parcels around the closed Midway Landfill are mostly vacant. Under this alternative, the existing Metro RapidRide stops at SR 99 and S 246th Street would need to be relocated to the future Kent/Des Moines Link station, mitigating any impact for commuters who would use those transit stops.

South 336th Street Alternative

The South 336th Street Alternative OMF site would displace the Christian Faith Center, a religious facility with an associated private school, resulting in the disruption of approximately 94 jobs. Although neither entity is taxable, they represent the two largest sources of employment that would be disrupted.

South 344th Street Alternative

The South 344th Street Alternative OMF site would disrupt some light manufacturing in the area. Ellenos Yogurt recently made investments to its facility and has stated that many of the improvements could not be moved. Additionally, GarageTown houses over 60 individually rented or owned storage facilities. Both businesses would be difficult to relocate. For Ellenos Yogurt, it is unlikely that there is an existing facility with the same manufacturing equipment required for producing yogurt. GarageTown is less likely to have large, specialized capital requirements, but does have a large footprint; it may be difficult to find a site within the same area that also provides ease of access for its existing customer base.

Based on the existing vacancy rates for retail and industrial sites in the region, there is potential capacity for the other displaced businesses to relocate. If any of the firms relocate outside of Federal Way, however, the city may lose some benefits from local consumption and contributions to the tax base. Although the total value added from the firms is unknown, the potential job displacement as a total share of employment in the region is small (see Table 3.5-5) and dependent on whether affected businesses relocate in the area or not. None of the identified businesses appear to be heavy industrial or to use large amounts of toxic substances, which could otherwise make relocation difficult.

3.5.2.3 Construction Impacts

Construction supports economic activity through the purchase of goods and services and labor income in the study area. The economic contributions arising from construction projects are often temporary in nature and occur as construction spending unfolds. While the infusion of new money on capital projects can be beneficial to a region, residential and commercial sites that are adjacent to the proposed sites may experience some disruption and other adverse effects from construction. However, investments in capital projects that can reduce future congestion and pollution may have broader long-run benefits than what is typically measured in short-run economic impact analyses.

Construction activity may disrupt current economic activity by increasing traffic delays and may result in other negative externalities, such as increased noise adjacent to the construction site. However, those effects are anticipated to last only through the duration of the construction phase. The project is not expected to result in large changes in access to nearby businesses or lead to changes in existing transportation networks. Please see Sections 3.2, Transportation, and 3.9, Noise and Vibration, for more discussion on potential impacts during construction.

Table 3.5-7 displays the gross economic contributions from each build alternative. As shown, employment and spending would increase during construction for all the alternatives. The South 336th Street and South 344th Street alternatives have similar expenditure and employment estimates, while the Midway Landfill Alternative estimates are greater due to its longer construction period. Construction would bring revenue into the economy with the jobs that it produces, and the money spent by construction employees in the surrounding community. The extent of these impacts would depend on the source of project funding and the types of work crews performed.

The preferred approach for these analyses is to account only for new capital that would flow into the region for each alternative; however, that information was not available for this analysis. Instead, the values above represent the gross contributions, or “economic footprint,” associated with each alternative. As such, it represents an upper-bound estimate of economic activity associated with the project.

In either case, the build alternatives would support economic activity in the region by increasing demand for inputs to the construction industry. Additionally, the wages paid to workers in construction or supporting industries would support consumption in the region. However, as this is not a net analysis, these results do not delineate between new economic activity in the region and activity that is repurposed as a result of this project. Additionally, it does not account for the opportunity cost of using those public dollars for an alternative use.

Table 3.5-7 Direct Expenditures and Direct Employment During Construction

Alternative	Direct Expenditures ¹	Total Economic Output ²	Direct Employment (Job Years ³)	Total Employment (Job Years ³)
Midway Landfill Alternative				
Platform	\$2.2 B	\$4.2 B	9,101	20,054
Hybrid	\$1.7 B	\$3.4 B	7,356	16,209
Full Excavation	\$1.6 B	\$3.2 B	6,821	15,031
South 336th Street Alternative				
Mainline ⁴	\$0.2 B	\$0.4 B	895	1,972
OMF Site	\$1.0 B	\$1.9 B	4,202	9,259
Total	\$1.2 B	\$2.4 B	5,097	11,231
South 344th Street Alternative				
Mainline ⁴	\$0.3 B	\$0.6 B	1,218	2,683
OMF Site	\$1.0 B	\$2.0 B	4,273	9,415
Total	\$1.3 B	\$2.5 B	5,490	12,098

Sources: Sound Transit and Washington Office of Financial Management Input-Output Model 2015

Notes:

- (1) Direct expenditures exclude construction contingency allowance and the purchase of land.
- (2) The multipliers from the Washington Office of Financial Management Input-Output model are representative of the State of Washington and differ from economic multipliers created for the four-county PSRC region.
- (3) A job year is defined as full-time employment for one person over the course of a year (assuming 2,080 hours of employment per year).
- (4) The mainline is the principal track that connects stations and OMFs. The mainline in Federal Way is planned to be constructed as part of TDLE and therefore would be built regardless of which OMF South alternative is selected.

The direct expenditures and employment shown in Table 3.5-7 represent spending and jobs directly related to the project alternatives. Total economic output and total employment account for both the direct, supply chain, and consumption effects associated with each alternative, known collectively as secondary effects. These secondary effects are represented by economic multipliers, which trace how spending is distributed across other industries to support economic activities in a study region.

Construction spending (excluding land and equipment) tends to have a high multiplier, as many of the labor and capital inputs are supplied locally. Based on the multipliers in the 2015 Washington Office of Financial Management Input-Output model, every \$1 million spent on construction activity supports an additional \$956,000 in economic output. As mentioned previously, expansionary projects can result in increased economic capacity but result in only a short-run increase in output and jobs. Often the impacts calculated from construction spending dissipates as project spending declines.

3.5.2.4 Avoidance and Minimization of Impacts

Construction might cause adverse temporary impacts on businesses due to reduced access or nuisances associated with general construction activity such as noise, vibration, or dust. Avoidance and minimization measures as described in the following sections would reduce these impacts: Section 3.2, Transportation; Section 3.3, Acquisitions, Displacements, and Relocations; Section 3.7, Visual and Aesthetic Resources; Section 3.8, Air Quality and Greenhouse Gas Emissions, and Section 3.9, Noise and Vibration.

Construction plans would be developed to address the needs of businesses and could include, but are not limited to, the following elements:

- Provide a 24-hour construction telephone hotline.
- Establish effective communications with the public through measures such as meetings and construction updates, alerts, and published schedules.
- Provide a community liaison to investigate complaints during the construction phase.
- Provide detour, open-for-business, and other signage as appropriate.
- Maintain access as much as possible to each business and coordinate in advance with businesses during times of limited access.

3.5.2.5 Indirect Impacts

OMF South could have indirect economic impacts on properties adjacent to the construction site from temporary changes in traffic flow, noise levels, and visuals that could result in changes to business sales or property values. Impacts to local businesses are anticipated to be minor and last only through the duration of the construction phase. No substantial changes in existing transportation networks or access to nearby businesses are expected as a result of construction for any of the OMF South build alternatives.

For the Midway Landfill Alternative, residential properties adjacent to the project site may gain some marginal benefits from increased property values, depending on the extent of landfill remediation associated with the OMF South project. Many economic analyses have found that clean-up of designated Superfund sites can have a positive effect on adjacent property values, but information about the timing and magnitude of that effect varies greatly across sites (Kiel and Williams 2007).

Other amenities that affect property values, such as proximity to green space, are not anticipated to be impacted by any of the build alternatives.

3.5.3 Potential Mitigation Measures

No specific mitigation related to economic impacts would be required.

3.6 Social Resources, Community Facilities, and Neighborhoods

This section evaluates how the OMF South project alternatives could affect social resources, community facilities, and neighborhoods. The study area for this analysis includes all social resources, community facilities, neighborhoods, and census block groups within 0.5 mile of the potential construction limits of each OMF South build alternative. Due to their close proximity, a single study area was identified for the South 336th Street and South 344th Street alternatives.

The Midway Landfill Alternative study area is primarily within Kent, with smaller portions in Des Moines and unincorporated King County. The combined study area for the South 336th Street and South 344th Street alternatives is primarily within Federal Way and includes a small portion of unincorporated King County.

Consistent with FTA Title VI Circular and the FHWA Community Impact Assessment: A Quick Reference for Transportation, four key neighborhood and community issues were used to evaluate the project's potential impact on the study area (FTA 2012; FHWA 2018):

- Changes in neighborhood quality
- Barriers to social interaction
- Impacts on community resources
- Impacts on safety and security

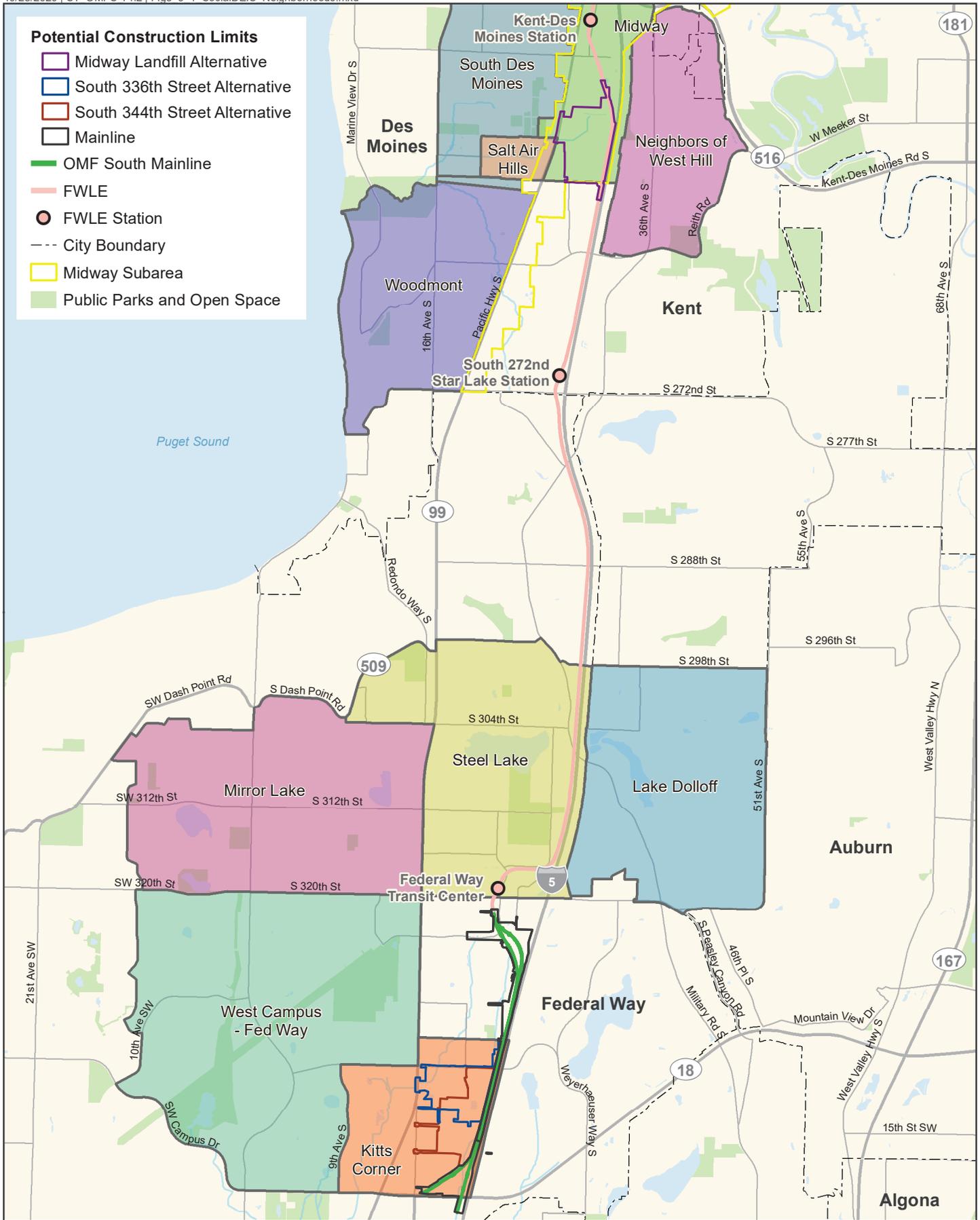
This section uses information from other relevant sections in the Environmental Impact Statement, including Section 3.3, Acquisitions, Displacements, and Relocations; Section 3.4, Land Use; Section 3.5, Economics; Section 3.7, Visual and Aesthetic Resources; Section 3.8, Air Quality and Greenhouse Gas Emissions; Section 3.9, Noise and Vibration; Section 3.14, Public Services; and Section 3.17, Parks and Recreational Resources.

SEPA does not require an environmental justice evaluation; however, Sound Transit performed an analysis to support future federal approvals, as needed. Potential impacts to environmental justice populations are discussed in Appendix E1, Environmental Justice Evaluation, as part of Appendix E, NEPA Compliance Documentation.

3.6.1 Affected Environment

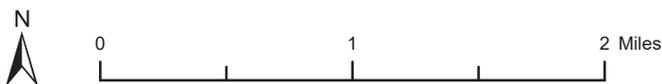
Figure 3.6-1 shows the neighborhoods within the OMF South study areas, and Figure 3.6-2 and Figure 3.6-3 show all social resources within the study areas, including both subsidized (affordable) and nonsubsidized housing below market rate within the study area. Affordable housing was identified in the study area by reviewing information from the U.S. Department of Housing and Urban Development and King County Housing Authority to identify properties and housing developments that provide subsidized housing or housing assistance for low-income and cost-burdened families. Additional nonsubsidized below-market-rate housing within the study area is available through private developments, such as apartment complexes, manufactured or mobile home developments, and RV parks.

A low-income person is identified as a person whose household income is at or below the U.S. Department of Health & Human Services poverty guidelines (FTA 2012). The 2020 poverty guideline is an annual income of \$12,760 for a household of one and \$26,200 for a household of four (HHS 2020). Sound Transit's low-income threshold is two times the federal poverty level, which the agency has determined is appropriate for use in determining eligibility for a reduced fare program and reflects the increasingly high cost of living in the region.



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

FIGURE 3.6-1
 Neighborhoods
 OMF South Alternatives
 OMF South



3.6.1.1 Study Area Characteristics

Midway Landfill Alternative

The Midway Landfill Alternative study area is primarily located within Kent and also includes parts of Des Moines and unincorporated King County. The portions of unincorporated King County within the study area have been identified by Kent as part of the city's Potential Annexation Area. I-5 and SR 99 are major roadways that run north-south through the study area and connect the area to the greater Puget Sound region.

The study area includes a substantial portion of the Midway Subarea, which was identified in the Midway Subarea Plan as an area with development potential associated with future light rail transit (City of Kent 2011). The Midway Subarea is located along the western border of Kent between I-5 and SR 99 and between SR 516 (Kent-Des Moines Road) and S 272nd Street (Figure 3.6-1). It includes primarily commercial land uses along SR 99, including restaurants, retail shops, automotive services, and large "big box" stores, such as Lowe's and Fred Meyer. There are also some vacant and industrial land uses and a limited number of residential parcels within the Midway Subarea.

Outside of the Midway Subarea, the Midway Landfill Alternative study area contains mostly residential areas east of I-5, west of SR 99, and south of S 252nd Street. A majority of residential parcels in the study area are single-family homes, in addition to some multi-family dwellings and mobile homes. The Midway RV and Mobile Home Park is directly north of the Midway Landfill and contains approximately 35 mobile home units.

The following neighborhoods are within 0.5 mile of the potential construction limits of the Midway Landfill Alternative: Pacific Ridge, Saltair Hills, Woodmont Beach, and West Hill (Figure 3.6-1). Community cohesion within dense, single-family subdivisions is likely high; however, several barriers exist that likely prevent interaction between neighborhoods. On the east side of the Midway Landfill Alternative, I-5 acts as a barrier between the West Hill neighborhood and the site; on the west side of the Midway Landfill Alternative, SR 99 acts as a barrier between the Saltair Hills and Woodmont Beach neighborhoods and the site.

Social resources located within the Midway Landfill Alternative study area are depicted in Figure 3.6-2. The study area includes education facilities, such as Highline College and two Highline School District elementary schools. Highline College is a community college with over 17,000 total students and provides community resources for the surrounding area. There is a WorkSource Connection Site located at Highline College, which provides employment and training services to the community. The study area also includes community facilities such as parks and religious facilities; however, resources such as health care centers and government services are located outside of the study area. Affordable housing in the study area is provided by King County Housing Authority at Campus Court Apartments. Properties offering nonsubsidized below-market-rate housing in the study area include Green Acres Mobile Home Park, Jackson Mobile Home Park, Mar Villa Mobile Home Park, Tip Top Trailer Park, New Alaska Trailer Park, Midway RV and Mobile Home Park, and West Hill Mobile Home Park.

South 336th Street and South 344th Street Alternatives

The combined study area for the South 336th Street and South 344th Street alternatives is primarily located within Federal Way and also includes parts of unincorporated King County. The portions of unincorporated King County have been identified as part of Federal Way's

Potential Annexation Area. The mainline for these alternatives begins at Federal Way Transit Center, which is located within the Federal Way City Center core.

The South 336th Street and South 344th Street alternatives are both located within the Kitts Corner neighborhood, and the study area intersects the following neighborhoods: Mirror Lake, Steel Lake, Lake Dolloff, and Federal Way West Campus (Figure 3.6-1). The study area consists primarily of commercial land uses in addition to residential, institutional, and vacant parcels. Commercial uses are concentrated around The Commons at Federal Way shopping center and are also mixed with industrial uses along SR 99. Residential uses within the study area are concentrated in the area along the mainline tracks between The Commons shopping center at S 324th Street and the northern boundary of the South 336th Street Alternative at S 336th Street.

This primarily residential area includes numerous apartment and condominium complexes in addition to two mobile home parks: Charwood Mobile Home Park and Belmor Park Golf & Country Club. Charwood Mobile Home Park has space for 74 mobile home units. Belmor is a 63-acre mobile home park for adults 55 years and older that contains over 300 mobile home units. The property includes a nine-hole golf course and other amenities, including a pool, craft room, exercise room, and clubhouse. There are also several single-family homes along S 340th Street and 18th Place S. Community cohesion within apartment, condominium, and mobile home complexes is likely high; however, most of the residential developments are somewhat isolated from one another, preventing interactions between neighborhoods and subdivisions.

Figure 3.6-3 depicts social resources located within study area for the South 336th Street and South 344th Street alternatives. Numerous religious facilities are located within the study area, including the Christian Faith Center and its associated school, Pacific Christian Academy. There are also several healthcare centers and government services, including a post office, a Department of Licensing location, and the Greater Federal Way Chamber of Commerce. Additional social resources include parks, transit facilities, education facilities, and nonprofit organizations. Affordable housing in the study area is provided by King County Housing Authority at Kings Court Apartments and Evergreen Court Apartments. Properties offering nonsubsidized below-market-rate housing in the study area include Madrona Park Senior Living, Meridian Court Apartments, Villa Esperanza Apartments, Belmor, Charwood Mobile Home Park, Celebration Senior Living, and Kitts Corner Apartments.

3.6.1.2 Population Characteristics

The following section summarizes study area demographics for each of the OMF South build alternatives. Demographic data for minority and low-income populations is reported for census tracts and block groups and is based on the latest available American Communities Survey 5-year estimates published by the U.S. Census Bureau (see Table 3.6-1). For the purposes of this analysis, minority and low-income populations are analyzed at the block group level. The demographics analysis includes all census blocks that are either entirely or partially located within the study areas for the build alternatives.

Table 3.6-1 provides a summary of demographics in the study areas and compares the population characteristics to those of the three cities within the study areas (Des Moines, Kent, and Federal Way), the Sound Transit District, and King County as a whole. The Sound Transit District includes the total area of Sound Transit services from Everett in the north, Issaquah and Sammamish in the east, and DuPont in the south. It is comprised of 53 cities in King, Pierce, and Snohomish counties and includes a population of approximately 2.8 million people.

Des Moines, Kent, and Federal Way have higher proportions of both low-income and minority residents when compared to all of King County and the Sound Transit District, and both study areas have higher proportions of low-income and minority persons than the three cities. The Midway Landfill Alternative study area has the highest percentages of both low-income and minority persons, at 62 percent and 44 percent, respectively.

Table 3.6-1 Study Area Demographics

	Midway Landfill Alternative Study Area	South 336th Street and South 344th Street Alternatives Study Area	Kent	Des Moines	Federal Way	King County	Sound Transit District
Total population	16,769	19,837	124,959	31,253	93,712	2,079,550	3,158,800
Population under 5 years old (%)	7	8	7	5	7	6	6
Population over 64 years old (%)	8	14	10	17	12	12	12
Minority (%) ¹	62	53	53	46	51	38	39
Low-income (%) ²	44	37	34	33	35	23	18

Source: U.S. Census Bureau (2017)

Notes: Percentages represent estimates based on survey data. Survey data are not available at the census-block level; the data represents an estimate of minority and low-income persons in block groups within 0.5 mile of each build alternative.

(1) Minority is defined as all race/ethnicity groups except for “Non-Hispanic White Alone.”

(2) Low-income is defined the number or percent of a block group’s population in households where the household income is less than or equal to twice the federal poverty level.

3.6.2 Environmental Impacts

This section describes the potential impacts to social resources, community facilities, and neighborhoods for each of the OMF South alternatives.

3.6.2.1 No-Build Alternative

Under the No-Build Alternative, there would be no property acquisitions or other related changes associated with the OMF South project. FWLE will have some social impacts in the Midway Landfill Alternative study area. It will not displace any community facilities but will affect some neighborhoods by acquiring several multi-family residences and one mobile home park. Other planned projects in the area could also have social impacts, depending on the extent of the associated disruption. Because TDLE would open after OMF South, impacts associated with TDLE that would overlap with OMF South, such as the mainline tracks that would connect to the South 336th Street and South 344th Street alternatives, are addressed within the build alternative impacts discussion below. All other TDLE-related impacts are addressed in Chapter 4, Cumulative Impact Analysis.

As part of FWLE, the Kent/Des Moines Station will be located within the OMF South study area for the Midway Landfill Alternative, and the Federal Way Transit Center station will be located within the study area for the South 336th Street and South 344th Street alternatives. The neighborhoods surrounding these new light rail stations would likely experience the greatest changes, including through added transportation infrastructure and associated development.

3.6.2.2 Long-Term Impacts

Impacts Common to All Build Alternatives

Permanent impacts associated with all OMF South build alternatives include residential and commercial property acquisitions and land use conversions. For all displaced properties, Sound Transit would provide relocation assistance to displaced property owners and renters, according to the federal Uniform Relocation Act. More information about relocation assistance can be found in Section 3.3, Acquisitions, Displacements, and Relocations. Parcels acquired for OMF South would be converted from their existing land uses, such as commercial and residential, to transportation-related land use and would have to be rezoned accordingly. These land use changes are detailed in Section 3.4, Land Use. Final determinations of affected properties will be based on the project's final design, following Sound Transit's completion of the environmental review process and selection of the project to be built.

There would also be long-term impacts to visual character for residents and businesses located in close proximity to the OMF South sites and connecting tracks. All the build alternatives would add new buildings, at-grade and 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. Elevated sections of mainline tracks and other elements of the site would be prominent and impact visual quality in neighborhoods and businesses in proximity to OMF South. These impacts are detailed in Section 3.7, Visual and Aesthetic Resources.

Midway Landfill Alternative

There would be no long-term impacts to social resources or community facilities within the Midway Landfill Alternative study area. The Midway Landfill Alternative would result in the fewest impacts to social resources and community cohesion compared to other build alternatives.

For the Midway Landfill Alternative, all affected parcels and displacements are associated with the OMF site because mainline impacts were evaluated with the FWLE project. The Midway Landfill Alternative OMF site would require relatively few property acquisitions that would affect social resources because it is primarily located on an existing landfill owned by the city of Seattle and managed by SPU. The OMF site would displace four businesses that could be relocated without having long-term impacts to community cohesion within the study area. There are no residential displacements associated with the Midway Landfill Alternative.

The Midway Landfill Alternative study area has the highest levels of low-income and minority populations as compared with other OMF South build alternatives. However, because there would be no residential displacements and the few business relocation impacts would be mitigated, it is unlikely that this alternative would cause long-term impacts to these populations. More detailed information is available in Appendix E1, Environmental Justice Evaluation.

South 336th Street Alternative

The mainline for the South 336th Street Alternative would affect one large multi-family residential parcel, the Belmor mobile home park. Depending on which track design option is selected, approximately 47 to 59 mobile homes would be displaced. Displacement of these mobile homes would likely adversely affect community cohesion within Belmor but would be unlikely to affect social cohesion in the surrounding neighborhoods of Steel Lake and Kitts Corner. Noise impacts from the mainline are expected at 3 to 4 residential properties under this

alternative, although those impacts can be mitigated. See Section 3.9, Noise and Vibration, for more details.

The South 336th Street Alternative OMF site would permanently impact several social resources, including one religious facility. It would displace the Christian Faith Center church and its associated school (Pacific Christian Academy) and day care center (CF Kidz). The Christian Faith Center is a large-capacity church; therefore, it could be challenging to relocate a religious facility of this size, and displacing it would impact the members of the service population from within and beyond the 0.5-mile study area.

The OMF site would also displace 14 residences, comprised of one four-unit multi-family residential property and 10 single-family residential properties. Nine of these residences are located adjacent to the I-5 right-of-way, between S 333rd Street and S 336th Street, where the lead tracks would connect to the mainline. Residential displacements associated with the OMF site would not affect neighborhood quality because the properties are located on private drives and are relatively isolated. Additionally, the OMF site would displace two businesses: a childcare center and an auto-repair shop. Because of their small size and relative abundance in the study area, these businesses could be relocated without causing long-term impacts to community cohesion.

South 344th Street Alternative

The South 344th Street Alternative would impact the most social resources and would have the greatest number of business and residential displacements as compared with the other build alternatives.

The mainline for the South 344th Street Alternative would have identical impacts with respect to community cohesion and neighborhoods as the South 336th Street Alternative mainline. This includes displacing 47 to 59 mobile homes in Belmor, depending on which track design option is selected. Similar to South 336th Street Alternative, noise impacts from the mainline are expected at 3 to 4 residential properties, although those impacts can be mitigated. Both mainline tail track options for the 344th Street Alternative would displace one business, the Red Lion Inn and Suites hotel; however, no impacts to social resources or community cohesion are expected from the mainline tail tracks.

The South 344th Street Alternative OMF site would displace approximately 20 residences and 11 businesses, including GarageTown and Ellenos Yogurt, which serve local populations and contain specialized facilities. GarageTown houses over 60 individually rented or owned storage facilities and provides a community resource for tenants; however, impacts to community cohesion would be limited. Due to the unique site characteristics and large footprint, GarageTown may be challenging to relocate within the same area to continue to provide ease of access for its existing customer base. The OMF site would also displace three religious facilities: Cross Life Community Church and Family Life Community Church (located in the same building) and Voice of Hope Church. The displacement of three religious facilities could affect community cohesion if relocation of these facilities is not able to be accommodated in proximity to the study area.

3.6.2.3 Construction Impacts

Impacts Common to All Build Alternatives

Construction of a major project such as OMF South involves intensive activities that last several years. If the project is constructed near community resources and neighborhoods, community activities and cohesion could be affected. Construction associated with OMF South would include staging areas; reserves of building materials; temporary fencing; lighting; large vehicles such as cranes, dump trucks, bulldozers, and excavators; and temporary roads and/or detours of traffic lanes and sidewalks. Community resources and neighborhoods in proximity to these construction materials and activities would be impacted by access and mobility restrictions and increased truck traffic; localized adverse impacts to air and visual quality; and increased noise and vibration. When construction is complete, properties and access would be restored as closely as possible to their previous conditions.

Midway Landfill Alternative

The Midway Landfill Alternative would impact the Midway RV and Mobile Home Park, located along the northern boundary of the Midway Landfill, during construction. It would require permanent easement access through the mobile home park but would not displace any mobile home units. This alternative would also have varying construction impacts associated with transportation, air quality, and noise, depending on which construction approach is considered. The three subsurface construction design options — Platform, Hybrid, and Full Excavation — vary in the depth of excavation necessary to prepare the site to construct the OMF building on the surface. Therefore, construction durations for each option vary, depending on the amount of excavation required and daily truck trips required for hauling materials. Notably, the Platform subsurface construction design option would potentially require a peak of up to 71 truck trips per day for approximately 4 years, whereas the Hybrid option would potentially require a peak of up to 564 truck trips per day for nearly 6 years, and the Full Excavation option would potentially require a peak of up to 554 truck trips per day for nearly 5 years (see Table 3.2-12).

Regardless of the construction option, a construction transportation management plan would be implemented to address site access, traffic control, and haul routes for the duration of construction. However, the daily truck trip volume for the Hybrid and Full Excavation subsurface construction design options would have greater impacts than the Platform subsurface construction design option on neighborhoods and social resources in proximity to the Midway Landfill Alternative from increased truck traffic, noise and vibration, and air quality impacts.

South 336th Street and South 344th Street Alternatives

In addition to those impacts described for all build alternatives, the South 336th Street and South 344th Street alternatives would have temporary construction impacts associated with the mainline track. Construction of these alternatives would temporarily affect the Belmor mobile home community. Belmor would provide access to OMF South construction areas along the mainline, and the Federal Way/S 320th Street Park-and-Ride could serve as a construction staging area. Increased traffic and proximity to construction activities would result in short-term effects on community cohesion.

3.6.2.4 Avoidance and Minimization of Impacts

As part of the OMF South project, specific design features, best management practices (BMPs), and mitigation measures would eliminate or minimize impacts to social resources, community facilities, and neighborhoods.

Mitigation or other impact minimization measures for related project elements are described in other sections of this Environmental Impact Statement, including Section 3.2, Transportation, Section 3.3, Acquisitions, Displacements, and Relocations; Section 3.4, Land Use; Section 3.5, Economics; Section 3.7, Visual and Aesthetic Resources; Section 3.8, Air Quality and Greenhouse Gas Emissions; Section 3.9, Noise and Vibration; Section 3.14, Public Services; and Section 3.17 Parks and Recreational Resources.

3.6.2.5 Indirect Impacts

The OMF South build alternatives could have indirect impacts to their respective study areas, including changes in land use (beyond land use/zoning conversions as a direct result of property acquisitions) or changes in development patterns. Section 3.4, Land Use, contains a more detailed description of direct and indirect land use changes in addition to development potential consistent with local and regional policies and plans.

3.6.3 Potential Mitigation Measures

No mitigation measures in addition to the avoidance and minimization described above would be required.