

Appendix J

Final Transportation Discipline Report (Part 1)

FINAL Transportation Discipline Report

CEDAR HILLS REGIONAL LANDFILL 2020 SITE DEVELOPMENT PLAN

Prepared for:
King County Solid Waste Division

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Executive Summary

Table E-1 provides a comparison of the transportation impacts for the alternatives evaluated as part of the Cedar Hills Regional Landfill (CHRLF) 2020 Site Development Plan Environmental Impact Statement (EIS). As shown in the table, the action alternatives would have similar impacts and require the same mitigation including improvements at the SR 169/Cedar Grove Road Se intersection and a construction management plan.

Table E-1 Comparison of Alternatives Analysis										
Alternative	No Action Alternative	Action Alternative 1			Action Alternative 2			Action Alternative 3		
Support Facilities Location Option	No change	1: CHRLF On-Site South	2: CHRLF On-Site North	3: Relocate to Renton	1: CHRLF On-Site South	2: CHRLF On-Site North	3: Relocate to Renton	1: CHRLF On-Site South	2: CHRLF On-Site North	3: Relocate to Renton
Estimate Year Landfill Reaches Capacity	2028	2037			2038			2046		
Summary Transportation Impacts										
Street System	Planned improvements in the study area include increased transit service and freeway tolling. There are no funded improvements that would change the traffic control or channelization at the study intersections.	Same as No Action Alternative – no improvements identified as part of the project proposal			Same as No Action Alternative– no improvements identified as part of the project proposal			Same as No Action Alternative– no improvements identified as part of the project proposal		
Traffic Volumes (See also Figures ES-1 and ES-2)	<p>Traffic volumes would incrementally increase as a result of background growth in the area and projected KCSWD growth. The capacity of the landfill would not increase from what is permitted today.</p> <p>After the landfill reaches capacity in approximately 2028, traffic volumes would be reduced to trips related to staff and contractor trips related to trucking and maintenance of the environmental control systems.</p>	<p>Compared to No Action Alternative (before 2028), less than a 5-trip increase during the weekday peak hours is forecasted.</p> <p>When landfill reaches capacity, up to approximately 60 new weekday peak hour trips are forecasted compared to the No Action.</p> <p>After the landfill reaches capacity, like No Action Alternative trips only related to maintenance.</p> <p>Weekday peak hour traffic volumes increase by approximately 2 to 20 percent at study intersections.</p>	<p>Compared to No Action Alternative, a reduction in trips near CHRLF before 2028 and after 2028 an increase of up to approximately 40 new trips during the weekday peak hours.</p> <p>Up to 52 new weekday peak hour trips at the Renton Site.</p> <p>Weekday peak hour traffic volumes increase by two percent or less except along Cedar Grove Road SE where weekday peak hour traffic volumes increase by approximately two to 15 percent at study intersections.</p>	Same as Alternative 1			Same as Alternative 1			
Traffic Safety	Increases in traffic result in a proportionate increase in the probability of collisions. Study area safety issues are not anticipated to change, and no significant impact would occur with the No Action Alternative.	Traffic volumes are forecast to increase over the No Action Alternative; however, based on the LOS analysis no significant increases in intersection delay is anticipated. There may be a proportionate increase in the probability of collisions, similar to the No Action Alternative.			Same as Alternative 1			Same as Alternative 1		
Traffic Operations	SR 169/SE Renton Maple Valley Highway/Cedar Grove Road SE would operate at LOS D (below LOS C standard) during the weekday AM peak hour.	Adverse impact requiring mitigation at the SR 169/SE Renton Maple Valley Highway/Cedar Grove Road SE due to increase in delay in the weekday AM and PM peak hours. Impacts occurs in 2029.			Same as Alternative 1			Same as Alternative 1		
Construction (off-site traffic impacts with construction of new areas at CHRLF and the new facility)	Temporary construction impacts related replacement of the support facility in its current location.	Temporary impacts related construction of the support facility at CHRLF and periodic temporary impacts during the summer months in the study area due to increase in off-site construction trips with the increase in landfill capacity.	Temporary impacts related construction of the new support facility in Renton and periodic temporary impacts at the CHRLF during the summer months due to increase in off-site construction trips with the increase in landfill capacity.	Same as Alternative 1			Same as Alternative 1			

Alternative	No Action Alternative	Action Alternative 1			Action Alternative 2			Action Alternative 3		
Support Facilities Location Option	No change	1: CHRLF On-Site South	2: CHRLF On-Site North	3: Relocate to Renton	1: CHRLF On-Site South	2: CHRLF On-Site North	3: Relocate to Renton	1: CHRLF On-Site South	2: CHRLF On-Site North	3: Relocate to Renton
Mitigation Measures	Construction management plan for refurbishment or replacement of support facilities.	Northbound right-turn lane along SR 169 at Cedar Grove Road SE Construction management plan.		Same as Options 1 and 2 plus payment of City of Renton transportation impact fee.	Same as Alternative 1			Same as Alternative 1		
Significant Unavoidable Adverse and Secondary Impacts	I-405 Southbound On-Ramp/SR 169/SE Renton Maple Valley Highway/Sunset Boulevard N is not significantly impacted and operates below standard with or without the action alternatives	No significant and unavoidable impacts related solely to the increase in capacity of the CHRLF with implementation of mitigation. There may be secondary impacts related to the proposed mitigation including shifting of the Cedar River Trail and other environmental impacts.			Same as Alternative 1			Same as Alternative 1		

Figure ES-1 and Figure ES-2 illustrates the daily trips by year for the existing conditions and the alternatives. The traffic generated by the alternatives is about the same based on projected growth by KCSWD in waste and staffing. The differences in trip generation for the alternatives is related to the number of years the CHRLF would be open for landfilling and the timing of offsite soil import/export (operational trips).

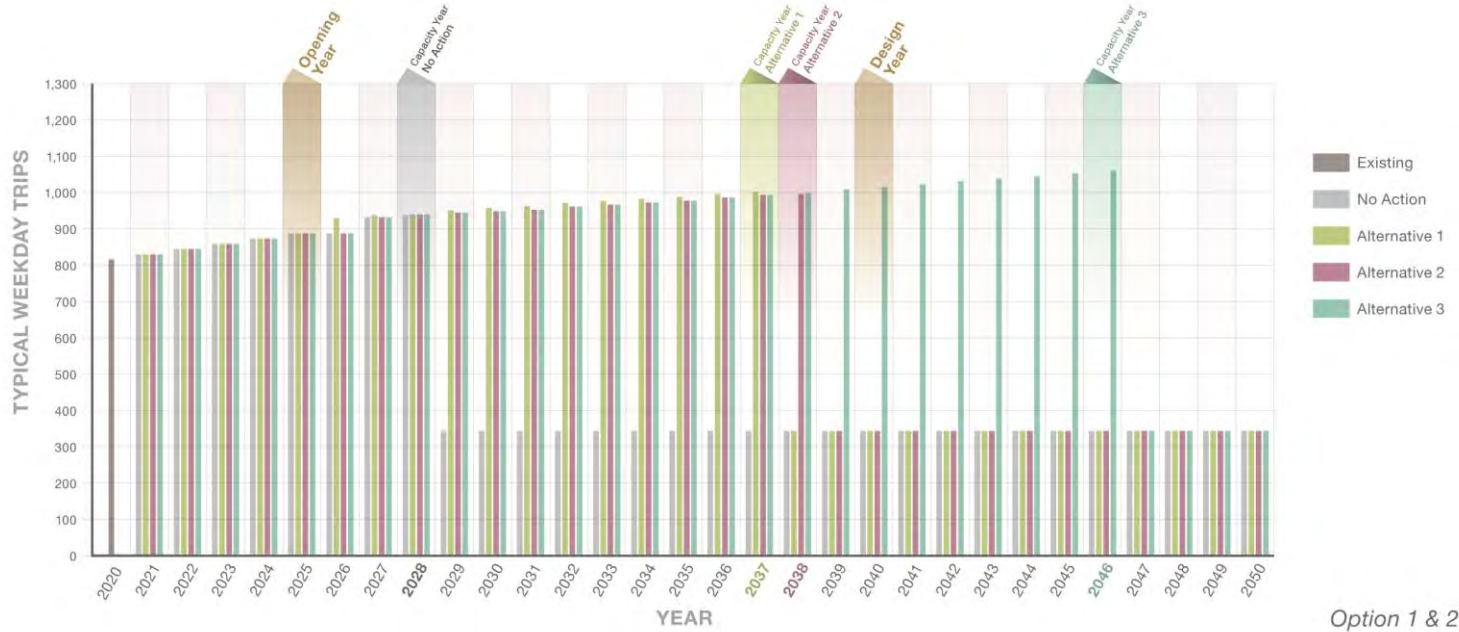


Figure ES-1 Existing and Alternatives Estimated Weekday Trip Generation by Year – Options 1 & 2

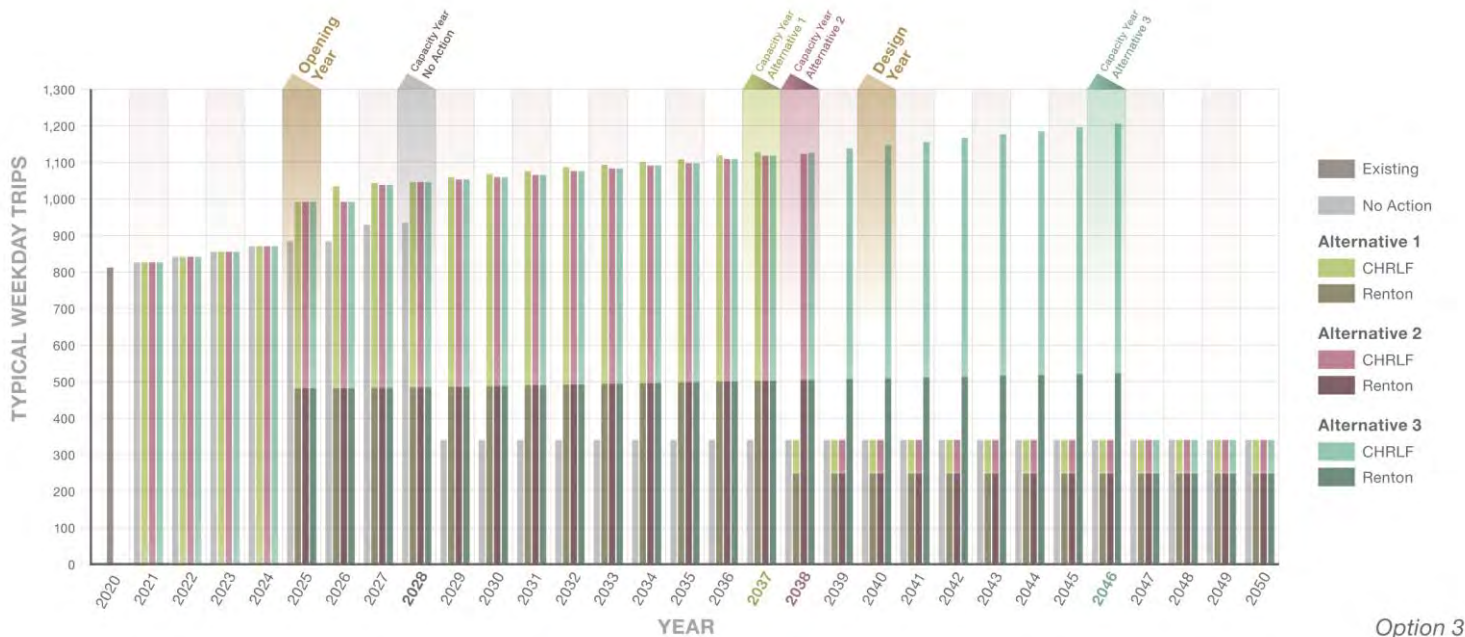


Figure ES-2 Existing and Alternatives Estimated Weekday Trip Generation by Year – Option 3

1 Introduction

This report documents the results of the technical analysis completed for the transportation section of the Cedar Hills Regional Landfill (CHRLF) 2020 Site Development Plan Environmental Impact Statement (EIS). The following provides an overview of the project description and transportation analysis approach.

1.1 Report Organization

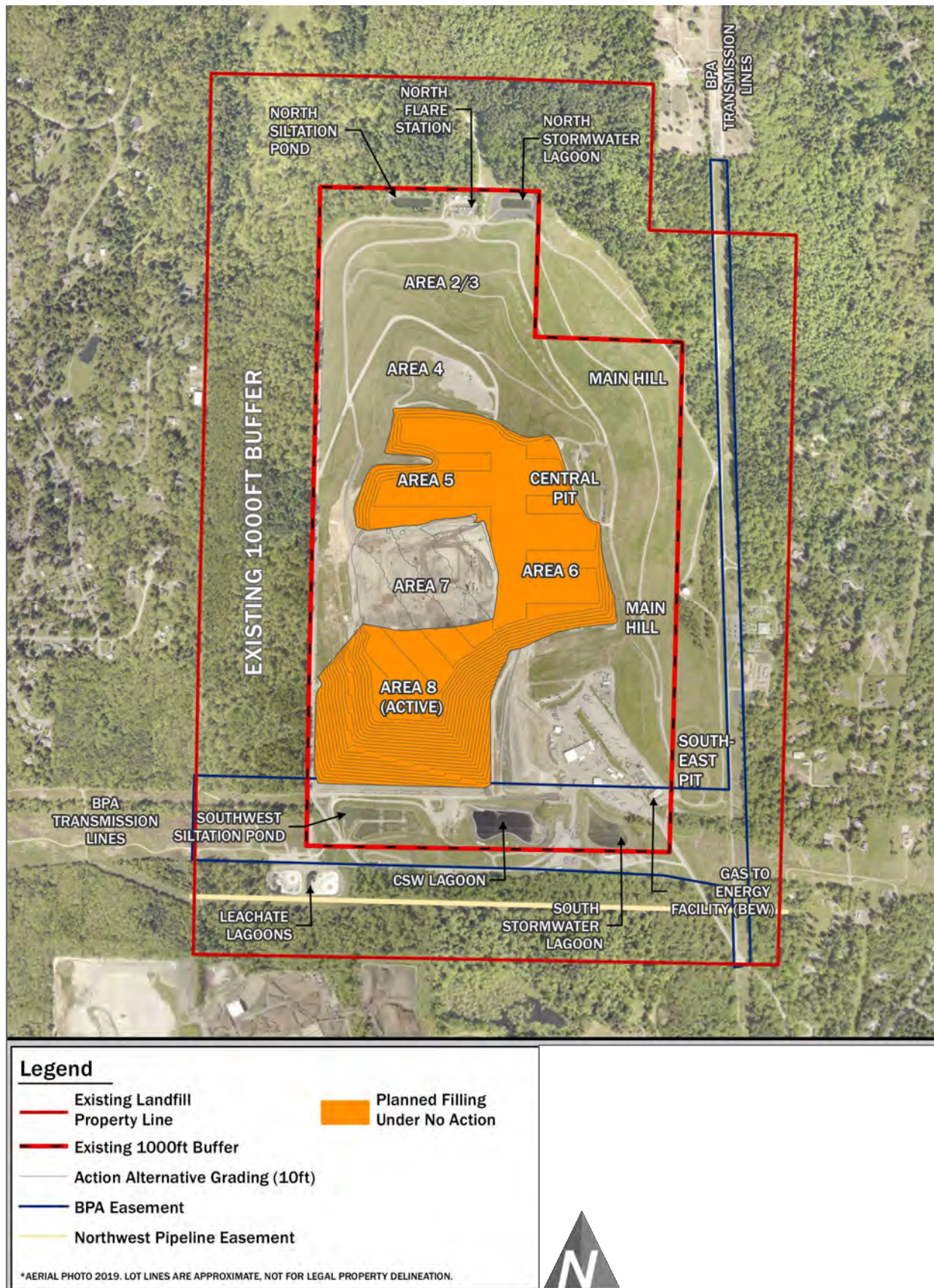
The remainder of this Transportation Discipline Report comprises the following chapters:

2. **Methodology** describes the analysis methods used to identify the impacts of the Alternatives.
3. **Affected Environment** discusses the existing transportation conditions.
4. **Environmental Impacts** describes the future impacts of the Alternatives on different components of the transportation system.
5. **Mitigation Measures** presents the possible mitigation measures and strategies to address identified impacts.
6. **Significant Unavoidable Adverse Impacts** documents adverse transportation-related impacts of the action alternatives that could not be fully mitigated.

1.2 Alternatives Evaluated

This report summarizes the analysis of one No Action Alternative and three (3) Action Alternatives. Projected yearly landfill operations are consistent for all the Alternatives with tonnage of waste processed growing incrementally each year. For the Action Alternative, there would be periodic construction with the expansion of landfill capacity that could result in added off-site trips for up to four months. The main difference between the Alternatives is the estimated year the CHRLF reaches capacity, the areas of the existing landfill footprint used to expand capacity, and the amount of construction necessary for the expanded capacity. The Alternatives evaluated as part of this study are defined as follows:

- No Action Alternative – landfill operations as permitted and the main landfill support facilities remain in their current location, including removal, refurbishment or replacement of some facilities at the end of their useful life, and may include use of interim off-site facilities. The landfill is estimated to reach capacity by mid-2028. Figure 1-1 shows the site plan for the No Action Alternative.
- Action Alternative 1 – Expand capacity of the landfill and relocation of the main landfill support facilities either north or south on-site (Options 1 and 2) or to an off-site location at 3005 NE 4th Street in Renton beside the Renton Recycling and Transfer Station (Option 3). Under this Alternative, the landfill is estimated to reach capacity by mid-2037.
- Action Alternative 2 – Expand capacity of the landfill and relocation of the main landfill support facilities either north or south on-site (Options 1 and 2) or to an off-site location at 3005 NE 4th Street in Renton beside the Renton Recycling and Transfer Station (Option 3). Under this Alternative, the landfill is estimated to reach capacity by early-2038.
- Action Alternative 3 – Expand capacity of the landfill and relocation of the main landfill support facilities either north or south on-site (Options 1 and 2) or to an off-site location at 3005 NE 4th Street in Renton beside the Renton Recycling and Transfer Station (Option 3). Under this Alternative, the landfill is estimated to reach capacity by late 2046.



No Action Alternative Site Plan

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

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FIGURE
1-1

Each Action Alternative has three options related to relocation of the main landfill support facilities. The action alternatives are illustrated on Figure 1-2 and Options 1 and 2 are illustrated in Figure 1-3 and Option 3 is illustrated in Figure 1-4. The options for relocation of the support facilities include:

- Option 1 (CHRLF South) – Relocate and build main landfill support facilities in the south including, but not limited to the scale/scalehouse, truck wash, heavy equipment maintenance facility (cat shack), some tractor and trailer parking, the truck maintenance building, employee parking, office space, and laboratory space.
- Option 2 (CHRLF North) – Relocate and build main landfill support facilities in the north including, but not limited to the truck maintenance building, parking, office space, and laboratory space. some landfill support facilities in the south, but not within the buffer, including, but not limited to the scale/scalehouse, truck wash, cat shack and some tractor and trailer parking.
- Option 3 (Renton Site) – Relocate and build main landfill support facilities at an off-site location at 3005 NE 4th Street in Renton, beside the Renton Recycling and Transfer Station including, but not limited to a portion of the vehicle maintenance shop (for repairing tractors, trailers, operations vehicles, and passenger vehicles), employee offices, and parking for employees, tractors, trailers, and operations vehicles. Relocate and build some landfill support facilities in the north or south (except the scale/scalehouse, truck wash, cat shack and some tractor and trailer parking relocated in the south), none of which will be located in the buffer.

The relocation of the main support facilities could occur sometime between 2023 and 2028.

1.3 Study Periods and Area

As described previously, projected yearly landfill operations are consistent for all the Alternatives with tonnage of waste processed growing incrementally each year. The action alternatives expand CHRLF capacity beginning around 2025/2026 and reach capacity between approximately 2037 and 2046¹. The No Action Alternative is estimated to reach capacity by mid-2028. Some final construction would occur up to approximately 18 months after the landfill reaches capacity for all alternatives. In addition, relocation of the main support facilities (Options 1-3) could occur between 2023 and 2028.

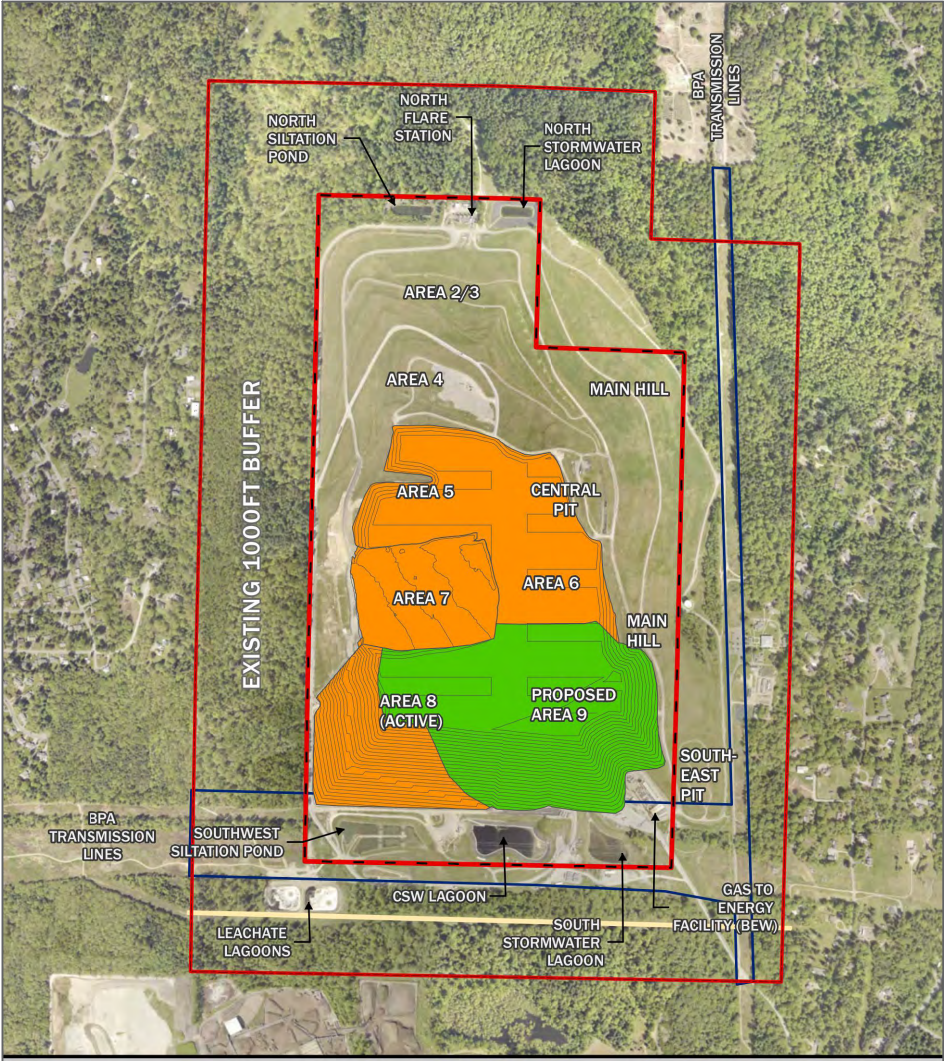
The traffic analysis focuses on the weekday AM, Midday and PM peak hours. The horizon years for this study consider the various years of opening related to beginning the landfill capacity expansion, estimated years the landfill reaches capacity, offsite soil import/exports by action alternative as well as the surrounding jurisdictions transportation planning horizons. The horizon years in this study are:

- **Existing** – Representing the current 2021 affected environment
- **Opening Year** – Representing an approximate year 2025 when the landfill capacity expansion would begin, and the support facilities would be relocated
- **Design Year** – Representing 2040 consistent with the surrounding jurisdictions long-term planning horizon
- **Capacity Year** – Representing the estimated year when CHRLF reaches capacity and would then be closed to landfilling

Note that the analysis reviews the impacts at the approximate years noted above. The horizon years identified for the future forecasts reflect a background traffic volume growth consistent with regional planning. The alternative trip generation estimates are reflective of the highest trips within 1 to 2 years

¹ All dates used in this analysis are estimated based on current projected waste flows, construction sequencing and durations, and available landfill airspace. All of these variables can change, resulting in altered dates and time periods for operations and construction activity, and any resulting impacts.

of the horizon years to evaluate the worst-case impact for the alternatives. The alternative start may occur slightly earlier than the horizon years evaluated, but as described, the horizon year is reflective of regional planning and trip generation is reflective of the highest level of impact. With an earlier start date, alternative impacts and mitigation measures described herein are not anticipated to change.

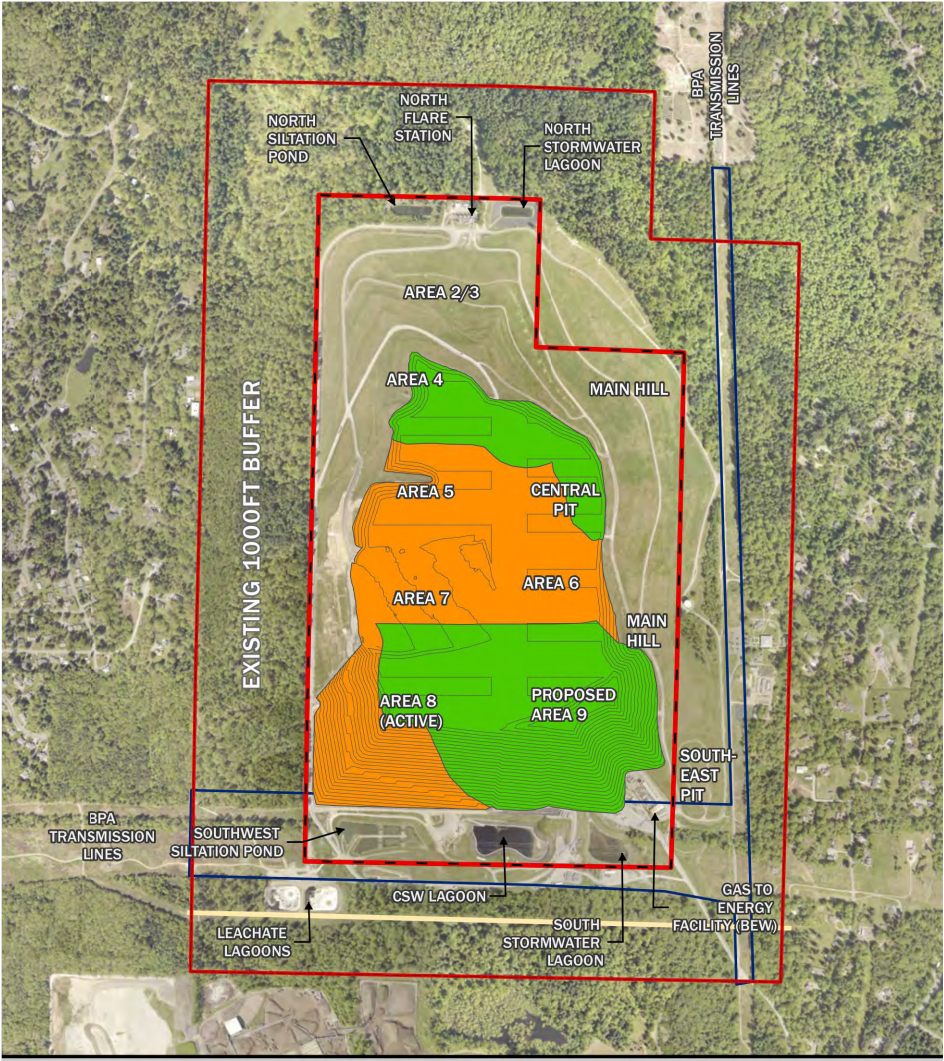


Legend

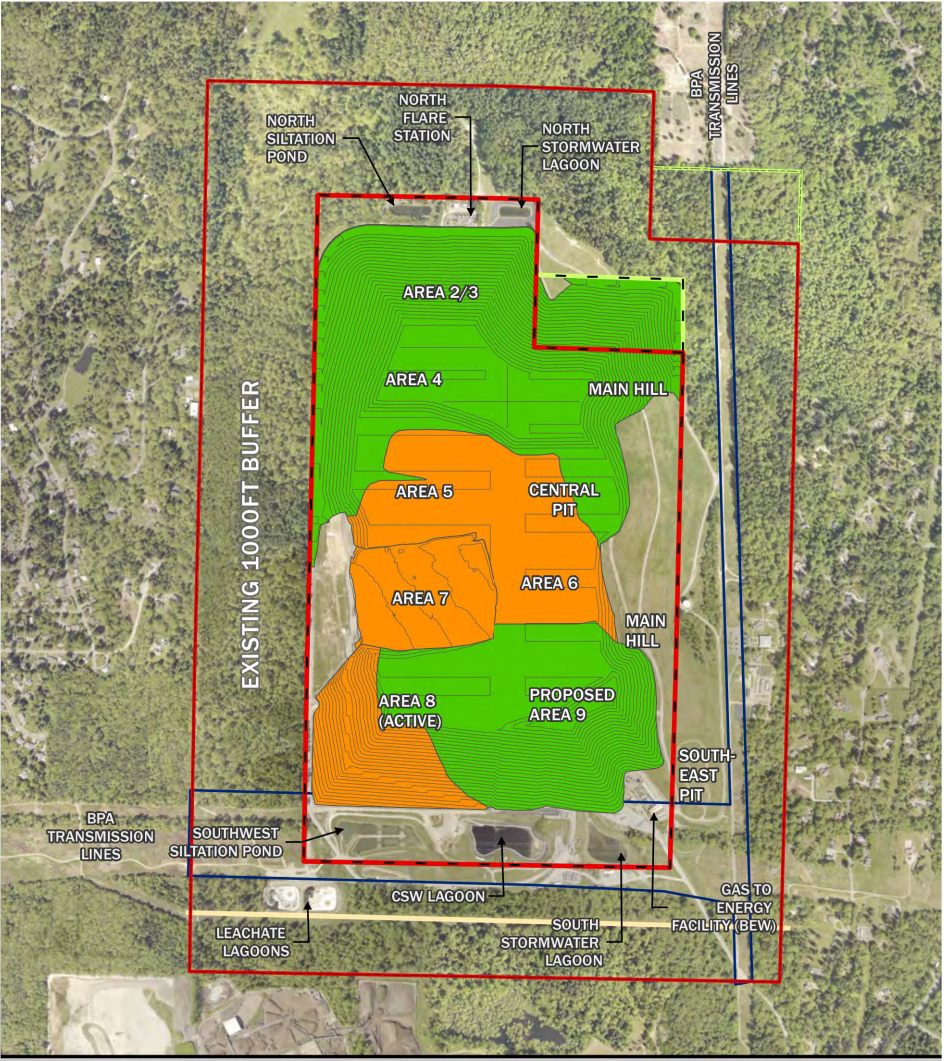
- Existing Landfill Property Line
- Existing 1000ft Buffer
- Action Alternative Grading (10ft)
- Northwest Pipeline Easement
- BPA Easement
- Planned Filling Under No Action
- Proposed Filling for Action Alternative

*AERIAL PHOTO 2019. LOT LINES ARE APPROXIMATE, NOT FOR LEGAL PROPERTY DELINEATION.

Alternative 1



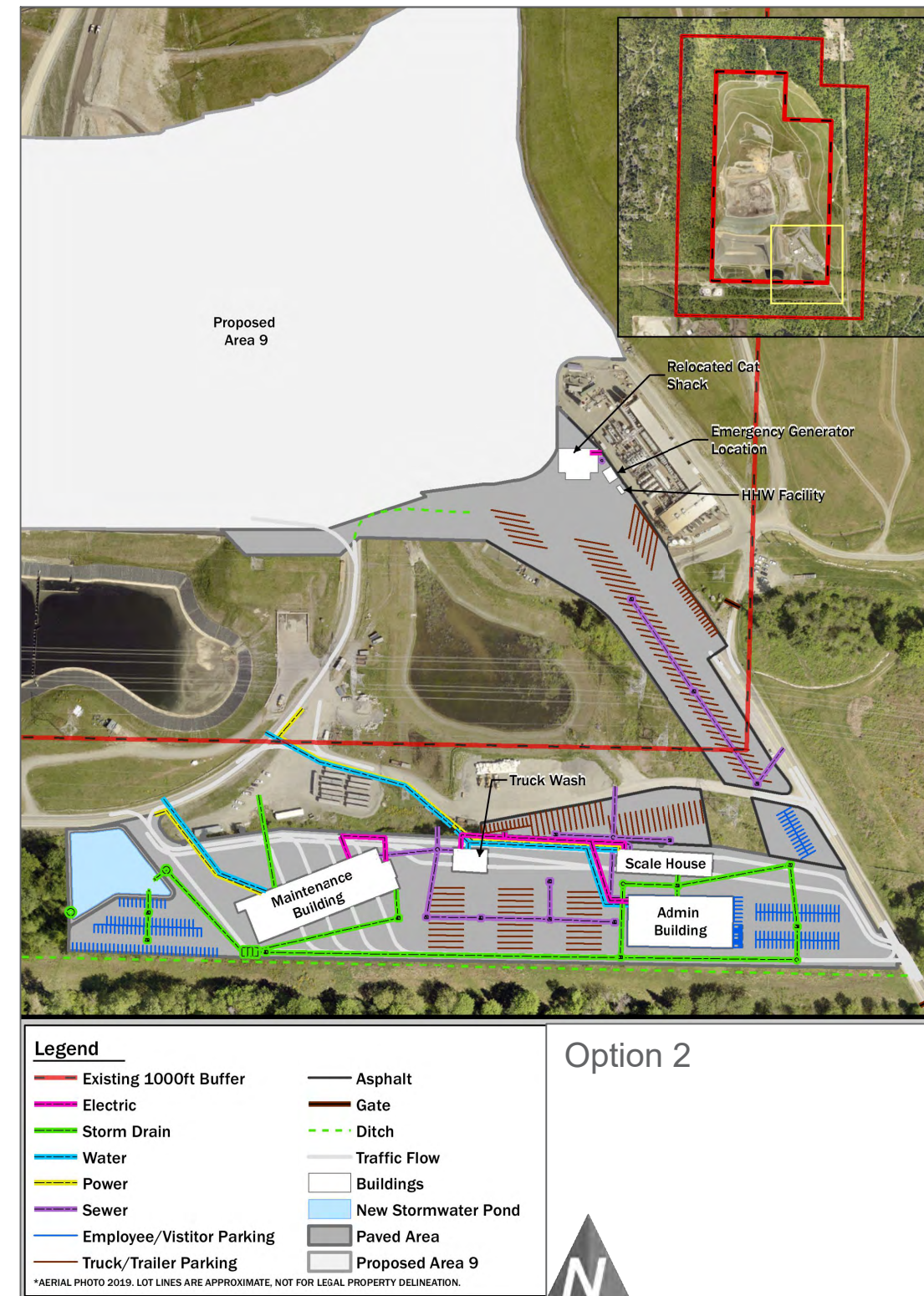
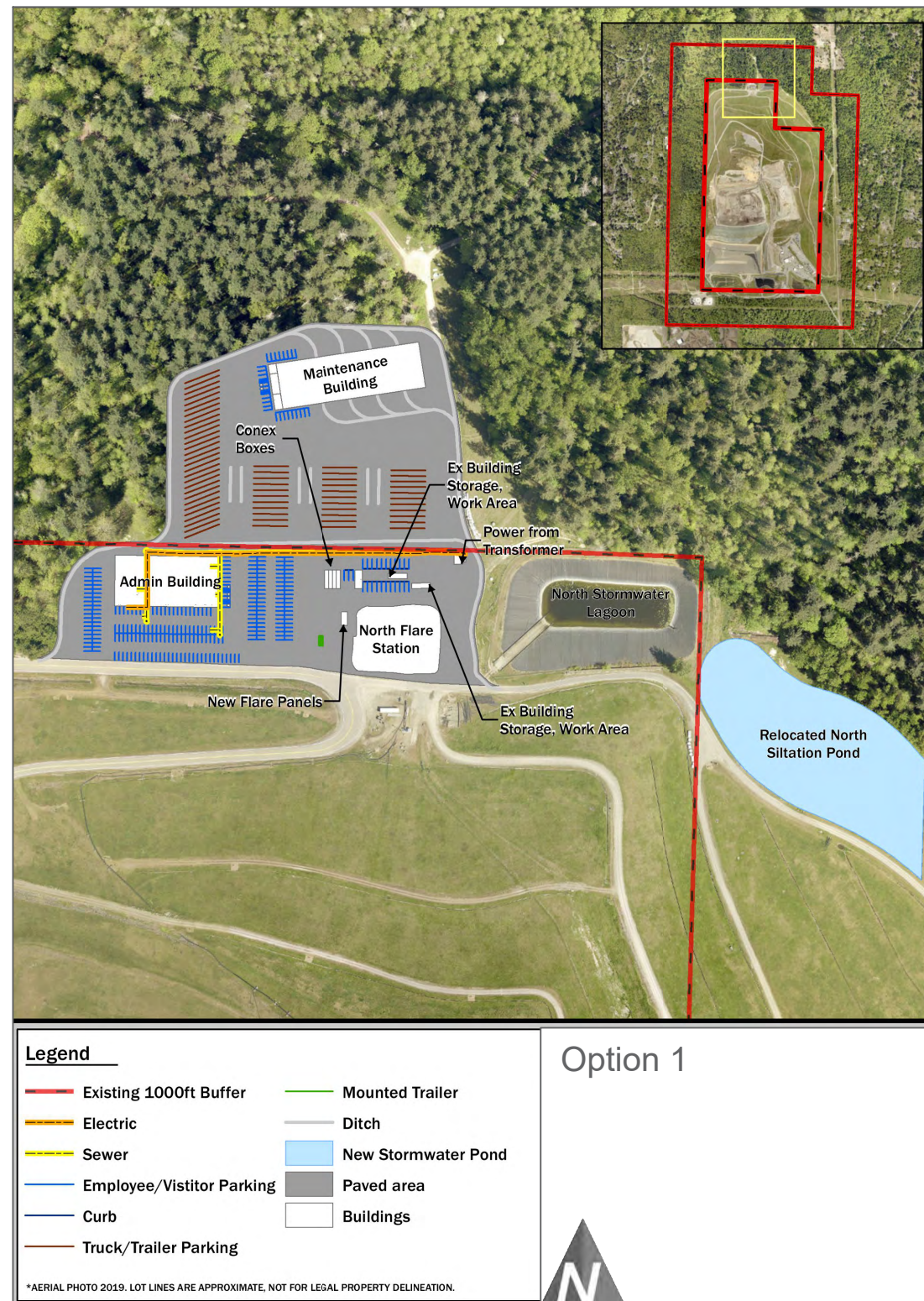
Alternative 2



Alternative 3

Action Alternatives Site Plans

Cedar Hills Regional Landfill 2020 Site Development Plan EIS



Action Alternatives Options 1 and 2

Cedar Hills Regional Landfill 2020 Site Development Plan EIS



Action Alternatives Option 3 Site Plan at the Renton Site

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

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FIGURE

1-4

The Opening Year and Design Year horizons are consistent with planning horizons for the surrounding communities. The Opening Year is within the 6-year window for transportation improvement programs and capital facilities planning of the surrounding jurisdictions. The current adopted Comprehensive Plans and regional planning for both King County and Renton have a long-range horizon year of 2040 consistent with the Design Year. Alternatives 1 and 2 would reach capacity just before 2040 in 2037 and 2038, respectively. The CHRLF would reach capacity in approximately 2046 with Alternative 3, which is beyond the current planning horizon of the local jurisdictions. CHRLF trips are anticipated to grow yearly until the landfill reaches capacity; therefore, the detailed traffic volume and operations analysis for Opening and Design Year conditions bookends potential transportation impacts of the alternatives. The evaluation of Capacity Year provides an understanding of trips generated by the alternative when the landfill reaches its maximum waste intake and how impacts compare to the Opening and Design Years.

Existing weekday peak hour conditions are based on pre-COVID² data as available, which includes on-site traffic counts from January 2020, Renton intersection counts, and the *Cedar Hills Regional Landfill Site Development Alternatives Traffic Study*, August 2017 by Casseday Consulting (herein 2017 CHRLF Traffic Study). Additional traffic counts were also collected in February 2021 as part of the Final EIS. Adjustments were made for the counts collected during COVID conditions to reflect typical (pre-COVID) conditions.

The traffic analysis included two unique study areas:

- Cedar Hills – The area surrounding the existing CHRLF evaluated for all alternatives and options.
- Renton Site – The area surrounding the proposed Option 3 main support facilities relocation site at 3005 NE 4th Street near the Renton Transfer Station. This study area is only evaluated for the No Action Alternative and with Option 3 of the action alternatives because the increase in traffic volumes with Options 1 and 2 would be two percent or less and is below the Renton criteria for analysis. Traffic increases in the Renton Site study area with Options 1 and 2 are due new trips accessing I-405 with KCSWD projected growth in waste and staff.

A comprehensive transportation scoping process was conducted with King County, Washington State Department of Transportation (WSDOT) and Renton to confirm the Cedar Hills and Renton Site study areas. The study area is defined based on the trip generation, distribution and net new trip assignment for the CHRLF project. The study area focuses on the vicinity of the CHRLF for all action alternatives (Options 1-3) and the vicinity of the Renton Site for all action alternatives Option 3. The study intersections are shown in Table 1-1. The Cedar Hills and Renton Site study areas are shown on Figure 1-5.

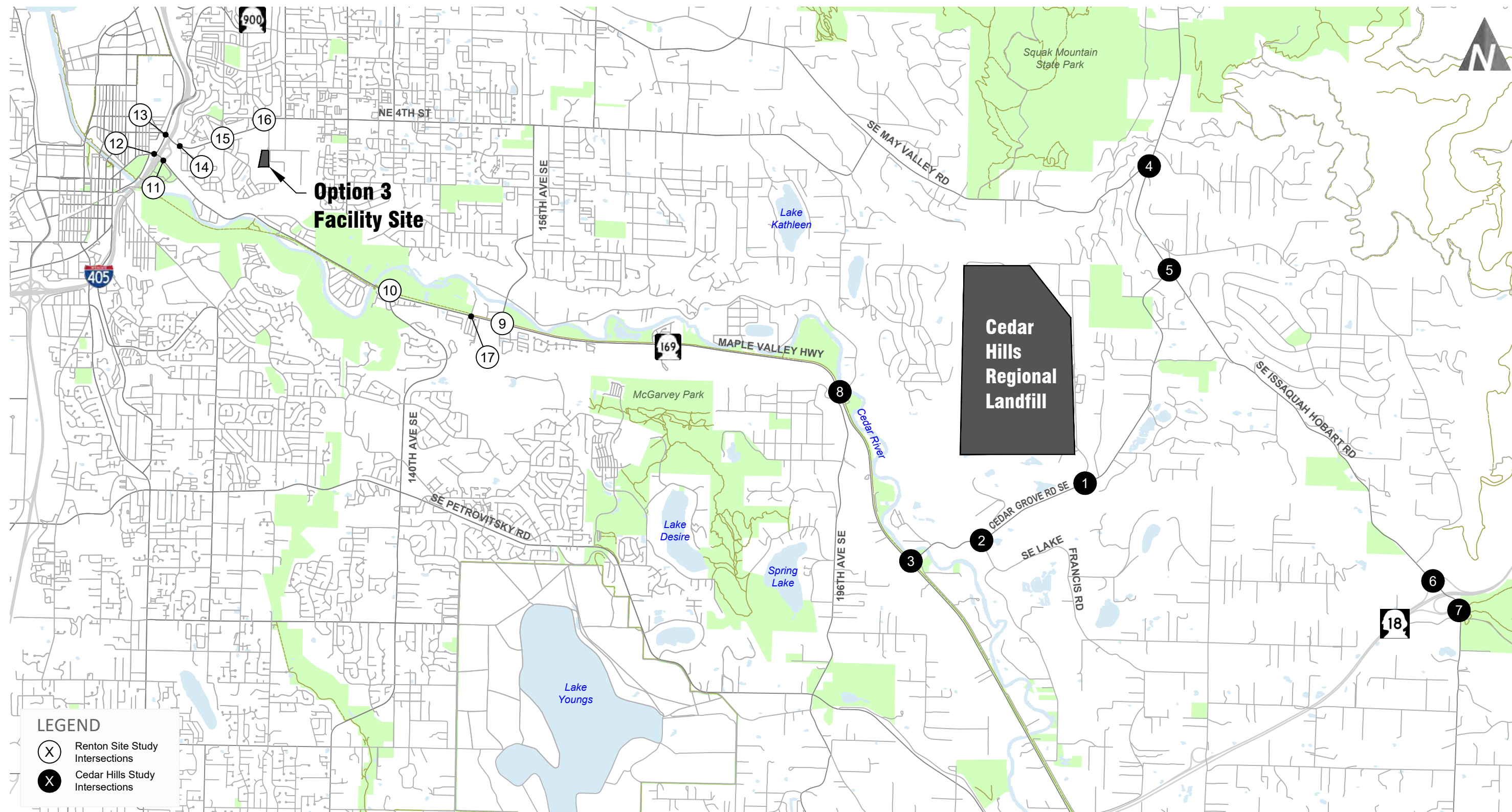
² Pre-COVID conditions were prior to March 2020. King County and Renton provided traffic counts where available because of the low traffic volumes beginning early March 2020 from the COVID-19 situation and Washington State Governor's executive order and Public Health recommendations.

Table 1-1 Summary of Study Area

<u>Cedar Hills</u>		<u>Renton Site¹</u>	
Study Intersection	Jurisdiction	Study Intersection	Jurisdiction
1. Cedar Grove Rd SE/228th Ave SE	King County	9. 154th Pl SE/SR 169/SE Renton MVH	Renton
2. Cedar Grove Rd SE/SE Lake Francis Rd	King County	10. 140th Way SE/SR 169/SE Renton MVH	Renton
3. SR 169/SE Renton MVH/Cedar Grove Rd SE	WSDOT	11. I-405 NB Ramps/SR 169/SE Renton MVH	Renton
4. Issaquah Hobart Rd SE/SE May Valley Rd	King County	12. I-405 SB On-Ramp/SR 169/SE Renton MVH/Sunset Blvd N	Renton
5. Issaquah Hobart Rd SE/Cedar Grove Rd SE	King County	13. Sunset Blvd N/NE 3rd St	Renton
6. Issaquah Hobart Rd SE/SR 18 WB Ramps	WSDOT	14. Monterey Dr NE/NE 3rd St	Renton
7. Issaquah Hobart Rd SE/ SR 18 EB Ramps	WSDOT	15. Edmonds Ave SE/NE 3rd St	Renton
8. SE Jones Rd/196th Ave SE/SR 169/SE Renton MVH	WSDOT	16. Jefferson Ave NE/NE 3rd St/NE 4th St	Renton
		17. 149th Ave SE/SR 169/SE Renton MVH	Renton

Notes: WSDOT = Washington State Department of Transportation, NB = Northbound and SB = Southbound, MVH = Maple Valley Highway

1. The Renton Site study intersections are not evaluated under action alternatives Options 1 and 2 because the Renton Site is not impacted.



Study Areas and Study Intersections

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE
1-5

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All study intersections are evaluated in the Cedar Hills and Renton Site study areas for the Existing and No Action Alternative conditions. The analysis of study intersections is performed consistent with the applicable jurisdiction transportation impact study guidelines and based on coordination with King County, WSDOT and Renton staff.

Renton *Traffic Impact Analysis Policy Guidelines for new Development*, 2016 says that the study area should include all roadways and intersections that would experience a 5 percent increase in peak hour traffic volumes as a result of the proposed project. As shown in the Chapter 4 Environmental Impacts, all of the action alternatives percent impact under both Opening and Design Year conditions is below the 5 percent at the study intersections. However, the study intersections are included as part of the evaluation because they are near the Option 3 relocation site, along key travel routes for the alternatives, and Renton and WSDOT staff identified them during the scoping.

2 Methodology

This chapter summarizes the approach to evaluating the transportation system, the transportation data, and the measures used to assess the transportation system under each Alternative. A more detailed discussion on the methods and assumptions for the evaluation of impacts is presented in Appendix A in the memorandum *Cedar Hills Regional Landfill Transportation Analysis Methods and Assumptions*, April 2020 (herein referred to as *Methods and Assumption Memo*)⁴. The *Methods and Assumption Memo* was reviewed and approved by King County, WSDOT and Renton as part of the transportation scoping process for this project.

2.1 Approach to Alternatives Evaluation

The evaluation of the transportation system and identification of transportation-related impacts follows typical transportation impact evaluation procedures that include an analysis of traffic volumes, operations, and traffic safety. A review of transportation data, evaluation of existing transportation system conditions, development of travel forecasts, and an assessment of projected future conditions with the Alternatives is provided. The ability to collect new traffic data is limited because of the COVID-19 conditions so, the study relies on data from King County, WSDOT and Renton gathered before COVID-19 as available. Additional traffic counts were collected in February 2021 as part of the Final EIS. Adjustments were made for the counts collected during COVID conditions to reflect typical (pre-COVID) conditions. The COVID peak hour traffic volumes are grown to existing conditions by applying a growth rate of one percent per year.

The analysis includes an evaluation of the No Action Alternative as well as the Action Alternative generating the highest trip generation for the Opening Year and Design Year horizons. As detailed in Section 4 Environmental Impacts, the highest trip generation for the Opening Year is Alternative 1 and for the Design Year is Alternative 3. A comparative qualitative discussion is provided for all action alternatives.

2.2 Development of Travel Forecasts

Background traffic forecasts for Opening and Design Year conditions are developed using two different methods. The trip generation method to calculate the CHRLF trips is consistent for all alternatives.

2.2.1 Background Traffic Forecasts

Opening Year (2025) background traffic forecast for weekday AM, Midday and PM peak hour conditions are found by applying an average annual growth rate to existing traffic volumes of one percent per year and then adding traffic from pipeline projects in the study area. Pipeline projects are approved developments in the study area that have not been constructed. The annual growth rate and pipeline projects are based on coordination with King County, Renton and WSDOT staff. The pipeline projects identified in the study area include Renton Shop, Cedar River Apartments, and Elk Heights Pit.

Design Year (2040) background traffic forecasts are developed using the travel demand models for the study areas. The Cedar Hills study area forecasts are based on the recently updated Maple Valley Travel Demand Model and the Renton Site study area forecasts are based on the Puget Sound Regional Council (PSRC) Travel Demand Model. The Maple Valley Travel Demand Model has a base year of 2010 and a future year of 2035. The Maple Valley Travel Demand Model is used for the Cedar Hills study area because it provides more detail in the area than the PSRC model and has

⁴ The minor changes in the project description since completion of the *Methods and Assumption Memo* do not affect the analysis approach or findings documented in the *Methods and Assumption memo*.

been recently updated. Renton does not have a travel demand model and relies on the PSRC model. The PSRC model has a base year of 2014 and a future year of 2040.

Future 2040 background traffic forecasts are developed by adding intersection volume growth identified between the models existing and future years on top of the Opening Year (2025) background traffic volumes. Adjustments are made to the 2040 background traffic volumes for balancing. This methodology is an industry standard practice for post-processing raw travel demand model results into forecast traffic volumes.

The travel demand models forecast weekday PM peak hour conditions. Weekday AM and Midday peak hour background traffic volumes are developed through their relationship with the existing weekday PM peak hour traffic counts.

2.2.2 Alternatives Trip Generation

The Alternatives trip generation is based on an understanding of existing and future CHRLF operations and traffic data for each of the different CHRLF site users. In addition, there are two types of offsite soil import and export trips: (1) landfill operations and (2) construction of added landfill capacity. The offsite soil import and export truck trips associated with landfill operations are called “operational trips” in this study and are part of the primary trip generation forecast evaluated for typical conditions. Temporary or short-term construction for increasing the capacity of the landfill would occur on top of the typical trip generation and is evaluated as part of the action alternatives construction impacts.

2.2.2.1 Primary Trips – Landfill Operations

CHRLF trip generation is comprised of the following users:

- King County Solid Waste Division (KCSWD) Waste Transfer Vehicles (to/from the KCSWD recycling and transfer stations)
- Commercial-Direct haul⁵ and Other⁶ trips directly to CHRLF
- Operational trips - offsite soil import and export truck trips associated with operations
- Staff
 - Employees
 - Other including Bio-Energy Washington (BEW), vendors, contractors and other visitors

Trip generation for the alternatives is based on future waste tonnage growth projections provided by KCSWD. The existing daily waste transfer, commercial direct-haul and other user trips are grown based on the yearly KCSWD tonnage forecasts. The projected annual haul trip growth is consistent for all alternatives (including No Action). In addition, with action alternatives Option 3 (the relocation of support facilities to the Renton Site), waste transfer trucks and trailers from CHRLF would be stored at the Renton facility. The waste transfer trucks would leave the Renton facility in the morning (before the weekday AM commuter peak period) and travel to recycling and transfer stations. In the evening, the waste transfer trucks would travel from the CHRLF or one of the KCSWD Recycling and Transfer Stations to the Renton facility storage after the weekday PM commuter peak period. There are 50 existing trucks being stored at CHRLF. Trucks stored were forecasted by applying the same growth rate as the waste transfer trips consistent with the increase in waste tonnage per year.

⁵ Direct haul traffic with full waste trailers by commercial-haulers such as Waste Management, Republic, Waste Connections, and Recology.

⁶ All other traffic not related to the commercial-haulers. The other users are limited and may or may not have commercial accounts with King County. Multiple vehicle types such as sedans, pick-up trucks, truck/trailer combinations, and commercial users such as landscape companies.

KCSWD provided growth in staff for the alternatives. The No Action and action alternatives have the same total future staffing projections; however, with the action alternatives Option 3 some of the staff would be based at the Renton Site. Approximately 2/3 of the staff trips are assumed at the Renton Site with Option 3.

Offsite import and export soil truck trips associated with operations are added to existing trips grown annually to develop daily forecasts. These operational trips do not include offsite soil import and export trips for construction. KCSWD estimated monthly operational trips by year for the life of the landfill for each alternative based on soil stockpiles, soil use, and soil balance analysis. Operational import/export trips are assumed to occur 7 days a week for up to 8 hours a day.

The daily forecasts are used to calculate weekday peak hour trips for the alternatives. The hourly trip projections are based on hourly traffic counts at the CHRLF site access conducted for one week in January 2020.

2.2.2.2 Construction Trips

Construction trips would occur with the action alternatives periodically through the life of the project for up to four (4) months in some years, and at the estimated year CHRLF reaches capacity for the No Action Alternative. Construction activities would relate to import and exporting of material and soils as well as bringing construction equipment to and from the site. Temporary construction trips would be added to the typical daily and hourly trip generation of the action alternatives to form the basis of the analysis.

Construction trip generation is based on data provided by KCSWD. The peak hourly trips are calculated based on the peak month of construction activity and assuming the construction trips occur for 12 hours a day for 7 days a week and that activity is distributed evenly throughout the construction period.

2.2.3 Total Intersection Forecasts

The weekday AM, Midday and PM peak hour alternative trip generation is added to the background forecasts for the Opening and Design Year conditions to form the basis of the analysis. In addition, construction trips are added to the action alternatives intersection turning movement forecasts to form the basis of the construction impacts analysis.

The No Action Alternative represents the permitted condition with operations of CHRLF until approximately mid-2028. When the landfill reaches capacity in approximately mid-2028, there would continue to be traffic generated at CHRLF. Waste haul tractors and trailers would continue to be based at CHRLF and there would be staff and contractor trips related to trucking and maintenance of the environmental control systems with the No Action Alternative after 2028, but there would be no waste haul trips from King County recycling and transfer stations since CHRLF would not receive waste⁷. The action alternatives are compared to the No Action Alternative to determine the net increase in impacts with the action alternatives.

Study intersection turning movement forecasts are developed for the No Action Alternative and Alternative 1 Options 1, 2 and 3, which represent the highest net new trip generation for the Opening Year condition. Opening Year forecasts for Alternatives 2 and 3 (Options 1, 2 and 3) would be slightly less than Alternative 1 based on CHRLF operations and staffing. For the Design Year, detailed forecasts are developed for the No Action Alternative and Alternative 3 Options 1, 2 and 3, which represent the highest net new trip generation. Forecasts for Alternatives 1 and 2 (Options 1, 2 and 3)

⁷ King County has not selected a long-term waste disposal option for the period after CHRLF reaches capacity under the No Action Alternative or action alternatives. However, one of the options considered during development of the 2019 King County Comprehensive Solid Waste Management Plan is placement of a waste-to-energy (mass burn) facility at a site in King County, with placement at the CHRLF site one option (Arcadis 2019). This Transportation evaluation does not analyze traffic impacts for any long-term disposal options that may occur after CHRLF reaches capacity.

would be less than Alternative 3 in 2040 because with Alternatives 1 and 2 the landfill reaches capacity before 2040 and would be closed.

2.3 Identification of Performance Measures

Performance measures are identified and evaluated for existing, Opening Year and Design Year conditions for the No Action Alternative and action alternatives. The measures characterize the relative differences in performance between the Alternatives and show transportation impacts that could be expected with the action alternatives. The performance measures for analyzing and assessing the street system are focused on the intersection delay-based level of service (LOS) and traffic safety for major intersections within the study area. Intersection LOS and safety are useful measurements to depict traffic conditions within the study area.

2.3.1 Intersections

Alternative impacts are identified by comparing the intersection LOS for the No Action Alternative to the action alternatives. The operational characteristics of an intersection are based on level of service (LOS). The LOS analysis is based on procedures identified in the *Highway Capacity Manual* (HCM) using *Synchro 10*. The most recent version of HCM 6th Edition is used to evaluate the intersections. Where conditions at an intersection are not able to be evaluated using the 6th Edition HCM method, the intersections are evaluated using the HCM 2000 methods. The intersections using HCM 2000 are noted in the summary of results in sections 3 Affected Environment and 4 Environmental Impacts.

Signal timing and phasing information was provided by the controlling jurisdiction for signalized intersections. At signalized intersections, LOS is measured in average control delay per vehicle and is typically reported using the intersection delay. At unsignalized side-street, stop-controlled intersections, LOS is measured by the average delay on the worst-movement of the intersection. Traffic operations and average vehicle delay for an intersection can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. The LOS definitions are included in Appendix B.

LOS standards for the study intersections are based on those adopted by the responsible jurisdiction as of April 16, 2020. The intersection LOS standards are discussed in greater detail below:

- **WSDOT SR 169 (Cedar Hills)** – SR 169 in the Cedar Hills study area is classified as a highway of statewide significance (HSS) in a rural area per Puget Sound Regional Council (PSRC)⁸ and has a LOS C standard.
- **WSDOT SR 169 (Renton Site)** – SR 169 in the vicinity of the Renton Site is classified as a HSS in an urban area per PSRC and has a LOS D standard.
- **King County** – The unsignalized intersections along Cedar Grove Rd SE have a LOS E standard per King County Municipal Code 14.80.030 (B).
- **Renton** – The study intersections in the Renton area have a LOS D standard per Renton Comprehensive Plan (December 2018) Policy T-48.C.1 with the exception of intersections along Sunset Boulevard. Intersection along Sunset Boulevard (SR 900) have a LOS E standard per the Comprehensive Plan.

The responsible jurisdiction and LOS standard is summarized for the Cedar Hills and Renton Site study intersections in Table 2-1.

⁸ Adopted Level of Service Standards for Regionally Significant State Highways, <http://www.psrc.org/transportation/t2040/los/>, Puget Sound Regional Council (PSRC), which defines LOS standards for non-HSS and HSS state routes

Table 2-1 LOS Standards for Study Intersections

Study Intersections	Responsible Jurisdiction	LOS Standard
<u>Cedar Hills</u>		
1. Cedar Grove Rd SE/228th Ave SE	King County	E ¹
2. Cedar Grove Rd SE/SE Lake Francis Rd	King County	E ¹
3. SR 169/SE Renton MVH/Cedar Grove Rd SE	WSDOT	C ²
4. Issaquah Hobart Rd SE/SE May Valley Rd	King County	E ¹
5. Issaquah Hobart Rd SE/Cedar Grove Rd SE	King County	E ¹
6. Issaquah Hobart Rd SE/SR 18 WB Ramps	WSDOT	C ²
7. Issaquah Hobart Rd SE/ SR 18 EB Ramps	WSDOT	C ²
8. SE Jones Rd/196th Ave SE/SR 169/SE Renton MVH	WSDOT	D ²
<u>Renton Site</u>		
9. 154th Pl SE/SR 169/SE Renton MVH	Renton	D ³
10. 140th Way SE/SR 169/SE Renton MVH	Renton	D ³
11. I-405 NB Ramps/SR 169/SE Renton MVH	Renton	D ³
12. I-405 SB On-Ramp/SR 169/SE Renton MVH /Sunset Blvd N	Renton	E ³
13. Sunset Blvd N/NE 3rd St	Renton	E ³
14. Monterey Dr NE/NE 3rd St	Renton	D ³
15. Edmonds Ave SE/NE 3rd St	Renton	D ³
16. Jefferson Ave NE/NE 3rd St/NE 4th St	Renton	D ³
17. 149th Ave SE/SR 169/SE Renton MVH	Renton	D ³

Note: MVH = Maple Valley Highway.

1. King County Municipal Code 14.80.030 (B).
2. Puget Sound Regional Council (PSRC) Highways of Statewide and Regional Significance King County Adopted Level of Service Standards for a Highway of Statewide Significance (HSS) in a rural area (LOS C) or urban area (LOS D).
3. Renton Comprehensive Plan (December 2018) Policy T-48.C.1. LOS D for all study intersections apart from along Sunset Blvd (formerly SR 900).

A peak hour factor (PHF) is used in the traffic operations analysis to consider how peak 15-minute traffic flows compare to hourly traffic flows. Intersection PHF are maintained for existing and Opening Year conditions. Design Year PHFs are adjusted for intersections with existing PHFs under 0.9 to reflect the forecasted higher traffic volumes and corresponding changes in travel patterns. PHFs are adjusted per National Cooperative Highway Research Program (NCHRP) Report 599⁹, which identifies PHFs based on total entering volumes of an intersection.

Existing heavy vehicle percentages were reviewed at the study intersections and analysis was done to determine if there would be a change in heavy vehicle percentages with growth in background conditions and increases in truck traffic with the Alternatives. The review shows that under the typical landfill operations, both in the Cedar Hills and Renton areas, the heavy vehicle percentages would be unchanged or less than current conditions. Based on the heavy vehicle percentage analysis, no changes to the existing heavy vehicle percentages are made in the Opening and Design Year analysis for the Alternatives. The equivalent or reduced forecast heavy vehicle percentages is due to the forecast low increase in landfill related truck trips compared with the higher percentage of background traffic growth. Additionally, specifically under Option 3 conditions, the shift in truck trips to the Renton site occur outside of the peak hours as shown in Figure 4-15 and thus did not result in an increase to the heavy vehicle percentages for the analysis. The heavy vehicle percentages are increased in the analysis of temporary construction impacts because of the concentrated increase in truck traffic.

⁹ National Cooperative Highway Research Program (NCHRP) Report 599: Default Values for Highway Capacity and Level of Service Analyses

2.3.2 Safety

Existing safety issues are found by reviewing collision history based on the method outlined in Chapter 4 of the *Highway Safety Manual* (HSM) (AASHTO, 2010). Intersections with observed crash rates (collisions per million entering vehicles) greater than the critical crash rate are identified for further review and consideration. The critical crash rate is based on the average crash rate at similar intersections, intersection traffic volumes and a statistical constant for the confidence level¹⁰.

¹⁰ *Highway Safety Manual*, AASHTO, 2010

3 Affected Environment

This section describes existing conditions within the identified study area. Characteristics are provided for the street system, traffic volumes, traffic operations, and traffic safety.

3.1 Street System Inventory

The following section describes the street system in the Cedar Hills and Renton Site vicinities including the transit and non-motorized facilities. The existing design of the street system is reflective of the primary mode of travel in the study area, which is car or truck.

3.1.1 Cedar Hills

Characteristics of the existing street system in the study area are shown in Table 3-1.

Table 3-1 Existing Street System Summary – Cedar Hills

Roadway	Classification ¹	Speed Limit	Number of Travel Lanes
SR 169/Renton Maple Valley Road SE	HSS/Principal Arterial	50 mph	2
Cedar Grove Road SE	Minor Arterial	40 mph	2-3
Lake Francis Road	Collector Arterial	35 mph	2
228th Avenue SE	Local Neighborhood Street	30 mph	2
Issaquah Hobart Road SE	Principal Arterial	45 mph	2
196th Avenue SE	Minor Arterial	40 mph	2
SE May Valley Road	Principal Arterial	35 mph	2

Note: HSS = highway of statewide significance

1. Classification based on *Puget Sound Region Highways of Statewide Significance* (2009) and *2016 King County Arterial Functional Classification*.

The Cedar Hills study area is characterized as rural and no sidewalks or bicycle facilities are provided along the roadways; however, shoulders of approximately 6 feet or greater are provided along Cedar Grove Road SE between SR 169 and 228th Avenue SE and limited shoulders are provided along 228th Avenue SE. There are signalized pedestrian crossings on two legs of the SR-169/Cedar Grove Road SE intersection as well as across all legs of the Cedar Grove Road and SE May Valley Road intersections along Issaquah Hobart Road SE. In addition, the Cedar River trail is south of the CHRLF along SR-169 and provides a multi-use path from Renton to Maple Valley, with over 15 miles of trail.

King County Metro Transit operates two routes in the study area. The nearest bus stop to the project is along SR 169 at Cedar Grove Road, approximately 2 miles southwest of the CHRLF. Table 3-2 summarizes the service of the two routes served at the SR 169 transit stop at Cedar Grove Road.

Table 3-2 Existing Transit Routes – Cedar Hills

Routes	Area Served	Approximate Weekday Operating Hours	Weekday PM Peak Headways (minutes)	Weekend Service?
143	Black Diamond to Maple Valley to Renton to Downtown Seattle	5:50 a.m. – 7:20 a.m. and 5:05 p.m. – 6:50 p.m.	20	No
907	Black Diamond to Maple Valley to Renton TC	8:10 a.m. – 5:10 p.m.	60	No

Source: King County Metro (December 2019).

3.1.2 Renton Site

Characteristics of the existing street system in the proposed Renton project study area are shown in Table 3-3.

Table 3-3 Existing Street System Summary – Renton Site

Roadway	Classification ¹	Speed Limit	Number of Travel Lanes	Parking	Sidewalks	Bicycle Facilities
Jefferson Avenue NE	Local Road	25 mph	2	Partial	Partial	No
Edmonds Avenue NE	Collector	25 mph	2	Partial	Yes	No
154th Place SE	Minor Arterial	35 mph	2-3	No	Partial	No
140th Way SE	Principal Arterial	40 mph	5-6	No	Yes	Yes
NE 3rd Street	Principal Arterial	35 mph	4-5	No	Yes	No
Sunset Boulevard N	Principal Arterial	30 mph	7 ²	No	Yes	No
Bronson Way N	Principal Arterial	25 mph	5	No	Yes	No
I-405	HSS	60 mph	7	No	No	No
SR 169/Renton Maple Valley Road SE	HSS/Principal Arterial	40 mph	6	No	Yes	No

Note: HSS = highway of statewide significance, non-HSS is a regionally significant state highway

1. Classification based on *Puget Sound Region Highways of Statewide Significance* (2009), Renton Comprehensive Plan (December 2018), and *2016 King County Arterial Functional Classification*.

2. Lanes for both directions of mainline in the study area and excludes exit lanes.

Sidewalks are provided along all arterial, collectors and local roadways in the study area. There are signalized crossings on at least one leg of all the study intersections. The Cedar River trail is approximately 1/3 of a mile south of the Bronson Way N/Sunset Boulevard N intersection and provides a multi-use path from Renton to Maple Valley, with over 15 miles of trail. Bicycle facilities in the study area are limited to on-street bicycle lanes along 140th Way SE.

The Renton Technical College (RTC) is located in the northeastern area of the Renton study area and generates pedestrian activity in the area especially with students/employees access transit. Signalized crossings are provided across all legs of the Monroe Avenue NE/NE 4th Street intersection as well across the western and southern legs of the Jefferson Avenue NE/NE 4th Street intersection (the study intersection). If someone at RTC were walking between the campus north of NE 4th Street to the south side of NE 4th Street, they would need to cross one crosswalk if crossing at Monroe Avenue or four crosswalks if at Jefferson Avenue. Due to the reduced number of crossings required, pedestrians traveling across NE 4th Street would likely choose to cross at Monroe Avenue rather than Jefferson Avenue. Monroe Avenue is also closer to the transit stops and the businesses on the south side of NE 4th Street near RTC. The Monroe Avenue crossing is also further from the Renton Transfer Station.

The study area is served by King County Metro Transit. The nearest bus stops to the potential Renton facilities site are approximately 1/2-mile distance northeast at the NE 4th Street/Monroe Avenue NE intersection. Table 3-4 summarizes the service of the two routes (Routes 105 and 111) served at the NE 4th Street/Monroe Avenue NE intersection transit stop. There are additional bus stops located just over a 1/2-mile west of the site along NE 3rd Street at Edmonds Avenue SE which is served by Route 105.

Table 3-4 Existing Transit Routes – Renton Site

Routes	Area Served	Approximate Weekday Operating Hours	Weekday PM Peak Headways (min)	Weekend Service?
105	Renton Highlands to Renton TC	4:35 a.m. – 12:00 a.m.	30	Yes
111	Maplewood to Lake Kathleen to Downtown Seattle	5:40 a.m. – 8:20 a.m. and 4:00 p.m. – 7:15 p.m.	15-20	No

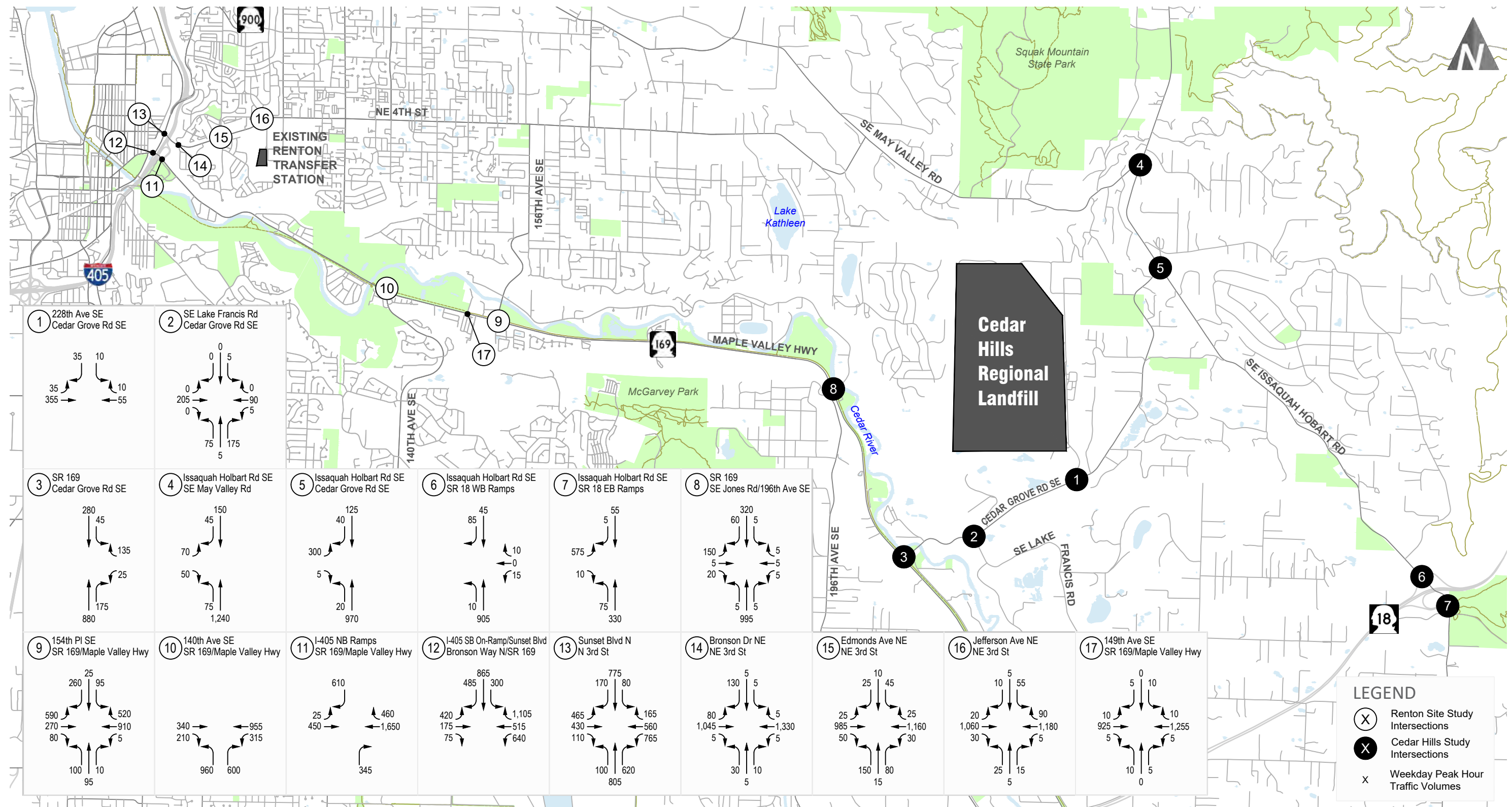
Source: King County Metro (December 2019).

3.2 Traffic Volumes

This section describes the existing traffic volumes at the Cedar Hills and Renton Site study intersections as well as at the CHRLF. Existing traffic volumes are based on weekday AM (7 to 9 a.m.), midday (11 a.m. to 1 p.m.), and PM (4 to 6 p.m.) peak period traffic counts conducted at the study intersections. The weekday AM and PM peak periods studied were based on a review of hourly traffic counts at 5 locations within the study area showing the AM and PM periods selected for this study are representative of the peak hours where the traffic volumes are either the same or greater than the adjacent hours. The summary of the hourly traffic volume review is included in Appendix C.

3.2.1 Cedar Hills

Existing weekday peak hour conditions are based on pre-COVID traffic counts where available including on-site counts from January 2020 as well as the 2017 CHRLF Traffic Study. Additional traffic counts were collected in February 2021 for the Final EIS. Adjustments were made for the counts collected during COVID conditions to reflect typical (pre-COVID) conditions. All peak hour traffic volumes are grown to existing 2021 conditions by applying a growth rate of one percent per year. Existing weekday AM, Midday, and PM peak hour volumes are summarized on Figure 3-1, Figure 3-2, and Figure 3-3, respectively. The detailed traffic count worksheets are included in Appendix C.

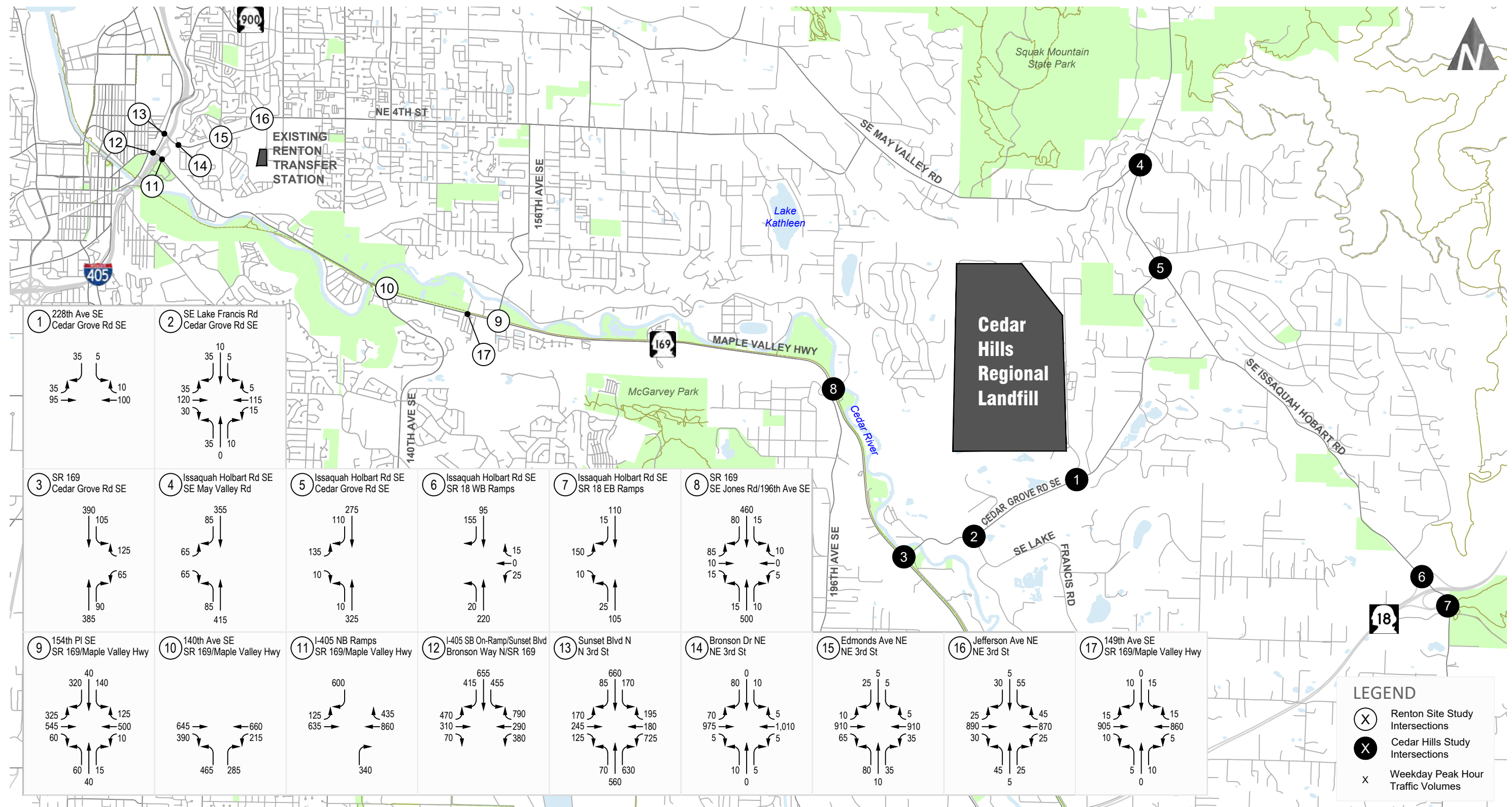


Existing Weekday AM Peak Hour Traffic Volumes

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE

3-1

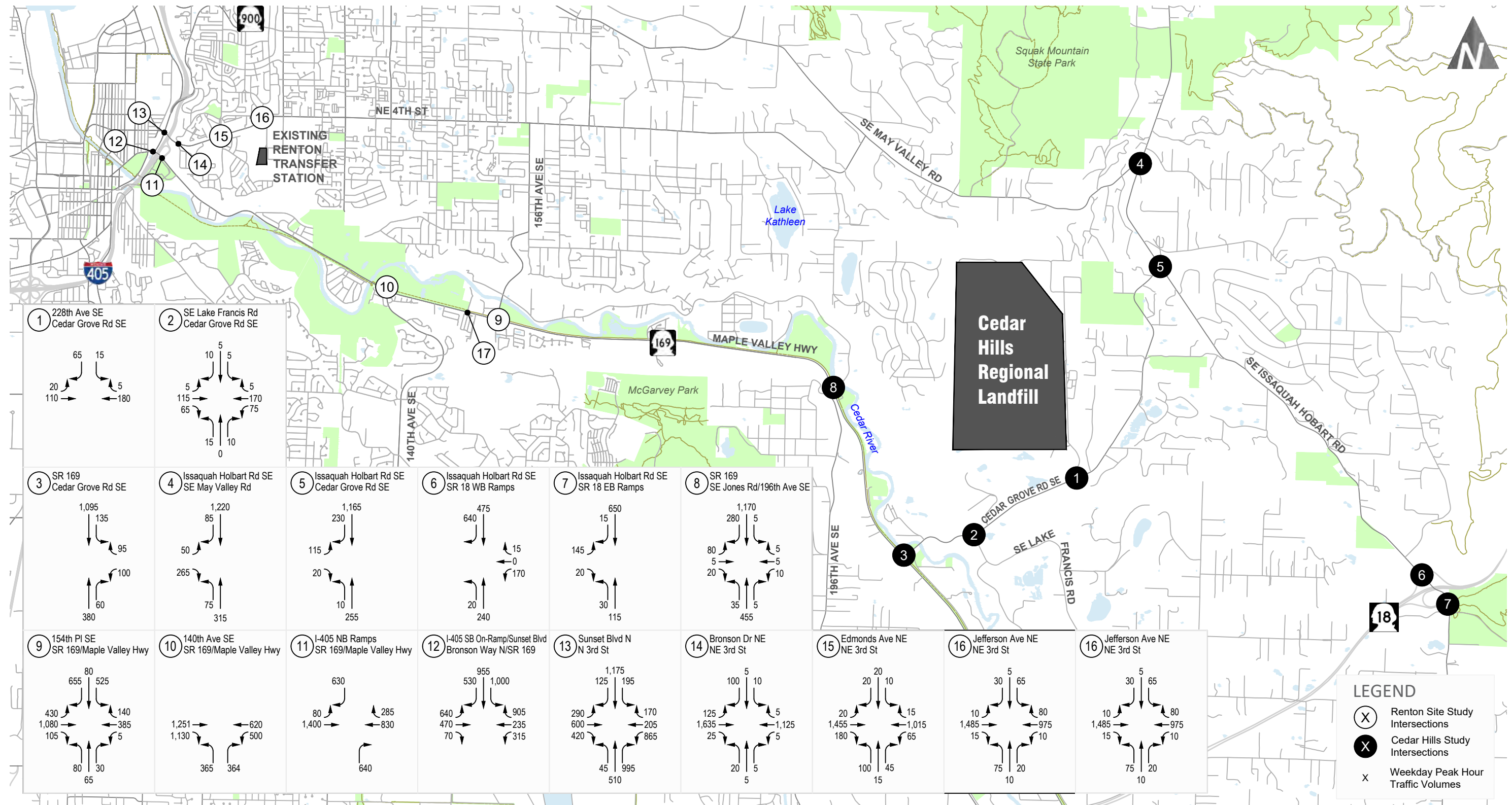


Existing Weekday Midday Peak Hour Traffic Volumes

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE

3-2



Existing Weekday PM Peak Hour Traffic Volumes

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE

3-3

3.2.1.1 Trip Generation

Existing trip generation is based on the existing CHRLF operations and traffic data for each of the different CHRLF site users described in 2.2.2 Alternatives Trip Generation. CHRLF operates seven (7) days a week from approximately 5 a.m. to 8 p.m., though some staff are on site at all times. The facility is generally closed to the public and waste collected from the public is delivered to the King County recycling and transfer station facilities.

The existing trips are based on KCSWD scale data for CHRLF and hourly traffic counts collected at the site access in January 2020 (see Appendix C). The scale data captures all haul related transactions for a 3-year period (2017-2019). The traffic counts include all trips to/from CHRLF for one week including Saturday and Sunday. Where appropriate and available, the scale data is used for the trip generation estimates because it is a larger and more comprehensive data set. The trip generation approach for each user is:

- KCSWD Waste Transfer – The existing daily transactions for the KCSWD waste transfer vehicles trips are based on 2017-2019 scale data at CHRLF. Waste transfer transactions are converted to trips by multiplying the transactions by 2 accounting for the inbound and outbound trip. The existing January 2020 traffic counts are used for the time-of-day distribution and applied to the daily trips rather than the scale data because most of the haul trips arrive in the evenings and leave the next mornings, which is not shown in the scale data. The scale data only captures the inbound trip and the existing January 2020 traffic counts reflect the morning outbound trips in the distribution.
- Operational Trips - KSCWD estimated monthly and daily offsite operational trips by year based on soil stockpiles, soil use, and soil balance analysis. For existing conditions, there are no offsite operational trips.
- Commercial Direct-Haul and Other – The existing daily transactions for the commercial-direct and other haul trips are based on 2017-2019 scale data at CHRLF. Commercial-direct and other haul transactions are converted to trips by multiplying the transactions by 2 accounting for the inbound and outbound trip. The trips are distributed throughout the day based on the scale data because the trucks enter and leave the site during the same time period.
- Staff – KCSWD provided the existing number of employees and typical other users. The employee daily trips are based on existing daily traffic counts collected at the site.

The existing CHRLF total weekday, Saturday and Sunday daily trip generation based on the data sets described above are consistent with the existing traffic counts conducted at the CHRLF site access. Table 3-5 and Table 3-6 provides a summary of the existing daily and peak hour trip generation.

Table 3-5 Existing CHRLF Daily Trip Generation

User	Average Inbound Haul Trips ¹	Staff Trips		Total Trips
		Employees	Other	
Average Weekday				
KCSWD Waste Transfer Trucks	126	-	-	252
Commercial Direct Haul	14	-	-	28
Other Haul	5	-	-	10
Staff ²	-	193	68	522
Operational Trips	0	-	-	0
Total Trips	145	193	68	812
Existing Weekday Counts ³				800
Saturday				
KCSWD Waste Transfer Trucks	71	-	-	142
Commercial Direct Haul	0	-	-	0
Other Haul	0	-	-	0
Staff	-	36	13	98
Operational Trips	0	-	-	0
Total Trips	71	36	13	240
Existing Saturday Counts ³				312
Sunday				
KCSWD Waste Transfer Trucks	54	-	-	108
Commercial Direct Haul	0	-	-	0
Other Haul	0	-	-	0
Staff	-	36	13	98
Operational Trips	0	-	-	0
Total Trips	54	36	13	206
Existing Sunday Counts ³				204
Weekly Total Trips				4,506
Existing Weekly Counts ³				4,366

1. Daily Transactions based on 2017-2019 scale data for the Cedar Hills site representing the one-way inbound trips.
2. Employee/Visitor Trips based on data provided by KCSWD.
3. January 2020 traffic counts (see Appendix C) are used to validate the calculated average trip generation based on the larger data set. s shown in

As shown in Table 3-5, there are approximately 800 weekday daily trips and less than 300 trips on Saturdays and Sundays. Weekday conditions are the focus of the traffic analysis because CHRLF and the transportation system traffic volumes are highest.

Table 3-6 Existing CHRLF Weekday Peak Hour Trip Generation

User	AM Peak Hour	Midday Peak Hour	PM Peak Hour
KCSWD Waste Transfer Trucks ¹	24	24	10
Commercial Direct Haul ¹	2	5	0
Other Haul ¹	1	1	0
Staff ²	15	28	72
Operational Trips	0	0	0
Total Trips	42	58	82

1. Time of day based on transaction scale data (2017-2019) for the Cedar Hills site.

2. January 2020 traffic counts (see Appendix C) in conjunction with the Cedar Hills scale data and review of vehicle classifications used to find time of day for staffing related trips.

As shown in Table 3-6, CHRLF generates 42 trips during the weekday AM peak hour, 58 Midday peak hour trips, and 82 PM peak hour trips. The peak hour trips are included in the existing traffic volumes shown on Figure 3-1, Figure 3-2 and Figure 3-3. The detailed trip generation for the existing condition is provided in Appendix D.

3.2.2 Renton Site

Existing weekday peak hour conditions are based on traffic counts collected between 2010 and 2019 (pre-COVID conditions) with the exception of the 149th Avenue SE/SR 169 (MVH) study intersection which was counted in February 2021. Adjustments were made for the count collected during COVID conditions to reflect typical (pre-COVID) conditions. All peak hour traffic volumes are grown to existing 2021 conditions by applying an annual growth rate of one percent as coordinated with Renton staff and consistent with other traffic studies conducted in the area. Existing weekday AM, Midday, and PM peak hour volumes are summarized on Figure 3-1, Figure 3-2, and Figure 3-3, respectively.

3.3 Traffic Operations

Chapter 2 Methodology describes the intersection LOS method and assumptions.

3.3.1 Cedar Hills

The existing weekday peak hour LOS is summarized in Table 3-7 for the Cedar Hills study area.

Table 3-7 Existing Weekday Peak Hour LOS Summary – Cedar Hills

Intersection	LOS Standard	LOS ¹	Delay ²	WM ³
<u>Weekday AM Peak Hour</u>				
1. Cedar Grove Rd SE/228th Ave SE	E	B	11	SB
2. Cedar Grove Rd SE/SE Lake Francis Rd	E	B	12	NB
3. SR 169/SE Renton MVH/Cedar Grove Rd SE	C	C	31	-
4. Issaquah Hobart Rd SE/SE May Valley Rd	E	C	23	-
5. Issaquah Hobart Rd SE/Cedar Grove Rd SE	E	C	33	-
6. Issaquah Hobart Rd SE/SR 18 WB Ramps	C	D	27	WBTL
7. Issaquah Hobart Rd SE/SR 18 EB Ramps	C	C	22	-
8. SE Jones Rd/196th Ave SE/SR 169/SE Renton MVH	D	C	31	-
<u>Weekday Midday Peak Hour</u>				
1. Cedar Grove Rd SE/228th Ave SE	E	B	10	SB
2. Cedar Grove Rd SE/SE Lake Francis Rd	E	B	15	NB
3. SR 169/SE Renton MVH/Cedar Grove Rd SE	C	B	19	-
4. Issaquah Hobart Rd SE/SE May Valley Rd	E	A	9	-
5. Issaquah Hobart Rd SE/Cedar Grove Rd SE	E	A	9	-
6. Issaquah Hobart Rd SE/SR 18 WB Ramps	C	B	12	WBTL
7. Issaquah Hobart Rd SE/SR 18 EB Ramps	C	A	9	-
8. SE Jones Rd/196th Ave SE/SR 169/SE Renton MVH	D	B	16	-
<u>Weekday PM Peak Hour</u>				
1. Cedar Grove Rd SE/228th Ave SE	E	B	11	SB
2. Cedar Grove Rd SE/SE Lake Francis Rd	E	B	14	SB
3. SR 169/SE Renton MVH/Cedar Grove Rd SE	C	C	21	-
4. Issaquah Hobart Rd SE/SE May Valley Rd	E	D	47	-
5. Issaquah Hobart Rd SE/Cedar Grove Rd SE	E	B	20	-
6. Issaquah Hobart Rd SE/SR 18 WB Ramps	C	F	58	WBTL
7. Issaquah Hobart Rd SE/SR 18 EB Ramps	C	A	9	-
8. SE Jones Rd/196th Ave SE/SR 169/SE Renton MVH	D	C	25	-
Note: MVH = Maple Valley Highway. Shading indicates intersection operating below LOS standard. 1. Level of Service (A – F) as defined by the <i>Highway Capacity Manual</i> (TRB, 6th Edition) 2. Average delay per vehicle in seconds rounded to the whole second. 3. Worst movement or approach reported for side-street stop-controlled intersections. All other intersections are signalized. SB = southbound, NB = northbound, WBTL = westbound through/left turn movement				

As shown in Table 3-7, all study intersections in the Cedar Hills study area operate at LOS C or better and meet the LOS standards during the weekday AM, Midday, and PM peak hours with the exception of the Issaquah Hobart Road SE/SR 18 Westbound Ramps intersection. The westbound through left turn stop controlled movement at the Issaquah Hobart Road SE/SR 18 Westbound Ramps intersection is forecast to operate at LOS acceptably midday but operate below standard at LOS D and F during the weekday AM and PM peak hours, respectively. Poor operations at this intersection is a known issue. As shown in Table 4-1 in the following section, a planned improvement at this location has been identified by WSDOT to install a roundabout at this location replacing the existing stop-controlled intersection; however, the construction is not currently funded.

3.3.2 Renton Site

The existing weekday peak hour LOS is summarized in Table 3-8 for the Renton Site study area.

Table 3-8 Existing Weekday Peak Hour LOS Summary – Renton Site

Intersection	LOS Standard	LOS ¹	Delay ²
<u>Weekday AM Peak Hour</u>			
9. 154th Pl SE/SR 169/SE Renton MVH	D	E	63
10. 140th Way SE/SR 169/SE Renton MVH	D	D	46
11. I-405 NB Ramps/SR 169/SE Renton MVH	D	C	35
12. I-405 SB On-Ramp/SR 169/SE Renton MVH/Sunset Blvd N	E	F	87
13. Sunset Blvd N/NE 3rd St	E	D	54
14. Monterey Dr NE/NE 3rd St	D	B	13
15. Edmonds Ave SE/NE 3rd St	D	B	15
16. Jefferson Ave NE/NE 3rd St/NE 4th St	D	A	7
17. 149th Ave SE/SR 169/SE Renton MVH	D	A	7
<u>Weekday Midday Peak Hour</u>			
9. 154th Pl SE/SR 169/SE Renton MVH	D	C	33
10. 140th Way SE/SR 169/SE Renton MVH	D	D	37
11. I-405 NB Ramps/SR 169/SE Renton MVH	D	C	22
12. I-405 SB On-Ramp/SR 169/SE Renton MVH/Sunset Blvd N	E	C	33
13. Sunset Blvd N/NE 3rd St	E	D	41
14. Monterey Dr NE/NE 3rd St	D	A	9
15. Edmonds Ave SE/NE 3rd St	D	C	34
16. Jefferson Ave NE/NE 3rd St/NE 4th St	D	A	8
17. 149th Ave SE/SR 169/SE Renton MVH	D	A	7
<u>Weekday PM Peak Hour</u>			
9. 154th Pl SE/SR 169/SE Renton MVH	D	E	68
10. 140th Way SE/SR 169/SE Renton MVH	D	D	43
11. I-405 NB Ramps/SR 169/SE Renton MVH	D	B	15
12. I-405 SB On-Ramp/SR 169/SE Renton MVH/Sunset Blvd N	E	E	61
13. Sunset Blvd N/NE 3rd St	E	D	53
14. Monterey Dr NE/NE 3rd St	D	A	9
15. Edmonds Ave SE/NE 3rd St	D	C	32
16. Jefferson Ave NE/NE 3rd St/NE 4th St	D	A	8
17. 149th Ave SE/SR 169/SE Renton MVH	D	B	10

Note: MVH = Maple Valley Highway. Shading indicates intersection operating below LOS standard.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 6th Edition)

2. Average delay per vehicle in seconds rounded to the whole second.

3. Evaluated using HCM 2000 because HCM 6th Edition does not evaluate the specific phasing of the intersection.

Table 3-8 shows that the Renton Site study intersections generally meet LOS standards with the exception of the I-405 Southbound On-Ramp intersection during the weekday AM peak hour as well as the 154th Place SE/SR 169/SE Renton MVH intersection during the weekday AM and PM peak hours. Each intersection is discussed below.

- **I-405 Southbound On-Ramp/SR 169/ SE Renton MVH/Sunset Boulevard N intersection** has a LOS E standard but operates at LOS F during the weekday AM peak hour. Poor operations are a known issue at this intersection because of overall high volumes and the need to provide separate traffic signal phases for each leg of the intersection.
- **154th Place SE/SR 169/SE Renton MVH intersection** has a LOS D standard but operates at LOS E during the weekday AM and PM peak hour. Poor operations are a known issue at this intersection because of high directional conflicting volumes both along MVH as well as to/from MVH and 154th Place SE.

3.4 Traffic Safety

Collision records for the most recent complete five-year period are reviewed for the study area. Historical collision data is from WSDOT for the period of January 1, 2015 to December 31, 2019. The analysis does not include 2020 collision data. A review of 2020 data showed fewer collisions compared to the annual average number of collisions in the 5-year period between 2014 and 2019; therefore, the analysis is based on 2014-2019 since 2020 could be influenced by the COVID-19 pandemic. A review of historical collisions is provided to identify potential safety issues. The collision history is summarized below for the Cedar Hills and Renton Site study areas.

Review of safety in the study area was completed by compiling crash rates by study intersection to identify locations with potential safety issues. Comparing observed (i.e., collisions per million entering vehicles [MEV]) and critical crash rates is used to identify where observed rates are higher than the calculated critical rate. Critical crash rates are calculated based on the methodology found in Chapter 4 of the *Highway Safety Manual, 2010*. Intersections are grouped by traffic control: unsignalized or signalized and intersections with observed crash rates that are greater than its respective critical crash rates are flagged for further review.

3.4.1 Cedar Hills

A summary of the total and average annual number of reported collisions as well as the observed and critical crash rates at each study intersection is provided in Table 3-9.

Table 3-9 Collision History – Cedar Hills

Intersection	Number of Reported Collisions ³					Total	Annual Average	Observed Crash Rate ¹	Critical Crash Rate ²
	2015	2016	2017	2018	2019				
1. Cedar Grove Rd SE/ 228th Ave SE	0	0	0	0	0	0	0.0	0.00	1.66
2. Cedar Grove Rd SE/ SE Lake Francis Rd	0	1	2	2	2	7	1.4	0.80	1.52
3. SR 169/SE Renton MVH/ Cedar Grove Rd SE	5	6	9	5	2	27	5.4	0.79	0.91
4. Issaquah Hobart Rd SE/ SE May Valley Rd	5	1	5	2	7	20	4.0	0.55	0.89
5. Issaquah Hobart Rd SE/ Cedar Grove Rd SE	0	4	4	3	2	13	2.6	0.40	0.92
6. Issaquah Hobart Rd SE/ SR 18 WB Ramps	0	0	1	1	1	3	0.6	0.11	0.96
7. Issaquah Hobart Rd SE/ SR 18 EB Ramps	0	0	0	1	1	2	0.4	0.11	1.13
8. SE Jones Rd/196th Ave SE/ SR 169/SE Renton MVH	3	2	3	3	3	14	2.8	0.37	0.88

Source: WSDOT, 2020

Note: MVH = Maple Valley Highway.

1. Observed Crash Rate = Reported collisions per million entering vehicles (MEV).

2. Calculated per Equation 4-11 in the Highway Safety Manual, 2010.

3. Note the 2015-2019 review period was maintained due to non-typical conditions of 2020.

As shown in the table, the observed crash rates for the intersections are less than their critical crash rates indicating there are no existing safety issues requiring further review. There are no reported collisions at the Cedar Grove Road SE/228th Avenue SE intersection, which provides access to the CHRLF. The majority of the collisions at the remaining study intersections are rear-end collisions and generally resulted in property damage only. There are no reported fatalities or pedestrian collisions within the study area. There is one reported bicyclist collision in the study area, which occurred at the Cedar Grove Road SE/SR 169 intersection and resulted in a possible injury. The analysis indicates there are no existing safety issues warranting further review in the study area.

3.4.2 Renton Site

A summary of the total and average annual number of reported collisions as well as the collisions rate at each study intersection is provided in Table 3-10 in the Renton Site study area.

Table 3-10 Collision History – Renton Site

Intersection	Number of Reported Collisions ³					Total	Annual Average	Observed Crash Rate ¹	Critical Crash Rate ²
	2015	2016	2017	2018	2019				
9. 154th Pl SE/SR 169/SE Renton MVH	9	7	5	5	6	32	6.4	0.49	1.07
10. 140th Way SE/SR 169/SE Renton MVH	11	13	7	5	2	38	7.6	0.49	1.03
11. I-405 NB Ramps/SR 169/SE Renton MVH	12	15	18	9	9	63	12.6	0.89	1.05
12. I-405 SB On-Ramp/SR 169/SE Renton MVH/Sunset Blvd N	19	19	15	14	10	77	15.4	0.82	0.99
13. Sunset Blvd N/NE 3rd St	17	26	19	20	14	96	19.2	0.94	0.98
14. Monterey Dr NE/NE 3rd St	5	8	3	7	4	27	5.4	0.48	1.10
15. Edmonds Ave SE/NE 3rd St	7	7	4	5	7	30	6.0	0.56	1.11
16. Jefferson Ave NE/NE 3rd St/NE 4th St	1	4	2	2	3	12	2.4	0.24	1.13
17. 149th Ave SE/SR 169/SE Renton MVH	2	0	0	1	3	6	1.2	0.12	1.12

Source: WSDOT, 2020

Note: MVH = Maple Valley Highway.

1. Observed Crash Rate = Reported collisions per million entering vehicles (MEV).

2. Calculated per Equation 4-11 in the Highway Safety Manual, 2010

3. Note the 2015-2019 review period was maintained due to non-typical conditions of 2020.

As shown in the table, the observed crash rates for the intersections are less than their critical crash rates indicating there are no existing safety issues requiring further review. The majority of the collisions at the study intersections are rear-end collisions and generally resulted in property damage only. Two fatalities were reported during the review period at the 154th Place SE and 140th Way SE intersections along SR 169/SE Renton MVH and were the result of either inattention or speeding. The SR 169 corridor between 152nd Avenue SE/154th Place SE to I-405 (inclusive of both study intersections with fatalities) is identified to include widening from four to six lanes with pedestrian and bicycle improvements per the 2040 PSRC Regional Transportation Plan 2018 (see section 4.1.1.1.2).

There are 5 reported pedestrian collisions and 3 reported bicyclist collisions in the study area, which occurred at the two I-405/SR 169 study intersections as well as at the Sunset Boulevard and Edmonds Avenue NE intersections along NE 3rd Street. Based on the safety analysis, no patterns at intersections were identified that would indicate existing safety issues warranting further review in the study area.

Potential existing safety issues due to vehicles speeding along NE 3rd Street specifically in the vicinity of the grade west of the Renton Site were examined. A week of traffic volumes, speeds, and vehicle classification data was collected along NE 3rd Street in the vicinity of Blaine Avenue NE (i.e., capturing the impacts of the grade along NE 3rd Street). The posted speed limit along NE 3rd Street is 35 mph. The data shows that along NE 3rd Street for the downgrade section vehicles speeds were an average of 42 mph with an 85th percentile speed of 47 mph indicating there is a speeding issue on the downhill portion of NE 3rd Street. A review of speeds by vehicle class shows the truck average speed along the same section of NE 3rd Street is 41 mph with an 85th percentile speed of 45 mph indicating that trucks are going slightly slower but still over the speed limit. An additional review of collisions at the study intersections along the NE 3rd Street corridor was performed to determine potential existing safety issues related to heavy vehicles speeding. During the 5-year study period, a total of 10 collisions were reported along NE 3rd Street west of the Renton Site involving trucks, with 8 of the 10 collisions occurring at the Sunset Boulevard/NE 3rd Street intersection and the remaining 2 collisions occurring at the Edmonds Avenue NE/NE 3rd Street intersection. All reported collisions

resulted in property damage only and were primarily sideswipe or approach turn collisions. None of the reported collisions were due to excessive speed or disregard for the traffic signal. The collision history review includes the existing Renton Transfer Station, which has similar trucks to the CHRLF. The review shows there is a speeding issue along NE 3rd Street for both general vehicles and trucks, which is related to the downhill grade. Consideration could be given to speed radar signs to help slow traffic along NE 3rd Street.

4 Environmental Impacts

This chapter describes the future conditions for the transportation systems within the study area under No Action and the action alternatives. The future transportation system conditions are based on forecasts consistent with regional planning including King County, WSDOT, and the Cities of Renton and Maple Valley.

4.1 Direct Impacts

Direct transportation impacts are the impacts caused by the alternatives' traffic generation. The No Action Alternative is the baseline condition against which the action alternatives are compared. The alternatives are evaluated based on the performance measures described in Chapter 2 Methodology. The following sections summarize the direct impacts of the No Action and action alternatives.

4.1.1 No Action Alternative

Opening, Capacity and Design Year street system, traffic volumes, operations, and safety are discussed for the No Action Alternative in both the Cedar Hills and Renton Site study areas. The No Action Alternative represents continued operations of the landfill until approximately mid-2028 when the CHRLF is estimated to reach capacity. The support facilities would remain in place or be placed at interim leased off-site facilities. Waste haul tractors and trailers would continue to be based at CHRLF and there would be staff and contractor trips related to trucking and maintenance of the environmental control systems when the landfill reaches capacity for all alternatives, but no waste haul trips generated related to landfilling. When the landfill closes after it reaches capacity, disposal and associated waste transfer trips would be shifted to either waste export by rail or to a waste to energy (mass burn) facility somewhere in King County.

4.1.1.1 Street System

The future improvements within the study areas are based on:

- Washington State Department of Transportation 2021-2024 Statewide Transportation Improvement Program
- King County Road Services Division Capital Improvement Program 2017-2022
- Puget Sound Regional Council (PSRC) *Regional Transportation Plan*, 2018
- King County Comprehensive Plan 2020 Executive Recommended Plan
- Renton 2020-2025 Six-Year Transportation Improvement Program
- *Renton Comprehensive Plan*, adopted June 2015, amended December 2018
- *Renton City Center Community Plan*, adopted June 2011
- Renton Comprehensive Walkway Study 2008 Final Report
- King County Metro Connects Long Range Plan, 2017
- Issaquah-Hobart Road/Front Street Corridor Study, 2018

The projects identified within the Cedar Hills and the Renton Site study areas are described below.

4.1.1.1.1 Cedar Hills

King County Metro Connects Long Range Plan, 2017 identifies improved service and new express bus service between Maple Valley, Renton, Overlake, Issaquah, and Enumclaw by 2040. The transit improvements would not change travel to and from the CHRLF; however, background traffic could be reduced with improved service resulting in people using transit as an alternative to driving.

In addition, WSDOT had identified an improvement along SR 18 at the Issaquah Hobart Road ramps. The project would convert the existing stop controlled and signalized ramp intersections to both be roundabouts by 2024. The design of this project is funded; however, the construction is not funded and as such was not assumed.

The planned improvements identified within the Cedar Hills study area are summarized in Table 4-1.

Table 4-1 Planned Improvement Summary – Cedar Hills

Location	Improvement Type	Description	Expected Completion Year	Funding? ¹	Included in Operations Analysis?	Source
Issaquah-Hobart Rd between I-90 and SR-18	Corridor	Operational, ITS and safety improvements to congested corridor used as an Urban Connector between the Maple Valley/SR-18 area and Eastside cities.	Unknown	No	No	PSRC Regional Transportation Plan 2018, King County Comprehensive Plan 2020 Executive Recommended Plan
Issaquah-Hobart Rd SE & SE Cedar Grove Rd	Intersection	Convert intersection into a roundabout	Unknown	No	No	King County Comprehensive Plan 2020 Executive Recommended Plan, Issaquah-Hobart Road/Front Street Corridor Study
Issaquah-Hobart Rd SE & SE May Valley Rd	Intersection	Convert intersection into a roundabout	Unknown	No	No	King County Comprehensive Plan 2020 Executive Recommended Plan, Issaquah-Hobart Road/Front Street Corridor Study
Issaquah Hobart Rd SE: From S Issaquah city limits to SR-18	Corridor	Reconstruct roadway	Unknown	No	No	King County Comprehensive Plan 2020 Executive Recommended Plan
Issaquah-Hobart Rd at SR-18 Ramps	Intersection	Convert intersections into a roundabout	2024	No	No	WSDOT

4.1.1.1.2 Renton Site

The planned improvements identified in the vicinity of the Renton Site are summarized in Table 4-2. The projects identified in the Renton Site study area include transit, non-motorized, freeway and roadway/intersection improvements; however, some of the projects are not funded or programmed at this time. As shown in Table 4-2, the roadway and intersection improvements identified along SR 169 between 152nd Avenue SE and I-405 and NE 3rd Street/NE 4th Street between Sunset Boulevard N to the east Renton City limits are not fully funded at this time and thus are not included as part of the Opening and Design Year analyses.

Table 4-2 Planned Improvement Summary – Renton Site

Location	Improvement Type	Description	Expected Completion Year	Funding? ¹	Included in Operations Analysis?	Source
Renton TC to Auburn Station	Transit	Construct a new RapidRide (I) line between Renton, Kent, and Auburn.	2023	Yes	NA	King County Metro Connects Long Range Plan 2017
Renton to Bellevue	Transit	Construct a new RapidRide line between Renton and Bellevue.	Unknown	No	NA	King County Metro Connects Long Range Plan 2017
SR 169 between 152nd Ave SE to I-405.	Intersection and Roadway	Widen SR 169 from four to six lanes with pedestrian and bicycle improvements.	2040	No	No	PSRC Regional Transportation Plan 2018
NE 3rd St/NE 4th St between Sunset Blvd N to the east City Limits	Intersection and Roadway	A series of improvements to improve traffic operations such as lane configuration and traffic signal modifications, possible transit priority signal treatments and queue jumps.	2025	No	No	Renton 2020-2025 Six-Year Transportation Improvement Program
I-405 between Renton and Bellevue	Freeway	I-405 Corridor Widening and Express Toll Lanes	2024	Yes	NA	WSDOT STIP 2021 to 2024
Renton highlands to Rainer Beach (Along 3rd St)	Transit	Construct a new RapidRide line connecting Renton Highlands to Rainier Beach via Renton.	Unknown	No	NA	PSRC Regional Transportation Plan 2018/ King County Metro Connects Long Range Plan 2017
Renton highlands to Auburn (Along 3rd St)	Transit	Add a local bus route from Renton Highlands to Auburn.	2025	Yes	NA	King County Metro Connects Long Range Plan 2017
Edmonds Ave NE between NE 3rd St and NE 4th St	Non-Motorized	Sidewalk to be added to the east side of Edmonds Avenue NE.	Unknown	Yes	NA	Renton Comprehensive Walkway Study 2008 Final Report
NE 4th St west of Union Ave NE	Non-Motorized	Bike lanes connecting to existing facilities on NE 4th St	Unknown	No	NA	Renton Trails and Bicycle Master Plan
NE 3rd St between Sunset Blvd N and NE 4th St	Non-Motorized	Bike lanes and/or shared use path	Unknown	No	NA	Renton Trails and Bicycle Master Plan

Notes: NA = Not applicable, does not impact intersection operations analysis.

4.1.1.2 Traffic Volumes

The study intersection forecasts are based on the methods and assumptions described in Chapter 2 Methodology. The No Action Alternative traffic forecasts account for continuation of CHRLF activities and growth by 2025 and CHRLF reaching capacity by mid-2028.

4.1.1.2.1 Cedar Hills

No Action Alternative traffic volumes in the Cedar Hills study area are described below.

4.1.1.2.1.1 Trip Generation

The No Action Alternative trip generation method is described in Section 2.2.2 Alternatives Trip Generation. Table 4-3 summarizes the Opening, Capacity and Design Years weekday daily and hourly trips for the No Action Alternative at the CHRL. Detailed trip generation is included in Appendix D.

As shown in Table 4-3, the No Action Alternative under the Opening Year condition would generate approximately 72 new trips with up to 8 new peak hourly trips and under the Capacity Year condition approximately 124 new trips with up to 12 new peak hourly trips compared to existing conditions.

As described previously, the No Action Alternative would have the support facilities remain at the CHRLF or placed at an interim off-site facility. Placing the support facilities off-site could result in an increase in trips on the transportation system surrounding this location. Staff accounts for approximately 60 percent of the trips associated with CHRLF and these trips could impact the off-site location. KCSWD has not identified a specific interim off-site location.

Table 4-3 No Action Alternative Estimated Weekday Trip Generation

	Opening Year	Capacity Year (2028)	Design Year ¹
No Action Alternative Daily Trips	884	936	340
<i>Existing Daily Trips</i>	<i>812</i>	<i>812</i>	<i>812</i>
Net New Daily Trips	+72	+124	-472
Net New Peak Hour No Action Alternative Trips²			
AM Peak Hour	3	9	-32
Midday Peak Hour	6	12	-40
PM Peak Hour	8	8	-12

1. The Design Year trip generation reflects the remaining trucking and trucking/maintenance staff related trips because the facility would reach capacity before the horizon year of 2040.

2. Net new peak hour trips are relative to existing weekday peak hour trips.

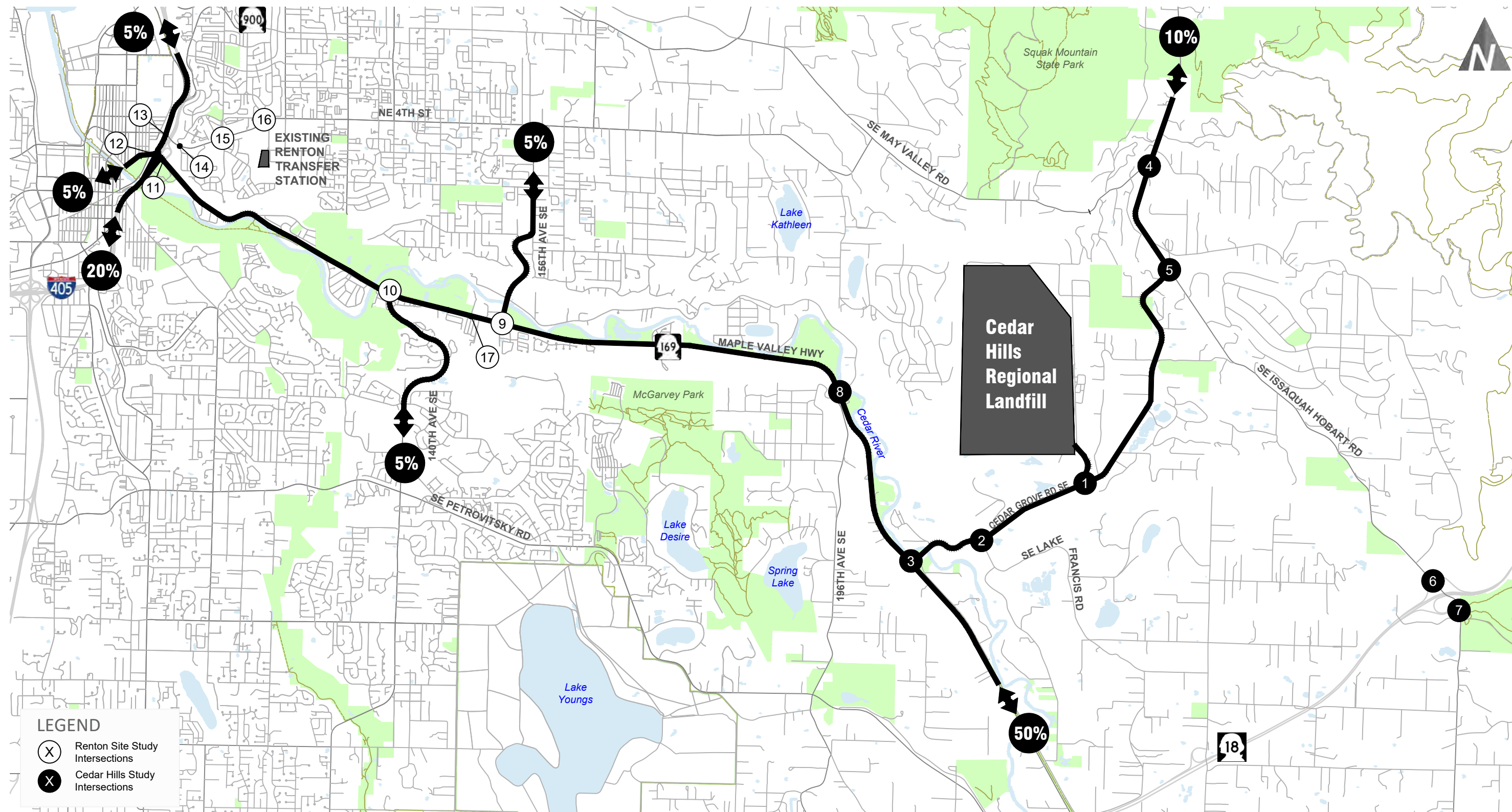
The increase in trips generated by the No Action Alternative is related to incremental growth in landfill operations, which is already permitted. In the Design Year, the No Action Alternative would result in a reduction of 472 daily trips and a reduction of up to 40 peak hour trips relative to existing conditions because the CHRLF would be closed to landfilling. As described previously, the No Action Alternative would continue to generate trips when it reaches capacity for trucking operations and for staff performing trucking and maintenance of the environmental control systems.

4.1.1.2.1.2 Trip Distribution Patterns

Trip distribution patterns are based on existing travel patterns for each of the users, KCSWD waste transfer routes to/from the recycling and transfer stations, US Census Bureau's *OnTheMap* tool and the 2017 CHRLF Traffic Study. Based on the location of the recycling and transfer stations relative to the CHRLF, the KCSWD waste transfer vehicles are distributed such that the majority of trips (80 percent) are to/from the north along SR 169 with the remaining trips (20 percent) to/from the Algona and Enumclaw Transfer Stations south along SR 169. The same travel pattern is assumed for the operational import and export trips. The King County Haul and Operational trip distribution is shown on Figure 4-1. The commercial haul trip distribution is based on existing travel patterns. Trip distribution patterns for staff to and from CHRLF are based on existing vehicle travel patterns and U.S. Census Bureau's *OnTheMap* tool. *OnTheMap* is a web-based mapping and reporting application, which shows where workers are employed and where they live based on census data. *OnTheMap* census data is translated to the employees that work within the CHRLF area and where they live. The zip codes are used to find the routing of the staff based on where they live. The trip distributions of commercial haul and staff are illustrated on Figure 4-2 and Figure 4-3, respectively.

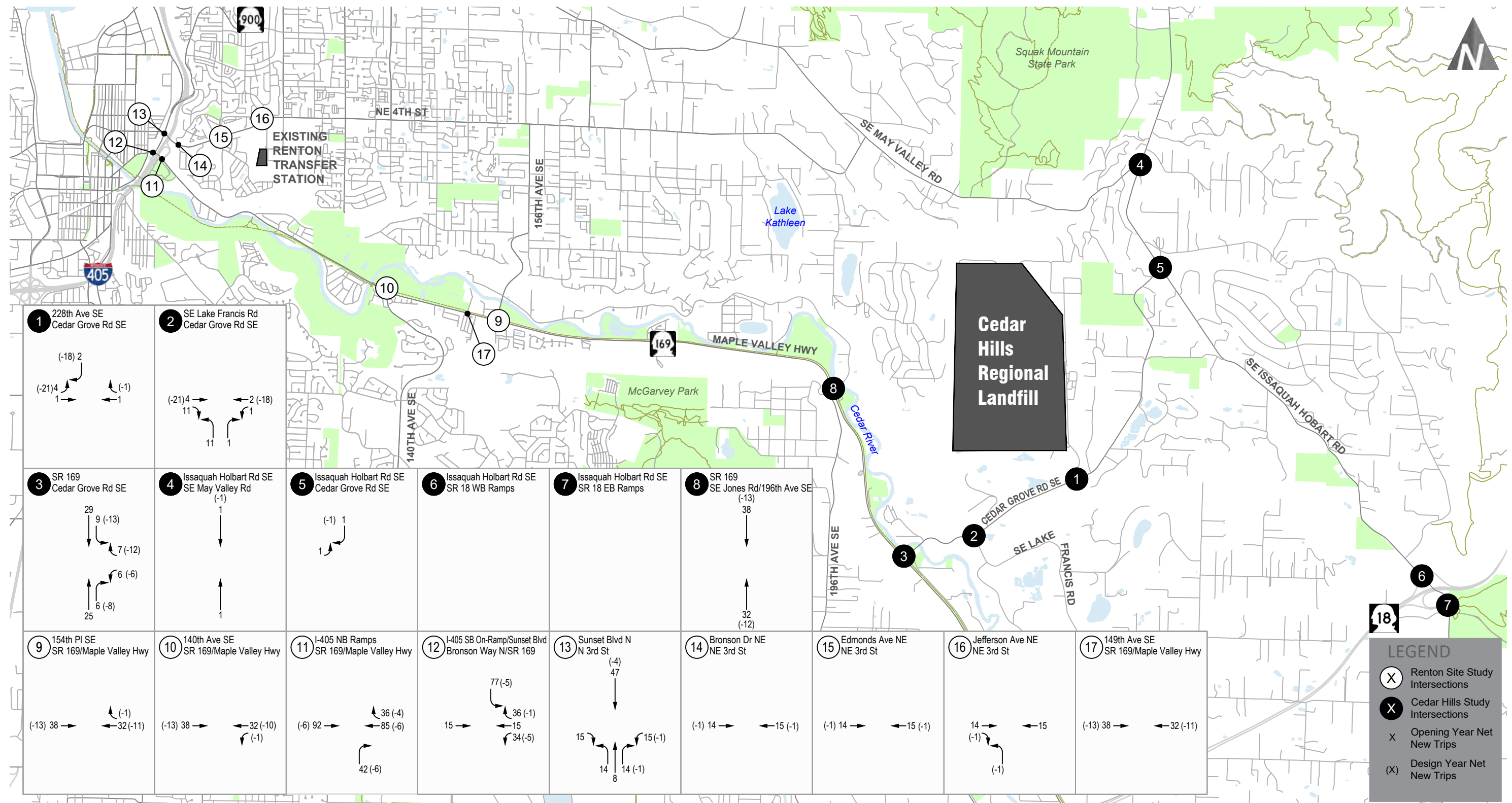
The No Action Alternative net new trips for the Opening and Design Year conditions are assigned to the study intersections based on the trip distribution patterns discussed previously. The trip assignment reflects the slight increase in hourly trips in the Opening Year and reduction in trips in the Design Year. The resulting trip assignment is summarized on Figure 4-4, Figure 4-5, and Figure 4-6 for the weekday AM, Midday, and PM peak hours, respectively. As described in the Chapter 2 Methodology, the net new No Action trips are added to the background forecasts at the study

intersections to form the basis of the analysis. The No Action Alternative Opening and Design Year traffic volumes are shown on Figure 4-7, Figure 4-8, and Figure 4-9 for the weekday AM, Midday, and PM peak hours, respectively.



Staff Trip Distribution for CHRLF
 Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE
4-3

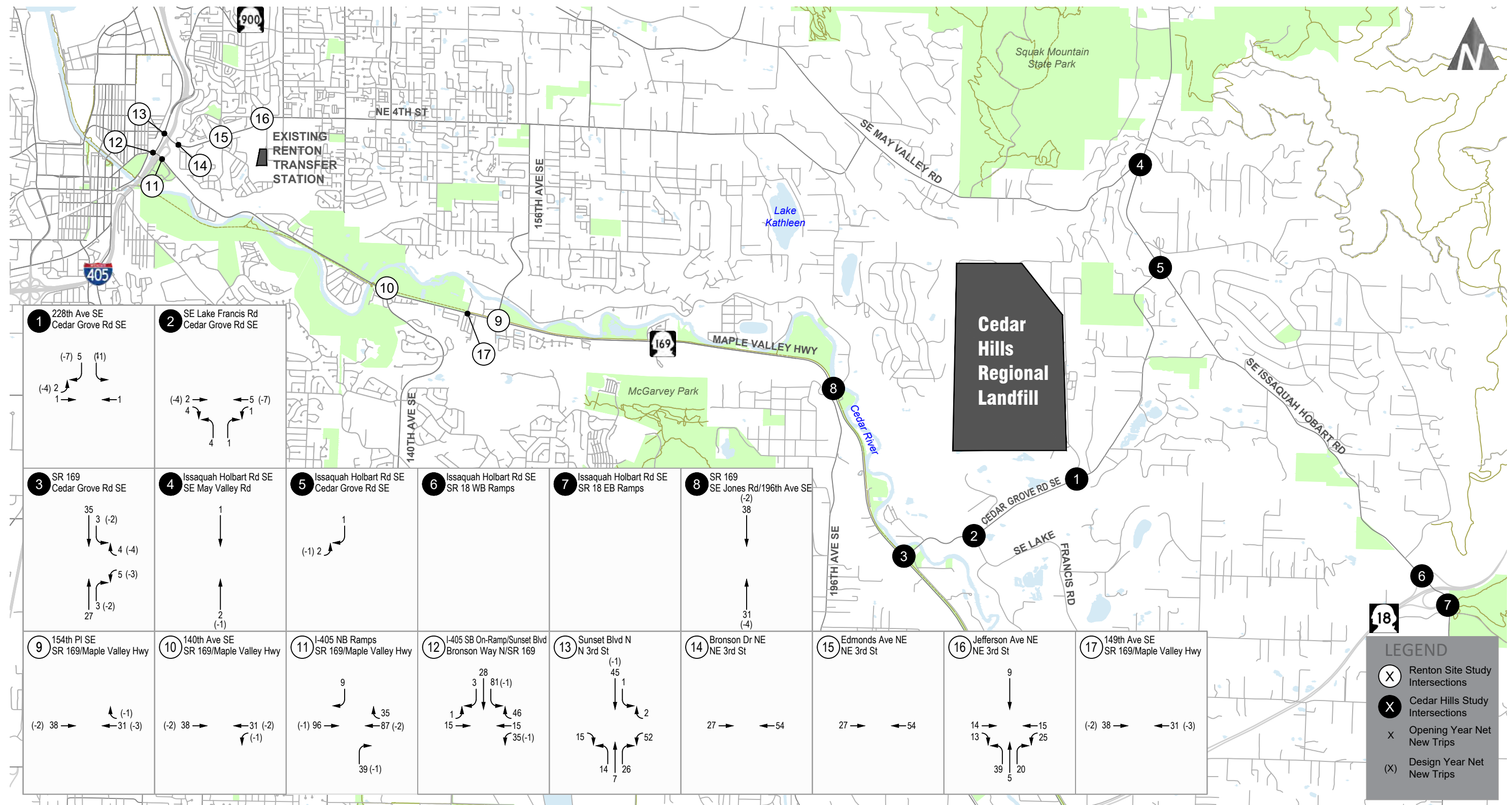


No Action Alternative Weekday Midday Peak Hour Trip Assignment

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE

4-5

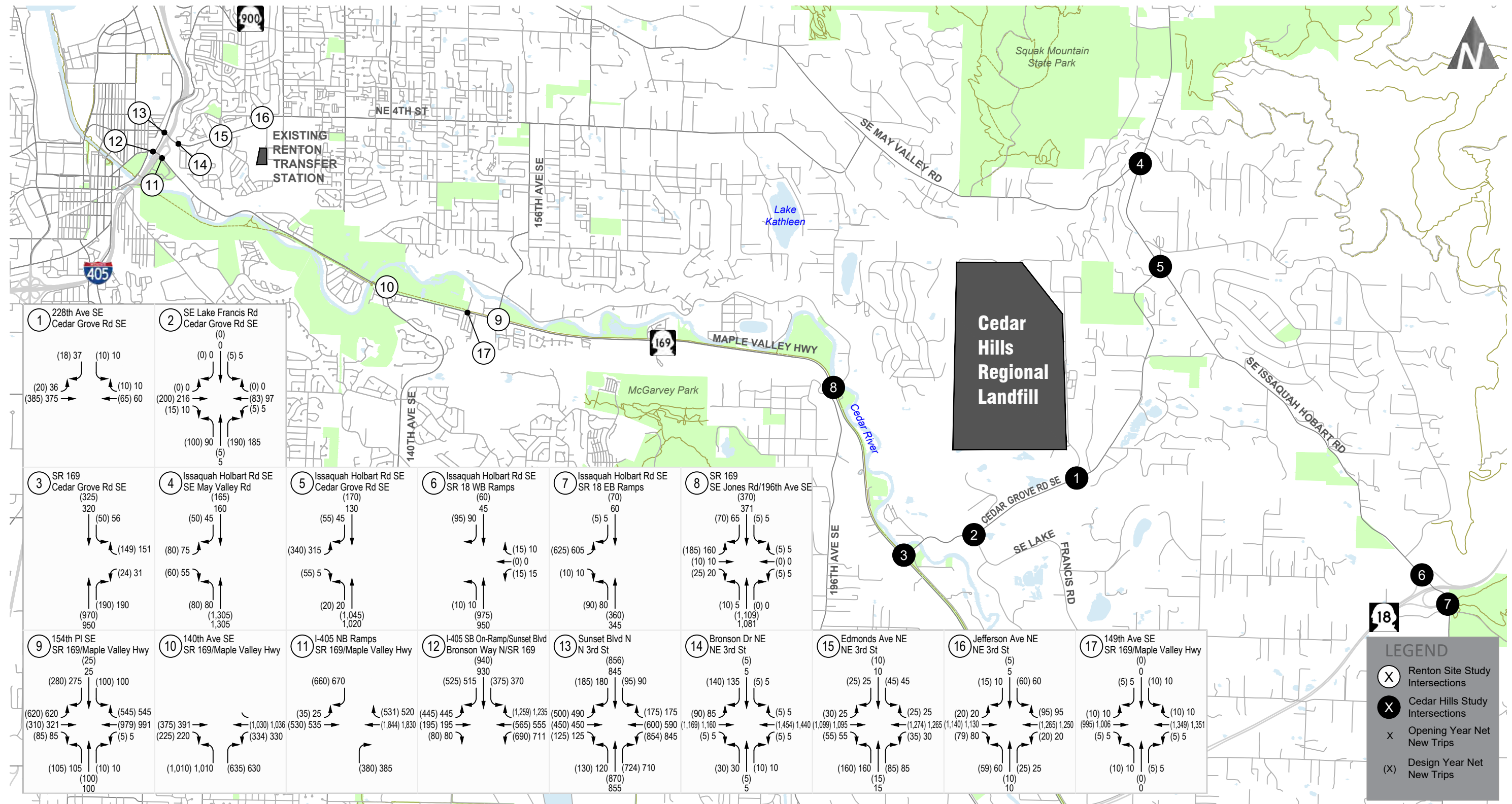


No Action Alternative Weekday PM Peak Hour Trip Assignment

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE

4-6

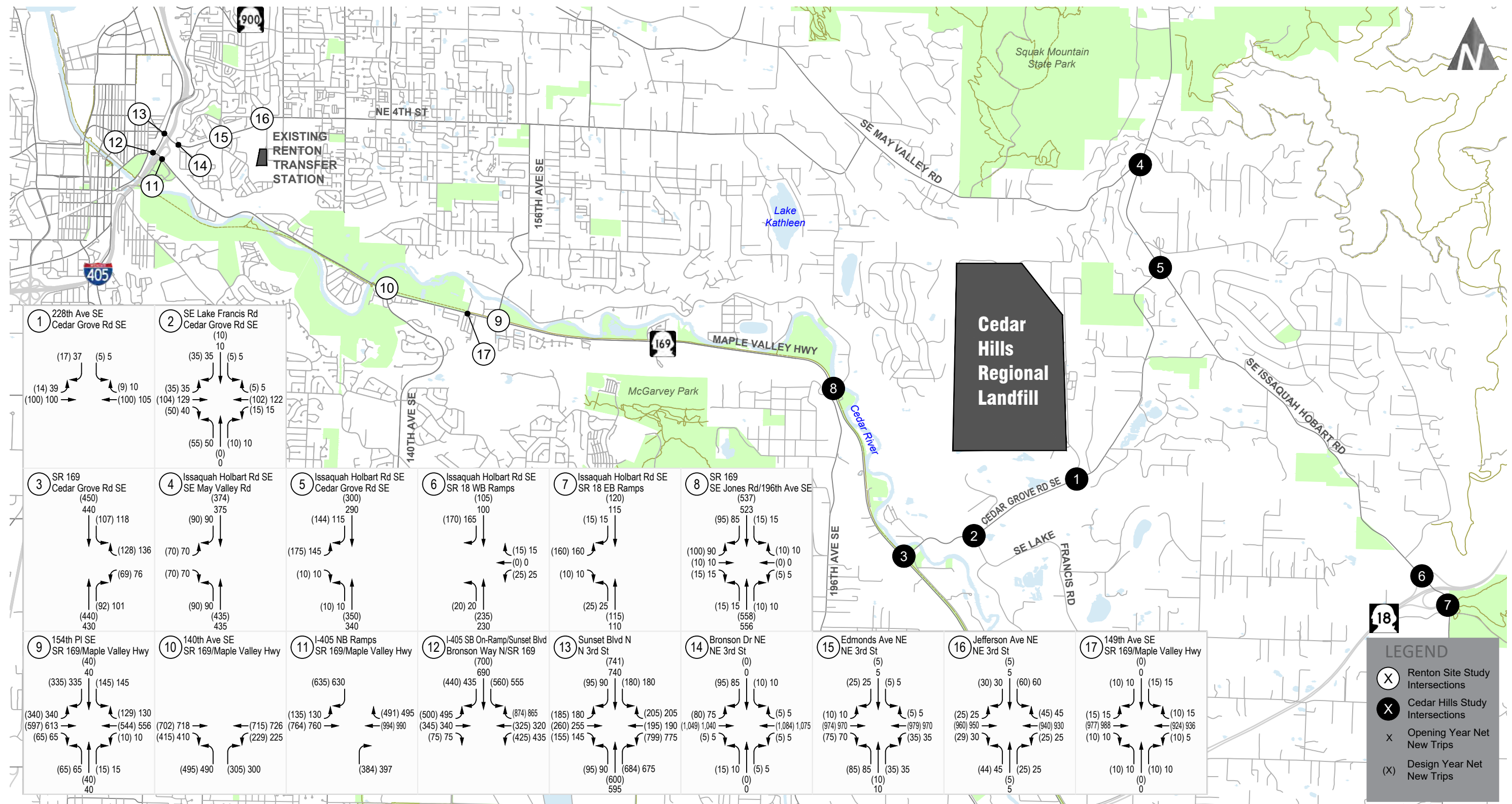


No Action Alternative Weekday AM Peak Hour Traffic Volumes

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

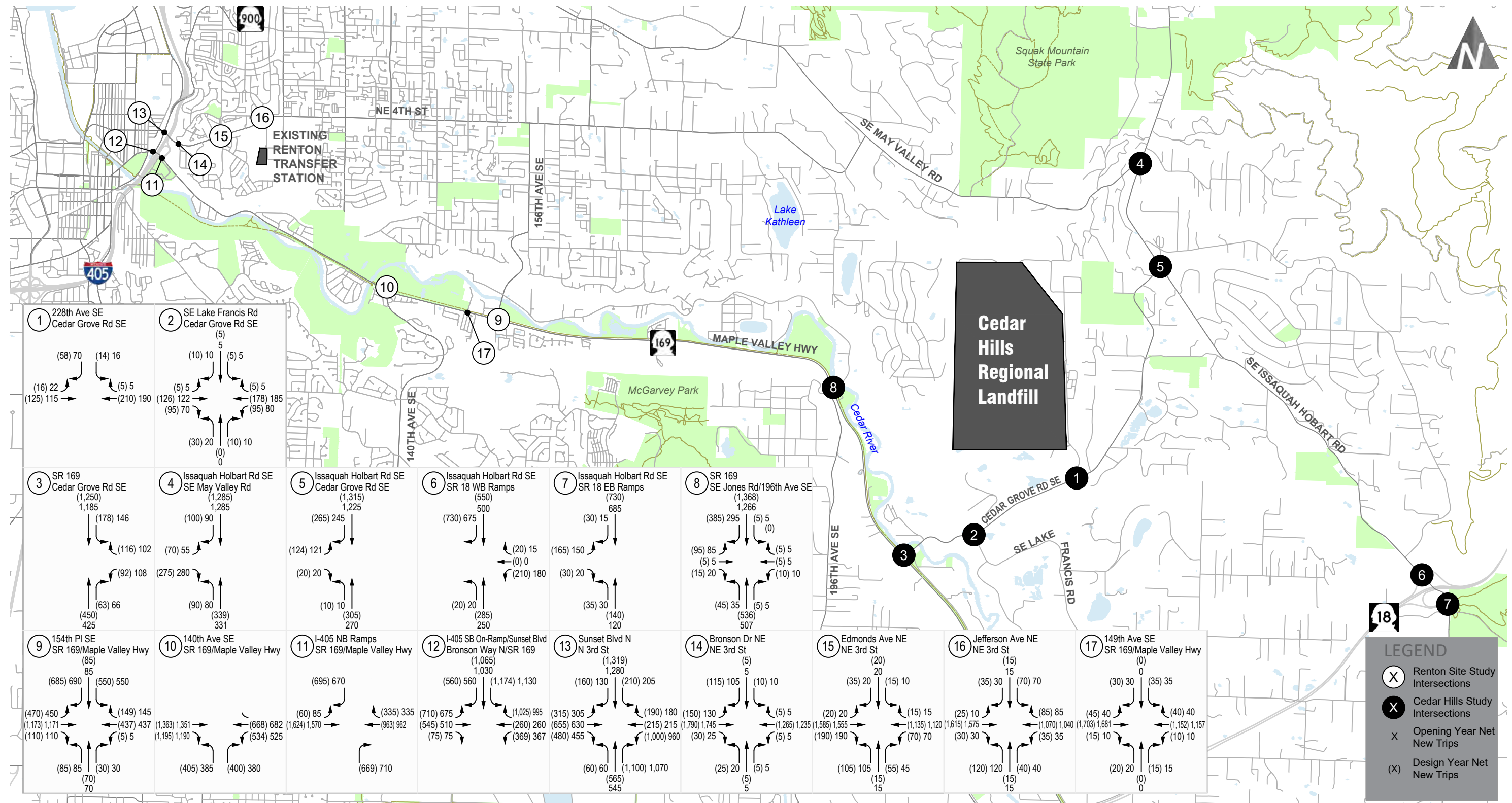
FIGURE

4-7



No Action Alternative Weekday Midday Peak Hour Traffic Volumes
 Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE
4-8



No Action Alternative Weekday PM Peak Hour Traffic Volumes

Cedar Hills Regional Landfill 2020 Site Development Plan EIS

FIGURE

4-9

4.1.1.2.2 Renton Site

The No Action Alternative trip generation and distribution in the Renton Site study area is the same as described for the Cedar Hills study area. Some trips from the CHRLF travel through the Renton Site study area accessing the regional transportation network. No changes in CHRLF operations are assumed at the Renton Site with the No Action Alternative.

Minimal new trips are generated by the No Action Alternative in the Renton Site study area under the Opening Year. The No Action Alternative has a reduction in trips under the Design Year consistent with the discussion in the Cedar Hills study area because the landfill reaches capacity in approximately mid-2028. The No Action Alternative Opening and Design Year traffic volumes at the Renton Site study intersections are shown on Figure 4-7, Figure 4-8, and Figure 4-9 for the weekday AM, Midday, and PM peak hours, respectively.

4.1.1.3 Traffic Operations

The No Action Alternative traffic operations methods and intersection parameters, such as channelization and intersection control, are consistent with existing conditions because there are no planned improvements resulting in changes. Signal timing adjustments are assumed (i.e., changes to phasing splits and offsets between coordinated intersections) for the future conditions. Signal cycle lengths along coordinated corridors are maintained. A summary of No Action Alternative intersection operations by study area is provided below and detailed LOS worksheets are provided in Appendix E.

4.1.1.3.1 Cedar Hills

Table 4-4 summarizes No Action Alternative intersection LOS for the weekday AM, Midday and PM peak hours in the Cedar Hills study area.

Table 4-4 Existing and No Action Alternative Weekday Peak Hour LOS – Cedar Hills

Intersection	Existing			No Action Opening Year			No Action Design Year		
	LOS ¹	Delay ²	WM ³	LOS	Delay	WM	LOS	Delay	WM
<u>Weekday AM Peak Hour</u>									
1. Cedar Grove Rd SE/228th Ave SE	B	11	SB	B	11	SB	B	11	SB
2. Cedar Grove Rd SE/SE Lake Francis Rd	B	12	NB	B	13	NB	B	13	NB
3. SR 169/SE Renton MVH/Cedar Grove Rd SE	C	31	-	D	47	-	D	44	-
4. Issaquah Hobart Rd SE/SE May Valley Rd	C	23	-	C	34	-	C	34	-
5. Issaquah Hobart Rd SE/Cedar Grove Rd SE	C	33	-	D	36	-	D	40	-
6. Issaquah Hobart Rd SE/SR 18 WB Ramps	D	27	WBTL	D	29	WBTL	D	31	WBTL
7. Issaquah Hobart Rd SE/ SR 18 EB Ramps	C	22	-	C	26	-	C	31	-
8. SE Jones Rd/196th Ave SE/SR 169/SE Renton MVH	C	31	-	D	40	-	D	49	-
<u>Weekday Midday Peak Hour</u>									
1. Cedar Grove Rd SE/228th Ave SE	A	10	SB	B	10	SB	B	10	SB
2. Cedar Grove Rd SE/SE Lake Francis Rd	B	15	NB	C	16	NB	B	15	NB
3. SR 169/SE Renton MVH/Cedar Grove Rd SE	B	19	-	C	23	-	C	21	-
4. Issaquah Hobart Rd SE/SE May Valley Rd	A	9	-	A	9	-	A	9	-
5. Issaquah Hobart Rd SE/Cedar Grove Rd SE	A	9	-	A	9	-	A	9	-
6. Issaquah Hobart Rd SE/SR 18 WB Ramps	B	12	WBTL	B	12	WBTL	B	13	WBTL
7. Issaquah Hobart Rd SE/ SR 18 EB Ramps	A	9	-	A	9	-	A	9	-
8. SE Jones Rd/196th Ave SE/SR 169/SE Renton MVH	B	16	-	B	17	-	B	17	-
<u>Weekday PM Peak Hour</u>									
1. Cedar Grove Rd SE/228th Ave SE	B	11	SB	B	11	SB	B	11	SB
2. Cedar Grove Rd SE/SE Lake Francis Rd	B	14	SB	B	14	NB	C	15	NB
3. SR 169/SE Renton MVH/Cedar Grove Rd SE	C	21	-	C	26	-	C	31	-
4. Issaquah Hobart Rd SE/SE May Valley Rd	D	47	-	E	57	-	E	63	-
5. Issaquah Hobart Rd SE/Cedar Grove Rd SE	B	20	-	C	23	-	D	38	-
6. Issaquah Hobart Rd SE/SR 18 WB Ramps	F	58	WBTL	F	78	WBTL	F	177	WBTL
7. Issaquah Hobart Rd SE/ SR 18 EB Ramps	A	9	-	A	10	-	B	10	-
8. SE Jones Rd/196th Ave SE/SR 169/SE Renton MVH	C	25	-	D	35	-	D	51	-

Note: Shading indicates intersection operating below LOS standard. MVH = Maple Valley Highway.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 6th Edition)
2. Average delay per vehicle in seconds rounded to the whole second.
3. Worst movement or approach reported for side-street stop-controlled intersections. All other intersections are signalized. SB = southbound, NB = northbound, WBTL = westbound through/left turn movement.

As shown in Table 4-4, the study intersections are forecast to continue to meet their respective operational standards during the peak hours under both Opening and Design Year No Action Alternative conditions with the exception of the SR 169/Cedar Grove Road SE and Issaquah Hobart Road SE/SR 18 Westbound Ramp intersections which are discussed below.

SR 169/Cedar Grove Road SE Intersection – The signalized SR 169/Cedar Grove Road SE intersection would operate at LOS C under the Opening and Design Year No Action conditions during the weekday Midday and PM peak hours but would degrade to LOS D during the weekday AM peak hour. The LOS standard at the SR 169/Cedar Grove Road SE intersection is LOS C. LOS D in the weekday AM peak hours is because of the high SR 169 northbound direction volume with only a single shared through/right turn-lane along SR 169.

Issaquah Hobart Road SE/SR 18 Westbound Ramp Intersection – The westbound left turn stop controlled movement at the Issaquah Hobart Road SE/SR 18 Westbound Ramp intersection under both the Opening Year and Design Year No Action condition is forecast to operate consistent with existing conditions. During the midday peak hour, the intersection currently operates and is forecast to continue to operate acceptably at LOS B. During the AM peak hour, the westbound left turn is forecast to continue to operate at LOS D with 2 to 4 seconds of added delay relative to existing conditions during Opening Year and Design Year conditions. During the PM peak hour, the westbound left turn is forecast to continue to operate at LOS F. As noted above, WSDOT has identified poor operations at this location and plans to change the traffic control from a stop-controlled intersection to a roundabout. With this improvement, delay would be significantly reduced. This improvement was not assumed in the primary analysis as the funds to construct the roundabout have not yet been identified.

4.1.1.3.2 Renton Site

Table 4-5 summarizes No Action Alternative intersection LOS for the weekday AM, Midday and PM peak hours in the Renton Site study area.

Table 4-5 Existing and No Action Alternative Weekday Peak Hour LOS – Renton Site

Intersection	Existing		No Action Opening Year		No Action Design Year	
	LOS ¹	Delay ²	LOS	Delay	LOS	Delay
Weekday AM Peak Hour						
9. 154th PI SE/SR 169/SE Renton MVH	E	63	E	71	E	71
10. 140th Way SE/SR 169/SE Renton MVH	D	46	D	39	D	50
11. I-405 NB Ramps/SR 169/SE Renton MVH	C	35	D	44	D	45
12. I-405 SB On-Ramp/SR 169/SE Renton MVH /Sunset Blvd N	F	87	F	93	F	93
13. Sunset Blvd N/NE 3rd St	D	54	E	59	E	59
14. Monterey Dr NE/NE 3rd St	B	13	B	14	B	14
15. Edmonds Ave SE/NE 3rd St	B	15	B	15	B	15
16. Jefferson Ave NE/NE 3rd St/NE 4th St	A	7	A	10	A	10
17. 149th Ave SE/SR 169/SE Renton MVH	A	7	A	7	A	7
Weekday Midday Peak Hour						
9. 154th PI SE/SR 169/SE Renton MVH	C	33	C	34	C	34
10. 140th Way SE/SR 169/SE Renton MVH	D	37	D	38	D	38
11. I-405 NB Ramps/SR 169/SE Renton MVH	C	21	C	26	C	27
12. I-405 SB On-Ramp/SR 169/SE Renton MVH /Sunset Blvd N	C	34	D	43	D	44
13. Sunset Blvd N/NE 3rd St	D	41	D	42	D	42
14. Monterey Dr NE/NE 3rd St	A	9	A	9	A	9
15. Edmonds Ave SE/NE 3rd St	C	34	D	38	D	38
16. Jefferson Ave NE/NE 3rd St/NE 4th St	A	8	A	8	A	8
17. 149th Ave SE/SR 169/SE Renton MVH	A	7	A	7	A	7
Weekday PM Peak Hour						
9. 154th PI SE/SR 169/SE Renton MVH	E	68	E	76	E	76
10. 140th Way SE/SR 169/SE Renton MVH	D	43	D	42	D	42
11. I-405 NB Ramps/SR 169/SE Renton MVH	B	15	B	17	B	17
12. I-405 SB On-Ramp/SR 169/SE Renton MVH /Sunset Blvd N	E	62	E	72	E	73
13. Sunset Blvd N/NE 3rd St	D	53	E	57	E	57
14. Monterey Dr NE/NE 3rd St	A	9	A	9	A	9
15. Edmonds Ave SE/NE 3rd St	C	32	C	35	C	35
16. Jefferson Ave NE/NE 3rd St/NE 4th St	A	8	B	13	B	16
17. 149th Ave SE/SR 169/SE Renton MVH	B	10	B	11	B	11

Note: MVH = Maple Valley Highway. Shading indicates intersection operating below LOS standard.

1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 6th Edition)

2. Average delay per vehicle in seconds rounded to the whole second.

3. Evaluated using HCM 2000 because HCM 6th Edition does not evaluate the specific phasing of the intersection.

As shown in Table 4-5, consistent with existing conditions, all study intersections in the Renton Site study area would meet LOS standards under the No Action Alternative condition in Opening and Design Years with the exception of 2 intersections discussed below. At the study intersections projected to meet LOS standards, increases in delay with the No Action Alternative compared to existing conditions are estimated to be up to 18 seconds or less considering 5 to 20-years of growth in background traffic volumes. A small reduction in delay is projected at the I-405 Northbound Ramps/SR 169 intersection during the weekday AM peak hour under the No Action Alternative Design Year compared to the Opening Year condition because of the decrease in traffic volumes with the CHRLF reaching capacity and the planned improvements along I-405 such as tolls that shift background traffic.

I-405 Southbound On-Ramp/SR 169 Intersection – The I-405 Southbound On-Ramp/SR 169 intersection would operate at LOS F under Opening and Design Year No Action Alternative conditions during the weekday AM peak hour. During the weekday midday and PM peak hours, the intersection would operate acceptably at LOS D and E, respectively, under Opening and Design Year No Action Alternative conditions.

154th Place SE/SR 169/SE Renton MVH Intersection – The 154th Place SE/SR 169/SE Renton MVH intersection under Opening Year and Design Year No Action conditions is forecast to operate consistent with existing conditions, operating acceptably during the midday peak hour and at LOS E during the weekday AM and PM peak hours. Increases in delay during all peak hours is anticipated to be 8 seconds or less with the future No Action conditions relative to existing conditions.

4.1.1.4 Traffic Safety

In general, as traffic volumes increase, the potential for traffic safety issues increases proportionately. Increases in traffic generated by the No Action Alternative would result in a proportionate increase in the probability of collisions. It is unlikely that the project traffic would significantly change safety issues in the study area. With growth in traffic in the study area, it would likely become progressively more challenging for side-street traffic at unsignalized intersections to enter the traffic stream.

Future increases in pedestrian and bicycle volumes along the NE 3rd Street/NE 4th Street corridor are anticipated with planned bicycle facilities and expansion of Renton Technical College (RTC) could result in additional conflicts. As noted in the Affected Environment, there is a speeding issue along NE 3rd Street due to the downhill grade. Although observed issues such as speeding could continue, no safety issue related to truck collisions has been identified. A speed radar sign could be provided along NE 3rd Street to make drivers aware and help slow vehicles. In addition, the RTC master plan notes that pedestrian improvements would be needed as part of planned College expansion projects to connect potential development on the southwest corner of NE 3rd Street/NE 4th Street/Jefferson Avenue NE intersection to the main campus.

4.1.1.5 Construction

Some of the support facilities are at the end of their useful life and would be refurbished or replaced in their current location.

4.1.1.5.1 Cedar Hills

Construction of new facilities would occur at the CHRLF in the current locations with the No Action Alternative. Off-site traffic impacts related to the facilities construction could include:

- Arriving, leaving, and parking of construction worker vehicles
- Delivery of construction materials
- Removal of debris
- Delivery of construction vehicles and machinery
- Delivery or removal of material with fill or excavation
- Potential impacts to on-site bicycle and pedestrian traffic

A construction management plan would be developed and approved by King County before beginning construction.

4.1.1.5.2 Renton Site

No adverse construction impacts requiring mitigation are anticipated with the No Action Alternative in the Renton Site study area.