SoundEarth Strategies, Inc.
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CLEANUP ACTION REPORT

Property:
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Prepared for:
FF Realty IV LLC
5510 Morehouse Drive, Suite 200
San Diego, California

Report Date:
October 12, 2021

Ecology Cleanup Site ID: 5147
Facility Site ID:2555
PLIA PTAP Project Number: PNW179

Cleanup Action Plan Report

Prepared for:
FF Realty IV LLC
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San Diego, California 92121

Slater Avenue Property
12055 Slater Avenue Northeast Kirkland,
Washington 98034

SoundEarth Project No.: 1410-002

Ecology Cleanup Site ID: 5147
Facility Site ID:2555
PLIA-PTAP Project Number: PNW179

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October 12, 2021

SoundEarth Strategies

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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
AEC	Anderson Environmental Contracting, LLC
AGI	Applied Geotechnology, Inc.
AST	aboveground storage tank
ATC	ATC Group Service, LLC
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CAP	Cleanup Action Plan
CAR	Cleanup Action Report (this document)
COC	chemical of concern
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CREC	controlled recognized environmental condition
CSM	conceptual site model
DRPH	diesel-range petroleum hydrocarbons
Ecology	Washington State Department of Ecology
ESA	Environmental Site Assessment
GRPH	gasoline-range petroleum hydrocarbons
HASP	Health and Safety Plan
LNAPL	light nonaqueous-phase liquid
mg/kg	milligrams per kilogram
MTCA	Washington State Model Toxics Control Act
NFA	No Further Action
ORPH	oil-range petroleum hydrocarbons
PAH	polycyclic aromatic hydrocarbon
PanGEO	PanGEO, Inc.
PCB	polychlorinated biphenyl
PCS	petroleum-contaminated soil
PID	photoionization detector
PLIA	Pollution Liability Insurance Agency
the Property	12055 Slater Avenue North in Kirkland, Washington
RCRA	Resource Conservation and Recovery Act
REC	recognized environmental condition

ACRONYMS AND ABBREVIATIONS (CONTINUED)

RIFSCAP Report	Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report
the Site	soil contaminated with GRPH and BTEX beneath the central portion of the Property, adjacent to the former Building 3
SoundEarth	SoundEarth Strategies, Inc.
Standard	Standard Environmental Probe Drilling
TEE	Terrestrial Ecological Evaluation
TOC	top of casing
TPH	total petroleum hydrocarbons
UST	underground storage tank
VOC	volatile organic compound
WAC	Washington Administrative Code
WSB	WSB Excavation & Utilities, LLC of Bothell, Washington

EXECUTIVE SUMMARY

On behalf of FF Realty IV LLC, SoundEarth Strategies, Inc. (SoundEarth) has prepared this Cleanup Action Report to document the remedial activities completed to address residual petroleum hydrocarbon contamination in soil at the Slater Avenue Property located at 12055 Slater Avenue Northeast in Kirkland, Washington (the Property). The Property is listed in the Washington State Department of Ecology (Ecology) database as Cleanup Site "GTE Vehicle Center" (Cleanup Site ID: 5147; Facility Site ID: 2555).

The Property consists of an irregularly shaped tax parcel (King County Parcel No. 282605-9181) that covers approximately 209,309 square feet (4.81 acres) of land in Township 26 North/Range 5 East/Section 28. According to the King County iMap application, the Property is located at an approximate elevation of 150 to 180 feet above mean sea level. The highest elevations are on the southeastern portion of the Property.

The Property is currently undergoing development activities, including the construction of three mixed-use residential buildings with street-level commercial retail spaces and below-grade parking. The Property was formerly occupied by a two-story warehouse/office building constructed in 1965 (Building 1), a one-story masonry-framed electrical equipment building constructed in 1973 (Building 2), and a one-story masonry-framed automotive repair garage constructed in 1979 (Building 3); it is also developed with an asphalt-paved parking lot. The Property was initially developed in 1923 with a single-family residence. The residence was moved off Property in 1965, and a warehouse/office building was constructed on the northern portion of the Property in 1973. An automotive repair garage was constructed on the southern portion of the Property in 1979. A 10,000-gallon gasoline underground storage tank (UST) and a 5,000-gallon diesel UST were installed in the area west of Building 3 in 1993. The tanks were constructed of double-walled fiberglass. Two fuel pumps were located between the two tanks.

Three USTs and a fuel dispenser installed in 1978 were removed from the Property in 1993, at which point petroleum impacts to soil were identified in the vicinity of the removed tanks and dispensers. The tanks included an 8,000-gallon gasoline UST located near the northwestern corner of the former office building (Building 1), a 12,000-gallon gasoline tank located near the northwestern corner of the garage (Building 3), and a 500-gallon waste oil UST located immediately south of the 12,000-gallon UST. Accessible impacted soil was excavated and removed from the Property in 1993, but areas of impacted soil were left in place beneath the northern end of Building 3 and beneath a utility bank located approximately 10 feet north of the former pump islands north of Building 3. In 1995, the Property received a No Further Action (NFA) determination from the Ecology, which included an Environmental Covenant to address the "petroleum contaminated soil remaining underneath the garage building."

The Site is defined by the full lateral and vertical extent of the residual petroleum-contaminated soil resulting from a historical release of petroleum hydrocarbons from the former fueling system that has impacted the Property. Based on the information gathered to date, the Site includes soil contaminated with gasoline-range petroleum hydrocarbons (GRPH) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) beneath the central portion of the Property. The source of the GRPH and BTEX impacts appears to be a release associated with a former gasoline distribution system and associated piping formerly located on the central portion of the Property, to the north of the former automotive repair garage.

Based on the results of the remedial investigation and development of a conceptual site model, a focused feasibility study was completed to evaluate cleanup action alternatives that would facilitate selection of a final cleanup action under Section 350(8) of Chapter 173-340 of the Washington Administrative Code

(WAC 173-340-350[8]). Based on the conceptual site model, and in accordance with Ecology's *Model Remedies for Sites with Petroleum Contaminated Soils*, a comprehensive feasibility study was not required because the Site qualifies for a Model Remedy. Based on the available data for the Site and the selected remedial alternative, Soil Model Remedy #1, which applies to sites with petroleum impacts to soil, will be used for the Property.

On April 20, 2020, the Pollution Liability Insurance Agency (PLIA) issued an advisory opinion letter regarding the Cleanup Action component of the Remedial Investigation, Feasibility Study, and Cleanup Action Report (RIFSCAP Report) submitted by SoundEarth on April 10, 2020. PLIA provided comments and concurred that the proposed removal of residual petroleum-contaminated soil (PCS) beneath the former Building 3 would meet the substantive requirements of the Washington State Model Toxics Control Act (MTCA) for an unconditional site closure.

The remedial excavation activities were conducted in accordance with MTCA cleanup regulations (WAC 173-340). Removal of PCS and soil sampling activities were conducted in accordance with the Washington State Department of Ecology (Ecology) *Guidance for Remediation of Petroleum Contaminated Sites* dated 2010 and revised June 2016, and with the Cleanup Action Plan.

SoundEarth observed cleanup action activities at the Property between August 25, 2021, and September 3, 2021. The cleanup action consisted of the excavation of PCS located proximate to and beneath the former Building 3, which was demolished along with Buildings 1 and 2 before the cleanup action was conducted. A total of 270.16 tons of PCS was removed during remedial excavation activities and disposed of at a Resource Conservation and Recovery Act (RCRA) Subtitle D landfill. The analytical results from the performance/confirmation soil samples collected from the final limits of the remedial excavation confirmed that soil with residual impacts remaining under the former garage (Building 3) subject to an existing Environmental Covenant has been removed and cleanup standards have been attained. Minimal groundwater was encountered in the remedial excavation and dewatering was not required. The analytical results for a grab groundwater sample collected from the base of the remedial excavation indicated the absence of chemicals of concern in groundwater.

Based on the results of the cleanup action, no further remedial action or environmental monitoring associated with the petroleum release is warranted at the Property. Upon completion of PLIA's review of this report and issuance of a no further action opinion, the existing Environmental Covenant should be removed from the Property.

This executive summary is presented solely for introductory purposes, and the information contained in this summary should be used only in conjunction with the full text of the RIFSCAP Report. A complete description of the project, Site conditions, investigative methods, and investigation results is contained in the report.

1.0 INTRODUCTION

SoundEarth Strategies, Inc. (SoundEarth) has prepared this Cleanup Action Report (CAR) to document soil remediation activities performed at the Slater Avenue Property located at 12055 Slater Avenue Northeast in Kirkland, Washington (the Property). The Property is listed in the Washington State Department of Ecology (Ecology) database as Cleanup Site “GTE Vehicle Center” (Cleanup Site ID: 5147; Facility Site ID:2555). The Property location is shown on Figure 1.

The Site as used herein is defined by the full lateral and vertical extent of the residual petroleum-contaminated soil resulting from a historical release of petroleum hydrocarbons from the former fueling system that has impacted the Property. Based on the information gathered to date, the Site includes soil contaminated with gasoline-range petroleum hydrocarbons (GRPH) and benzene, toluene, ethylbenzene, and total xylenes (BTEX) beneath the central portion of the Property.

1.1 PURPOSE

The purpose of this CAR is to provide a summary of the soil cleanup action completed during August and September 2021 on the Property with respect to petroleum hydrocarbons. The CAR documents field activities that were conducted as part of the cleanup action described in the Remedial Investigation, Feasibility Study, and Cleanup Action Plan Report (RIFSCAP Report; SoundEarth 2020). The CAR also contains a summary of the cleanup action cleanup standards, a discussion of the implementation of the cleanup action components detailed in the Cleanup Action Plan (CAP), and results of the soil cleanup action.

1.2 ORGANIZATION

This CAR is organized into the following sections:

- **Section 2.0, Background.** This section provides a description of the Property’s features and location; a summary of historical, current, and future uses of the Property and surrounding properties; a description of the Property’s environmental setting, including the local geology and hydrology; and a summary of previous investigations conducted at the Property.
- **Section 3.0, Conceptual Site Model.** This section presents a summary of the conceptual site model (CSM).
- **Section 4.0, Cleanup Standards and Technical Elements.** This section presents the chemicals of concern (COCs), media of concern, cleanup standards, and goals for the Property cleanup action.
- **Section 5.0, Selected Cleanup Action.** This section provides a summary of the cleanup action components that were selected to remediate soil containing concentrations of the COCs exceeding the cleanup levels (CULs) beneath the Property.
- **Section 6.0, Soil Cleanup Action.** This section describes the remediation of soil containing concentrations of COCs exceeding the CULs beneath the Property, including permitting, health and safety, and soil cleanup action activities.
- **Section 7.0, Compliance Monitoring.** This section describes the protection, performance, and confirmation monitoring that was conducted as part of the cleanup action.
- **Section 8.0, Laboratory Analytical Quality Assurance/Quality Control.** This section describes the review of laboratory quality assurance and quality control data to assess whether quality control criteria were acceptable for the soil and groundwater samples analyzed.

- **Section 9.0, Summary and Conclusions.** This section provides the conclusions of the cleanup action based on the compliance monitoring results.
- **Section 10.0, Limitations.** This section summarizes document limitations.
- **Section 11.0, References.** This section lists references cited in the document.

2.0 BACKGROUND

This section provides a description of general facility information and Site conditions for the Property, a description of future, current, and historical land uses, surrounding property descriptions, and a summary of the environmental setting, including topography, soil and geology, and hydrogeology.

2.1 PROPERTY DESCRIPTION AND LAND USE HISTORY

The Property is located at 12055 Slater Avenue Northeast in Kirkland, Washington, as shown in Figure 1. Figure 2 depicts a plan view and layout of the Property. The Property consists of an irregularly shaped tax parcel (King County Parcel No. 282605-9181) that covers approximately 209,309 square feet (4.81 acres) of land in Township 26 North/Range 5 East/Section 28. According to the King County iMap application (King County iMap 2021), the Property is located at an approximate elevation of 150 to 180 feet above mean sea level. The highest elevations are on the southeastern portion of the Property.

The Property was formerly occupied by a two-story warehouse/office building constructed in 1965 (Building 1) that enclosed approximately 11,970 square feet of space; a one-story masonry-framed electrical equipment building constructed in 1973 (Building 2) that enclosed approximately 1,122 square feet of space; and a one-story masonry-framed automotive repair garage constructed in 1979 (Building 3) that enclosed approximately 3,940 square feet of space. The Property is developed with an asphalt-paved parking lot. Buildings 1, 2, and 3 were demolished before the cleanup action at the Property was conducted. Property features are shown on Figure 2.

The Property was initially developed in 1923 with a single-family residence. The residence was moved off Property in 1965, and the warehouse/office building was constructed on the northern portion of the Property in 1973. An automotive repair garage was constructed on the southern portion of the Property in 1979.

Three underground storage tanks (USTs) installed in 1978 and a fuel dispenser were removed from the Property in 1993, at which point petroleum-impacts to soil were identified in the vicinity of the removed tanks and dispensers. Accessible impacted soil was excavated and removed from the Property in 1993, but areas of impacted soil were left in place beneath the northern end of the former Building 3. In 1995, the Property received a No Further Action (NFA) determination from Ecology, which included an Environmental Covenant to address the "petroleum contaminated soil remaining underneath the garage building."

The Property is currently undergoing development activities, including the construction of three mixed-use residential buildings with street-level commercial retail spaces and below-grade parking.

2.2 SURROUNDING PROPERTY DESCRIPTIONS AND HISTORY

This section describes the current and past use and ownership of each of the parcels adjacent to and surrounding the Property:

- **North.** The north-adjoining property was developed for agricultural purposes by 1936. A parking lot was constructed on the property in 1965. The existing five-story wood-framed apartment building (12601 Northeast 124th Street) was constructed on the eastern portion of the property in 2011; heat was provided by electric wall heaters. The existing six-story apartment building (12531 Northeast 124th Street) was constructed on the western portion of the property in 2017.

  A one-story wood-framed lumber storage shed was constructed on the northwest-adjoining property in 1960. The shed was demolished in 1972. Two mini-storage warehouses (12425 Northeast 124th Street) were constructed on the property in 1979. Two additional warehouses and an office building were constructed in 1985. The warehouses and office building are currently occupied by a Public Storage mini-warehouse facility.

  A one-story wood-framed stove-heated single-family residence was constructed on the easternmost north-adjoining property in approximately 1942. The heat source for the residence was converted to an oil-burning furnace in 1956. A second one-story wood-framed stove-heated single-family residence was moved to the property in 1956. The heat source was converted to a pot oil burner by 1967. The residences were demolished, and the existing one-story wood-framed retail building (12703 Northeast 124th Street) was constructed on the property in 1984. Classy Cleaners operated on that parcel (at 12707 Northeast 124th Street) between at least 1992 and 2010.

- **East.** The east-adjoining property was developed with a single-family residence by 1936. The residence was demolished and the existing Evergreen Villa Condominium (12004 Slater Avenue Northeast), which comprises 11 two-story wood-framed buildings heated by electric forced air furnaces, was constructed in 1979.

  A one-story wood-framed stove-heated single-family residence was constructed on the northeast-adjoining property in 1933. The property was also developed with a garage, a chicken house, and a pump house. The heat source for the residence was converted to an oil-burning furnace by 1954. The outbuildings were demolished, and a new garage was constructed in 1961. The existing 8 three-story wood-framed apartment buildings for the Chateau Creste Apartments, currently called Ascent Apartments (12062 Slater Avenue Northeast), were constructed on that property in 1988.

  The southeast-adjoining property was developed with a one-story wood-framed stove-heated single-family residence in 1953. A second one-story wood-framed stove-heated single-family residence was constructed on the property in 1957. The heat source was converted to an oil-burning hot air furnace by 1967. The 1957 residence was converted to the existing office building and the heat source was converted to a heat pump in 1979.

- **South.** The south-adjoining property was developed with a single-family residence in 1930. Heat was provided by electric baseboards. A second single-family residence, heated by an oil-burning stove, was constructed on the southern portion of the property by 1958. Both residences were demolished and a one-story steel-framed office building and the existing two-story masonry-framed automotive showroom and repair garage (11932 124th Avenue Northeast) were constructed on the property in 1997. The office building was demolished in 2016.

- **West.** The west-adjoining property was developed with a single-story wood-framed single-family residence in 1924. A single-story wood-framed office building and warehouse for Ward Millwork Supply, a lumber supply firm, was constructed on the property in 1959. Heat was provided by electric wall heaters. The residence was demolished in 1969. The office building and warehouse was demolished in 1976 when an automotive repair facility was constructed on the southern portion of the property. A second automotive repair facility was constructed on the property in 1978. Tenants have included Kirkland Classic Cars, C & D Automotive Machine Shop, and Muffler King Brake & Radiator. An automotive lubrication facility was constructed on the northern portion of the property in 1988. The facility is currently occupied by Jiffy Lube.

2.3 LAND USE DESIGNATION

The Property is currently undergoing development activities, including the construction of three mixed-use residential buildings with street-level commercial retail spaces and below-grade parking.

2.4 ENVIRONMENTAL SETTING

A summary of the environmental setting, including topography, surface water and sediments, soils and geology, and hydrogeology for the Property, is provided below.

2.4.1 Regional Topography

The Property and vicinity lie within the Puget Trough or Lowland portion of the Pacific Border Physiographic Province. The Puget Lowland is a broad, low-lying region situated between the Cascade Range to the east and the Olympic Mountains and Willapa Hills to the west. In the north, the San Juan Islands form the division between the Puget Lowland and the Strait of Georgia in British Columbia. The province is characterized by roughly north-to-south-oriented valleys and ridges; ridges locally form an upland plain at elevations of up to about 500 feet above mean sea level. The moderately to steeply sloped ridges are separated by swales, which are often occupied by wetlands, streams, and lakes. The physiographic nature of the Puget Lowland was prominently formed by the last retreat of the Vashon Stade of the Fraser Glaciation, which is estimated to have occurred between 14,000 and 18,000 years before present day (Waitt Jr. and Thorson 1983).

2.4.2 Soil and Geology

The Geologic Map of King County, Des Moines 7.5' Quadrangle (Booth et al. 2004) indicates that the Property is underlain by Vashon till. These deposits consist of a dense mixture of silt, sand, gravel, and clay, which typically are characterized by relatively low vertical hydraulic conductivity. A subsurface investigation was conducted on the Property by SoundEarth in 2018. Soil types encountered on the Property typically consisted of silty gravelly sandy fill material in the upper 0 to 4 feet below ground surface (bgs), which is underlain by stiff sandy silt with some clay and organics to depths of approximately 20 feet bgs. The silt layer was underlain by fine to medium sand with some silt to depths of approximately 25 feet bgs, which is underlain by very stiff silt with trace organics to the total depth explored of 35 feet bgs.

2.4.3 Hydrogeology

Both the King County iMap application and the USGS Topographic Map of the Kirkland, Washington Quadrangle, dated 2017, depict the topography in the vicinity of the Property as sloping downward to the north (USGS 2017). The topographic map depicts the closest surface water body as Totem Lake, which is located approximately 0.17 miles to the northwest.

Based on borings advanced, monitoring wells installed on the Property, and historical sources, shallow-seated groundwater in the vicinity of the Property is present at an approximate depth of 21 to 25 feet bgs and flows in a general north-northwesterly direction.

2.5 SUMMARY OF PREVIOUS INVESTIGATIONS

This section summarizes activities and results from previous investigations conducted at the Property. Analytical results for soil are presented in Table 1.

2.5.1 1993 Hazcon, Inc. Spill Response

A 10,000-gallon gasoline UST and a 5,000-gallon diesel UST were installed in the area west of the former garage (Building 3) in 1993. The tanks were constructed of double-walled fiberglass. Two fuel pumps were located between the two tanks. In July 1993, approximately 25 gallons of gasoline was spilled on the concrete apron surrounding the pumps. Some of the fuel reportedly reached the asphalt surface at the west end of the pad. Hazcon, Inc. completed a Spill Response Report summarizing the 1993 spill (Hazcon, Inc. 1993). Hazcon, Inc. reported that petroleum absorbent pads were first used to contain and clean up the surface spill. The remaining product was then washed into a spill collection sump. A total of 500 gallons of gasoline and rinsate water was disposed of by Marine Vacuum Services, Inc. and the absorbent pads were placed in a sealed, lined 55-gallon drum before disposal.

2.5.2 1993 Applied Geotechnology, Inc. Contamination Assessment Report

Three USTs and associated piping were removed from the Property in April 1993 under the direction of Applied Geotechnology, Inc. (AGI; AGI 1993). The tanks included an 8,000-gallon gasoline UST located near the northwestern corner of the former office building (Building 1), a 12,000-gallon gasoline tank located near the northwestern corner of the former garage (Building 3), and a 500-gallon waste oil UST located immediately south of the 12,000-gallon UST, as shown on Figure 2. At the time of removal, a 1-inch-diameter hole was observed in the bottom of the 12,000-gallon UST. Each UST excavation was enlarged after field observations indicated that contaminated soil was likely present immediately surrounding the USTs. Confirmation samples collected from the final limits of the three UST excavations contained detectable concentrations of GRPH, diesel-range petroleum hydrocarbons (DRPH), and oil-range petroleum hydrocarbons (ORPH) that were below the laboratory detection limit and/or Washington State Model Toxics Control Act (MTCA) cleanup levels. Approximately 300 to 400 cubic yards of petroleum-contaminated soil (PCS) was removed from the three UST excavations.

During removal of the three USTs, a gasoline dispenser at the northern end of the former garage (Building 3) was also removed from the Property. Field observations suggested that PCS was present below the former location of the dispenser and approximately 75 cubic yards of PCS was removed during a subsequent excavation. The depth of PCS was reportedly limited to 5 feet below grade and confined vertically by an underlying low-permeability silt layer. PCS was found beneath the northern end of the former Building 3, and field screening identified a limited amount of soil beneath an electrical conduit, approximately 10 feet north of the former dispenser, showing some indication of petroleum impacts. However, AGI did not collect a sample of the potentially impacted soil; therefore, it is unknown whether the soil contained petroleum constituents above the CULs.

Two test pits were advanced, one to the north and one to the east of the electrical conduit, to investigate the lateral and vertical extent of the PCS. A soil sample was collected from each test pit, and both samples contained concentrations of BTEX and GRPH below laboratory reporting limits. Shallow perched groundwater, likely from surface infiltration, that exhibited signs of impacts was observed to be seeping into the excavation from beneath the former Building 3. This perched groundwater was attributed to surface water percolating down and spreading above a localized silt layer. Over a period of several weeks, approximately 2,500 gallons of accumulated surface and seepage water was pumped from the excavation. Prior to backfilling, a sump with extraction pump was installed in the excavation, and two monitoring wells (West MW and East MW) were installed to a depth of 8 feet bgs. One monitoring well (East MW) was located to the east of the excavation and the other (West MW) was located to the west of the excavation. The pump was installed to operate only when a sufficient amount of shallow perched groundwater had seeped into the sump.

2.5.3 1993 AGI Groundwater Monitoring Report

On August 10, 1993, AGI visited the Property to observe groundwater conditions (AGI 1994a). AGI noted that approximately 75 gallons of water was present in the temporary aboveground storage tank (AST) where the water collected from the pump was directed. AGI also reported that groundwater levels in both monitoring wells were a few inches above the bottom of the monitoring wells, which was below the level needed to activate the pump. AGI concluded that due to the low water levels observed during this site visit and the low amount of water in the AST, most of the perched groundwater observed during excavation of PCS had been pumped out and had not recharged since the excavation was backfilled.

2.5.4 May 1994 AGI Groundwater Monitoring Report

AGI continued to monitor the two monitoring wells throughout 1993 and 1994 (AGI 1994b). AGI reported that there was an insufficient amount of water in the monitoring wells for sampling in in December 1993. AGI returned to the Property on March 31, 1994, and found groundwater at a depth of approximately 6.75 feet bgs in both wells. A sample was collected from each monitoring well and analyzed for BTEX. Concentrations of BTEX in the two samples were below laboratory reporting limits, with the exception of a concentration of total xylenes present in monitoring well East MW that was above laboratory detection limits but below the MTCA Method A cleanup level. AGI returned to the Property on August 1, 1994, and observed groundwater at depths of approximately 7.02 to 7.17 feet bgs in both monitoring wells. A sample was collected from each well and analyzed for BTEX. Concentrations of BTEX in the two samples were below laboratory reporting limits. Based on the results of the continued groundwater monitoring, AGI determined that remaining contaminated soil did not appear to be impacting perched groundwater or migrating away from the former dispenser location.

2.5.5 1995 NFA Determination

Based on the laboratory results from the UST confirmation samples and AGI's 1994 groundwater monitoring data, Ecology determined that no further action was required at the Property. However, the NFA determination included an Environmental Covenant to address the "petroleum contaminated soil remaining underneath the garage building."

2.5.6 2013 UST Removal

The two USTs that had been installed in 1993 were removed in April and May 2013. The fuel dispensing equipment was also removed. Perched groundwater was present west of the former garage (Building 3) at a depth of 8 feet bgs. Laboratory results from analyzed soil samples and a water grab sample collected from the excavation were reported by ATC Group Service, LLC (ATC) to be "below the analytical method detection limits of all ranges of petroleum hydrocarbons by analytical Northwest Total Petroleum Hydrocarbon Method NWTPH-HCID." However, only the executive summary of the UST decommissioning report (ATC 2016 and 2017), which did not include detailed data, was available for SoundEarth's review.

2.5.7 2016 and 2017 ATC Phase I Environmental Site Assessments

ATC completed a Phase I Environmental Site Assessment (ESA) of the Property in 2016 and 2017 (ATC 2016 and 2017). These prior Phase I ESAs identified the following controlled recognized environmental condition (CREC) for the Property:

- "The historical release of petroleum hydrocarbons to soil beneath the Property. Soil contamination related to a former fuel dispenser remains beneath Building 3. A restrictive covenant was filed for the petroleum contamination in 1995. Ecology subsequently issued a NFA determination, based on the terms of the covenant."

ATC indicated that one 550-gallon AST, one 75-gallon hydraulic oil AST, and one 150-gallon motor oil AST were located in and around the former Building 3. No spills or stains were observed in the vicinity of the ASTs, and the ASTs were not considered recognized environmental conditions (RECs). ATC also observed one in-ground hydraulic hoist and one aboveground hydraulic hoist, multiple retail-sized containers of lubricants and paints, and six drums of motor oil. No spills or stains were observed in the vicinity of the hoists, containers, or drums, and these features were not considered a REC.

ATC also indicated that one 10,000-gallon gasoline UST and one 5,000-gallon diesel UST were installed west of the former Building 3 in 1993. The 1993-vintage USTs were removed in 2013. Fourteen soil samples and one groundwater sample were collected from the excavation. None of the laboratory-analyzed samples contained detectable concentrations of petroleum hydrocarbons or BTEX.

2.5.8 2018 SoundEarth Phase I ESA

SoundEarth completed a Phase I ESA of the Property in 2018 (SoundEarth 2018a). This prior Phase I ESA identified the following CREC for the Property:

- The presence of petroleum contamination in soil beneath the Property

The SoundEarth Phase I also identified the following RECs for the Property:

- The current and historical operation of an automotive repair facility on the Property
- The historical use and storage of heating oil on the Property
- The operation of automotive repair facilities and a lubrication facility on the west-adjoining property
- The operation of an automotive repair facility on the south-adjoining property

2.5.9 February 2018 SoundEarth Subsurface Investigation

On February 21, 2018, SoundEarth conducted a subsurface investigation at the Property to assess RECs and CRECs identified during the 2018 SoundEarth Phase I ESA (SoundEarth 2018a). Standard Environmental Probe Drilling (Standard) performed the drilling activities using a direct-push drill rig. Under the direction by SoundEarth, Standard advanced 11 borings (P1 through P11) to approximate depths of between 9 and 16 feet bgs. In addition to the probe borings conducted by

Standard, SoundEarth observed three geotechnical borings (PG-4, PG-6, and PG-7) that had been completed by PanGEO, Inc. (PanGEO) on March 2, 2018. PanGEO advanced a total of nine hollow-stem auger borings (PG-1 though PG-9). PanGEO soil borings PG-4 and PG-6 were completed as permanent 2-inch-diameter monitoring wells (MW03 and MW02, respectively). The soil boring locations are shown on Figure 2.

Soil samples were collected from all Standard probe soil borings and the three geotechnical borings observed by SoundEarth (PG-4, PG-6, and PG-7). Select soil samples were analyzed for GRPH, DRPH, ORPH, and BTEX. One soil sample (P4-8) from boring P4, advanced in the vicinity of the former waste oil tank, was also analyzed for polychlorinated biphenyls (PCBs), MTCA 5 metals, chlorinated volatile organic compounds (CVOCs), and polycyclic aromatic hydrocarbons (PAHs).

On March 9, 2018, SoundEarth collected groundwater samples from the two PanGEO monitoring wells, MW02 and MW03, as part of a 2018 subsurface investigation. The groundwater samples were submitted for analysis of GRPH, DRPH, ORPH, and BTEX.

2.5.10 June 2019 SoundEarth Supplemental Groundwater Monitoring

In June 2019, SoundEarth completed an update of the previous Phase I ESA (SoundEarth 2019a) and performed supplemental groundwater monitoring of monitoring well MW02, installed at the Property in the inferred downgradient position of the former gasoline dispenser and remedial excavation. On June 12, 2019, SoundEarth measured groundwater depth and collected a groundwater sample from monitoring well MW02. The groundwater sample was submitted for analysis of GRPH, DRPH, ORPH, and BTEX. The sample was additionally analyzed for DRPH and ORPH with silica gel cleanup to remove inferred organic interference.

2.5.11 December 2019 to March 2020 SoundEarth Supplemental Subsurface Investigation

SoundEarth conducted a supplemental subsurface investigation at the Property from December 2019 to March 2020 in accordance with the Pollution Liability Insurance Agency (PLIA) modified Work Plan for Groundwater Subsurface Investigation (SoundEarth 2019b).

On December 19 and 20, 2020, Anderson Environmental Contracting, LLC (AEC) performed drilling activities using a combination direct-push/hollow-stem auger rig. Under the direction of SoundEarth, AEC advanced six borings (P12 through P17) to depths of approximately 25 feet bgs. The soil boring locations are shown on Figure 2.

Soil samples were collected from all probe and hollow-stem auger soil borings. Select soil samples were analyzed for GRPH, DRPH, ORPH, and BTEX. Two soil samples, P12-15 and P15-25, were also analyzed for DRPH with silica gel cleanup and ORPH with silica gel cleanup. Reconnaissance groundwater samples were collected from borings P13 and P15 through P17 to characterize the on-Property groundwater conditions. All reconnaissance groundwater samples were analyzed for GRPH, DRPH, DRPH with silica gel cleanup, ORPH, ORPH with silica gel cleanup, and BTEX.

On December 20, 2019, AEC used a combination direct-push/hollow-stem auger drill rig to overdrill borings P12 and P14. Soil borings P12 and P14 were completed as permanent 2-inch-diameter monitoring wells (MW01 and MW04, respectively). The out-of-sequence nomenclature was intentional, because monitoring wells MW02 and MW03 already existed on the Property. On January 13, 2020, SoundEarth returned to the Property to advance one additional boring at the location of push-probe boring P17. Boring B01 was advanced to a depth of approximately 35 feet bgs by Holocene Drilling, Inc., and was completed as groundwater monitoring well MW05.

On December 26, 2019, groundwater samples were collected from monitoring wells MW01 through MW04. On January 15, 2020, a groundwater sample was collected from monitoring well MW05. On March 26, 2020, groundwater samples were collected from monitoring wells MW01 through MW05. The groundwater samples were submitted for analysis of GRPH, DRPH, ORPH, and BTEX. Samples from monitoring well MW04 were also analyzed for DRPH with silica gel cleanup and ORPH with silica gel cleanup for the December 26, 2019, sampling event.

2.6 SUMMARY OF RESULTS

Laboratory analytical results for soil and groundwater samples from previous investigations and the SoundEarth supplemental subsurface investigation and groundwater monitoring events, summarized below, were compared to applicable MTCA cleanup levels. Soil and groundwater analytical results are presented in Tables 1 through 6 and depicted on Figures 3 through 5.

2.6.1 Soil

Soil encountered at the Property typically consisted of silty gravelly sandy fill material in the upper 0 to 4 feet bgs, which was underlain by a stiff sandy silt with some clay and organics to depths of approximately 20 feet bgs. The silt layer is underlain by fine to medium sand with some silt to depths of approximately 25 feet bgs, which is underlain by very stiff silt with trace organics to the total depth explored of 35 feet bgs. At borings P12, P13, P15, and P16, peat lenses ranging from 6 inches to 2 feet thick were observed at depths of approximately 9 to 19 feet bgs.

Laboratory analysis of soil samples collected from the borings indicated the following:

- Detected concentrations of GRPH, DRPH, ORPH, and BTEX were below the laboratory reporting limit or MTCA Method A cleanup levels in all soil samples analyzed.
- Soil samples P1-8, P4-8, and PG7-10 contained detectable concentrations of one or more of the following: GRPH, DRPH, ORPH, ethylbenzene, or total xylenes. The concentrations were all below the applicable cleanup levels but indicate that low-level petroleum-impacted soil exists in these areas.
- Soil sample P4-8 from the waste oil tank area was also analyzed for PAHs, PCBs, CVOCs, and metals. All analytical results for these analytes were below laboratory reporting limits and applicable cleanup levels.
- Analytical results of soil samples P12-15 and P15-25 indicated detectable concentrations of ORPH after samples were passed through silica gel. The concentrations (480 milligrams per kilogram [mg/kg] and 410 mg/kg, respectively) were below applicable cleanup levels and were flagged by the laboratory because the chromatographic patterns did not resemble the fuel standards used for quantitation. SoundEarth interprets that this is likely caused by interferences of the organic material/peat observed in the borings at the sampled depths.

2.6.2 Groundwater

This section summarizes the results of the groundwater sampling completed from 2018 through 2020. Analytical results for groundwater are presented on Table 6. Laboratory analytical reports are included in Appendix C.

On March 9, 2018, groundwater was measured at 22.14 and 25.16 feet below top of casing (TOC) in monitoring wells MW02 and MW03, respectively. On June 12, 2019, groundwater was measured at 22.68 feet below TOC in monitoring well MW02. Purge water in well MW02 was observed to be semi-turbid with a faint yellow-brown coloration, interpreted as likely organic material in the monitoring well and/or surrounding groundwater. Analytical results indicated the following:

- Concentrations of GRPH, DRPH, ORPH, and BTEX were below the laboratory reporting limit in groundwater samples collected from monitoring wells MW02 and MW03 on March 9, 2018.
- Concentrations of GRPH, ORPH, and BTEX were below the laboratory reporting limit for the groundwater sample collected from monitoring well MW02 on June 12, 2019.
- In the sample collected from monitoring well MW02 on June 12, 2019, DRPH was detected at a concentration of 77 micrograms per liter (µg/L), which is above the laboratory reporting limit but below the MTCA Method A cleanup level of 500 µg/L. The DRPH detection was flagged by the laboratory as having a chromatographic pattern that does not resemble the fuel standard used for quantitation. Concentrations of DRPH were not detected above laboratory reporting limits in the sample collected from monitoring well MW02 when the sample extract was passed through a silica gel column prior to analysis.

On December 19 and 20, 2019, reconnaissance groundwater samples were collected from push-probe borings P13 and P15 through P17. Analytical results indicated the following:

- Concentrations of GRPH, DRPH with silica gel cleanup, and BTEX were below the laboratory reporting limit in all collected groundwater samples.
- All analyzed reconnaissance groundwater samples exhibited detectable concentrations of DRPH prior to silica gel cleanup, and the sample collected from boring P17 exceeded the MTCA cleanup level for DRPH. However, all results were flagged by the laboratory as having a chromatographic pattern that does not resemble the fuel standard used for quantitation. Based on field observations that suggested the presence of organic peat material in the borings, the reduced concentrations of DRPH with silica gel cleanup, and comparison to groundwater samples collected from properly installed and developed compliance monitoring wells at similar locations, these detections of DRPH are not considered to be representative of actual groundwater conditions.
- The reconnaissance groundwater sample collected from boring P15 exceeded the MTCA Method A cleanup level for ORPH but did not exceed the MTCA cleanup level when analyzed after the sample was passed through silica gel. The initial ORPH result is not considered representative of actual groundwater conditions.
- The reconnaissance groundwater sample collected from boring P17 exceeded the MTCA cleanup level for ORPH after the sample was passed through silica gel. However, based on field observations that indicated the presence of organic peat material in the boring and the results of the subsequent groundwater sample collected using low-flow sampling methods from monitoring well MW05 in the same location, this ORPH exceedance is not considered representative of actual groundwater conditions.

On December 26, 2019, groundwater samples were collected from monitoring wells MW01 through MW04, and on January 15, 2020, an additional groundwater sample was collected from monitoring well MW05. Analytical results indicated the following:

- Concentrations for GRPH, ORPH, ORPH with silica gel, and BTEX were below the laboratory reporting limit in all analyzed groundwater samples.
- The groundwater sample collected from monitoring well MW04 contained concentrations of DRPH above the laboratory reporting limit but below the applicable MTCA cleanup level. The result was flagged by the laboratory as having a chromatographic pattern that does not resemble the fuel standard used for quantitation. Concentrations of DRPH were not detected above laboratory reporting limits when the sample extract was passed through a silica gel column prior to analysis.

On March 25, 2020, groundwater samples were collected from all five monitoring wells, MW01 through MW05. Analytical results indicated the following:

- Concentrations for GRPH and BTEX were below the laboratory reporting limit in all groundwater samples collected.
- The groundwater sample collected from monitoring well MW05 contained concentrations of DRPH and ORPH above the laboratory reporting limit but below MTCA Method A cleanup levels. The results were flagged by the laboratory as having a chromatographic pattern that does not resemble the fuel standard used for quantitation. Concentrations of DRPH and ORPH were not detected above laboratory reporting limits when the sample extract was passed through a silica gel column prior to analysis.

3.0 CONCEPTUAL SITE MODEL

A CSM has been developed to identify confirmed and suspected source areas of COCs for the media of concern, potential migration pathways, potential receptors, and exposure pathways at the Property. This section discusses the components of the CSM developed for the Site based on the completion of multiple phases of investigation and remediation conducted by SoundEarth.

Included in the following sections are discussions of the confirmed and suspected source areas, COCs and affected environmental media, fate and transport mechanisms, exposure pathways and potential receptors, an updated Terrestrial Ecological Evaluation (TEE), and a CSM summary.

3.1 CONFIRMED AND SUSPECTED SOURCE AREAS

The results of historical research, previous reports, and subsurface investigations conducted at the Property confirmed petroleum impacts to soil beneath and in the vicinity of the northwestern corner of the former garage (Building 3) on the central portion of the Property. A gasoline distribution system and associated piping formerly located on the central portion of the Property, to the north of the former garage (Building 3), was identified as the potential source of the petroleum hydrocarbon release in that area. Most of identified petroleum impacts were removed during the 1993 remedial excavation, but several areas of shallow residual-impacted soil were inaccessible and left in place. The CSM, which comprises the approximate extents of soil contamination above MTCA Method A cleanup levels, is shown on Figures 5 and 6.

3.2 CHEMICALS AND MEDIA OF CONCERN

Based on the findings of the Remedial Investigation, the primary COCs at the Property are GRPH, DRPH, ORPH, and BTEX. Soil has been confirmed as the affected media at the Property. Shallow and localized perched groundwater, likely from surface infiltration, was observed during a remedial excavation in 1993. Given the lack of recharge of shallow perched groundwater following the 1993 excavation and the lack of petroleum impacts observed in laboratory-analyzed groundwater samples collected from monitoring wells MW01 through MW05 during the two consecutive 2019 through 2020 supplemental groundwater investigations of a deeper and continuous water-bearing unit across the Property, groundwater is not considered a media of concern.

3.3 CONTAMINANT FATE AND TRANSPORT

Fate and transport of COCs in affected environmental media are dependent on the physical and chemical properties of the COC and the geochemical and hydraulic properties of the subsurface environment. Contaminants may exist in four phases in a subsurface environment from a release of a hazardous substance. The four phases include free phase (nonaqueous-phase liquid), sorbed phase (adsorbed to organics or clay soil particles), aqueous phase (dissolved in water), and gaseous phase (volatilization from soil or water to air). Commonly, contaminants exist in multiple phases with some degree of partitioning between phases. The contaminant phase depends not only on the properties of the COC and the site-specific geological properties, but also on the magnitude and extent of the release. This section discusses the fate and transport characteristics of GRPH, DRPH, ORPH, and BTEX in soil, groundwater, and soil vapor at the Site that are relevant to the evaluation of potential remedial technologies.

3.3.1 Environmental Fate of Petroleum Hydrocarbons in the Subsurface

Once petroleum hydrocarbons enter the subsurface, natural attenuation of the compound begins. The natural attenuation processes include intrinsic abiotic and biotic degradation in the soil and adsorption onto soil particles. Both abiotic and biotic processes degrade petroleum hydrocarbons to carbon dioxide, assuming the appropriate geochemical conditions are present in soil. Adsorption onto soil particles retards the vertical and lateral migration of petroleum hydrocarbons, and the residual saturation capacity of soil inhibits the vertical migration of light nonaqueous-phase liquid (LNAPL). In addition, advection and dispersion dilute the concentration of petroleum hydrocarbons in the groundwater as the compounds migrate downgradient from the source release areas. Evidence for natural attenuation processes in soil at the Property would include significant shrinking in the magnitude and extent of the petroleum impacts.

3.3.2 Transport Mechanism Affecting the Distribution of Petroleum Hydrocarbons in the Subsurface

The transportation and distribution of petroleum hydrocarbons in the vadose zone beneath the Site is controlled by a number of factors, including:

- The mass of contamination released from the source area.
- The vertical migration of dissolved-phase petroleum hydrocarbons through the soil column due to gravity-driven advection.
- The vertical movement of LNAPL in the soil column as a result of gravity-driven advection.
- The lateral migration of LNAPL as a result of encountering semi-impermeable soil layers.

- Adsorption and desorption of contaminants from soil particles and organic matter. Adsorption is a function of moisture content of the soil, the organic-carbon partitioning coefficient for the contaminants, and the concentration of organic matter in the soil.
- The diffusive transport of contaminated vapors from areas of high to low concentration.
- Advective transport of vapors due to changes in pressure and temperature gradients.
- Natural mechanisms, including temperature, groundwater, and barometric pressure fluctuations, that may result in the volatilization of total petroleum hydrocarbons (TPH) and BTEX in soil and groundwater to soil vapor via soil- and/or groundwater-to-air partitioning. Soil vapor with concentrations of TPH and BTEX may transport to the surface with barometric pressure fluctuations.
- Depth to groundwater.

Advection and dispersion control the lateral and vertical distribution of solutes such as potential dissolved petroleum hydrocarbons in the groundwater at the Site. Advection refers to the transport of a solutes by bulk movement of the groundwater, which is the movement of particles within the flowing water. Advection is a result of the average linear groundwater velocity, which is controlled by the hydraulic conductivity of the aquifer material, the hydraulic gradient of the groundwater, and the porosity of the aquifer material. Mechanical dispersion of a solute is caused by the different flow paths water particles take in a geological materials. Dispersive mixing causes some solutes to travel in the direction of groundwater, cross-gradient to the direction of groundwater flow (transverse), or vertically in the aquifer. During dispersive transport some solute flow paths are faster because they follow a more direct path or because they are moving through larger pores or through the center of pores in which water flows faster (less friction involved). Other flow paths may be slower because they are closer to the grain boundaries, thus being exposed to more friction in the pore throat, slowing down the water particles. The different flow paths of a solute cause mechanical dispersion, which is a mechanical mixing and dilution of the solute within the bulk movement of groundwater.

3.4 PRELIMINARY EXPOSURE PATHWAY ASSESSMENT

The preliminary exposure assessment identifies potential receptors for exposure pathways for environmental media of potential concern from contaminant fate and transport mechanisms. Potential receptors at risk from exposure associated with the presence of COCs at the Site are human and ecological receptors. The objective of the preliminary exposure assessment is to assess the completeness of exposure pathways from environmental media of potential concern and associated contaminant fate and transport mechanisms for the potential receptors for the Site. The results from the preliminary exposure assessment will assist with the evaluation of potential feasible cleanup alternatives that are protective of the potential receptors identified as complete. The preliminary exposure assessment for each exposure pathway and associated environmental media of potential concern is summarized below by affected environmental media (Figure 7).

3.4.1 Soil

Soil with concentrations of COCs above cleanup levels may present a potential exposure pathway to human and/or ecological receptors. The potential exposure pathways for soil consist of direct exposure via dermal contact, ingestion, or inhalation of dust from contaminated soil, and soil leaching to groundwater. Soil beneath the Property contains concentrations of COCs that exceed the MTCA Method A soil cleanup levels that are protective of direct contact pathway or leaching to groundwater. Although the exposure risk of direct contact of soil has been minimized due to the Property's cover of concrete, asphalt, and building structures, the planned redevelopment, which includes excavation activities, could present the opportunity for direct contact with soil to become a potential risk to human health. Construction and/or maintenance workers may be potential receptors if they conduct invasive activities that disturb the soil beneath the structures and pavement on the Property.

Based on the presence of residual PCS, these exposure pathways are considered complete for primary receptors of building occupants and environmental, construction, and utility workers during future excavation activities at the Property.

3.4.2 Groundwater

Potential exposure pathways for groundwater contamination include the groundwater-to-surface water pathway, volatilization into soil vapor, or via the direct-contact pathway, which comprises both the dermal contact and ingestion pathways. There are no groundwater supply wells at or in the vicinity of the Property that are used for potable water supply. Shallow groundwater at the Property is not used as a drinking water source and is likely a nonpotable resource as defined in Section 720[2][b][i] of Chapter 173-340 of the Washington Administrative Code (WAC 173-340-720[2][b][i]).

These potential exposure pathways are considered incomplete based on the lack of petroleum impacts identified during recent groundwater monitoring and the absence of the previously observed shallow perched groundwater in the vicinity of the release area.

3.4.3 Vapor

The presence or absence of volatile organic compounds in indoor and outdoor ambient air as a result of petroleum hydrocarbon contamination in the vadose zone and groundwater beneath the Property has not been determined. The air-filled pore space between soil grains in the unsaturated zone or partially saturated zone is referred to as soil gas or soil vapor. Low molecular weight aromatic and TPH fractions are highly volatile due to their relative low vapor pressures; benzene is the main risk driver. Concentrations of TPH fractions can accumulate and migrate into buildings and to ambient air along a pressure gradient.

Soil gas can become contaminated from volatilization of petroleum hydrocarbons absorbed to soil mineral surfaces and, to a lesser degree, dissolved in groundwater. Ecology draft guidance for evaluating soil vapor intrusion risks into structures presents screening levels for groundwater and soil vapor that could result in vapor intrusion exposure risks (Ecology 2009 and 2017). According to Ecology guidance (Ecology 2017), the presence of benzene concentrations in groundwater exceeding 2.4 µg/L has the potential to result in adverse risk via vapor intrusion to indoor air through a concrete floor slab. Benzene concentrations in shallow perched groundwater previously collected from the 1993 excavation area exceeded the groundwater screening level protective of indoor air at a concentration of 31 µg/L. However, benzene concentrations were below laboratory reporting limits in groundwater samples collected from monitoring well MW02, and the shallow and isolated perched groundwater was effectively removed during the 1993 cleanup activities.

Based on the presence of residual PCS, this exposure pathway is considered complete for building occupants and environmental, construction, and utility workers during future excavation activities at the Site. The vapor pathway is considered complete at the Site until a cleanup action is implemented.

3.5 TERRESTRIAL ECOLOGICAL EVALUATION

A TEE is required by WAC 173-340-7940 at locations where a release of a hazardous substance to soil has occurred. The TEE is intended to assess potential risk to plants and animals that live entirely or primarily on affected land. A simplified TEE was required under MTCA to assess the potential ecological risk posed by contamination at the Site and whether a more detailed investigation of potential ecological risk would be required. SoundEarth conducted a simplified TEE in accordance with Table 749-1 of WAC 173-340-900 and the protocols established in WAC 173-340-7492 to assess the potential ecologic risk associated with the presence of COCs at the Site.

The Site qualifies for a TEE exclusion based on the WAC 173-340-7491(1)(a) point of compliance that all soil contamination will be removed from the Site.

3.6 CSM INTERPRETATION

Soil beneath the Property containing concentrations of GRPH and BTEX that exceeded applicable MTCA Method A cleanup levels was historically confirmed beneath and proximate to the northwestern corner of the former garage (Building 3) on the central portion of the Property (Figures 5 and 6). A gasoline distribution station and associated piping formerly located on the central portion of the Property, to the north of the former garage (Building 3), was identified as the potential source of the petroleum hydrocarbon release in that area. Most of the identified petroleum impacts in soil were removed during a 1993 remedial excavation, but several areas of shallow residual petroleum-impacted soil were inaccessible and left in place, primarily underneath and proximate to the foundation of former Building 3 (Figure 5).

Groundwater is not considered an affected media because of the observed difference in depth between the isolated shallow perched groundwater observed during the 1993 excavation and a deeper continuous water-bearing unit observed and sampled during subsequent investigations; the lack of recharge of isolated shallow perched groundwater following the excavation; and the lack of petroleum impacts observed in representative groundwater samples collected from monitoring wells MW01 through MW05 (in the continuous and deeper water-bearing unit) during the 2019 through 2020 supplemental groundwater investigations. SoundEarth attributes the presence of naturally occurring organic material (peat deposits) at the Property as the cause of the low-level and non-representative concentrations of DRPH and ORPH detected in some analyzed groundwater samples. Silica gel was used for cleanup to adsorb polar non-hydrocarbons prior to reanalysis of those groundwater samples for DRPH and ORPH to obtain representative results. Reanalysis of those groundwater samples using silica gel cleanup resulted in representative results that indicated no detectable concentrations of DRPH and ORPH above laboratory reporting limits (Table 6).

COCs at the Property consist of GRPH and BTEX. Soil was confirmed as the affected media at the Property. Adsorption of petroleum onto soil particles (silt) likely limited the vertical and lateral migration of petroleum hydrocarbons in shallow soil. An estimated 850 tons of petroleum-impacted soil currently remain in place beneath and proximate to northern portion of the former Building 3 (Figures 5 and 6).

The potential exposure pathways for the environmental medium of soil at the Property includes direct contact and inhalation of volatile organic vapors. The exposure pathway for direct contact is currently mitigated by the Property's cover of concrete, asphalt, and building structures. Based on the presence of residual PCS, these exposure pathways are considered complete for primary receptors of building occupants and environmental, construction, and utility workers during future excavation activities at the Site. The vapor pathway is considered complete at the Site until a cleanup action is implemented. Following planned remedial excavation activities as part of the Property redevelopment, the potential exposure pathways for direct contact and inhalation will be eliminated, rendering these exposure pathways incomplete for future receptors, including Property occupants and commercial workers. Potential exposure pathways for groundwater at the Property are incomplete based on the lack of petroleum impacts identified during recent groundwater monitoring and the absence of the previously observed shallow perched groundwater in the vicinity of the release area.

4.0 CLEANUP STANDARDS AND TECHNICAL ELEMENTS

The analytical results of previous investigations were used to establish cleanup standards for the Property that comply with the MTCA regulations specified in WAC 173-340 and with applicable state and federal laws. This section summarizes the COCs, media of concern, cleanup standards, and points of compliance for the cleanup action.

4.1 CHEMICALS AND MEDIA OF CONCERN

The findings of the previous subsurface investigations and remedial actions conducted at the Property identified the following COCs:

- GRPH in soil
- BTEX in soil

4.2 CLEANUP STANDARDS

The selected cleanup action complied with the MTCA cleanup regulations specified in WAC 173-340 and with applicable state and federal laws. The associated media-specific CULs for the identified COCs are summarized in the following sections.

Cleanup Levels for Soil

Chemical of Concern	Cleanup Level (mg/kg)	Source
Benzene	0.03	MTCA Method A, Unrestricted; WAC 173-340-740(2)(b)(i)
Toluene	7	
Ethylbenzene	6	
Xylenes (total)	9	
GRPH	30	

Cleanup Levels for Groundwater

Chemical of Concern	Cleanup Level (µg/L)	Source
Benzene	5	MTCA Method A, Table Value; WAC 173-340-720(3)(b)(i)
Toluene	1,000	
Ethylbenzene	700	
Xylenes (total)	1,000	
GRPH	800	

4.3 POINTS OF COMPLIANCE

The point of compliance is the location where the cleanup standard shall be met. Once the cleanup standards were attained at the defined points of compliance, the impacts present beneath the Property were no longer considered a threat to human health or the environment.

4.3.1 Point of Compliance for Soil

In accordance with WAC 173-340-740(6)(b-d), throughout the Property, the point of compliance for direct contact exposure is from the ground surface to a depth of 15 feet bgs, which is a reasonable estimate of the depth of soil that could be excavated and distributed at the soil surface as a result of development activities. All identified soil containing concentrations of COCs above the direct contact threshold and above the MTCA Method A CULs for COCs was excavated and removed from the Property. Therefore, the direct-contact exposure pathway for soil has been eliminated by on-Property source removal.

4.3.2 Point of Compliance for Groundwater

In accordance with WAC 173-340-720(8)(a)(b), the point of compliance for groundwater is defined as the uppermost level of the saturated zone extending vertically to the lowest depth that potentially could be impacted by the COCs on the Property. SoundEarth completed two consecutive quarterly groundwater monitoring events of the existing on-Property shallow-screened monitoring wells MW01 through MW04 and three consecutive quarterly events for monitoring well MW02 to evaluate whether the point of compliance for shallow groundwater at the Property was being achieved. In addition, per PLIA's request in its opinion letter dated April 20, 2020, a grab groundwater sample was collected from ponded groundwater in the southeastern portion of the remedial excavation (PLIA 2020).

5.0 SELECTED CLEANUP ACTION

An RIFSCAP Report was prepared for submittal to PLIA under the Petroleum Technical Assistance Program project number PNW179. It was developed to meet the general requirements of a remedial investigation, feasibility study, and cleanup action plan as defined by the Washington State Model Toxics Control Act regulation in WAC 173-340-350 through 390.

As part of the RIFSCAP Report, SoundEarth evaluated the applicability of Model Remedies based on Ecology's *Model Remedies for Sites with Petroleum Contaminated Soils* (Ecology 2015) and *Model Remedies for Sites with Petroleum Impacts to Groundwater* (Ecology 2016b). Ecology developed Model Remedies to streamline and accelerate the pace of petroleum cleanups. Model Remedies are applicable for routine petroleum cleanup projects; on sites with no impacts to surface water, sediments, or water supply wells; and sites where soil and groundwater impacts do not extend beyond the source property boundary. Based on the CSM, the Site qualifies for a Model Remedy; Soil Model Remedy #1 has been selected for the Site. The selected remedial action, as specified in the CAP, includes excavating PCS from the Property that exceeds MTCA Method A cleanup levels.

SoundEarth also prepared an Environmental Media Management Plan (EMMP) for planned earthwork construction activities associated with redevelopment of the Slater Avenue Property (SoundEarth 2021). The EMMP also specified remedial excavation activities associated with the removal of PCS present beneath and proximate to the northwestern corner of the former garage (Building 3).

6.0 CLEANUP ACTION

This section provides a description of the components of the cleanup action implemented for the Property. FF Realty IV LLC of San Diego, California, was the general contractor for the project, and WSB Excavation & Utilities, LLC of Bothell, Washington (WSB), was the earthworks contractor responsible for the excavation and transportation of soil. The cleanup action was completed in general accordance with the EMMP prepared by SoundEarth (SoundEarth 2021).

6.1 PERMITTING

Permitting for demolition and grading was coordinated by FF Realty IV LLC through the City of Kirkland. FF Realty IV LLC submitted a Land Use Application for the redevelopment project, which included a State Environmental Policy Act review. The City of Kirkland issued a Mitigated Determination of Nonsignificance for the project on July 21, 2021 (City of Kirkland 2021; Appendix A).

6.2 SITE-SPECIFIC HEALTH AND SAFETY PLAN

SoundEarth prepared a Site-specific Health and Safety Plan (HASP) in accordance with Part 1910.120 of Title 29 of the Code of Federal Regulations that is included in Appendix F of the RIFSCAP Report (Soundearth 2020). WSB was responsible for the health and safety of its workers while it was on the Property.

SoundEarth field screened ambient air during the excavation activities to monitor petroleum hydrocarbon levels in the breathing zone of personnel and equipment operators. Ambient air field screening was conducted using a photoionization detector (PID). Results of ambient air monitoring are discussed in Section 7.1.1, Protection Monitoring.

6.3 SITE PREPARATION

Site controls were established to properly secure the work zone. The entire perimeter of the Property was fenced off; points of ingress and egress were clearly marked. The access points to the Property were monitored by authorized personnel during construction activities and locked during non-business hours.

Prior to beginning excavation activities, temporary erosion and sediment control measures were established in accordance with the Temporary Erosion and Sediment Control Plan. Demolition of on-Property Building 3 was completed prior to the cleanup action.

6.4 SOIL WASTE PROFILING AND TEST PITS

Prior to commencement of remedial excavation activities, a soil waste disposal profile was established for the project based on historical and newly obtained soil laboratory analytical data. On August 25, 2021, test pit TP03 was completed in the vicinity of historical excavation sample location DS2, a sample from which contained GRPH at a concentration of 5,900 mg/kg. Analytical laboratory analysis was conducted for samples collected from test pit TP03 to satisfy the waste disposal facility's (Cadman Inc.'s) acceptance requirements, including analysis of current concentrations of GRPH, DRPH, ORPH, BTEX, RCRA 8 metals, and carcinogenic polycyclic aromatic hydrocarbons (cPAHs). Cadman Inc. approved the PCS as Class 3 soil under waste profile number/order number 74912. The soil laboratory analytical results of samples collected from test pit TP03 are summarized in Tables 7 through 9, and the laboratory analytical reports are provided in Appendix B. The location of test pit TP03 is shown on Figure 8.

6.5 PCS REMEDIAL EXCAVATION

The remedial excavation and restoration was conducted between August 25, 2021, and September 3, 2021. A SoundEarth Geologist observed the excavation activities, performed field screening and sampling, and directed segregation and stockpiling in general accordance with the EMMP.

The soil cleanup activities consisted of the remedial excavation of the identified PCS underneath and proximate to the foundation of the former Building 3. The remedial excavation was completed to the north, east, and south of the remedial excavation completed in 1993. The soil was excavated to depths between 8.5 and 10 feet bgs within the remedial excavation footprint and dimensions as specified in the EMMP. Cut slopes were used at the margins of the remedial excavation for excavation sidewall stabilization and were maintained at an approximate 1Horizontal:1Vertical cut slope. The excavated soil was segregated into three stockpiles, which were placed on and covered with plastic:

- Stockpile SP01. Soil excavated from the northern portion of the remedial excavation was stockpiled in SP01 (approximately 140 cubic yards).
- Stockpile SP02. Soil excavated from the southern portion of the remedial excavation, including in the vicinity of historical excavation sample location DS2, a sample from which contained GRPH at a concentration of 5,900 mg/kg, was stockpiled in SP02 (approximately 170 cubic yards).
- Stockpile SP03. Soil excavated from the western portion of the remedial excavation was stockpiled in SP03 (approximately 70 cubic yards).

Soil samples were collected from the sidewalls and bottom of the remedial excavation using either stainless steel or plastic sampling tools (decontaminated between collection of each sample) or by using a backhoe bucket and performing soil sampling from the middle of the bucket. At a minimum, soil samples were collected every 20 linear feet of sidewall and every 20-foot by 20-foot section of the remedial excavation area bottom.

A total of 25 performance soil samples were collected from the remedial excavation and submitted for analysis of GRPH, DRPH, ORPH, and BTEX. None of the performance soil samples collected from the final limits of the remedial excavation contained COC concentrations exceeding the MTCA Method A soil cleanup levels. The performance/confirmation soil sample results are summarized in Table 7. The final extent of the remedial excavation and the sidewall and bottom soil sample locations are shown on Figure 8.

Minimal groundwater was encountered in the remedial excavation and dewatering was not required. In accordance with PLIA's request in its Opinion Letter dated April 20, 2020, a grab groundwater sample (EX01-20210831) was collected from groundwater ponding in the southeastern portion of the remedial excavation (see groundwater sample location 41 on Figure 8). The remedial excavation groundwater sample was submitted for analysis of GRPH, DRPH, ORPH, and BTEX. None of the analytes were detected above the laboratory method reporting limit in the remedial excavation groundwater sample (Table 10).

Discrete soil samples were collected from each stockpile in accordance with Ecology's *Guidance for Remediation of Petroleum Contaminated Sites* dated 2010 and revised in June 2016 (Ecology 2010). The discrete soil samples collected from the stockpiles were submitted for GRPH, DRPH, ORPH, and BTEX chemical analyses; these constituents were not detected above the laboratory method reporting limit. The stockpile soil sample results are summarized in Table 7.

Given that GRPH was detected at a concentration of 5,900 mg/kg in a sample collected from historical excavation sample location DS2, PCS in stockpile SP02 was designated as Class 3 soil and transported off site for treatment and disposal (see Section 6.6, Soil Transportation and Disposal). Soil stockpiled in stockpiles SP01 and SP03 was free of wood and organic material and field-screening evidence of contamination (i.e., stains, odors, elevated PID reading, or sheen) and exhibited no detectable concentrations of COCs above laboratory reporting limits and MTCA Method A soil cleanup levels. The non-impacted soil was deemed environmentally and geotechnically suitable for on-Property reuse and was used as backfill for a portion of the remedial excavation. The remaining portion of the remedial excavation was backfilled with Type 17 material.

6.6 SOIL TRANSPORTION AND DISPOSAL

As part of the soil cleanup action, approximately 270.16 tons of PCS was loaded into trucks for transportation to Cadman Inc.'s Delta Station in Seattle, Washington, for thermal treatment. Following treatment, the soil was transported to and disposed of at Cadman's RCRA Subtitle D landfill located in Everett, Washington. Soil waste disposal documentation (comprehensive listings detailing disposal date, tonnage, disposal ticket number, and disposal facility for each truck containing soil classified as Class 3 PCS) is provided as Appendix C.

7.0 COMPLIANCE MONITORING

There are three types of compliance monitoring identified for the cleanup action (WAC 173-340-410): protection, performance, and confirmational monitoring. A paraphrased definition for each is presented below (WAC 173-340-410[1]):

- **Protection Monitoring**. To evaluate whether human health and the environment are adequately protected during the cleanup action.
- **Performance Monitoring**. To evaluate whether the cleanup action has attained cleanup standards.
- **Confirmational Monitoring**. To confirm the cleanup action has attained cleanup standards.

7.1.1 Protection Monitoring

In accordance with the Property-specific HASP, SoundEarth monitored ambient air during excavation activities for petroleum hydrocarbons in the breathing zone of personnel and equipment operators. Air monitoring was conducted using a PID. Results of air monitoring did not indicate elevated PID readings exceeded 1.0 parts per million by volume in the breathing zone or the boundaries of the Property.

7.1.2 Performance Monitoring

Performance monitoring included the collection of soil samples from test pits, stockpiles, and the remedial excavation. Soil samples were collected by a SoundEarth Geologist and transferred directly to laboratory-prepared sample containers labeled with unique laboratory identification numbers. The containers were placed in an iced cooler and transported for laboratory analysis to Friedman & Bruya, Inc. under standard chain-of-custody protocols. All soil samples and a grab groundwater sample were analyzed for GRPH, DRPH, OPRH, and BTEX compounds by methods NWTPH-Gx, NWTPH-Dx, and US Environmental Protection Agency (EPA) Method 8021B. Test pit soil samples were also submitted for RCRA 8 metals by EPA Method 6020B and for cPAHs by EPA Method 8270E.

The performance/confirmation soil sample results for GRPH, DRPH, ORPH, and BTEX are summarized in Table 7. The stockpile soil sample results for RCRA 8 metals and cPAHs are summarized in Tables 8 and 9, respectively. Laboratory analytical reports are provided in Appendix B.

Performance monitoring and field screening of soil was conducted during the excavation activities to direct advancement of the excavation and determine when soil cleanup levels had been attained. A SoundEarth Geologist observed the excavation activities and performed the field screening, which included observation of soil for burn debris and other anthropogenic fill material, and for discoloration, sheen, and odors. In addition to physical observations, a PID was used to qualitatively measure volatile organic vapors in the soil.

7.1.3 Confirmational Monitoring

Confirmation monitoring was not required because performance monitoring had indicated that the remedial excavation had attained cleanup standards.

8.0 LABORATORY ANALYTICAL QA/QC

SoundEarth performed a QA/QC review of the analytical results for soil and groundwater for the cleanup action. Upon receipt of the laboratory reports, SoundEarth reviewed the chain of custody forms, sample identifications, holding and extraction times, preservation and cooler receipt, surrogate recoveries, blank samples, duplicate samples, matrix spike and matrix spike duplicate samples, and percent completeness. If discrepancies in the items listed above were identified in a dataset, the discrepancy was assessed to evaluate whether the data were usable for the project.

DRPH and ORPH were detected in the performance/confirmation soil sample EX01-IWSW01-04, collected from the extent of the remedial excavation at respective concentrations of 88 and 510 mg/kg (below the MTCA Method A soil cleanup level). The DRPH and ORPH detections in the soil samples were flagged by the laboratory as not representative of the fuel standard used for quantitation.

Based on the review of laboratory quality control data, all quality control criteria are acceptable for the soil and groundwater samples analyzed; therefore, no action is required, and analytical results were considered usable to meet the project objectives.

9.0 SUMMARY AND CONCLUSIONS

The cleanup action consisted of the excavation of PCS located proximate to and beneath the demolished Building 3. PCS was transported to a Subtitle D licensed landfill facility for disposal. The analytical results from the performance/confirmation soil samples collected from the final limits of the remedial excavation confirmed that soil with residual impacts remaining under the former garage (Building 3) and subject to an existing Environmental Covenant has been removed and that cleanup standards have been attained. Minimal groundwater was encountered in the remedial excavation and dewatering was not required. The analytical results for a grab groundwater sample collected from the base of the remedial excavation indicated the absence of COCs in groundwater.

Based on the results of the cleanup action, no further remedial action or environmental monitoring associated with the petroleum release is warranted at the Site. Upon completion of PLIA's review of this report and issuance of a no further action opinion, the existing Environmental Covenant should be removed from the Property.

10.0 LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with SoundEarth's agreement with the client. This report is solely for the use and information of the client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report are derived, in part, from data gathered by others, and from conditions evaluated when services were performed, and are intended only for the client, purposes, locations, time frames, and project parameters indicated. SoundEarth does not warrant and is not responsible for the accuracy or validity of work performed by others, nor from the impacts of changes in environmental standards, practices, or regulations subsequent to performance of services. SoundEarth does not warrant the use of segregated portions of this report.

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FIGURES

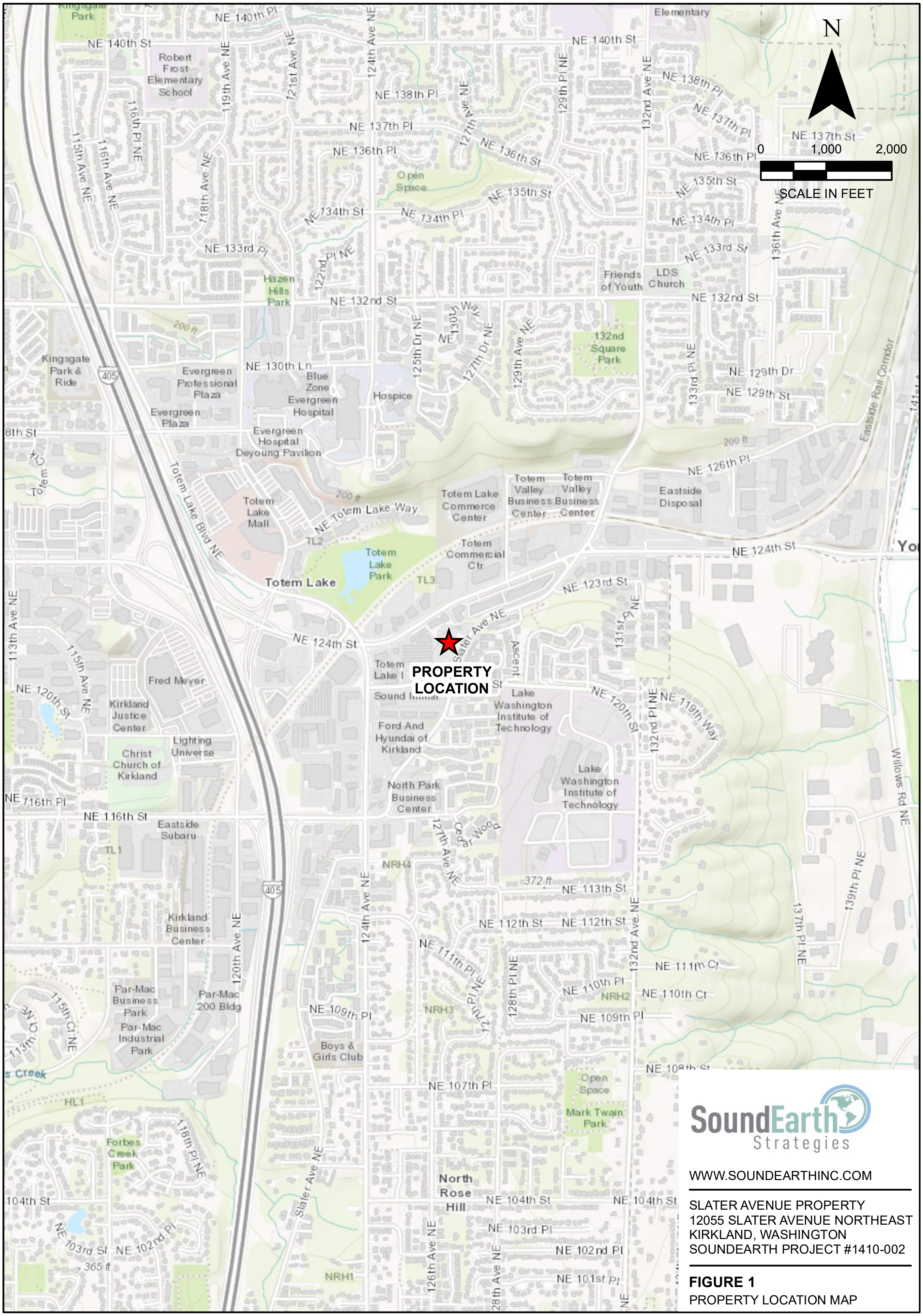

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FIGURE 1
PROPERTY LOCATION MAP

10/8/2021

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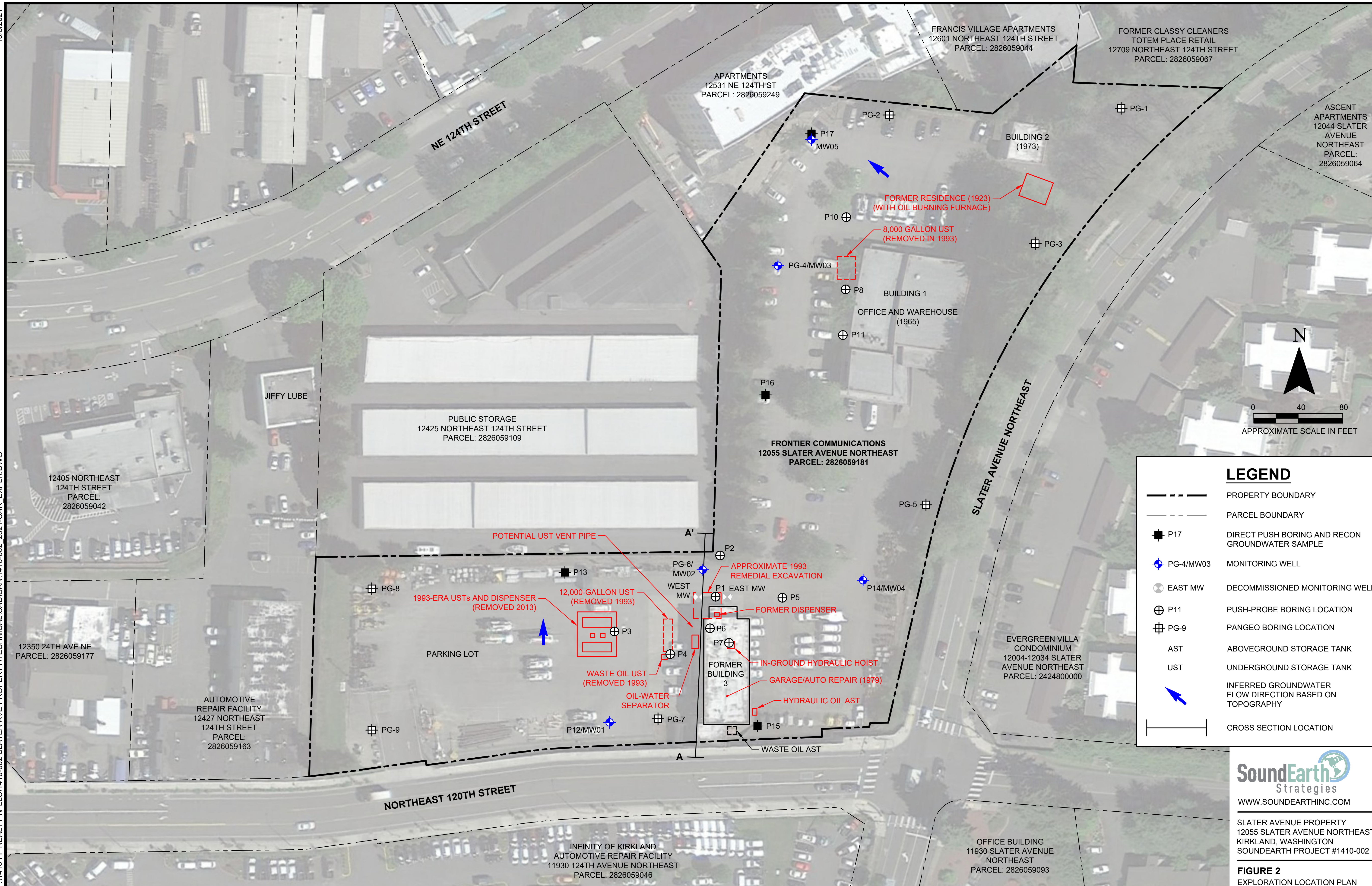

10/8/2021

Sample ID	Date Sampled	Analytical Results (micrograms per liter) GRPH	DRPH	DRPH with silica gel	ORPH	ORPH with silica gel	Benzene	Toluene	Ethylbenzene	Total Xylenes
1993 AGI Gasoline Dispenser Excavation										
DS9	05/05/93	**2,700**	--	--	--	--	**31**	41	<2.5	180
SoundEarth 2018 Subsurface Investigation										
MW02-20180309	03/09/18	<100	<50	--	<250	--	<1	<1	<1	<3
MW03-20180309		<100	<50	--	<250	--	<1	<1	<1	<3
2019 Reconnisance Groundwater Samples										
P13-20191219	12/19/19	<100	58	<50	<250	<250	<1	<1	<1	<3
P15-20191219	12/19/19	<100	69	<50	590	420	<1	<1	<1	<3
P16-20191220	12/20/19	<100	65	<50	320	<250	<1	<1	<1	<3
P17-20191220	12/20/19	<100	750	100	1500	1100	<1	<1	<1	<3
SoundEarth 2019 - 2020 Supplemental Groundwater Investigation										
MW01-20191226	12/26/19	<100	<50	--	<250	--	<1	<1	<1	<3
MW01-20200325	03/25/20	<100	<50	--	<250	--	<1	<1	<1	<3
MW02-20190612	06/12/19	<100	77	<50	<250	<250	<1	<1	<1	<3
MW02-20191226	12/26/19	<100	<50	--	<250	--	<1	<1	<1	<3
MW99-20191226 (DUP)	12/26/19	<100	<50	--	<250	--	<1	<1	<1	<3
MW02-20200325	03/25/20	<100	<50	--	<250	--	<1	<1	<1	<3
MW99-20200325 (DUP)	03/25/20	<100	<60	--	<300	--	<1	<1	<1	<3
MW03-20191226	12/26/19	<100	<50	--	<250	--	<1	<1	<1	<3
MW03-20200325	03/25/20	<100	<50	--	<250	--	<1	<1	<1	<3
MW04-20191226	12/26/19	<100	100[x]	<50	<250	<250	<1	<1	<1	<3
MW04-20200325	03/25/20	<100	<50	--	<250	--	<1	<1	<1	<3
MW05-20200115	01/15/20	<100	<50	--	<250	--	<1	<1	<1	<3
MW05-20200325	03/25/20	<100	160	<50	490	<250	<1	<1	<1	<3
MTCA Method A CUL		**800**	**500**		**500**		**5**	**1,000**	**700**	**1,000**

Excavation Area / Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results (milligrams per kilogram) GRPH	DRPH	ORPH	ORPH with silica gel	Benzene	Toluene	Ethylbenzene	Total Xylenes
2018 SoundEarth Subsurface Investigation											
P1	P1-4	02/21/18	4	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P1-8		8	11	100	1200	--	<0.02	<0.02	0.034	0.16
P2	P2-8		8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P2-12		12	<5	--	--		<0.02	<0.02	<0.02	<0.06
P3	P3-13		13	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P4	P4-8		8	<5	<50	690	--	<0.03	<0.05	<0.05	<0.2
P5	P5-8		8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P6	P6-4		4	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
	P6-8		8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P7	P7-8		8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P8	P8-8		8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P8-13		13	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
P10	P10-8		8	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
PG-7	PG7-05	03/02/18	5	--	<50	<250	--	--	--	--	--
	PG7-10		10	--	69	<250	--	--	--	--	--
PG-4	PG4-05		5	<5	--	--		<0.02	<0.02	<0.02	<0.06
	PG4-10		10	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
2019-2020 SoundEarth Subsurface Investigation											
P12	P12-05	12/19/19	5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P12-15		15	<5	<50	1,200	480[x]	<0.02	<0.02	<0.02	<0.06
	P12-25		25	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P13	P13-05		5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P13-15		15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P13-25		25	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P14	P14-05		5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P14-15		15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P14-23		23	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P15	P15-05		5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P15-15		15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P15-25		25	<5	<50	470	410[x]	<0.02	<0.02	<0.02	<0.06
P16	P16-05	12/20/19	5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P16-15		15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P16-25		25	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P17	P17-05		5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P17-15		15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P17-25		25	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
MTCA Cleanup Level for Soil				**30**	**2,000**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**

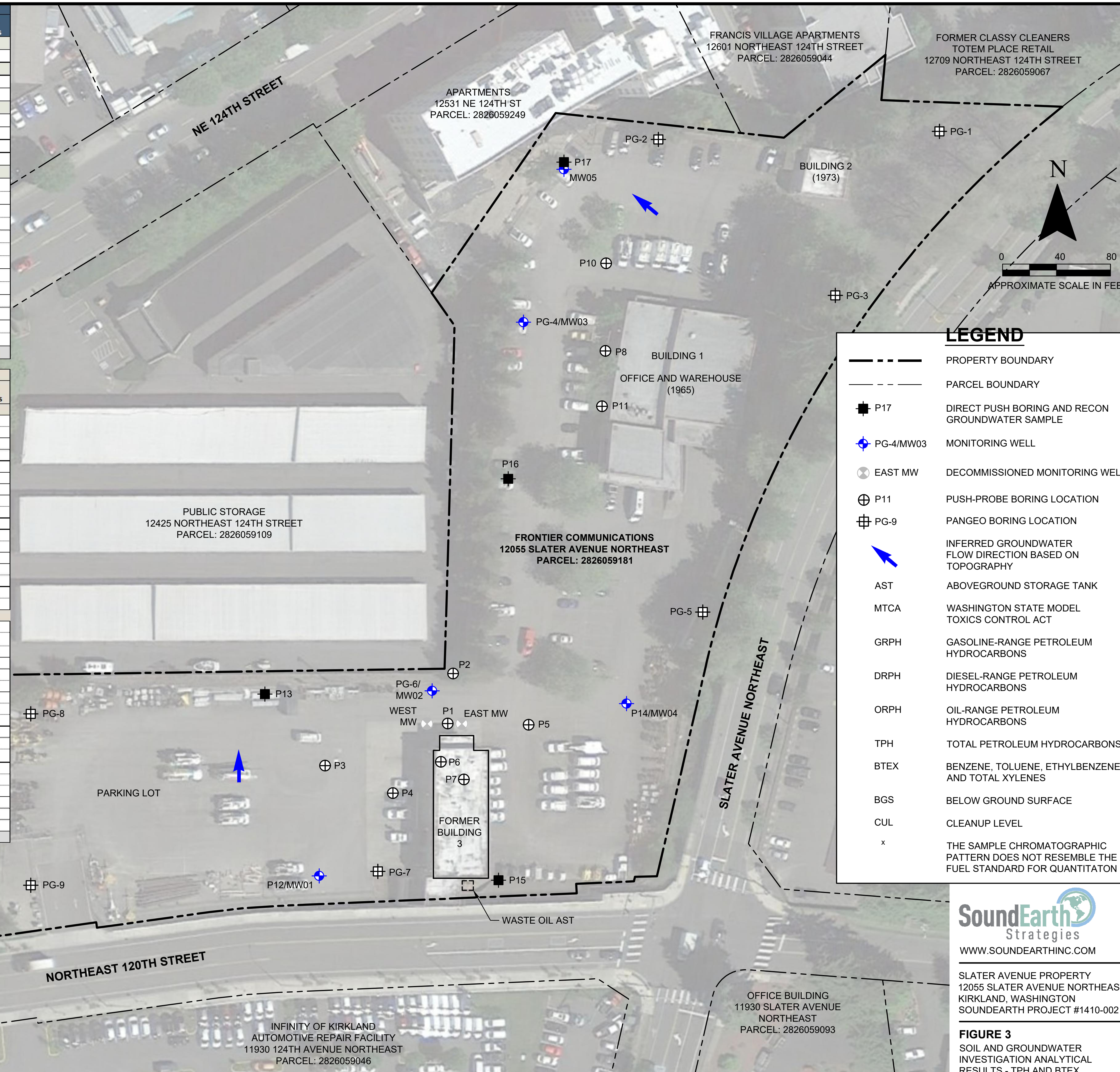

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FIGURE 3
SOIL AND GROUNDWATER INVESTIGATION ANALYTICAL RESULTS - TPH AND BTEX

P:\1410 FF REALTY IV LLC\1410-002 SLATER AVE PROPERTY\TECHNICAL\CAD\CAR\1410-002_2021-CAR_SOIL-GW-RES.DWG

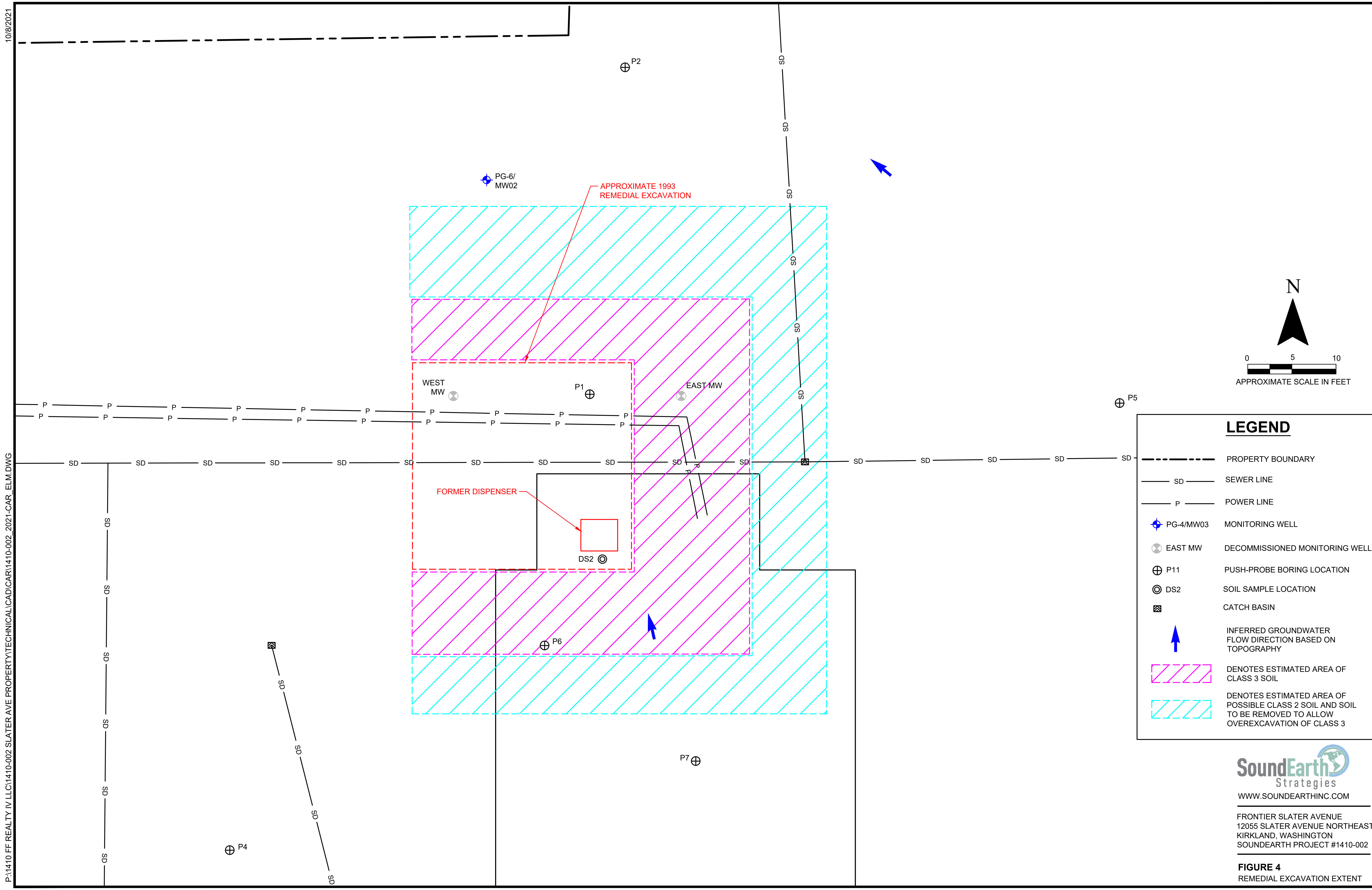
P2
PG-6/
MW02
APPROXIMATE 1993
REMEDIAL EXCAVATION
WEST
MW
P1
EAST MW
FORMER DISPENSER
DS2
P6
P7
P4
P5
N
0
5
10
APPROXIMATE SCALE IN FEET
LEGEND
PROPERTY BOUNDARY
SD
SEWER LINE
P
POWER LINE
PG-4/MW03
MONITORING WELL
EAST MW
DECOMMISSIONED MONITORING WELL
P11
PUSH-PROBE BORING LOCATION
DS2
SOIL SAMPLE LOCATION
CATCH BASIN
INFERRED GROUNDWATER
FLOW DIRECTION BASED ON
TOPOGRAPHY
DENOTES ESTIMATED AREA OF
CLASS 3 SOIL
DENOTES ESTIMATED AREA OF
POSSIBLE CLASS 2 SOIL AND SOIL
TO BE REMOVED TO ALLOW
OVEREXCAVATION OF CLASS 3
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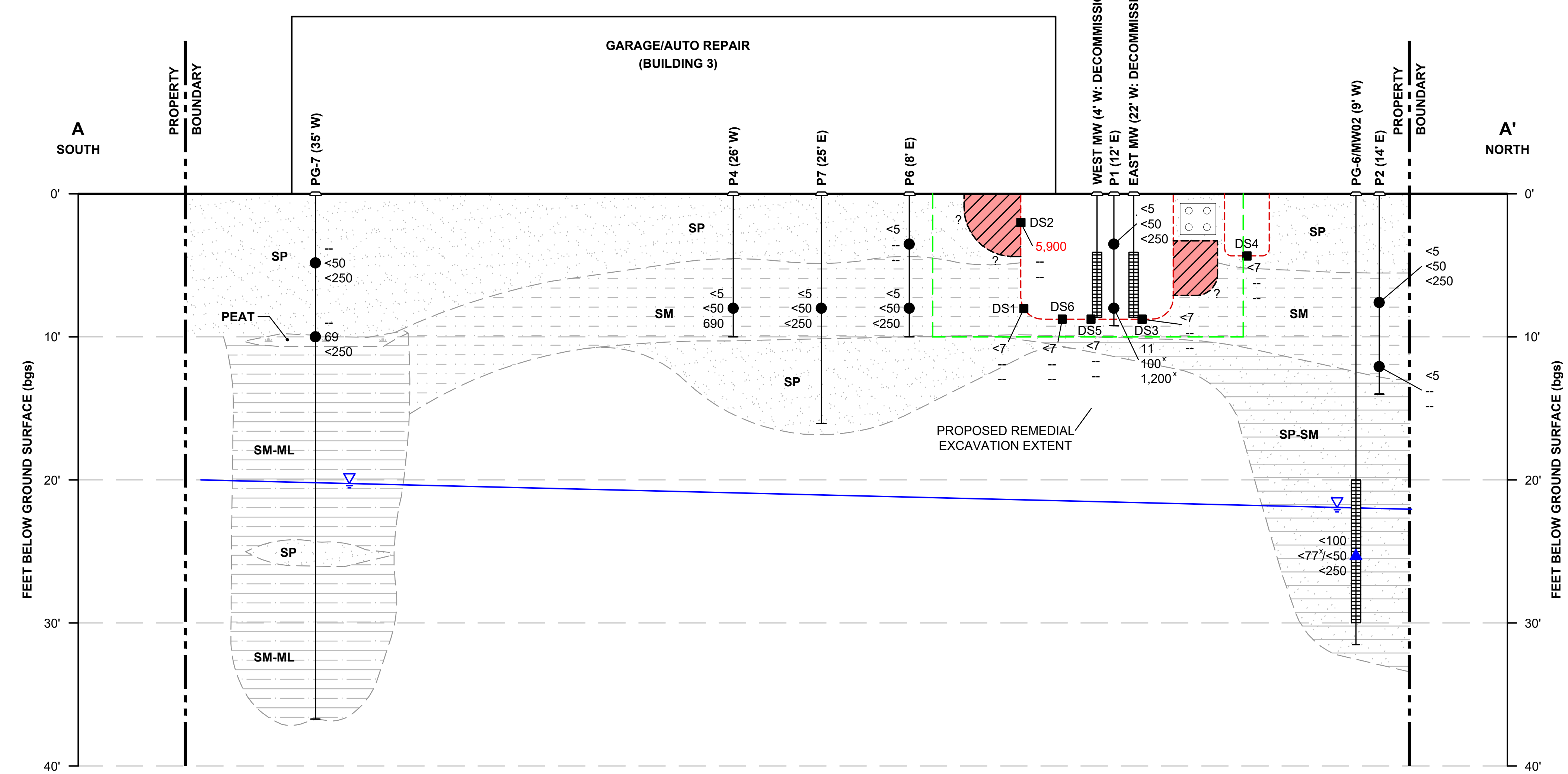
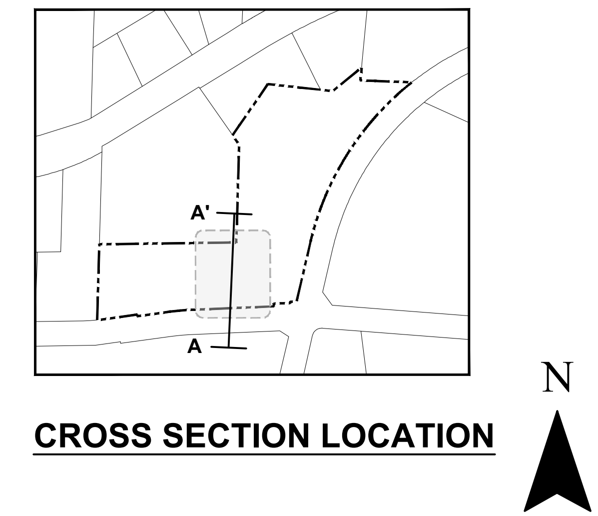
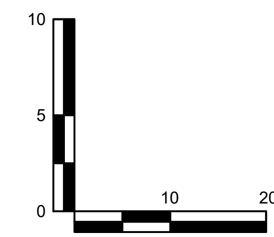
FIGURE 4
REMEDIAL EXCAVATION EXTENT
10/8/2021
P:\1410 FF REALTY IV LLC\1410-002 SLATER AVE PROPERTY\TECHNICAL\CAD\CAR\1410-002_2021-CAR_ELM.DWG





CROSS SECTION LOCATION



APPROXIMATE SCALE IN FEET

LEGEND

PG-6/MW02 (9' W) — MONITORING WELL

SCREENED INTERVAL

GROUNDWATER SAMPLE

GASOLINE-RANGE PETROLEUM HYDROCARBONS <100

DIESEL-RANGE PETROLEUM HYDROCARBONS 77

OIL-RANGE PETROLEUM HYDROCARBONS 250

P4 (26' W) — SOIL BORING

SOIL SAMPLE

5,900 — GASOLINE-RANGE PETROLEUM HYDROCARBONS

<50 — DIESEL-RANGE PETROLEUM HYDROCARBONS

<250 — OIL-RANGE PETROLEUM HYDROCARBONS

-- NOT ANALYZED

x SAMPLE CHROMATOGRAPHIC PATTERN DOES NOT RESEMBLE THE FUEL LABORATORY STANDARD

■ 1994 REMEDIAL EXCAVATION SOIL SAMPLE

1994 REMEDIAL EXCAVATION

UNDERGROUND UTILITIES

LEFT IN-PLACE PETROLEUM IMPACTS

SP POORLY GRADED SAND

SM SILTY SAND

SM-ML SILTY SAND AND SILT

SP-SM POORLY-GRADED SAND AND SILTY SAND

PEAT

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FIGURE 5
CROSS SECTION A - A'

10/8/2021

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10/8/2021

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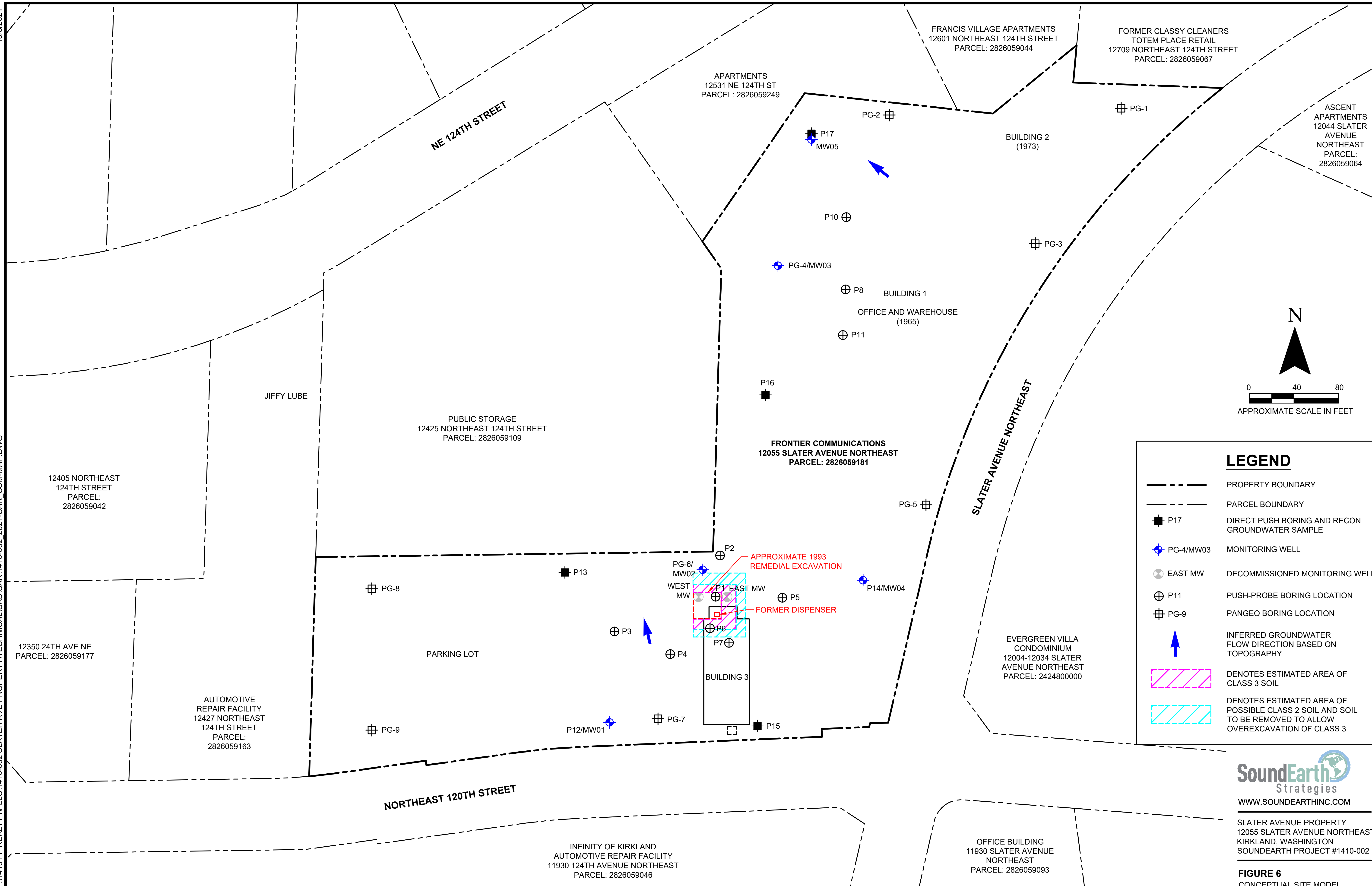
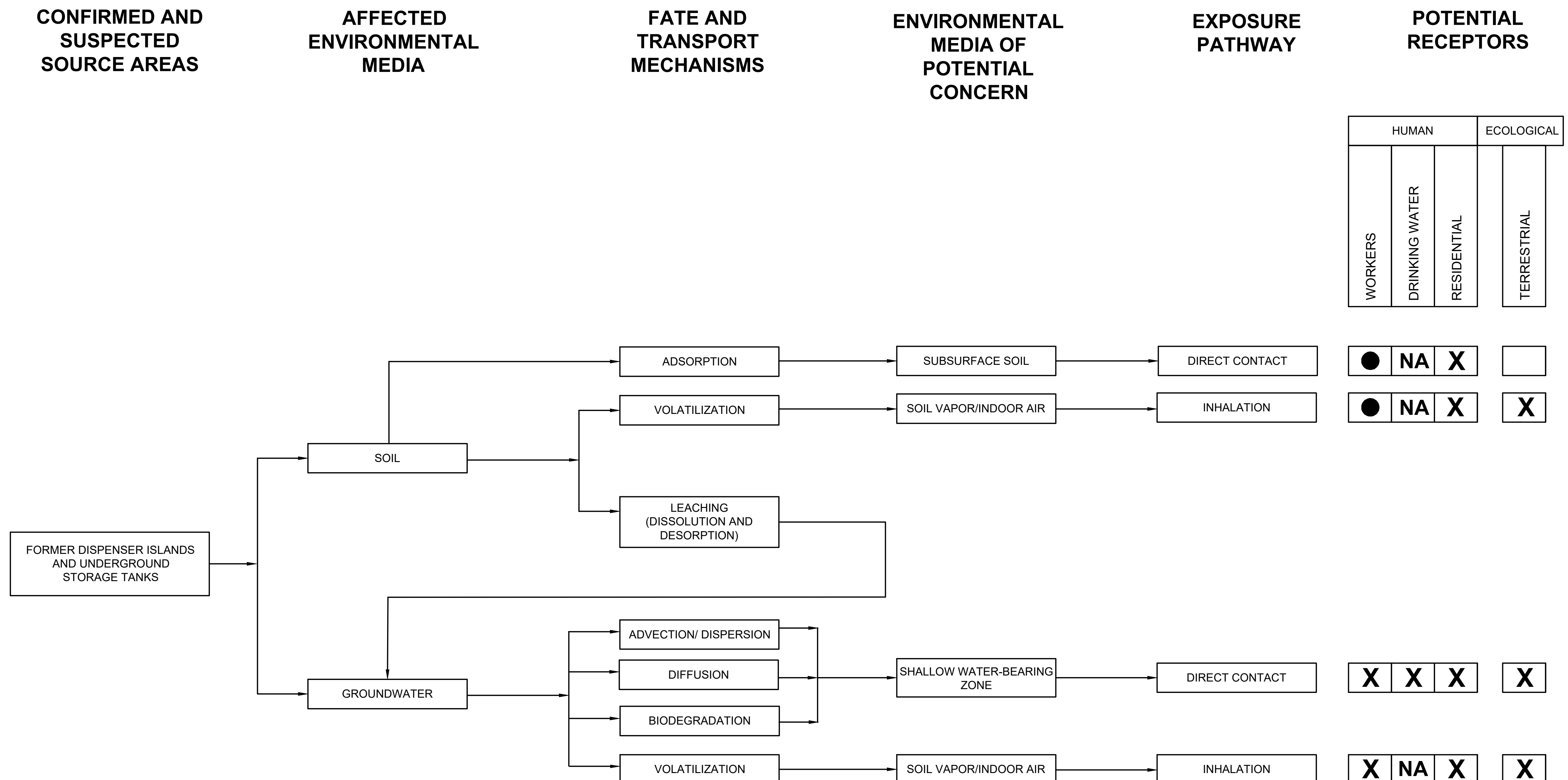


10/8/2021



LEGEND

●	EXPOSURE PATHWAY COMPLETE FOR POTENTIAL RECEPTOR
(blank box)	EXPOSURE PATHWAY COULD BE COMPLETE, BUT THE POTENTIAL RECEPTOR IS UNLIKELY
X	EXPOSURE PATHWAY INCOMPLETE
NA	NOT APPLICABLE
UST	UNDERGROUND STORAGE TANK

NOTE: DIRECT CONTACT INCLUDES DERMAL AND INGESTION

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FIGURE 7
CONCEPTUAL SITE MODEL
EXPOSURE ASSESSMENT

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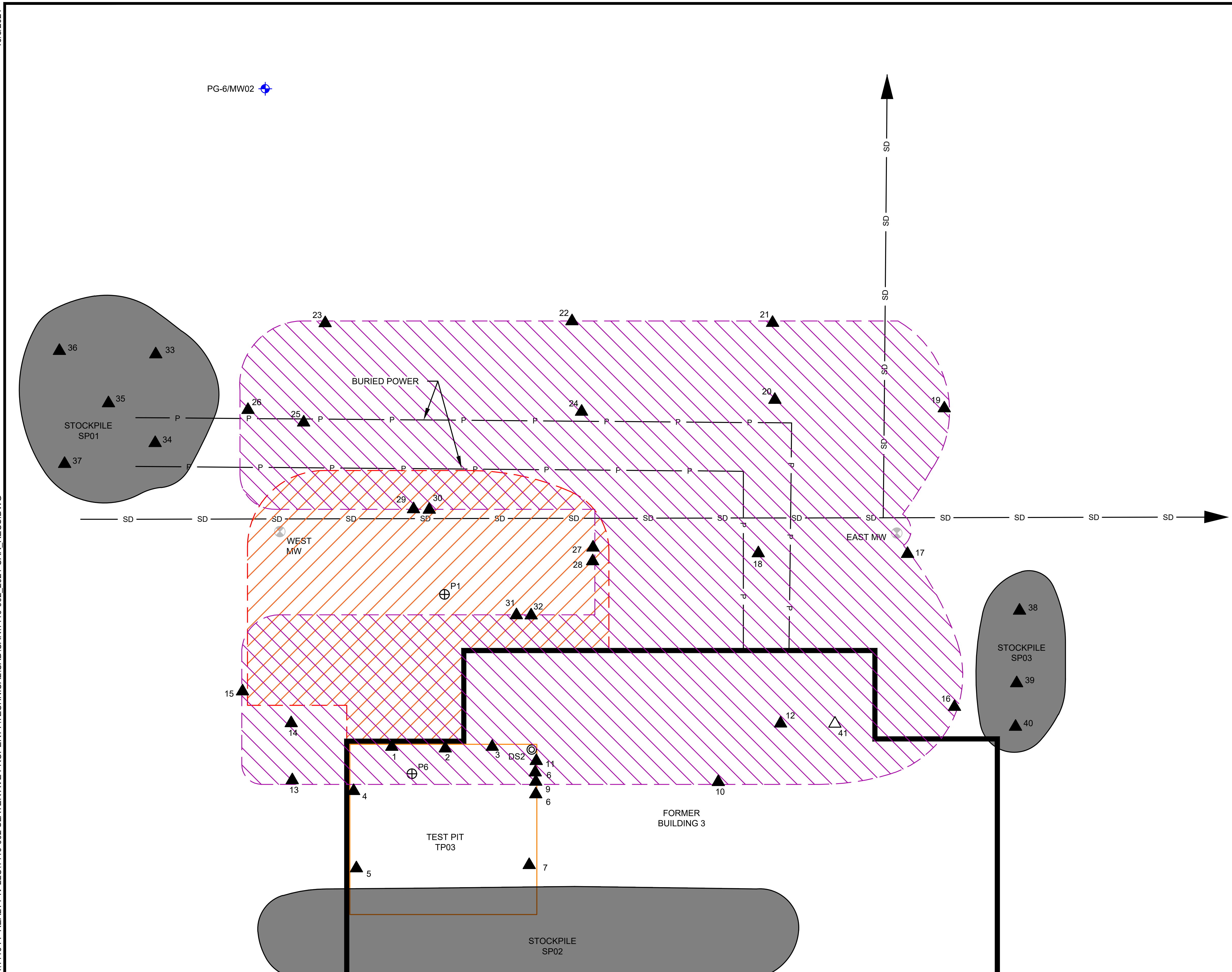
P:\1410 FF REALTY IV LLC\1410-002 SLATER AVE PROPERTY\TECHNICAL\CAD\CAR\1410-002_2021-CAR_RECS.DWG 10/8/2021



LEGEND

BUILDING OUTLINE
SEWER LINE
BURIED POWER LINE
APPROXIMATE 1993 REMEDIAL EXCAVATION
APPROXIMATE 2021 REMEDIAL EXCAVATION
TEST PIT TP03
EAST MW — DECOMMISSIONED MONITORING WELL
PG-6/MW02 — MONITORING WELL
DS2 — 1993 AGI EXCAVATION SAMPLE LOCATION (OVEREXCAVATED)
P11 — SOUNDEARTH BORING LOCATION
40 — SOUNDEARTH SOIL SAMPLE LOCATION
41 — SOUNDEARTH WATER SAMPLE LOCATION

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FIGURE 8

REMEDIAL EXCAVATION AND CONFIRMATION SOIL SAMPLE LOCATIONS

TABLES

Table 1
Soil Analytical Results for TPH and BTEX
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Excavation Area / Boring ID	Sample ID	Sampled By	Date Sampled	Location / Depth (feet bgs)	Analytical Results (milligrams per kilogram)							
					GRPH[1]	DRPH[2]	ORPH[2]	ORPH[2] with silica gel[3]	Benzene[4]	Toluene[4]	Ethylbenzene[4]	Total Xylenes[4]
1993 AGI 8,000-Gallon UST Excavation												
8,000-Gallon UST Excavation	S1	AGI	04/10/93	Bottom	<20	<50	<100	--	--	--	--	--
	S2			Sidewall	<20	<50	<100	--	--	--	--	--
	S3			Sidewall	<20	<50	<100	--	--	--	--	--
	S4			Stockpile	<20	<50	<100	--	--	--	--	--
1993 AGI 8,000-Gallon UST Excavation												
12,000-Gallon UST Excavation	S1	AGI	04/15/93	Bottom	<20	<50	86	--	--	--	--	--
	S2			Bottom	<20	<50	<100	--	--	--	--	--
	S3		04/16/93	Sidewall	<20	<50	<100	--	--	--	--	--
	S4		04/15/93	Sidewall	<20	<50	<100	--	--	--	--	--
	S5			Stockpile	<20	<50	<100	--	--	--	--	--
1993 AGI 8,000-Gallon UST Excavation												
500-Gallon UST Excavation	SS1	AGI	04/16/93	Bottom	<20	<50	<100	--	--	--	--	--
	SS2			Sidewall	<20	<50	<100	--	--	--	--	--
	SS3			Sidewall	<20	<50	<100	--	--	--	--	--
	SS4			Stockpile	<20	<50	<100	--	--	--	--	--
	SS5			Piping	<20	<50	<100	--	--	--	--	--
1993 AGI Gasoline Dispenser Excavation												
Gasoline Dispenser Excavation	DS1	AGI	04/27/93	Bottom	<7	--	--	--	--	--	--	--
	DS2		04/27/93	Building Alcove	**5,900**	--	--	--	--	--	--	--
	DS3		04/29/93	Bottom	<7	--	--	--	**<0.059**	<0.059	<0.059	<0.059
	DS4		04/29/93	Bottom	<7	--	--	--	**<0.059**	<0.059	<0.059	<0.059
	DS5		04/29/93	Bottom	<7	--	--	--	**<0.059**	<0.059	<0.059	<0.059
	DS6		04/30/93	Bottom	<7	--	--	--	**<0.059**	<0.059	<0.059	0.17
	DS7		04/30/93	Stockpile	**2,500**	--	--	--	**<0.059**	**13**	**6.6**	**72**
	DS8		05/02/93	Stockpile	<7	--	--	--	--	--	--	--
2018 SoundEarth Subsurface Investigation												
P1	P1-4	SoundEarth	02/21/18	4	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P1-8			8	11	100[x]	1,200[x]	--	<0.02	<0.02	0.034	0.16
P2	P2-8			8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P2-12			12	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
P3	P3-13			13	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P4	P4-8			8	<5	<50	690	--	<0.03	<0.05	<0.05	<0.2
P5	P5-8			8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P6	P6-4			4	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
	P6-8			8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P7	P7-8			8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P8	P8-8			8	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P8-13			13	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
P10	P10-8			8	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
PG-7	PG7-05		03/02/18	5	--	<50	<250	--	--	--	--	--
	PG7-10			10	--	69	<250	--	--	--	--	--
PG-4	PG4-05			5	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
	PG4-10			10	<5	--	--	--	<0.02	<0.02	<0.02	<0.06
MTCA Cleanup Level for Soil[5]					**30**	**2,000**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**

Table 1
Soil Analytical Results for TPH and BTEX
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Excavation Area / Boring ID	Sample ID	Sampled By	Date Sampled	Location / Depth (feet bgs)	Analytical Results (milligrams per kilogram)							
					GRPH(1)	DRPH(2)	ORPH(2)	ORPH(2) with silica gel(3)	Benzene(4)	Toluene(4)	Ethylbenzene(4)	Total Xylenes(4)
2019-2020 SoundEarth Subsurface Investigation												
P12	P12-05	SoundEarth	12/19/19	5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P12-15		12/19/19	15	<5	<50	1,200x	480x	<0.02	<0.02	<0.02	<0.06
	P12-25		12/19/19	25	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P13	P13-05		12/19/19	5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P13-15		12/19/19	15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P13-25		12/19/19	25	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P14	P14-05		12/19/19	5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P14-15		12/19/19	15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P14-23		12/19/19	23	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P15	P15-05		12/19/19	5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P15-15		12/19/19	15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P15-25		12/19/19	25	<5	<50	470x	410x	<0.02	<0.02	<0.02	<0.06
P16	P16-05		12/20/19	5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P16-15		12/20/19	15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P16-25		12/20/19	25	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
P17	P17-05		12/20/19	5	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P17-15		12/20/19	15	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
	P17-25		12/20/19	25	<5	<50	<250	--	<0.02	<0.02	<0.02	<0.06
MTCA Cleanup Level for Soil(5)					**30**	**2,000**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**

NOTES:
Red denotes concentration exceeds MTCA cleanup level for soil.
Bold denotes laboratory reporting limit exceeds the applicable MTCA cleanup level.
Sample analyses conducted by Analytical Technologies, Inc., of Renton, Washington or Friedman & Bruya, Inc., of Seattle, Washington.
(1)Analyzed by Method NWTPH-Gx.
(2)Analyzed by Method NWTPH-Dx.
(3)Sample extracts passed through a silica gel column prior to analysis.
(4)Analyzed by EPA Method 8021B.
(5)MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.
Laboratory Note:
xThe sample chromatographic pattern does not resemble the fuel standard used for quantitation.

-- = not analyzed/not applicable
< = not detected at a concentration exceeding the laboratory reporting limit
AGI = Applied Geotechnology, Inc.
bgs = below ground surface
BTEX = benzene, toluene, ethylbenzene, and total xylenes
DRPH = diesel-range petroleum hydrocarbons
EPA = US Environmental Protection Agency
GRPH = gasoline-range petroleum hydrocarbons
MTCA = Washington State Model Toxics Control Act
N/A = not applicable
NWTPH = Northwest Total Petroleum Hydrocarbon
ORPH = oil-range petroleum hydrocarbons
SoundEarth = SoundEarth Strategies, Inc.
TPH = total petroleum hydrocarbons
UST = underground storage tank
WAC = Washington Administrative Code

Table 2
Soil Analytical Results for Chlorinated VOCs
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Boring ID	Sample ID	Sampled By	Date Sampled	Depth (feet bgs)	Analytical Results[1] (milligrams per kilogram)					
					Tetrachloroethene	Trichloroethene	Cis-1,2-Dichloroethene	Trans-1,2-Dichloroethene	1,1-Dichloroethene	Vinyl Chloride
P4	P4-8	SoundEarth	02/21/18	8	<0.025	<0.02	<0.05	<0.05	<0.05	<0.05
MTCA Cleanup Level for Soil					**0.05**[2]	**0.03**[2]	**160**[3]	**1,600**[3]	**4,000**[3]	**0.67**[4]

NOTES:

Sample analyses conducted by Friedman & Bruya, Inc., of Seattle, Washington.

[1]Samples analyzed by EPA Method 8260C.

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Noncancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

[4]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Cancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

< = not detected at a concentration exceeding the laboratory reporting limit
bgs = below ground surface
CLARC = Cleanup Levels and Risk Calculations
EPA = US Environmental Protection Agency
MTCA = Washington State Model Toxics Control Act
SoundEarth = SoundEarth Strategies, Inc.
VOC = volatile organic compound
WAC = Washington Administrative Code

Table 3
Soil Analytical Results for MTCA 5 Metals
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Boring ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results[1] (milligrams per kilogram)				
				Arsenic	Cadmium	Chromium	Lead	Mercury
P4	P4-8	02/21/18	8	1.73	<1	8.98	2.61	<1
MTCA Cleanup Level for Soil				**20**[2]	**2**[2]	**2,000**[2]	**250**[2]	**2**[2]

NOTES:

Sample analyses conducted by Friedman & Bruya, Inc., of Seattle, Washington.

[1]Samples analyzed by EPA Method 6020A.

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

< = not detected at a concentration exceeding the laboratory reporting limit

bgs = below ground surface

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

WAC = Washington Administrative Code

Table 4
Soil Analytical Results for PAHs
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Boring ID	Sample ID	Date Sampled	Analytical Results (milligrams per kilogram) Naphthalene	1-Methyl-naphthalene	2-Methyl-naphthalene	Acenaphthene	Acenaphthylene	Fluorene	Phenanthrene	Anthracene	Fluoranthene	Pyrene	Benzo(g,h,i)-perylene	cPAHs Toxicity Equivalency[1] (milligrams per kilogram) Benzo(a)-anthracene TEF: 0.1	Chrysene TEF: 0.01	Benzo(a)pyrene TEF: 1	Benzo(b)-fluoranthene TEF: 0.1	Benzo(k)-fluoranthene TEF: 0.1	Indeno(1,2,3-cd)-pyrene TEF: 0.1	Dibenz(a,h)-anthracene TEF: 0.1	TEQ[1] (milligrams per kilogram)
P4	P4-8	02/21/18	<0.01	1.6	0.50	0.017	<0.01	<0.01	0.010	<0.01	<0.01	<0.01	<0.1	< 0.01	< 0.01	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	0.071
MTCA Cleanup Level for Soil			**5**[2]	**34.5**[3]	**320**[4]	**4,800**[4]	**NE**	**3,200**[4]	**NE**	**24,000**[4]	**3,200**[4]	**2,400**[4]	**NE**	**NE**	**NE**	**0.1**[2]	**NE**	**NE**	**NE**	**NE**	**0.1**[2]

NOTES:

Sample analyses conducted by Friedman & Bruya, Inc., of Seattle, Washington.

Samples analyzed by GC/MS-SIM or EPA Method 8270D.

[1]Analytical result for each individual cPAH is multiplied by the TEF and all seven cPAH values are added. When analytical results are reported as less than the LRL, one-half of the LRL is multiplied by the TEF to calculate the TEQ.

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Cancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

[4]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Non cancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

< = not detected at a concentration exceeding the laboratory reporting limit
CLARC = Cleanup Levels and Risk Calculations
cPAH = carcinogenic polycyclic aromatic hydrocarbon
EPA = US Environmental Protection Agency
LRL = laboratory reporting limit
MTCA = Washington State Model Toxics Control Act

NE = not established
PAH = polycyclic aromatic hydrocarbon
TEF = toxicity equivalency factor
TEQ = toxicity equivalent
WAC = Washington Administrative Code

Table 5
Soil Analytical Results for PCBs
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Sample ID	Date Sampled	Depth (Feet bgs)	Polychlorinated Biphenyls[1] (milligrams per kilogram)									
			Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260	Aroclor 1262	Aroclor 1268	Totals PCB[2]
P4-8	02/21/18	8	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
MTCA Method A Cleanup Level for Soil[3]			**1**									

NOTES:

Sample analyses conducted by Friedman & Bruya, Inc., of Seattle, Washington.

[1]Analyzed by EPA Method 8082A.

[2] Total PCBs are calculated by summing the detected concentrations of PCB Aroclor.

[3]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Soil Cleanup Levels for Unrestricted Land Uses.

< = not detected at a concentration exceeding the laboratory reporting limit

bgs = below ground surface

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

PCB = polychlorinated biphenyl

WAC = Washington Administrative Code

Table 6
Groundwater Analytical Results for TPH and BTEX
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Excavation Area / Well ID	Sample ID	Sampled By	Date Sampled	Analytical Results (micrograms per liter)								
				GRPH(1)	DRPH(2)	DRPH(2) with silica gel(3)	ORPH(2)	ORPH(2) with silica gel(3)	Benzene(4)	Toluene(4)	Ethylbenzene(4)	Total Xylenes(4)
1993 AGI Gasoline Dispenser Excavation												
Gasoline Dispenser Excavation	DS9(5)	AGI	05/05/93	2,700	--	--	--	--	31	41	<2.5	180
SoundEarth 2018 Subsurface Investigation												
MW02	MW02-20180309	SoundEarth	03/09/18	<100	<50	--	<250	--	<1	<1	<1	<3
MW03	MW03-20180309			<100	<50	--	<250	--	<1	<1	<1	<3
SoundEarth 2019 Reconnisance Groundwater Samples												
P13	P13-20191219	SoundEarth	12/19/19	<100	58[x]	<50	<250	<250	<1	<1	<1	<3
P15	P15-20191219			<100	69[x]	<50	590	420	<1	<1	<1	<3
P16	P16-20191220		12/20/19	<100	65[x]	<50	320	<250	<1	<1	<1	<3
P17	P17-20191220			<100	750[x]	100[x]	1,500	1,100	<1	<1	<1	<3
SoundEarth 2019 Groundwater Sampling												
MW01	MW01-20191226	SoundEarth	12/26/19	<100	<50	--	<250	--	<1	<1	<1	<3
MW02	MW02-20190612		06/12/19	<100	77[x]	<50	<250	<250	<1	<1	<1	<3
	MW02-20191226		12/26/19	<100	<50	--	<250	--	<1	<1	<1	<3
	MW99-20191226 (DUP)		12/26/19	<100	<50	--	<250	--	<1	<1	<1	<3
MW03	MW03-20191226		12/26/19	<100	<50	--	<250	--	<1	<1	<1	<3
MW04	MW04-20191226		12/26/19	<100	100[x]	<50	<250	<250	<1	<1	<1	<3
SoundEarth 2020 Groundwater Sampling												
MW01	MW01-20200325	SoundEarth	03/25/20	<100	<50	--	<250	--	<1	<1	<1	<3
MW02	MW02-20200325		03/25/20	<100	<50	--	<250	--	<1	<1	<1	<3
	MW99-20200325 (DUP)		03/25/20	<100	<60	--	<300	--	<1	<1	<1	<3
MW03	MW03-20200325		03/25/20	<100	<50	--	<250	--	<1	<1	<1	<3
MW04	MW04-20200325		03/25/20	<100	<50	--	<250	--	<1	<1	<1	<3
MW05 (P17 replacement)	MW05-20200115		01/15/20	<100	<50	--	<250	--	<1	<1	<1	<3
	MW05-20200325		03/25/20	<100	160[x]	<50	490[x]	<250	<1	<1	<1	<3
MTCA Cleanup Level for Groundwater(6)				**800**	**500**		**500**		**5**	**1,000**	**700**	**1,000**

NOTES:
Red denotes concentration exceeds MTCA cleanup level for groundwater.
Sample analysis conducted by Analytical Technologies, Inc., of Renton, Washington or Friedman & Bruya, Inc., of Seattle, Washington.
(1)Analyzed by Method NWTPH-Gx.
(2)Analyzed by Method NWTPH-Dx.
(3)Sample extracts passed through a silica gel column prior to analysis.
(4)Analyzed by EPA Method 8021B.
(5)Shallow perched water sampled from open remedial excavation.
(6)MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Groundwater, revised November 2007.
Laboratory Note:
[x]The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

-- = not analyzed/not applicable
< = not detected at a concentration exceeding the laboratory reporting limit
BTEX = benzene, toluene, ethylbenzene, and total xylenes
DRPH = diesel-range petroleum hydrocarbons
EPA = US Environmental Protection Agency
GRPH = gasoline-range petroleum hydrocarbons
MTCA = Washington State Model Toxics Control Act
NWTPH = Northwest Total Petroleum Hydrocarbon
ORPH = oil-range petroleum hydrocarbons
SoundEarth = SoundEarth Strategies, Inc.

TPH = total petroleum hydrocarbons
WAC = Washington Administrative Code

Table 7
Remedial Excavation:
Confirmation Soil Analytical Results for TPH and BTEX
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Test Pit/ Excavation/ Stockpile ID	Figure ID	Sample ID	Date Sampled	Depth (feet bgs)	**Analytical Results** (milligrams per kilogram)						
					GRPH[1]	DRPH[2]	ORPH[2]	Benzene[3]	Toluene[3]	Ethylbenzene[3]	Total Xylenes[3]
Test Pit											
TP03	1	TP03-NSW01-07	08/25/21	7	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
TP03	2	TP03-NSW02-07	08/25/21	7	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
TP03	3	TP03-NSW03-07	08/25/21	7	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
TP03	4	TP03-WSW01-07	08/25/21	7	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
TP03	5	TP03-WSW02-07	08/25/21	7	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
TP03	6	TP03-ESW01-07	08/25/21	7	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
TP03	7	TP03-ESW02-07	08/25/21	7	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
Remedial Excavation											
EX01	8	Ex01-SSW02-05	08/30/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	9	Ex01-SSW02-02	08/30/21	2	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	10	Ex01-SSW03-05	08/30/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	11	Ex01-BTM02-09	08/30/21	9	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	12	Ex01-BTM03-09	08/30/21	9	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	13	Ex01-SSW01-05	08/30/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	14	Ex01-BTM01-10	08/30/21	10	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	15	Ex01-WSW01-05	08/30/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	16	EX01-ESW01-05	08/31/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	17	EX01-ESW02-05	08/31/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	18	EX01-BTM04-09	08/31/21	9	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	19	EX01-ESW03-05	08/31/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	20	EX01-BTM05-09	08/31/21	9	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	21	EX01-NSW01-05	08/31/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	22	EX01-NSW02-05	08/31/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	23	EX01-NSW03-05	08/31/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	24	EX01-BTM06-09	08/31/21	9	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	25	EX01-BTM07-09	08/31/21	9	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	26	EX01-WSW02-05	08/31/21	5	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	27	EX01-IWSW01-04	08/31/21	4	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	28	EX01-IWSW01-08	08/31/21	8	<5	88x	510x	<0.02	<0.02	<0.02	<0.06
EX01	29	EX01-ISSW01-04	08/31/21	4	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	30	EX01-ISSW01-08	08/31/21	8	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	31	EX01-INSW01-04	08/31/21	4	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
EX01	32	EX01-INSW01-08	08/31/21	8	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
Stockpile											
SP01	33	SP01-01	08/31/21	--	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
SP01	34	SP01-02	08/31/21	--	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
SP01	35	SP01-03	08/31/21	--	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
SP01	36	SP01-04	08/31/21	--	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
SP01	37	SP01-05	08/31/21	--	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
SP03	38	SP03-01	08/31/21	--	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
SP03	39	SP03-02	08/31/21	--	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
SP03	40	SP03-03	08/31/21	--	<5	<50	<250	<0.02	<0.02	<0.02	<0.06
MTCA Cleanup Level for Soil[4]					**30**	**2,000**	**2,000**	**0.03**	**7**	**6**	**9**

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.

Sample analysis conducted by Friedman & Bruya, Inc. of Seattle, Washington.

[1]Analyzed by Method NWTPH-Gx.

[2]Analyzed by Method NWTPH-Dx.

[3]Analyzed by EPA Method 8021B.

[4]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

Laboratory Notes:

x=The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

bgs = below ground surface

BTEX = benzene, toluene, ethylbenzene, and total xylenes

DRPH = diesel-range petroleum hydrocarbons

EPA = US Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MTCA = Washington State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbon

ORPH = oil-range petroleum hydrocarbons

TPH = total petroleum hydrocarbons

Table 8
Remedial Excavation:
Confirmation Soil Analytical Results for RCRA 8 Metals
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Test Pit/ Excavation ID	Figure ID	Sample ID	Date Sampled	Depth (feet bgs)	Analytical Results[1] (milligrams per kilogram)							
					Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Test Pit												
TP03	1	TP03-NSW01-07	08/25/21	7	5.24	140	<1	20.9	5.44	<1	<1	<1
TP03	2	TP03-NSW02-07	08/25/21	7	6.27	198	<1	20.0	5.68	<1	<1	<1
TP03	3	TP03-NSW03-07	08/25/21	7	5.52	141	<1	19.3	5.23	<1	<1	<1
TP03	4	TP03-WSW01-07	08/25/21	7	5.63	113	<1	32.6	5.28	<1	<1	<1
TP03	5	TP03-WSW02-07	08/25/21	7	3.80	71.1	<1	44.4	4.80	<1	<1	<1
TP03	6	TP03-ESW01-07	08/25/21	7	6.11	118	<1	18.3	3.62	<1	<1	<1
TP03	7	TP03-ESW02-07	08/25/21	7	4.23	114	<1	27.0	4.58	<1	<1	<1
MTCA Cleanup Level for Soil					**20**[2]	**16,000**[3]	**2**[2]	**2,000**[2]	**250**[2]	**2**[2]	**400**[3]	**400**[3]

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

[1]Samples analyzed by EPA Method 6020B.

[2]MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

[3]MTCA Cleanup Regulation, Chapter 173-340 of WAC, CLARC, Soil, Method B, Noncancer, Direct Contact, CLARC Website <https://fortress.wa.gov/ecy/clarc/CLARCHome.aspx>.

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

bgs = below ground surface

CLARC = Cleanup Levels and Risk Calculations

EPA = US Environmental Protection Agency

MTCA = Washington State Model Toxics Control Act

RCRA = Resource Conservation and Recovery Act

WAC = Washington Administrative Code

Table 9
Remedial Excavation:
Confirmation Soil Analytical Results for cPAHs
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Test Pit / Excavation ID	Figure ID	Sample ID	Date Sampled	cPAHs Toxicity Equivalency[1] (milligrams per kilogram)							TEQ[1] (milligrams per kilogram)
				Benzo(a)-anthracene TEF: 0.1	Chrysene TEF: 0.01	Benzo(a)pyrene TEF: 1	Benzo(b)-fluoranthene TEF: 0.1	Benzo(k)-fluoranthene TEF: 0.1	Indeno(1,2,3-cd)-pyrene TEF: 0.1	Dibenz(a,h)-anthracene TEF: 0.1	
Test Pit											
TP03	1	TP03-NSW01-07	08/25/21	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
TP03	2	TP03-NSW02-07	08/25/21	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
TP03	3	TP03-NSW03-07	08/25/21	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
TP03	4	TP03-WSW01-07	08/25/21	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
TP03	5	TP03-WSW02-07	08/25/21	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
TP03	6	TP03-ESW01-07	08/25/21	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
TP03	7	TP03-ESW02-07	08/25/21	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	0.008
MTCA Cleanup Level for Soil				**NE**	**NE**	**0.1**[2]	**NE**	**NE**	**NE**	**NE**	**0.1**[2]

NOTES:

Red denotes concentration exceeds MTCA cleanup level for soil.

Sample analyses conducted by Friedman & Bruya, Inc. of Seattle, Washington.

Samples analyzed by GC/MS-SIM or EPA Method 8270E.

[1] Analytical result for each individual cPAH is multiplied by the TEF and all seven cPAH values are added. When analytical results are reported as less than the LRL, one-half of the LRL is multiplied by the TEF to calculate the TEQ.

[2] MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 740-1 Method A Cleanup Levels for Soil, Unrestricted Land Uses, revised November 2007.

MTCA = Washington State Model Toxics Control Act

NE = not established

cPAH = carcinogenic polycyclic aromatic hydrocarbon

TEF = toxicity equivalency factor

TEQ = toxicity equivalent

WAC = Washington Administrative Code

Table 10
Remedial Excavation:
Groundwater Analytical Results for TPH and BTEX
Slater Avenue Property
12055 Slater Avenue Northeast
Kirkland, Washington

Excavation ID	Figure ID	Sample ID	Date Sampled	Analytical Results (micrograms per liter)						
				GRPH(1)	DRPH(2)	ORPH(2)	Benzene(3)	Toluene(3)	Ethylbenzene(3)	Total Xylenes(3)
EX01	41	EX01-20210831	08/31/21	<100	<50	<250	<1	<1	<1	<3
MTCA Cleanup Level for Groundwater(4)				**800**	**500**	**500**	**5**	**1,000**	**700**	**1,000**

NOTES:

Red denotes concentration exceeds MTCA cleanup level for groundwater.

Sample analyses conducted by Friedmand & Bruya, Inc. of Seattle, Washington.

(1)Analyzed by Method NWTPH-Gx.

(2)Analyzed by Method NWTPH-Dx.

(3)Analyzed by EPA Method 8021B.

(4)MTCA Cleanup Regulation, Chapter 173-340-900 of WAC, Table 720-1 Method A Cleanup Levels for Groundwater, revised November 2007.

-- = not analyzed/not applicable

< = not detected at a concentration exceeding the laboratory reporting limit

BTEX = benzene, toluene, ethylbenzene, and total xylenes

DRPH = diesel-range petroleum hydrocarbons

EPA = US Environmental Protection Agency

GRPH = gasoline-range petroleum hydrocarbons

MTCA = Washington State Model Toxics Control Act

NWTPH = Northwest Total Petroleum Hydrocarbon

ORPH = oil-range petroleum hydrocarbons

TPH = total petroleum hydrocarbons

APPENDIX A
PERMITTING RECORDS

CITY OF KIRKLAND
Planning and Building Department
123 5th Avenue, Kirkland, WA 98033
www.kirklandwa.gov ~ 425.587.3600

MITIGATED DETERMINATION OF NON-SIGNIFICANCE

Case No.: SEP20-00633 **DATE ISSUED:** JULY 21, 2021

Project Name: SLATER MIXED USE PROJECT

Project Location: 12045 SLATER AVENUE NE

Project Description: Request to construct a three-building, 7 story mixed-use project with residential apartments (486 units) and commercial space (approximately 18,650 square feet). The proposal would have commercial and residential uses in Building 1 and only residential uses in Buildings 2 and 3. Parking is proposed within structured parking below the buildings. Vehicular access to the property is proposed from both NE 120th Street and Slater Avenue NE.

Proponent: Shon Finch of FRH Realty LLC

Project Planner: Tony Leavitt, Senior Planner

Lead agency is the City of Kirkland

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21.030 (2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public upon request.

Notice is hereby given that on July 21, 2021 the City of Kirkland issued a Determination of Nonsignificance (DNS) in accordance with the State Environmental Policy Act (SEPA) and Chapter 197-11 of the Washington Administrative Code.

SEPA Comments: Comments must be submitted by 5:00 PM on August 4, 2021 to the City of Kirkland, Planning & Building Department, 123 Fifth Avenue, Kirkland, WA 98033. Contact Tony Leavitt, Senior Planner for further information at 425.587.3253.

The proposal has been changed to include the following measures to mitigate impacts:

1. As part of the building permit, the applicant shall submit plans to modify the curb lane of the northbound leg of the intersection of Slater Avenue NE/NE 124th Street from a shared through-right lane channelization to an exclusive right-turn lane. In addition to modifying the lane assignment, the applicant shall make improvements and modifications to the traffic signal and other right-of-way improvements as required by the City to accommodate the new lane assignment.
2. As part of the building permit, the applicant shall submit plans to improve the east leg of the intersection of Slater Ave NE/NE 120th Street. The following improvements must be completed prior to approval of the final occupancy permit:
   - Widen the east leg of the intersection to provide a westbound 200-foot left-turn lane (11 feet wide), 200-foot shared through and right turn lane (11 feet wide), and five-foot bike lane.
   - From the 200-foot left-turn lane, provide a 120-foot taper to transition the lane to the existing lane width to the east.
   - Provide a 5-foot bike lane on both sides of the street from the intersection to connect to the existing bike lanes further to the east.
   - Construct a vertical curb to meet the City of Kirkland standard on the north side along the entire road widening improvement.

- Provide lane markings in accordance to the City of Kirkland standards.
- Relocate utilities as necessary to complete the improvements.

3. Prior to issuance of the building permit, the applicant shall post a bond for two driveway/queuing operational studies, the construction of c-curb and signage to preclude left-turns at the driveway off Slater Avenue NE. The applicant shall submit a driveway queuing and safety analysis as described in the Project Driveway Level of Service section of the Public Works review memorandum. If the c-curb is required as determined by the city transportation engineer, then the property owner shall install c-curb as defined by the city transportation engineer within 10 weeks of the city transportation engineer's decision.

Responsible official:

Adam Weinstein July 16, 2021
Adam Weinstein, Planning & Building Director Date

You may appeal this determination to the Planning & Building Department at City of Kirkland, 123 Fifth Avenue, Kirkland, WA 98033 no later than **5:00 PM on August 4, 2021** by a Written Notice of Appeal. You should be prepared to make specific factual objections and reference case number SEP20-00633. Contact Tony Leavitt, Senior Planner in the Planning & Building Department at 425.587.3253 to ask about the procedures for SEPA appeals. See also KMC 24.02.230 Administrative Appeals.

Publish in The Seattle Times on: July 21, 2021

Distribute this notice with a copy of the Environmental Checklist to:

GENERAL NOTICING

- Department of Ecology - Environmental Review
- Muckleshoot Tribal Council - Environmental Division, Tribal Archeologist
- Muckleshoot Tribal Council - Environmental Division, Fisheries Division Habitat
- Cascade Water Alliance – Director of Planning
- Lake Washington School District No. 414: Budget Manager and Director of Support Services
- Washington State Dept. of Archaeology & Historic Preservation
- King County Dept. of Transportation - Employer Transportation Representative
- Seattle & King County Public Health - SEPA Coordinator

AGENCIES WITH JURISDICTION, AFFECTED AGENCIES, AND/OR INTERESTED PARTIES

- Parties of Record
- Interested Citizens

cc: Applicant
Planning Department File

Distributed by: KSBgs July 21, 2021
(Karin Bayes, Office Specialist) Date

CITY OF KIRKLAND
Planning & Building Department
123 5th Avenue, Kirkland, WA 98033
425.587.3600 ~ www.kirklandwa.gov

MEMORANDUM

To:	Adam Weinstein, AICP, SEPA Responsible Official
From:	Tony Leavitt, AICP, Senior Planner
Date:	July 13, 2021
File:	SEP20-00633
Subject:	STATE ENVIRONMENTAL POLICY ACT (SEPA) DETERMINATION SLATER MIXED USE PROJECT

GENERAL

The subject property is located at 12045 Slater Avenue NE (see Enclosure 1). The request is for approval to construct a three-building, 7 story mixed-use project with residential apartments (486 units) and commercial space (approximately 18,650 square feet). The proposal would have commercial and residential uses in Building 1 and only residential uses in Buildings 2 and 3. Parking is proposed within structured parking below the buildings. Vehicular access to the property is proposed from both NE 120th Street and Slater Avenue NE.

ANALYSIS

The SEPA "threshold determination" is the formal decision as to whether the proposal is likely to cause a significant adverse environmental impact for which mitigation cannot be identified. If it is determined that a proposal may have a significant adverse impact that cannot be mitigated, an Environmental Impact Statement (EIS) would be required.

Many environmental impacts are mitigated by City codes and development regulations. For example, the Kirkland Zoning Code has regulations that protect sensitive areas, limit noise, provide setbacks, establish height limits, etc. Where City regulations have been adopted to address an environmental impact, it is presumed that such regulations are adequate to achieve sufficient mitigation [WAC 197-11-660(1)(e) and (g)]. Therefore, when requiring project mitigation based on adverse environmental impacts, the City would first consider whether a regulation has been adopted for the purpose of mitigating the environmental impact in question.

I have had an opportunity to visit the subject property and review the following documents:

- Environmental Checklist dated October 21, 2020 (see Enclosure 2)
- Transportation Impact Analysis prepared by the TENW dated July 8, 2021 (see Enclosure 3)
- Transportation Impact Analysis Review Memorandum prepared by the City's Transportation Engineer dated July 12, 2021 (See Enclosure 4)

It will be necessary to further analyze certain aspects of the proposal to determine if the project complies with all the applicable City codes and policies. That analysis is most appropriately addressed with the Design Review Board review and building permits for the project. Mitigation may be required as part of a Determination of Nonsignificance issued by the City (lead agency) where the proposal results in significant adverse environmental impacts which are not sufficiently addressed by adopted City codes [WAC 197-11-350(3)].

Below is an analysis of key environmental issues identified by staff or brought up in the public comment submitted for the project. They are all related to transportation.

Traffic Concurrency
The proposed development project passed traffic concurrency on September 28, 2020 (see Enclosure 5).

Traffic Impact Analysis Review
The scope of analysis was approved by the City Transportation Engineer and the traffic report was completed in accordance with the City of Kirkland Traffic Impact Analysis Guidelines (TIAG). The traffic impact analysis report met the City of Kirkland Public Works general transportation scope of analysis.

The City's TIAG requires a level of service (LOS) analysis using the Highway Capacity Manual Operational Method for off-site intersections that have a proportionate share equal or greater than 1% and intersections that are adjacent to the project site. Based on the proportionate share calculations for the full build-out of the proposed project, twelve intersections will be impacted by more than 1%.

The City requires developers to mitigate traffic impacts when one of the following two warranted conditions is met:

1. An intersection level of service is at E and the project has a proportional share of 15% impact or more at the intersection.
2. An intersection level of service is at F and the project has a proportional share of 5% impact or more at the intersection.

It was concluded that five of the twelve intersections analyzed (see Enclosure 4, page 5) are calculated to operate at LOS E and F either in the AM peak hour, PM peak hour or both hours. Three of the five intersections are impacted by more than 5 percent proportional share, however only two of them meet the mitigation thresholds. Those two intersections are Slater Avenue NE/ NE 124th Street and Slater Avenue/ NE 120th Street.

The intersection of Slater Avenue NE/NE 124th Street is fully built-out and there are no physical improvements that can be done to the intersection to improve the vehicle level of service. To mitigate the impacts of the proposed project, the applicant is proposing the installation of a right turn only lane from northbound Slater Avenue NE to NE 124th Street. The turn lane installation will improve the operation of the intersection and reduce intersection vehicle delay. The exclusive right turn lane installation will help to mitigate the impacts of the project and allow the intersection to operate more effectively than the pre-project condition. In addition to modifying the lane assignment, the applicant will make improvements and modifications to the traffic signal and other right-of-way improvements as required by the City to accommodate the new lane assignment.

Additionally, Public Works Staff determined that if the length of the westbound left-turn and shared through and right turn lanes were to increase by 200 feet, it would relieve the bottle neck and provide more capacity for vehicle to flow through the intersection. The applicant has agreed to improve the east leg of the intersection of Slater Ave NE/NE 120th Street.

Finally, Public Works Staff has determined that when the project is completed there could be a potential impact to traffic flow in the northbound direction on Slater Avenue NE from vehicles tuning left into the project. Once the project is completed, the applicant will need to complete a driveway analysis to determine if a c-curb should be installed to restrict left hand turns from northbound Slater Avenue NE into the project. A bond will be required prior to issuance of the building permit to ensure that this analysis is completed.

CONCLUSION

Based on my review of all available information and adopted policies of the City, I am recommending issuance of a Mitigated Determination of Nonsignificance (MDNS) with the following transportation mitigating measures.

Transportation Mitigation

1. As part of the building permit, the applicant shall submit plans to:

   A. Modify the curb lane of the northbound leg of the intersection of Slater Avenue NE/NE 124th Street from a shared through-right lane channelization to an exclusive right-turn lane. In addition to modifying the lane assignment, the applicant shall make improvements and modifications to the traffic signal and other right-of-way improvements as required by the City to accommodate the new lane assignment.

   B. Improve the east leg of the intersection of Slater Ave NE/NE 120th Street. The following improvements must be completed prior to approval of the final occupancy permit:
      - Widen the east leg of the intersection to provide a westbound 200-foot left-turn lane (11 feet wide), 200-foot shared through and right turn lane (11 feet wide), and five-foot bike lane.
      - From the 200-foot left-turn lane, provide a 120-foot taper to transition the lane to the existing lane width to the east.
      - Provide a 5-foot bike lane on both sides of the street from the intersection to connect to the existing bike lanes further to the east.
      - Construct a vertical curb to meet the City of Kirkland standard on the north side along the entire road widening improvement.
      - Provide lane markings in accordance to the City of Kirkland standards.
      - Relocate utilities as necessary to complete the improvements.

2. Prior to issuance of the building permit, the applicant shall post a bond for two driveway/queuing operational studies, the construction of c-curb and signage to preclude left-turns at the driveway off Slater Avenue NE. The applicant shall submit a driveway queuing and safety analysis as described in the Project Driveway Level of Service section of the Public Works review memorandum. If the c-curb is required as determined by the city transportation engineer, then the property owner shall install c-curb as defined by the city transportation engineer within 10 weeks of the city transportation engineer's decision.

The applicant has reviewed the proposed mitigations and has agreed to incorporate them into the project (see Enclosure 6).

These recommendations are based on adopted goals and policies of the City as found in the City's Comprehensive Plan. Specifically, the following elements of the 2015 Comprehensive Plan support the recommendations described above:

Transportation

Policy T-4.7: Mitigate negative impacts of motor vehicles on neighborhood streets.

Policy T-5.5: Require new development to mitigate site specific and system wide transportation impacts.

ENCLOSURES

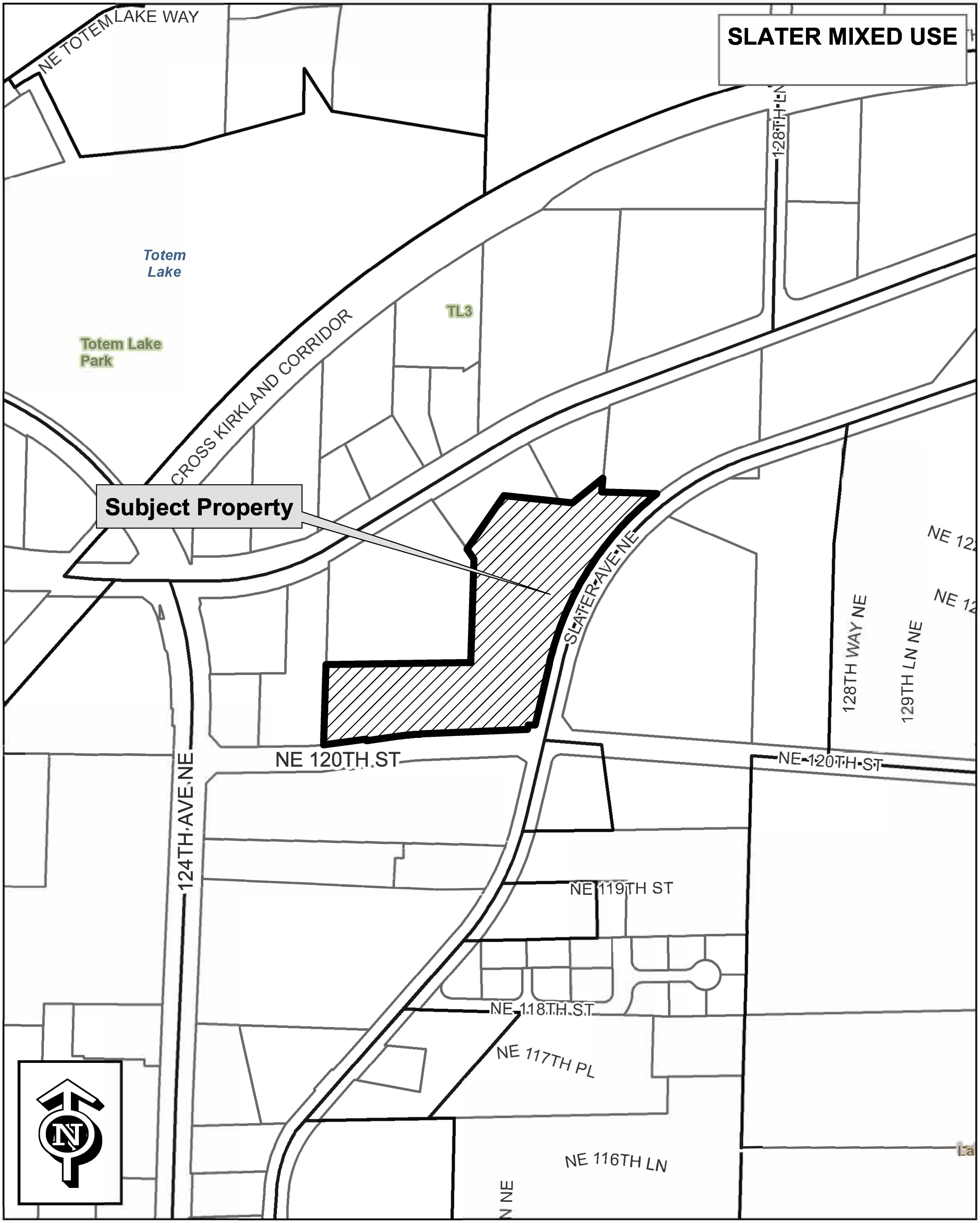
1. Vicinity Map
2. Environmental Checklist dated October 21, 2020
3. Transportation Impact Analysis prepared by the TENW dated July 8, 2021
4. City Transportation Impact Analysis Review Memorandum dated July 12, 2021
5. Traffic Concurrency Memo dated September 28, 2020
6. Applicant Mitigation Approval Letter

☒ I concur ☐ I do not concur

Comments:

Adam Weinstein, Planning & Building Director — July 16, 2021

Date


SLATER MIXED USE
Subject Property
NE TOTEM LAKE WAY
Totem Lake
Totem Lake Park
TL3
CROSS KIRKLAND CORRIDOR
128TH LN
SLATER AVE NE
NE 120TH ST
124TH AVE NE
128TH WAY NE
129TH LN NE
NE 119TH ST
NE 118TH ST
NE 117TH PL
NE 116TH LN
N

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [HELP]

1. Name of proposed project, if applicable: Slater Aveunue Mixed-Use Project

2. Name of applicant: FF Realty IV LLC

3. Address and phone number of applicant and contact person:

Shon Finch
FF Realty IV LLC
5355 Mira Sorrento Place, Suite 100
San Diego, CA 92121

4. Date checklist prepared: October 21, 2020

5. Agency requesting checklist: City of Kirkland, WA

6. Proposed timing or schedule (including phasing, if applicable): Construction start is projected for 1st Quarter 2022 and project completion is projected for 1st Quarter 2025. The project will be built in one phase.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain. No

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal. A Phase I Environmental Site Assessment was prepared by Sound Earth Strategies on June 2, 2019. This report identified petroleum contamination associated with an underground storage tank removed in 1993. Remediation of the affected area was recommended. The State of Washington's Pollution Liability Insurance Agency (PLIA), approved a cleanup action plan for the site on April 20, 2020. Remediation will occur prior to the start of redevelopment in accordance with the approved cleanup plan.

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain. No

10. List any government approvals or permits that will be needed for your proposal, if known. Project entitlement will require approval by the City of Kirkland's Design Review Board. Construction will require a building permit issued by the City of Kirkland's Building Department.

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.) The proposed project will redevelop a 4.78 acre commercial use into a 484 unit mixed-use development with 20,000 SF of ground floor retail. The development will include up to four levels of parking with five levels of residential units above.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Current property address is 12055 Slater Avenue NE Kirkland, WA 98034. The site is physically located at the Northwest corner of Slater Avenue NE and NE 120th Street. Legal description is:
Lot A of City of Kirkland Lot Line Adjustment No. LLA-04-00011. Recorded under Recording No. 20041216900011, As Amended Under Reording No. 20101018000207, In King County, Washington;
Excepts Those Protions Conveyed To The City Of Kirkland By Deeds Recorded Under Recording Nos. 20130621001280 and 20150508001554.
Situate In The City Of Kirkland, County Of King, State Of Washington.

B. Environmental Elements [HELP]

1. *Earth* [help]

a. General description of the site:

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other ; The property is situated from 5 to 15 feet below the elevation of Slater Avenue Northeast and Northeast 120th Street and about 10 feet above the elevation of the adjacent properties to the north and west. Site elevation is approximately 150 to 180 feet above mean sea level; the highest elevations are at the southeastern portion of the property.

b. What is the steepest slope on the site (approximate percent slope)? 90 degrees along a portion of Slater Avenue and NE 120th Street.

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils. Site geologic units include Vashon Till, Advance Otwash, Transitional Bed and Recessional Outwash. The site has no agricultural history.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe. No

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill. Proposed redevelopment will require approximately 5'-10' of excavation across the whole site. Calculation for export material is in process; no fill will be required.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe. Erosion control measures will be in place during clearing and construction; erosion will not be an issue once construction is completed.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)? 80%

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any: Proposal will meet City required clearing and grading regulations, as well as implementation of approved temporary erosion and sediment control plans.

2. Air [help]

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known. Emissions from construction equipment would be a temporary condition. Once the project is completed, the only emissions related to the development would be from vehicles coming and going from the community.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe. No

c. Proposed measures to reduce or control emissions or other impacts to air, if any:
Construction equipment will comply with state and local emissions standards and dust control measures will be implemented during the initial site grading operation.

3. Water [help]

a. Surface Water: [help]

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.
No water

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans. N/A

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material. N/A

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known. N/A

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.
No

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.
No

b. Ground Water: [help]

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known. The project does not propose any groundwater to be drawn for drinking or other purposes.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve. The project does not propose any waste material to be discharged into the ground.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe. Project run-off will be contained on-site and released into the storm system in accordance with City and State requirements.

2) Could waste materials enter ground or surface waters? If so, generally describe. No

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe. The proposed project does not alter or affect any drainage patters in the vicinity of the site.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage pattern impacts, if any: Project run-off will be contained on-site and released into the storm system in accordance with City and State requirements.

4. Plants [help]

a. Check the types of vegetation found on the site:

__X__deciduous tree: alder, maple, aspen, other
__X__evergreen tree: fir, cedar, pine, other
__X__shrubs
____grass
____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

b. What kind and amount of vegetation will be removed or altered? Most trees and shrubs will be removed.

c. List threatened and endangered species known to be on or near the site. None

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any: The proposed development will include extensive landscape improvements.

e. List all noxious weeds and invasive species known to be on or near the site. None

5. Animals [help]

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site. Squirels, non-exotic birds

Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other ________

b. List any threatened and endangered species known to be on or near the site. None

c. Is the site part of a migration route? If so, explain. No

d. Proposed measures to preserve or enhance wildlife, if any: No measures are proposed, as the property is an uban infill site with no existing habitat.

e. List any invasive animal species known to be on or near the site. None

6. Energy and Natural Resources [help]

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc. This proposed residential development will be served by electricity and natural gas.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe. No

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any: The project will be designed in accordance with Title 24, City and State requirements for energy conservation.

7. Environmental Health [help]

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe. No

1) Describe any known or possible contamination at the site from present or past uses. A Phase I Environmental Site Assessment was prepared by Sound Earth Strategies on June 2, 2019. This report identified petroleum contamination associated with an underground storage tank removed in 1993. Remediation of the affected area was recommended. The State of Washington's Pollution Liability Insurance Agency (PLIA),

approved a cleanup action plan for the site on April 20, 2020. Remediation will occur prior to the start of redevelopment in accordance with the approved cleanup plan.

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity. None

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project. None

4) Describe special emergency services that might be required. Standard City emergency services will support this project.

5) Proposed measures to reduce or control environmental health hazards, if any: There will be no environmental health hazards associated with this development.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)? Traffic noise will exist along Slater Avenue and 12th Street frontages. Unit design will include sound attenuation methods to reduce traffic noise along these frontages.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site. Construction noise during typical working hours would be a temporary impact.

3) Proposed measures to reduce or control noise impacts, if any: Construction equipment will comply with local and state emission and noise requirements.

8. Land and Shoreline Use [help]

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe. Current and surrounding uses are mostly commercial. The exception is a multifamily residential development located at the north end of the site. Development of the proposed community will not impact the surrounding uses.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use? The project site is neither working farmlands or forest lands.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how: No, there is no working farm or forest land around the subject property.

c. Describe any structures on the site. There are currently 3 buildings on the site totaling approximately 17,000 SF. The balance of the site is an asphalt parking lot.

d. Will any structures be demolished? If so, what? Yes, two of the three buildings and all of the parking lot.

e. What is the current zoning classification of the site? The City of Kirkland zoning designation is TL-6A.

f. What is the current comprehensive plan designation of the site? The Comprehensive plan designation is *Commercial Mixed-Use.*

g. If applicable, what is the current shoreline master program designation of the site? The site is not subject to shoreline requirements.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify. No

i. Approximately how many people would reside or work in the completed project? There are 484 units planed; estimated population would be around 700 – 800 people.

j. Approximately how many people would the completed project displace? The site is currently used for commercial purposes. The employees will not be displaced, but will be working from a different location. No residential uses exist, so no residents will be displaced with redevelopment.

k. Proposed measures to avoid or reduce displacement impacts, if any: The proposed redevelopment will not displace anyone.

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any: The proposed mixed-use redevelopment is an approved use under the City of Kirkland's TL-6A zoning designation.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any: Redevelopment will not impact agricultural or forest lands.

9. Housing [help]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing. The proposed development will provide 484 new rental housing units. Of the 484, 10% or 48 units will be provided at 50% of AMI.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing. No residential units will be eliminated by this proposal.

c. Proposed measures to reduce or control housing impacts, if any: Not aware of any measures to reduce or control housing impacts.

10. Aesthetics [help]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed? Proposed building height is 75' above the average site elevation. Exterior materials will consist, primarily of cement and steel panel siding materials.

b. What views in the immediate vicinity would be altered or obstructed? Possible view obstruction could occur from the east side of Slater Avenue and from the north side of 120th Street.

b. Proposed measures to reduce or control aesthetic impacts, if any: The proposed development has been designed in accordance with the City of Kirkland's guidelines related to building height and setbacks.

11. Light and Glare [help]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur? Lighting for the proposed development will be shielded, downcast lighting to limit light pollution spilling onto neighboring properties.

b. Could light or glare from the finished project be a safety hazard or interfere with views? Proposed site lighting will be focused within on-site spaces and walkways.

c. What existing off-site sources of light or glare may affect your proposal? None

d. Proposed measures to reduce or control light and glare impacts, if any: Lighting for the proposed development will be shielded, downcast lighting to limit light pollution spilling onto neighboring properties.

12. Recreation [help]

a. What designated and informal recreational opportunities are in the immediate vicinity? Bicycle and walking trails exist around the site and will be enhanced by the proposed project.

b. Would the proposed project displace any existing recreational uses? If so, describe. No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any: The proposed redevelopment does not displace any existing recreational uses. The project will add to the City's existing trail system and provide connections to existing trails. In addition, the property will include recreational amenity spaces for the residents.

13. Historic and cultural preservation [help]

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe. No

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources. This is an infill site, there are no landmarks, features or other evidence of historic use or occupation on the property.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc. The subject property is in an urban setting and has been built out. All surrounding properties are also built out.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required. There are no measures currently in place.

14. Transportation [help]

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any. The subject property will be served directly by fronting Slater Avenue and 120th Street. The 405 freeway is west of the site and can be accessed by taking Sater Avenue or 120th Street to 124th NE, then west to the 405 freeway.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop? The area is served by the Sound Transit bus system. There is a bus stop approximately .13 miles east of the site and one .15 miles west of the site.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate? The existing use includes 172 parking spaces; the proposed redevelopment would provide approximately 775 spaces. This would be an increase of 603 parking spaces.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private). Redevelopment will require right of way dedication to allow for an 8' bike lane & buffer, as well as, an 8' sidewalk with street trees and new street lighting fixtures.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe. No

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates? The project traffic study is not completed yet.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe. No

h. Proposed measures to reduce or control transportation impacts, if any: The proposed redevelopment will provide additional bicycle storage options to promote bicycle transportation. In addition, the property will be linking to an existing trail system which will promote walking and biking.

15. Public Services [help]

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe. The project will increase the City's housing stock and potentially the need for added services. The City of Kirkland's impact fees are meant to off-set this impact.

b. Proposed measures to reduce or control direct impacts on public services, if any. Bicycle storage options will help to reduce vehicular trips. On-site fitness center and integrated ground floor retail space will also help to reduce vehicle trips.

16. Utilities [help]

a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other ___________ All of the noted services are available at the site.

d. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed. All utilities needed to serve the site are in place and available to serve the redevelopment proposal.

C. Signature [HELP]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: ____

Name of signee ___Shon Finch____

Position and Agency/Organization _FF Realty IV LLC______________________________

Date Submitted: __October 21, 2020___________

D. Supplemental sheet for nonproject actions [HELP]

(**IT IS NOT NECESSARY** to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposed measures to protect such resources or to avoid or reduce impacts are:

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

Slater Mixed-Use

Kirkland, WA

Updated Transportation Impact Analysis

July 8, 2021

Prepared for:

Fairfield Residential
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FINDINGS/CONCLUSIONS

This transportation impact analysis (TIA) has been prepared for the proposed Slater Mixed-Use development located at 12045 and 12055 Slater Ave NE in Kirkland, Washington. This study has been updated based on comments received from the City of Kirkland on January 14, 2021 and subsequent correspondence with the City.

Project Proposal. The proposed Slater Mixed-Use project would include the development of up to 486 multifamily residential units and 20,050 square feet (SF) of shopping center. The existing site includes 12,490 SF of light industrial use and 3,420 SF of warehouse use that will be removed with the proposed development. Primary vehicular access to the site would be provided via one driveway on NE 120th Street and one driveway on Slater Ave NE. An additional driveway is proposed on both NE 120th Street and Slater Ave NE for emergency vehicle access only. Project buildout is expected in 2025.

It should be noted that while this TIA analyzes a land use proposal that includes up to 486 residential units and 20,050 SF of shopping center, the current land use proposal (as of July 1, 2021) is for 484 residential units and 15,942 SF of shopping center. Therefore, the analysis documented in this TIA shall be considered conservative.

Trip Generation. The proposed Slater Mixed-Use development is estimated to generate a total of 3,468 net new weekday daily trips with 228 net new trips occurring during the weekday AM peak hour (77 entering, 151 exiting), and 224 net new trips occurring during the weekday PM peak hour (141 entering, 83 exiting).

Transportation Concurrency. The City has determined the proposed project meets the City's transportation concurrency requirements. A Concurrency Test Notice was issued in September 2020.

Future Year LOS. An AM and PM peak hour LOS analysis was conducted at 12 study intersections for year 2025 conditions. The results of the LOS analysis show that all study intersections are estimated to operate at LOS D or better during the AM and PM peak hours in 2025 without or with the proposed project except for the following five intersections:

- I-405 SB Off-Ramp / NE 124th Street (#3) is anticipated to operate at LOS E during the PM peak hour in 2025 without or with the proposed project.
- Totem Lake Blvd / NE 124th Street (#6) is anticipated to operate at LOS E during the PM peak hour in 2025 without or with the proposed project.
- Slater Ave NE / NE 124th Street (#7) is anticipated to operate at LOS F during the AM and PM peak hours in 2025 without or with the proposed project.
- Slater Ave NE / NE 120th Street (#9) is anticipated to operate at LOS F during the AM peak hour and LOS E during the PM peak hour in 2025 without or with the proposed project.
- Slater Ave NE / NE 116th Street (#12) has a westbound left-turn movement that is anticipated to operate at LOS E during the PM peak hour in 2025 without or with the proposed project.

Two study intersections are anticipated to operate at LOS E or LOS F during the AM or PM peak hours in 2025 with the Slater Mixed-Use project's proportional share calculated to be more than 15 percent and more than 5 percent, respectively. Therefore, the installation of improvements under SEPA is required at the study intersections of Slater Ave NE / NE 124th Street (#7) and Slater Ave NE / NE 120th Street (#9).

Site Access Analysis. All controlled movements at the proposed Slater Mixed-Use project driveways on NE 120th Street and Slater Ave NE are expected to operate at acceptable levels (LOS D or better) with minimal queuing during the AM and PM peak hours in 2025. Additionally, no conflicts or safety concerns are expected along both the NE 120th Street and Slater Ave NE corridors with the proposed Slater Mixed-Use project. Intersection and stopping sight distances were determined to meet the City's standards at the proposed site access locations.

Mitigation.

Concurrency. The project was evaluated for transportation concurrency by the City of Kirkland in September 2020. Based on the results, the City has determined the projects meets the City's transportation concurrency requirements. Therefore, no short-term transportation mitigation was required to obtain concurrency in the City of Kirkland.

SEPA Improvements. Based on the results of the LOS analysis at the study intersections, the installation of improvements under SEPA is required at two study intersections. A summary of the SEPA mitigation at these two intersections that has been agreed upon between the City and the project applicant to mitigate the proposed project's transportation impacts is provided below:

- Slater Ave NE / NE 124th Street (#7): This intersection is one of the highest volume intersections in the City of Kirkland and feasible options to improve the forecasted LOS F operations at this intersection are limited as a result of cost, limited right-of-way, and impacts to private properties. During both the AM and the PM peak hours, the northbound through and right-turn movement volumes are similar and the Slater Mixed-Use project is anticipated to add trips to both the northbound through and right-turn movements. Therefore, to mitigate SEPA impacts at the intersection of Slater Ave NE / NE 124th Street, the project will construct the only feasible improvement at the intersection which includes modification of the northbound approach as follows:

    1. Convert existing northbound shared through-right lane to a drop right-turn only lane. This improvement would include channelization and signage revisions associated with a drop right-turn only lane and signal modifications to add a northbound right-turn overlap phase.

  Mitigation to construct this improvement at the intersection of Slater Ave NE / NE 124th Street is anticipated to result in an improved delay of 74.1 seconds per vehicle (sec/veh) during the AM peak hour in 2025 with the proposed project (compared to LOS F, 86.0 sec/veh without the project and LOS F, 90.6 sec/veh with the project and no improvements). Similarly, the improvement is anticipated to result in an improved delay of 93.4 seconds per vehicle (sec/veh) during the PM peak hour with the proposed project (compared to LOS F, 96.3 sec/veh without the project and LOS F, 100.7 sec/veh with the project and no improvements).

Although the identified improvement at Slater Ave NE / NE 124th Street would not improve the intersection to LOS E, the proposed mitigation would improve the overall LOS back to a pre-project condition and satisfy the intent of SEPA mitigation because it is reasonable and provides the appropriate mitigation (nexus) between mitigating measures and the Slater Mixed-Use project's specific impacts at the intersection.

- Slater Ave NE / NE 120th Street (#9): In order to mitigate the project's SEPA impacts at the intersection of Slater Ave NE / NE 120th St, the project will be required to construct improvements as follows:
    1. Extend the westbound approach lanes on NE 120th Street (left-turn only and through-right lanes) to provide a total of 200 feet full-width storage length.
    2. Provide a 120-foot taper to transition to the existing roadway section to the east.
    3. Provide a 5-foot bike lane on the north side on NE 120th Street for the full length of the improvement, connecting to the existing bike lane to the east.
    4. Provide vertical curb along the northern edge of the westbound approach improvements consistent with the existing condition.

Transportation Impact Fees. Transportation mitigation required by the City of Kirkland is payment of a transportation impact fee. The net impact fee shall be calculated based on the project's proposed land use less an impact fee credit for the existing land use. Fees are subject to change, and the final impact fee calculation will be based on the rates and project size in effect at the time of building permit issuance.

INTRODUCTION

This transportation impact analysis (TIA) has been prepared for the proposed Slater Mixed-Use development located at 12045 and 12055 Slater Ave NE in Kirkland, Washington (see Figure 1 vicinity map). This study has been updated based on comments received from the City of Kirkland on January 14, 2021 and subsequent correspondence with the City.

Project Description

The proposed Slater Mixed-Use project would include the development of up to 486 multifamily residential units and 20,050 square feet (SF) of shopping center. The existing site includes 12,490 SF of light industrial use and 3,420 SF of warehouse use that will be removed with the proposed development.

Primary vehicular access to the site would be provided via one driveway on NE 120th Street and one driveway on Slater Ave NE. An additional driveway is proposed on both NE 120th Street and Slater Ave NE for emergency vehicle access only. Project buildout is expected in 2025. A preliminary conceptual site plan is included in Figure 2.

It should be noted that while this TIA analyzes a land use proposal that includes up to 486 residential units and 20,050 SF of shopping center, the current land use proposal (as of June 30, 2021) is for 484 residential units and 15,942 SF of shopping center. Therefore, the analysis documented in this TIA shall be considered conservative.

Project Approach

The report is structured in accordance with the City of Kirkland's *Traffic Impact Analysis Guidelines* (revised August 2014), in documenting the evaluation of traffic impacts and recommended mitigation measures. Specific scope items to be included were also discussed and confirmed by City staff. To analyze the traffic impacts from the Slater Mixed-Use development, the following tasks were undertaken:

- Assessed existing conditions through field reconnaissance and reviewed existing planning documents;
- Described and assessed existing transportation conditions in the area, including existing traffic volumes, level of service, collision history, public transportation, and non-motorized facilities;
- Documented the City's planned transportation improvements in the site vicinity;
- Estimated trip generation and documented trip distribution and assignment of project traffic;
- Documented the concurrency test results for the development;
- Evaluated intersection proportional shares based on City guidelines;
- Documented traffic volume forecasts and assumptions for year 2025 conditions without and with the proposed development;
- Conducted future year level of service analyses at 12 study intersections and proposed site access driveways for AM and PM peak hour conditions;
- Conducted a sight distance analysis at proposed driveways;

- Conducted a queuing analysis at the adjacent study intersection to determine the potential effect of on-street queuing to Slater Mixed-Use driveway operations;
- Identified mitigation to the City of Kirkland.

Primary Data and Information Sources

- City of Kirkland *Traffic Impact Analysis Guidelines*, Revised August 2014.
- AM and PM peak period traffic counts from City of Kirkland and All Traffic Data, 2019 and 2020.
- Average Daily Traffic Volumes; source: City of Kirkland.
- *Highway Capacity Manual (HCM),* 6th Edition, 2016.
- Washington State Department of Transportation 2017-2019 collision data.
- Metro/King County Website, October 2020.
- Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 10th Edition, 2017.
- City of Kirkland *2019-2024 Capital Improvement Program (CIP).*
- City of Kirkland *Department of Public Works Pre-Approved Plans Policy R-13 (Intersection Sight Distance).*
- City of Kirkland *Department of Public Works Pre-Approved Plans Policy R-4 (Driveway Policy).*

Figure 1: Site Vicinity Map

N
NOT TO SCALE

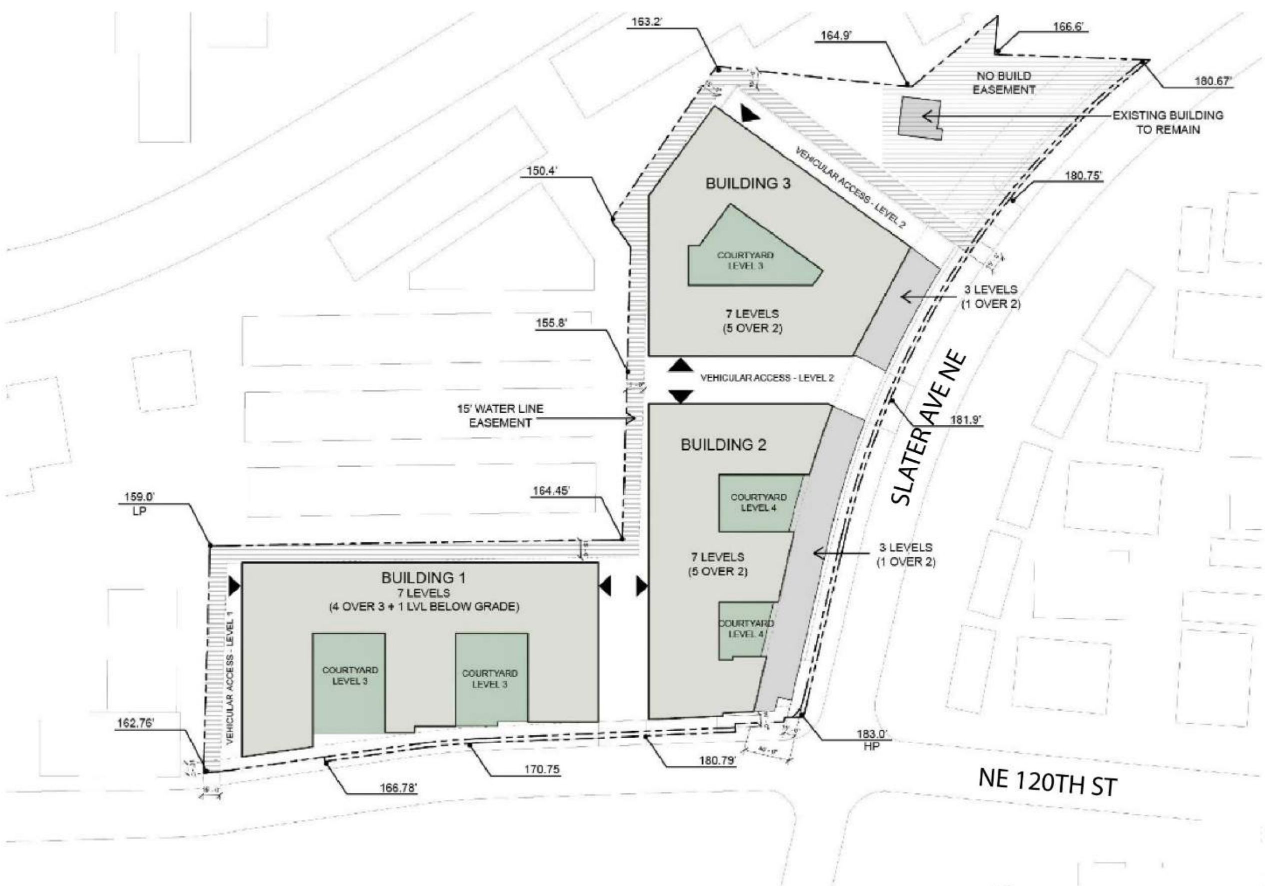
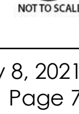


Figure 2: Preliminary Site Plan



EXISTING CONDITIONS

This section describes existing transportation system conditions in the study area, including an inventory of existing roadways, existing traffic volumes, intersection levels of service (LOS), collision history, public transportation services, and non-motorized transportation facilities.

Roadway Network

Table 1 describes the existing characteristics of the streets that would be used as primary routes to and from the site. Roadway characteristics are described in terms of orientation, arterial classification, number of lanes, posted speed limits, parking, pedestrian facilities, and bicycle facilities. The relationship of these roadways to the project site is shown in Figure 1.

Table 1
Existing Study Area Roadway Network

Roadway	Orientation	Arterial Classification	# of Lanes	Posted Speed Limit (mph)	Parking	Sidewalks	Bicycle Facilities
NE 120th Street	East/west	Minor Arterial	3	35	No	Both sides	Both sides
Slater Ave NE	North/south	Minor Arterial	3	35	No	Both sides	Both sides
124th Ave NE	North/south	Principal Arterial	3	35	No	Both sides	Both sides
NE 124th Street	East/west	Principal Arterial	5	35	No	Both sides	Both sides east of Slater Ave NE

Study Intersections

Based on the City of Kirkland's *Traffic Impact Analysis Guidelines* dated August 2014, a detailed traffic analysis is required at intersections that have a proportional share of project traffic of at least one percent. The proportional share calculations are based on use of the City's proportional share Excel spreadsheet and the project's weekday daily trip assignment. The proportional share evaluation worksheets to establish study intersections are included in Appendix A. As shown in Table A of Appendix A, a total of 12 intersections have a project proportional share of at least one percent with the proposed Slater Mixed-Use project and were included in this detailed traffic analysis. The 12 study intersections included in this traffic study are as follows:

1. Totem Lake Blvd / NE 128th Street
2. Totem Lake Blvd / 120th Ave NE
3. I-405 Southbound Off-Ramp / NE 124th St
4. I-405 Northbound Off-Ramp / NE 124th St
5. NE 120th Place / NE 124th Street
6. Totem Lake Blvd / NE 124th Street
7. Slater Ave NE / NE 124th Street
8. 124th Ave NE / NE 120th Street
9. Slater Ave NE / NE 120th Street
10. I-405 Ramps / NE 116th Street
11. 124th Ave NE / NE 116th Street
12. Slater Ave NE / NE 116th Street

Existing Traffic Volumes

Year 2020 existing AM and PM peak hour traffic volumes at the study intersections were based on counts conducted by the City of Kirkland in 2019. The year 2020 AM and PM peak hour volumes were estimated by applying an annual growth rate of 2.0 percent to the year 2019 volumes. The AM peak hour represents the highest one-hour time period between 7:00 and 9:00 AM at each study intersection, while the PM peak hour represents the highest one-hour time period between 4:00 and 6:00 PM. Figures 3 and 4 illustrate the year 2020 existing AM and PM peak hour traffic volumes at the study intersections.

Historical average daily traffic volumes on streets in the vicinity were provided by the City of Kirkland. Table 2 summarizes the historical traffic counts on Slater Ave NE and NE 120th Street in the project site vicinity.

Table 2
Existing Daily Traffic Volumes

Count Location	2019	2017	2015	2013	2011
Slater Ave NE					
South of NE 120th Street	12,947	13,477	13,595	14,216	14,656
South of NE 124th Street	14,063	14,376	15,057	14,484	14,113
NE 120th Street					
East of Slater Ave NE	10,960	10,480	10,309	9,337	9,162
West of Slater Ave NE	5,716	5,429	4,855	--	--

Source: City of Kirkland Public Works Department

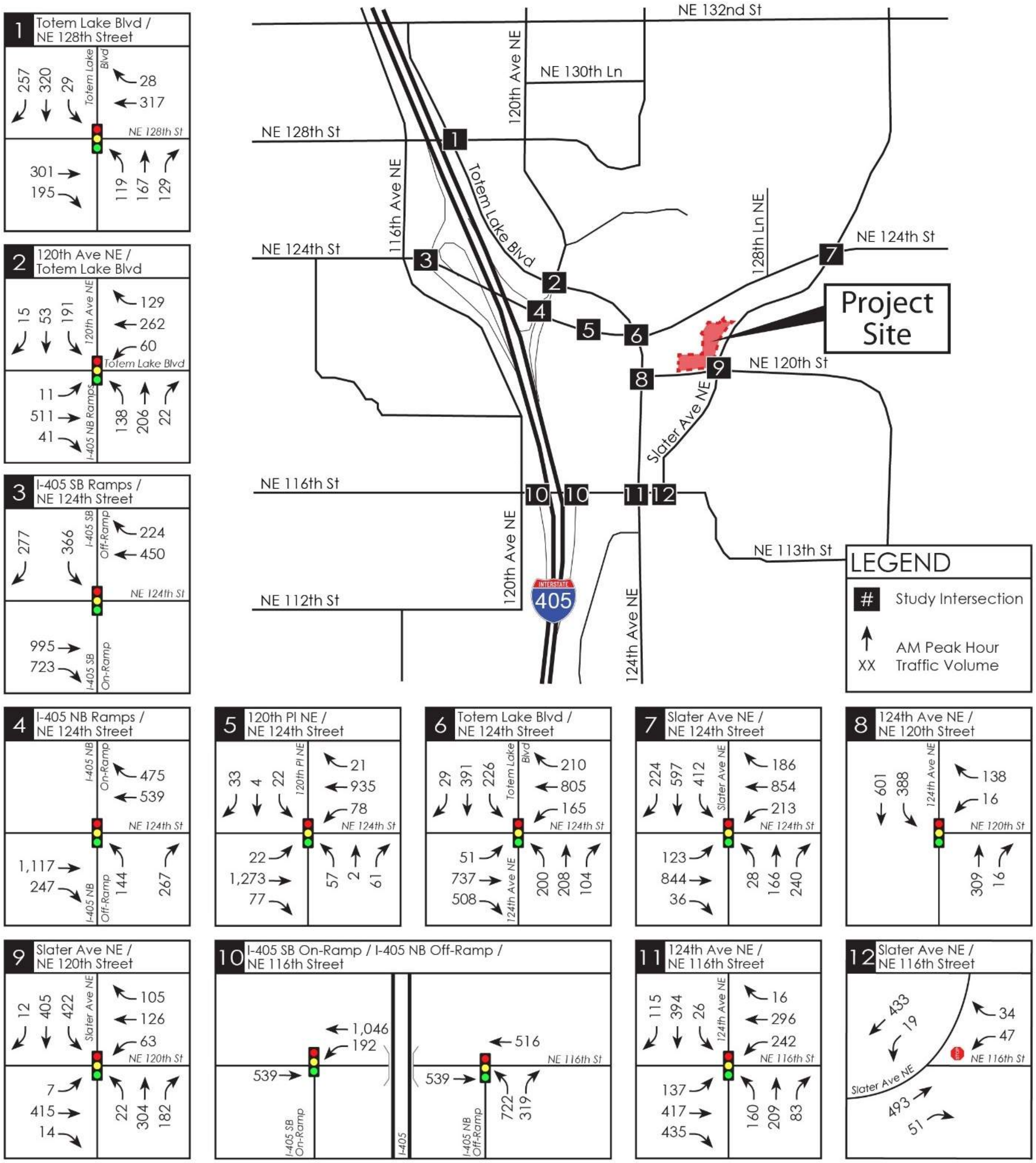


Figure 3: 2020 Existing AM Peak Hour Traffic Volumes

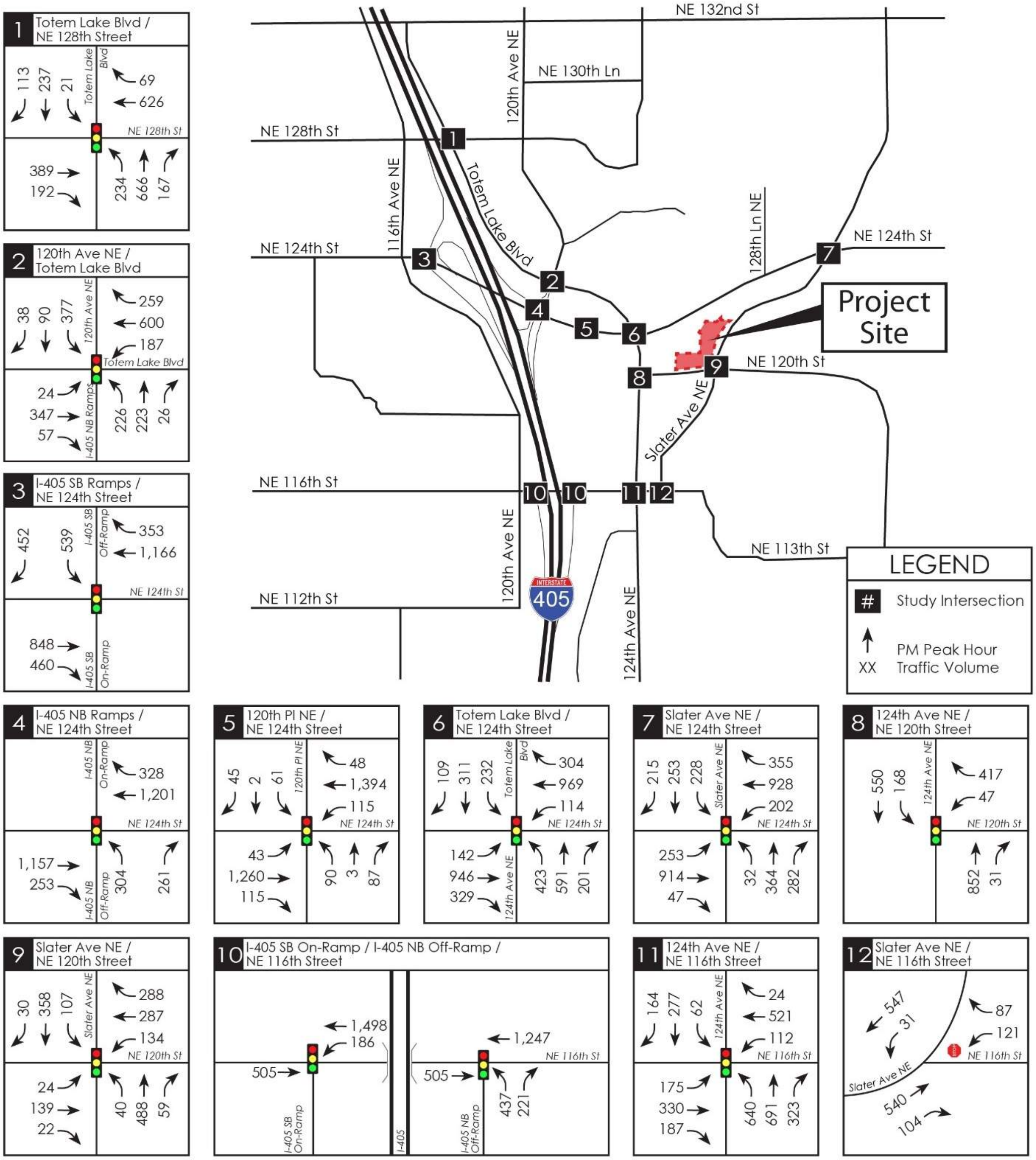
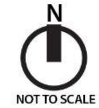


Figure 4: 2020 Existing PM Peak Hour Traffic Volumes



Existing Level of Service at Study Intersections

Based on the City of Kirkland *Traffic Impact Analysis Guidelines*, weekday AM and PM peak hour level of service (LOS) analyses were conducted at 12 intersections with a proportional share of project traffic of at least one percent (see Appendix A).

LOS generally refers to the degree of congestion on a roadway or intersection. It is a measure of vehicle operating speed, travel time, travel delays, and driving comfort. A letter scale from A to F generally describes intersection LOS. At signalized intersections, LOS A represents free-flow conditions (motorists experience little or no delays), and LOS F represents forced-flow conditions where motorists experience an average delay in excess of 80 seconds per vehicle.

The LOS reported for signalized intersections represents the average control delay (sec/veh) and can be reported for the overall intersection, for each approach, and for each lane group (additional v/c ratio criteria apply to lane group LOS only).

The LOS reported at stop-controlled intersections is based on the average control delay and can be reported for each controlled minor approach, controlled minor lane group, and controlled major-street movement (and for the overall intersection at all-way stop controlled intersections. Additional v/c ratio criteria apply to lane group or movement LOS only).

Table 3 outlines the current HCM 6th Edition LOS criteria for signalized and stop-controlled intersections based on these methodologies.

Table 3
LOS Criteria for Signalized and Stop-Controlled Intersections[1]

SIGNALIZED INTERSECTIONS			UNSIGNALIZED INTERSECTIONS		
	LOS by Volume-to Capacity (V/C) Ratio[2]			LOS by Volume-to Capacity (V/C) Ratio[3]	
Control Delay (sec/veh)	≤ 1.0	> 1.0	Control Delay (sec/veh)	≤ 1.0	> 1.0
≤ 10	A	F	≤ 10	A	F
> 10 to ≤ 20	B	F	> 10 to ≤ 15	B	F
> 20 to ≤ 35	C	F	> 15 to ≤ 25	C	F
> 35 to ≤ 55	D	F	> 25 to ≤ 35	D	F
> 55 to ≤ 80	E	F	> 35 to ≤ 50	E	F
> 80	F	F	> 50	F	F

1) Source: Highway Capacity Manual, Transportation Research Board, 6th Edition, 2016.

2) For approach-based and intersection-wide assessments at signals, LOS is defined solely by control delay.

3) For two-way stop controlled intersections, the LOS criteria apply to each lane on a given approach and to each approach on the minor street. LOS is not calculated for major-street approaches or for the intersection as a whole at two-way stop controlled intersections. For approach-based and intersection-wide assessments at all-way stop controlled intersections, LOS is solely defined by control delay.

Level of service calculations for intersections were based on methodology and procedures outlined in the 6th Edition of the *Highway Capacity Manual* using *Synchro 10* traffic analysis software. Existing signal timing used in the analysis was provided by the City of Kirkland and the Washington State Department of Transportation (WSDOT).

The 2020 existing AM and PM peak hour LOS analysis results for the study intersections are summarized in Table 4. The LOS worksheets are included in Appendix B.

Table 4
2020 Existing Peak Hour Level of Service Summary

	AM Peak Hour		PM Peak Hour	
Study Intersection	LOS	Delay (sec)	LOS	Delay (sec)
Signalized:				
1) Totem Lake Blvd / NE 128th Street	C	33.2	D	41.9
2) 120th Ave NE / Totem Lake Blvd	B	19.6	C	27.1
3) I-405 SB Off-Ramp / NE 124th Street	C	25.5	D	49.8
4) I-405 NB Off-Ramp / NE 124th Street	A	7.1	B	11.4
5) 120th Pl NE / NE 124th Street	A	5.5	B	18.8
6) Totem Lake Blvd / NE 124th Street	D	41.1	D	51.6
7) Slater Ave NE / NE 124th Street	E	68.8	E	57.7
8) 124th Ave NE / NE 120th Street	A	6.0	C	21.2
9) Slater Ave NE / NE 120th Street	D	52.6	C	34.2
10) I-405 NB Off-Ramp / I-405 SB On-Ramp / NE 116th St	C	31.0	C	20.8
11) 124th Ave NE / NE 116th Street	C	24.3	C	30.3
Two-Way Stop-Controlled:				
12) Slater Ave NE / NE 116th Street				
Westbound Left-Turn	C	16.5	C	24.8
Westbound Right-Turn	B	12.1	B	13.6
Southbound Left-Turn	A	8.6	A	9.2

As shown in Table 4, all signalized study intersections currently operate at LOS D or better during the weekday AM and PM peak hours with exception to the intersection of Slater Ave NE / NE 124th Street which currently operates at LOS E during both the weekday AM and PM peak hours. Additionally, all controlled movements at the two-way stop-controlled study intersection currently operate at LOS C or better under 2020 existing AM and PM peak hour conditions.

Collision History

Collisions at study intersections and mid-block roadway sections along NE 120th Street and Slater Ave NE were summarized for the three-year period from January 1, 2017 to December 31, 2019. Collision data was provided by the Washington State Department of Transportation (WSDOT). The detailed collision data is included in Appendix C. Summaries of the total, annual average, and collisions per million entering vehicles (MEV) and million vehicle miles (MVM) are provided in Table 5.

Table 5
3-Year Collision Data Summary - January 1, 2017 to December 31, 2019

Location	Number of Collisions by Year 2017	2018	2019	Total 3-Year Collisions	Average Annual Collisions	Collisions per MEV[1]
Intersections:						
1) Totem Lake Blvd / NE 128th Street	20	4	4	28	9.33	0.96
2) 120th Ave NE / Totem Lake Blvd	5	5	1	11	3.67	0.42
3) I-405 SB Off-Ramp / NE 124th St	4	3	3	10	3.33	0.24
4) I-405 NB Off-Ramp / NE 124th St	9	3	2	14	4.67	0.37
5) 120th Pl NE / NE 124th Street	1	5	1	7	2.33	0.20
6) Totem Lake Blvd / NE 124th Street	2	1	0	3	1.00	0.06
7) Slater Ave NE / NE 124th Street	4	3	3	10	3.33	0.23
8) 124th Ave NE / NE 120th Street	0	0	0	0	0.00	0.00
9) Slater Ave NE / NE 120th Street	7	2	4	13	4.33	0.61
10) I-405 NB Off-Ramp / I-405 SB On-Ramp / NE 116th St	2	1	1	4	1.33	0.13
11) 124th Ave NE / NE 116th Street	8	7	7	22	7.33	0.58
12) Slater Ave NE / NE 116th Street	0	0	1	1	0.33	0.07
Roadway Segments:						MVM[1]
NE 120th St (124th Ave NE to Slater Ave NE)	0	0	0	0	0.00	0.00
Slater Ave NE (NE 120th St to NE 124th St	3	7	3	13	4.33	2.38

Source: WSDOT Collision Records
1) MEV = Million Entering Vehicles (for intersections), MVM = Million Vehicle Miles (for roadway segments).

Intersection collision rates over 1.0 collision per MEV generally warrant further review to determine if any patterns exist. Based on the most recent 3 years of collision history provided by WSDOT, there are no study intersections with a collision rate per MEV rate greater than 1.0.

A review of the collision data on the roadway segments of NE 120th Street and Slater Ave NE shows no collisions along NE 120th Street and 13 collisions along Slater Ave NE over the 3-year period from 2017 to 2019. A review of the collision data along Slater Ave NE did not result in a noticeable pattern.

The City of Kirkland documents collision rates at signalized intersections on their website. Based on review of the City's documented collision rates, the average collision rate at signalized intersections in the City of Kirkland for the 3-year period from 2017 to 2019 was 0.57 collisions per MEV. As shown in Table 5, the collision rates at each of the 12 study intersections is below the Citywide average for the 3-year period from 2017 to 2019 with three exceptions:

Based on the data provided by WSDOT, the Totem Lake Blvd/NE 128th Street intersection experienced a total of 28 collisions over the 3-year period from 2017-2019 for a collision rate of 0.96 collisions per MEV. Detailed review of the collision history at this intersection indicated a high number of collisions (20) in 2017 and only 4 collisions per year in 2018 and 2019. The 2017 collision data showed that 11 of the 20 collisions involved vehicles making left-turns.

Based on the data provided by WSDOT, the Slater Ave NE/NE 120th Street intersection experienced a total of 13 collisions over the 3-year period from 2017-2019 for a collision rate of 0.61 collisions per MEV. Detailed review of the collision history at this intersection indicated that the majority of the collisions (12 of the 13 total) involved vehicles entering at an angle and vehicles making left-turns.

Based on the data provided by WSDOT, the 124th Ave NE/NE 116th Street intersection experienced a total of 22 collisions over the 3-year period from 2017-2019 for a collision rate of 0.58 collisions per MEV. Detailed review of the collision history at this intersection indicated that the majority of the collisions (16 of the 22 total) involved vehicles making left-turns.

Public Transportation Services

King County-Metro Transit provides public transportation services in the project vicinity. Transit stops are located on NE 120th Street east of Slater Ave NE serving route 225. Transit stops serving Route 239 are also located on 124th Ave NE south of NE 120th Street.

Route 225 offers weekday and weekend service between the Kenmore Park & Ride, Kingsgate Park & Ride, Totem Lake Transit Center, and the Redmond Technology Center station. Weekday service runs from approximately 5:30 a.m. to 10:30 p.m. with approximate 30 to 60-minute headways.

Route 239 offers weekday and weekend service between the University of Washington Bothell campus, the Totem Lake Transit Center, and the Kirkland Transit Center. Weekday service runs from approximately 5:00 a.m. to 12:00 p.m. with approximate 30 to 60-minute headways.

Non-Motorized Transportation Facilities

On both NE 120th Street and Slater Ave NE, sidewalks are located on both sides of the street in the project vicinity.

Bicycle lanes in the immediate vicinity of the project are located on both sides of NE 120th Street, Slater Ave NE, and 124th Ave NE.

Based on traffic counts conducted at the study intersections, there is moderate pedestrian activity in the immediate site vicinity.

FUTURE CONDITIONS AND PROJECT TRAFFIC IMPACTS

Planned Transportation Improvements

This section describes funded planned transportation improvements included in the City of Kirkland's 2019-2024 *Capital Improvement Program* (CIP) in the study area. Based on the most recent CIP, three planned improvements are located in the study area.

STC0720000: NE 120th Street Roadway Extension.
This project will install a new NE 120th Street roadway from 124th Ave NE to 116th Ave NE. The project will include signal modifications at 124th Ave NE/NE 120th Street, bike facilities, sidewalks, and planter strips along the entire alignment.

STC 0591200 and STC 0591300: 124th Ave NE Roadway Improvements (North Section).
This project includes widening the existing roadway between NE 116th Street and NE 124th Street from 3 to 5 lanes to include a two-way center turn lane and improved pedestrian crossing(s). The project is intended to reconstruct existing sidewalks, transit stops, and bicycle lanes impacted by the roadway widening. Construction of this project is anticipated to begin in 2022.

STC 0640000: 124th Ave NE Roadway Improvements (South Section).
This project would widen approximately 1.8 miles of roadway between NE 85th Street and NE 116th Street to 3-lanes with a center two-way left-turn lane with bike lanes in both directions, and sidewalks along both sides of the roadway.

Project Trip Generation

The trip generation estimates for the proposed and existing uses were based on methodology documented in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition for Land Use Code (LUC) 221 (Multifamily Housing (Mid-Rise)), LUC 820 (Shopping Center), LUC 110 (General Light Industrial), and LUC 150 (Warehousing). Reductions for PM peak hour pass-by trips and peak hour internal trips were estimated based on the methodology documented in the ITE *Trip Generation Handbook*, 3rd Edition. Reduction for weekday daily and AM peak hour pass-by trips were based on City of Kirkland *Transportation Impact Fee Rate Study* (2015). Reductions for weekday daily internal trips only were based on methodology documented in the ITE *Trip Generation Handbook*, 2nd Edition.

The net new trips associated with the Slater Mixed-Use development were determined by estimating the total trips from the proposed project and then subtracting out the trips generated by the existing use to be removed. The net new weekday daily, AM and PM peak hour trip generation for the proposed project is summarized in Table 6. The detailed trip generation estimate is included in Appendix D.

Table 6
Trip Generation Summary

Weekday Time Period	Net New Trips Generated In	Out	Total
Daily			
Total Proposed Driveway Trips	2,129	2,130	4,259
Less Pass-by Trips	-317	-318	-635
Proposed Net Trips	1,812	1,812	3,624
Less Existing Use Trips	-78	-78	-156
Net New Trips	**1,734**	**1,734**	**3,468**
AM Peak Hour			
Total Proposed Driveway Trips	140	179	319
Less Pass-by Trips	-35	-21	-56
Proposed Net Trips	105	158	263
Less Existing Use Trips	-28	-7	-35
Net New Trips	**77**	**151**	**228**
PM Peak Hour			
Total Proposed Driveway Trips	172	135	307
Less Pass-by Trips	-22	-24	-46
Proposed Net Trips	150	111	261
Less Existing Use Trips	-9	-28	-37
Net New Trips	**141**	**83**	**224**

As shown in Table 6, the proposed Slater Mixed-Use development is estimated to generate a total of 3,468 net new weekday daily trips with 228 net new trips occurring during the weekday AM peak hour (77 entering, 151 exiting), and 224 net new trips occurring during the weekday PM peak hour (141 entering, 83 exiting).

Transportation Concurrency

The project was evaluated for transportation concurrency by the City of Kirkland. Based on the results, the City issued a concurrency test notice in September 2020 that determined the Slater Mixed-Use project meets the City's transportation concurrency requirements.

Project Trip Distribution and Assignment

AM and PM peak hour traffic generated by the proposed Slater Mixed-Use project was assigned to the vicinity street system and study intersections based on the traffic distribution provided in the City's concurrency model (see Appendix E). In general, project trips are distributed as follows:

- 65 percent to/from the north on 124th Ave NE and Slater Ave NE
- 30 percent to/from the south on 124th Ave NE and Slater Ave NE
- 5 percent to/from the east on NE 120th Street

The resulting assignment of the net new AM and PM peak hour project trips and pass-by trips through the study intersections and site access driveways are shown in Figures 5 and 6, respectively.

Weekday daily trips were assigned to the roadway network based on the distribution of PM peak hour trips as described above. The distribution of weekday daily project trips at intersections in the project vicinity is shown in the table in Appendix F. A figure illustrating the assignment of weekday daily net new project trips at the study intersections and site access driveways is also included in Appendix F.

Future Traffic Volumes

Future year 2025 No Action (without project) AM peak hour traffic volumes at the study intersections were estimated by applying a 2.5 percent annual growth rate to the 2020 existing volumes (see Figure 3). The 2025 No Action AM peak hour traffic volumes at the study intersections are illustrated in Figure 7.

Future year 2025 No Action (without project) PM peak hour traffic volumes at the study intersections were estimated by applying a 2.0 percent annual growth rate to the 2020 existing volumes (see Figure 4) and also including pipeline project volumes as provided by the City. The resulting 2025 No Action PM peak hour traffic volumes at the study intersections are illustrated in Figure 8.

Adding the proposed project's net new and pass-by trip assignment (shown in Figures 5 and 6) to the future 2025 No Action traffic volumes (shown in Figures 7 and 8) results in the 2025 With Project AM and PM peak hour traffic volumes at the study intersections and site access driveways which are shown in Figures 9 and 10, respectively.

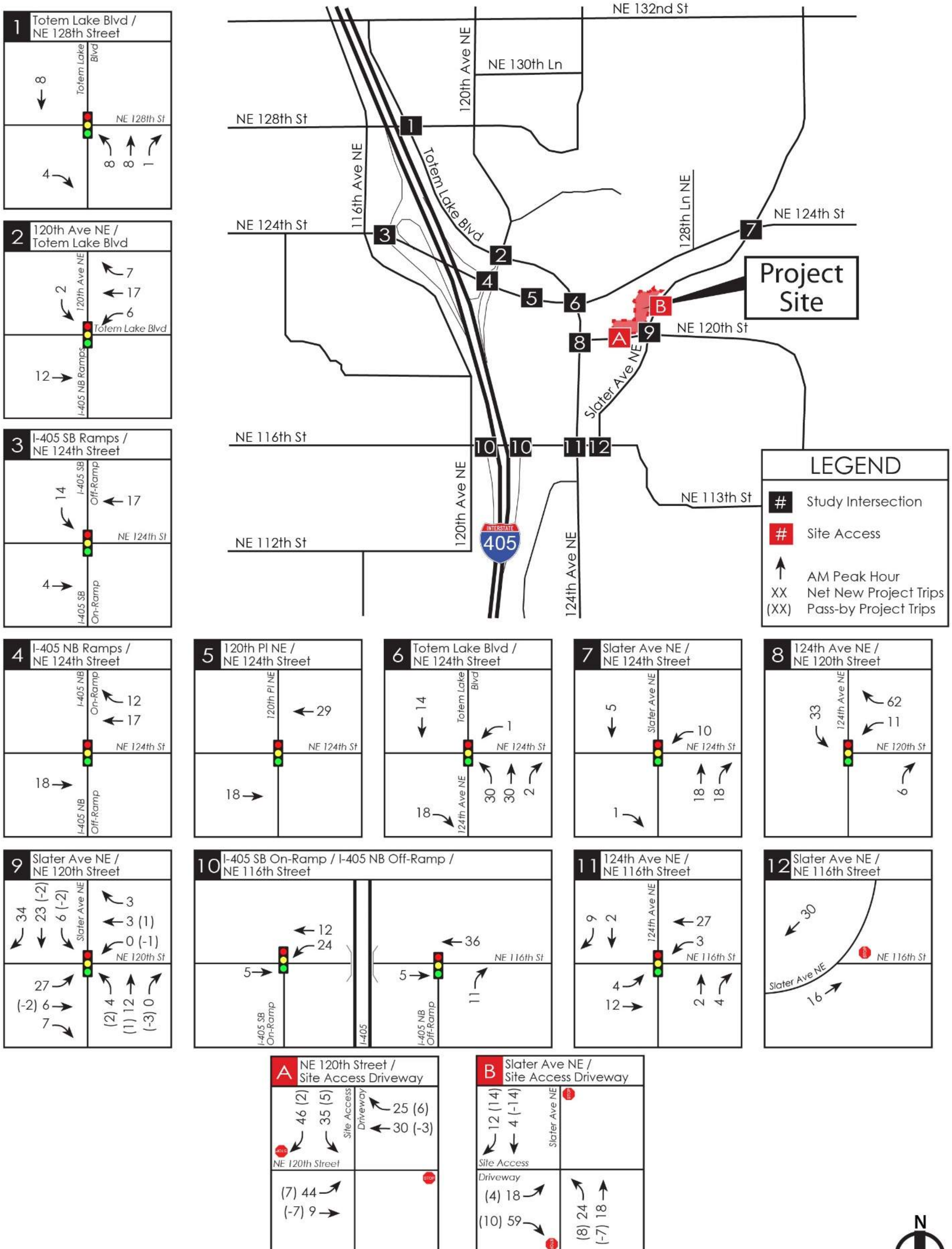


Figure 5: AM Peak Hour Project Trip Assignment

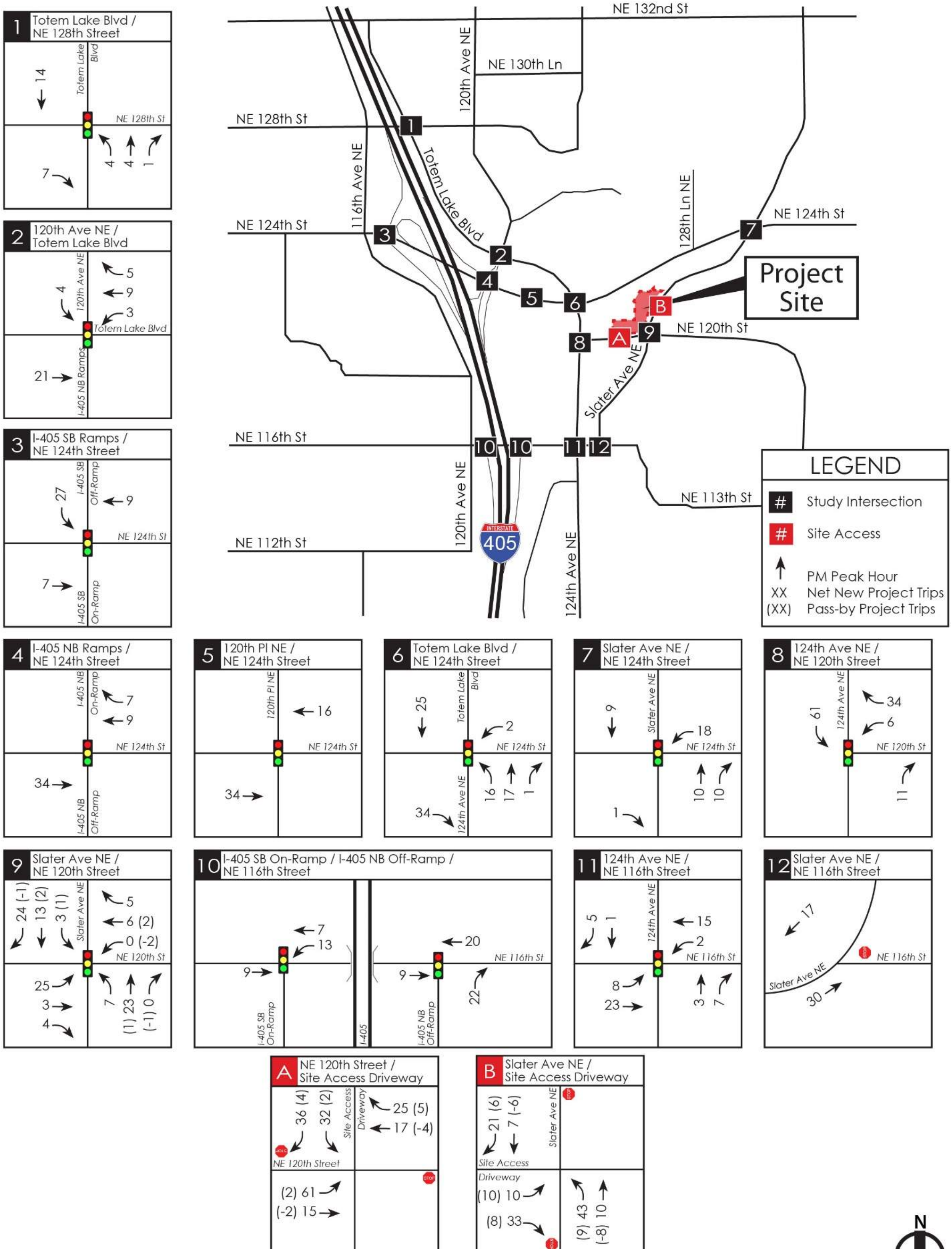


Figure 6: PM Peak Hour Project Trip Assignment

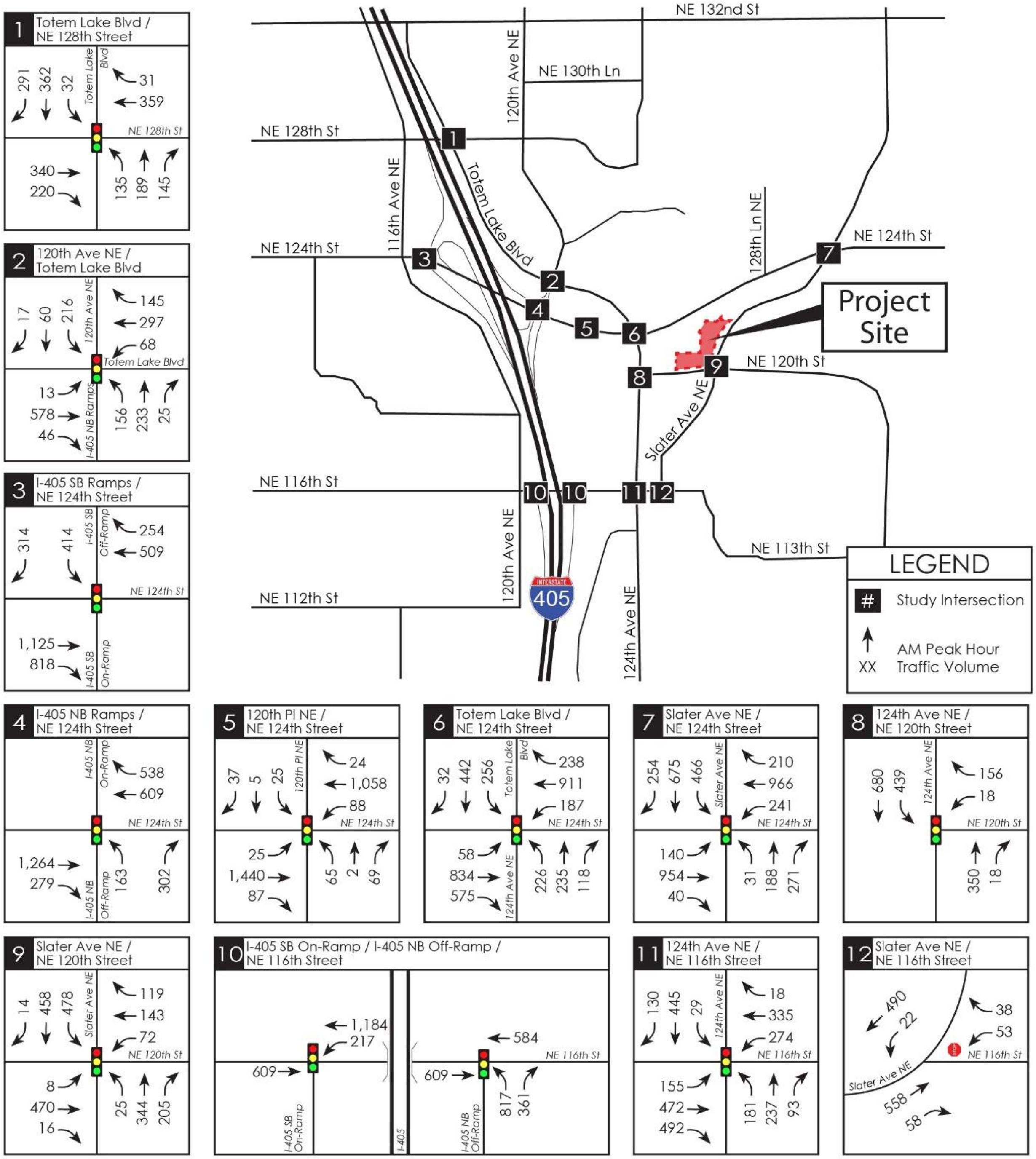


Figure 7: 2025 No Action AM Peak Hour Traffic Volumes

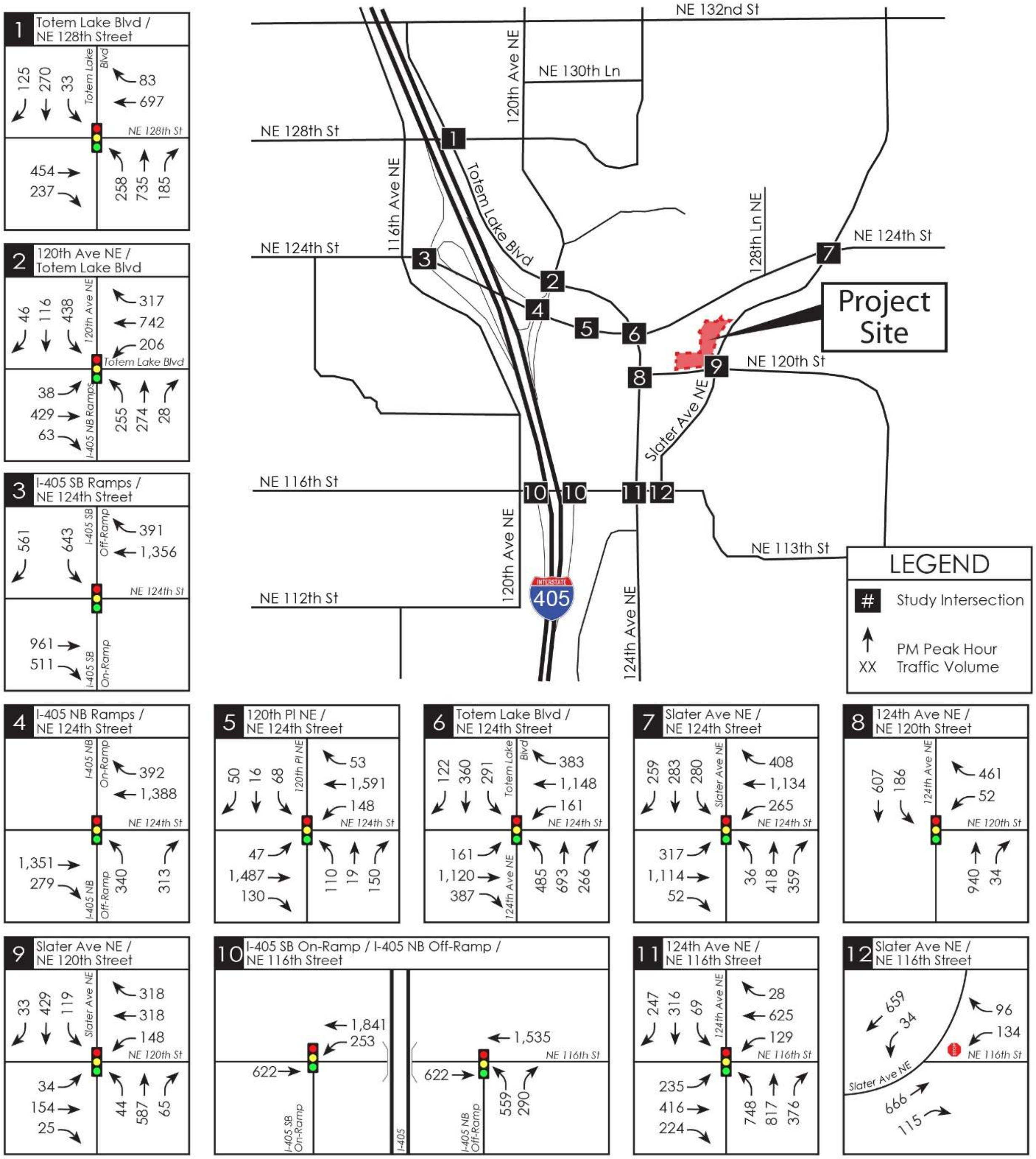


Figure 8: 2025 No Action PM Peak Hour Traffic Volumes

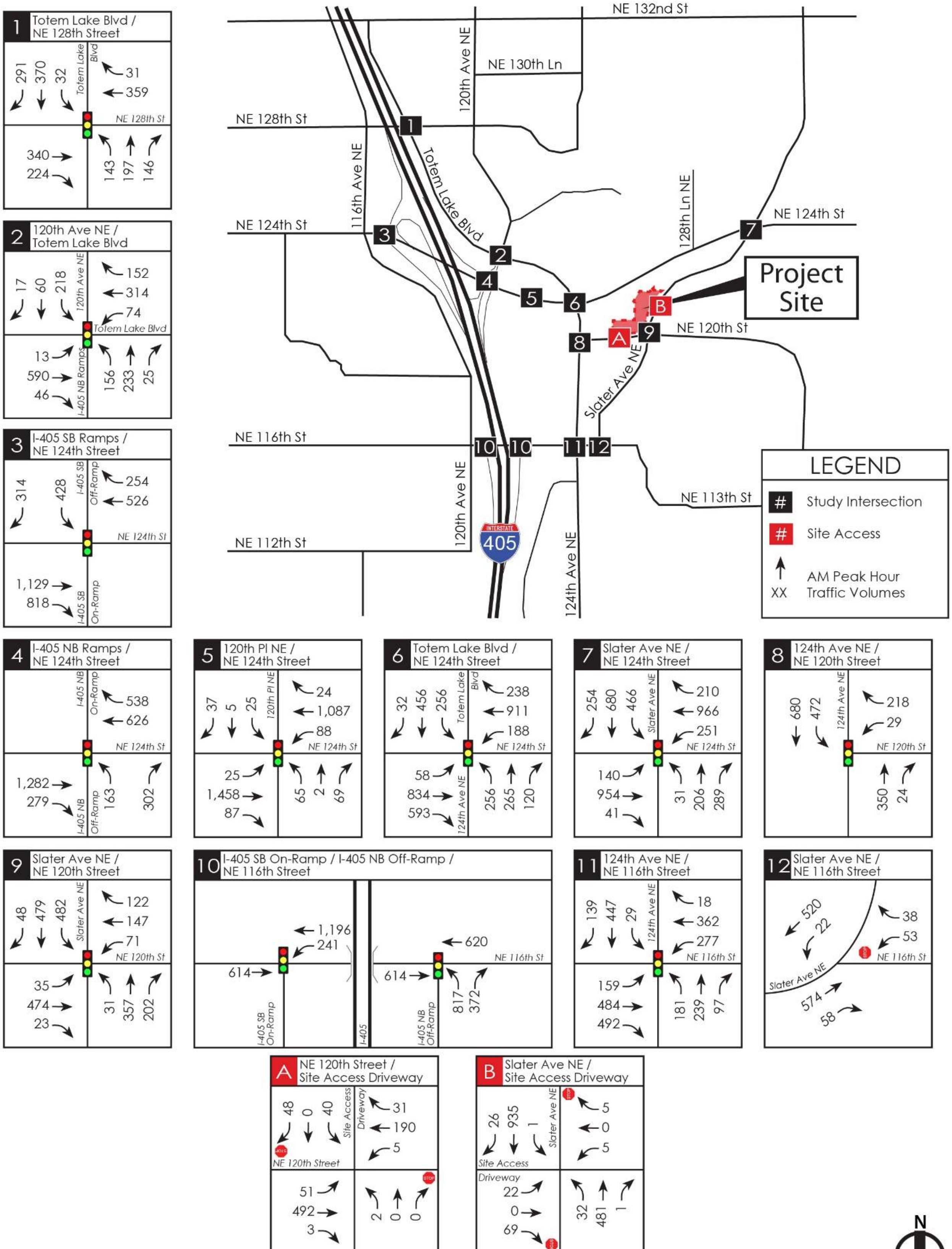


Figure 9: 2025 With Project AM Peak Hour Traffic Volumes

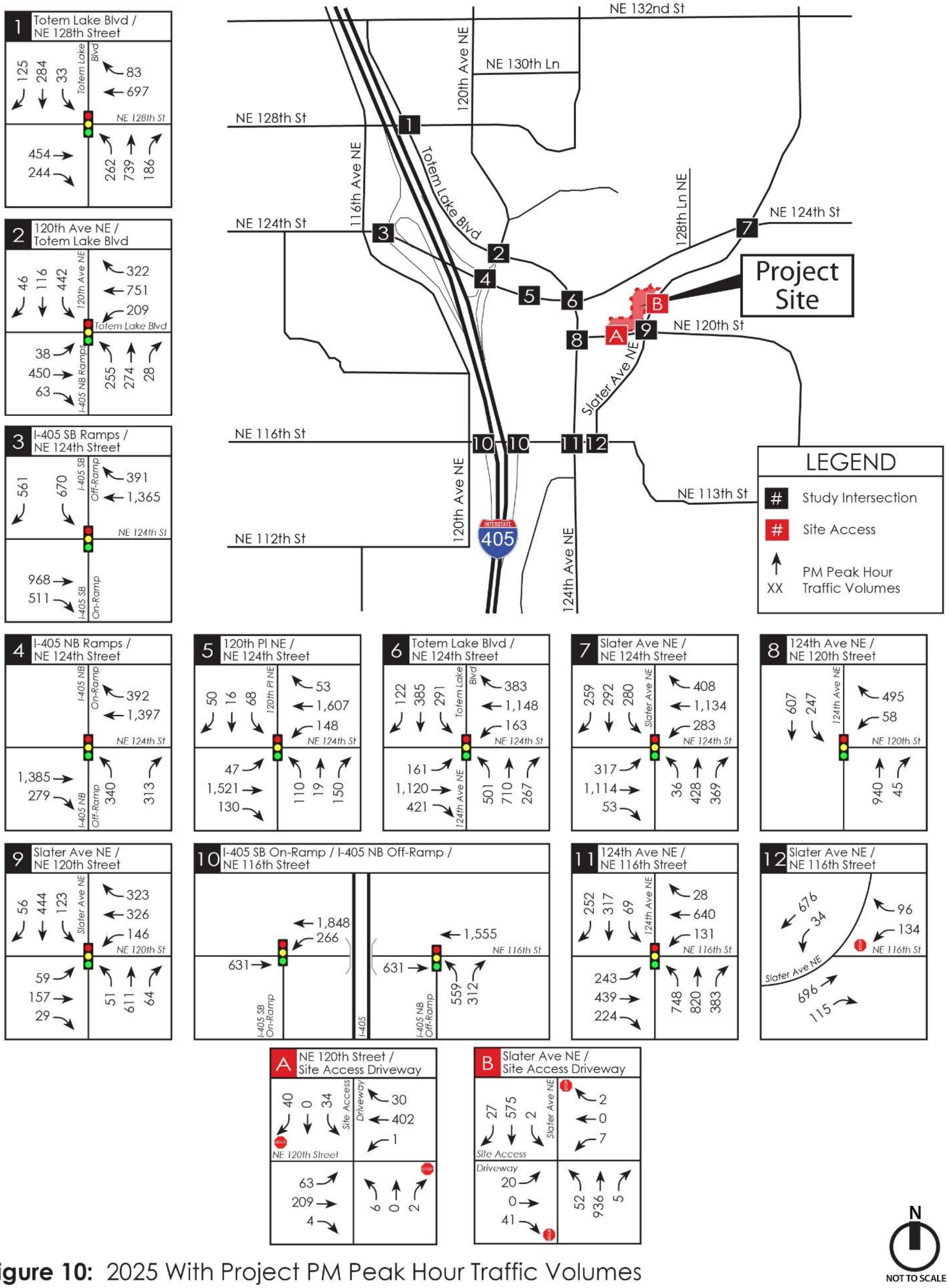


Figure 10: 2025 With Project PM Peak Hour Traffic Volumes

Level of Service at Study Intersections

A Level of Service (LOS) analysis was conducted at the study intersections for future year 2025 No Action (without project) and With-Project conditions. The roadway network and signal timing assumed in the year 2025 LOS analysis is the same as existing conditions except for inclusion of the planned improvement to widen 124th Ave NE to five lanes from NE 116th Street to NE 120th Street since this planned improvement has been identified for construction by 2025.

The 2025 weekday AM and PM peak hour LOS results at the study intersections are summarized in Table 7. The LOS worksheets are included in Appendix B.

Table 7
2025 Peak Hour Level of Service Summary

Time Period / Study Intersection	2025 No Action LOS	2025 No Action Delay (sec)	2025 With Project LOS	2025 With Project Delay (sec)
AM PEAK HOUR				
Signalized:				
1) Totem Lake Blvd / NE 128th Street	C	34.6	C	34.9
2) 120th Ave NE / Totem Lake Blvd	C	21.2	C	21.3
3) I-405 SB Off-Ramp / NE 124th Street	C	27.5	C	27.9
4) I-405 NB Off-Ramp / NE 124th Street	A	7.3	A	7.2
5) 120th Pl NE / NE 124th Street	A	5.9	A	5.9
6) Totem Lake Blvd / NE 124th Street	D	45.6	D	46.1
7) Slater Ave NE / NE 124th Street	F	86.0	F	90.6
8) 124th Ave NE / NE 120th Street	A	5.2	A	6.0
9) Slater Ave NE / NE 120th Street	F	82.3	F	85.5
10) I-405 NB Off-Ramp / I-405 SB On-Ramp / NE 116th St	D	37.4	D	37.9
11) 124th Ave NE / NE 116th Street	C	27.1	C	27.9
Two-Way Stop-Controlled:				
12) Slater Ave NE / NE 116th Street				
Westbound Left-Turn	C	18.8	C	19.5
Westbound Right-Turn	B	12.9	B	13.1
Southbound Left-Turn	A	9.2	A	9.2
PM PEAK HOUR				
Signalized:				
1) Totem Lake Blvd / NE 128th Street	D	42.8	D	41.8
2) 120th Ave NE / Totem Lake Blvd	D	36.7	D	37.4
3) I-405 SB Off-Ramp / NE 124th Street	E	71.5	E	73.3
4) I-405 NB Off-Ramp / NE 124th Street	B	16.9	B	16.8
5) 120th Pl NE / NE 124th Street	C	29.7	C	30.2
6) Totem Lake Blvd / NE 124th Street	E	59.2	E	59.7
7) Slater Ave NE / NE 124th Street	F	96.3	F	100.7
8) 124th Ave NE / NE 120th Street	C	20.1	C	22.2
9) Slater Ave NE / NE 120th Street	E	56.0	E	62.6
10) I-405 NB Off-Ramp / I-405 SB On-Ramp / NE 116th St	C	25.5	C	25.7
11) 124th Ave NE / NE 116th Street	D	45.1	D	48.0
Two-Way Stop-Controlled:				
12) Slater Ave NE / NE 116th Street				
Westbound Left-Turn	E	40.1	E	44.3
Westbound Right-Turn	C	15.9	C	16.4
Southbound Left-Turn	A	9.8	A	9.9

As shown in Table 7, all study intersections are estimated to operate at LOS D or better during the AM and PM peak hours in 2025 without or with the proposed project except for the following intersections:

- I-405 SB Off-Ramp / NE 124th Street (#3) is anticipated to operate at LOS E during the PM peak hour in 2025 without or with the proposed project.
- Totem Lake Blvd / NE 124th Street (#6) is anticipated to operate at LOS E during the PM peak hour in 2025 without or with the proposed project.
- Slater Ave NE / NE 124th Street (#7) is anticipated to operate at LOS F during the AM and PM peak hours in 2025 without or with the proposed project.
- Slater Ave NE / NE 120th Street (#9) is anticipated to operate at LOS F during the AM peak hour and LOS E during the PM peak hour in 2025 without or with the proposed project.
- Slater Ave NE / NE 116th Street (#12) has a westbound left-turn movement that is anticipated to operate at LOS E during the PM peak hour in 2025 without or with the proposed project.

The installation of site specific improvements under SEPA is primarily determined by both the forecasted with-project LOS analysis and the project's proportional share at the study intersections. Table 8 is used as a guide by the City of Kirkland in determining when mitigation under SEPA is required.

Table 8
City Guidelines for Installation of Improvements under SEPA

Peak Hour Intersection LOS with Project Traffic	Install Improvements?
A thru D	No
E	If intersection proportional share > 15%
F	If intersection proportional share > 5%

Table 9 summarizes the project's intersection proportional share at the study intersections estimated to operate at LOS E or LOS F during the weekday AM and PM peak hours in 2025 with the project.

Table 9
Summary of Future Year 2025 Intersection Proportional Share Calculations

Study Intersection	2025 With-Project LOS	Project Proportional Share	Improvements Required under SEPA?
AM PEAK HOUR			
7) Slater Ave NE / NE 124th Street	F	5.61%	YES
9) Slater Ave NE / NE 120th Street	F	9.18%	YES
PM PEAK HOUR			
3) I-405 SB Off-Ramp / NE 124th Street	E	3.75%	NO
6) Totem Lake Blvd / NE 124th Street	E	10.95%	NO
7) Slater Ave NE / NE 124th Street	F	5.61%	YES
9) Slater Ave NE / NE 120th Street	E	9.18%	NO
12) Slater Ave NE / NE 116th Street	E	4.20%	NO

As shown in Table 9, two study intersections are anticipated to operate at LOS E or LOS F during the AM or PM peak hours in 2025 with the project's proportional share calculated to be more than 15 percent and more than 5 percent, respectively. Therefore, the installation of improvements under SEPA is required at the study intersections of Slater Ave NE / NE 124th Street (#7) and Slater Ave NE / NE 120th Street (#9). Potential feasible SEPA improvements at these two intersections were discussed at length with the City since February 2021. A summary of the SEPA mitigation at these two intersections that has been agreed upon between the City and the project applicant is provided below:

- Slater Ave NE / NE 124th Street (#7): This intersection is one of the highest volume intersections in the City of Kirkland and feasible options to improve the forecasted LOS F operations at this intersection are limited as a result of cost, limited right-of-way, and impacts to private properties. During both the AM and the PM peak hours, the northbound through and right-turn movement volumes are similar (see Figure 7 and Figure 8) and the Slater Mixed-Use project is anticipated to add trips to both the northbound through and right-turn movements. Therefore, to mitigate SEPA impacts at the intersection of Slater Ave NE / NE 124th Street, the project will construct the only feasible improvement at the intersection which includes modification of the northbound approach as follows:

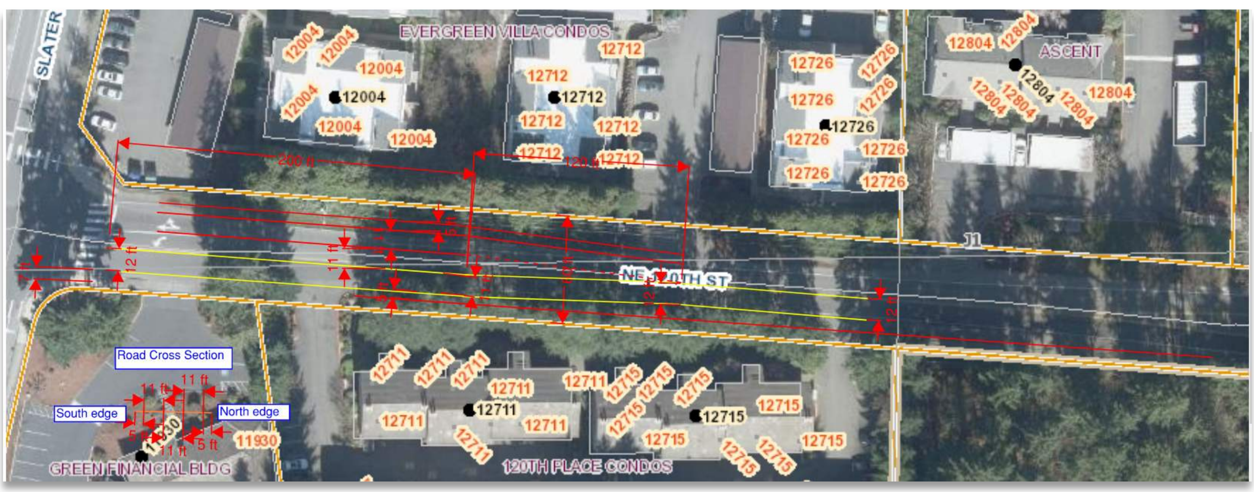
    1. Convert existing northbound shared through-right lane to a drop right-turn only lane. This improvement would include channelization and signage revisions associated with a drop right-turn only lane and signal modifications to add a northbound right-turn overlap phase.

  Mitigation to construct this improvement at the intersection of Slater Ave NE / NE 124th Street is anticipated to result in an improved delay of 74.1 seconds per vehicle (sec/veh) during the AM peak hour in 2025 with the proposed project (compared to LOS F, 86.0 sec/veh without the project and LOS F, 90.6 sec/veh with the project and no improvements). Similarly, the improvement is anticipated to result in an improved delay of 93.4 seconds per vehicle (sec/veh) during the PM peak hour with the proposed project (compared to LOS F, 96.3 sec/veh without the project and LOS F, 100.7 sec/veh with the project and no improvements). The LOS worksheets for the proposed mitigation are included in Appendix B.

Although the identified improvement at Slater Ave NE / NE 124th Street would not improve the intersection to LOS E, the proposed mitigation would improve the overall LOS back to a pre-project condition and satisfy the intent of SEPA mitigation because it is reasonable and provides the appropriate mitigation (nexus) between mitigating measures and the Slater Mixed-Use project's specific impacts at the intersection.

- Slater Ave NE / NE 120th Street (#9): In order to mitigate the project's SEPA impacts at the intersection of Slater Ave NE / NE 120th St, the project will be required to construct improvements as follows:
    1. Extend the westbound approach lanes on NE 120th Street (left-turn only and through-right lanes) to provide a total of 200 feet full-width storage length.
    2. Provide a 120-foot taper to transition to the existing roadway section to the east.
    3. Provide a 5-foot bike lane on the north side on NE 120th Street for the full length of the improvement, connecting to the existing bike lane to the east.
    4. Provide vertical curb along the northern edge of the westbound approach improvements consistent with the existing condition.

A preliminary concept plan illustrating the required improvements on NE 120th Street was provided by the City and is included below.



Site Access Analysis

An analysis of the Slater Mixed-Use development's proposed site access driveways on NE 120th Street and Slater Ave NE was conducted for 2025 With-Project conditions. The site access analysis includes an assessment of peak hour LOS, queuing, spacing, and sight distance.

Site Access Locations and Spacing

The Slater Mixed-Use project proposes two primary full access vehicular access driveways: one on NE 120th Street and one on Slater Ave NE (see Figure 2), both of which would provide access to the proposed residential and retail uses. The project also proposes two additional curb cut driveways for emergency vehicle and fire access only, one each on NE 120th Street and Slater Ave NE. The proposed emergency vehicle/fire access only driveway on Slater Ave NE would be restricted to right-in, right-out movements only.

Both NE 120th Street and Slater Ave NE are minor arterials. Based on City of Kirkland guidelines for driveway spacing, the minimum recommended separation between driveways on arterial streets is 150 feet. The two proposed primary vehicular access driveways on NE 120th Street and Slater Ave NE would meet the City's driveway spacing standards.

The proposed emergency vehicle and fire access driveways on NE 120th Street and Slater Ave NE would not meet the City's minimum 150 foot spacing. However, these proposed driveways would only be used by fire trucks or other vehicles in an emergency situation.

Driveway LOS and Queuing

Future year 2025 With-Project AM and PM peak hour level of service (LOS) and queue analyses were conducted at the proposed primary site access driveways on NE 120th Street and Slater Ave NE based on the methodology and procedures outlined in the 6th Edition of the *Highway Capacity Manual* (HCM) using the *Synchro 10* software program. The 2025 With-Project AM and PM peak hour volumes at the driveways used in this analysis were shown previously in Figures 9 and 10. It should be noted that a LOS and queuing analysis was not conducted at the proposed emergency vehicle/fire access only driveways because these driveways are only anticipated to be used by fire trucks or other vehicles in an emergency situation.

The weekday AM and PM peak hour LOS and queue results at the proposed Slater Mixed-Use site access driveways are summarized in Table 10. The LOS and queue worksheets are included in Appendix G.

Table 10
2025 With-Project Peak Hour LOS and Queue Summary at Site Access Driveways

	AM PEAK HOUR			PM PEAK HOUR		
Driveway Location and Movement	LOS[1]	Delay (sec)	Queue Length[2]	LOS[1]	Delay (sec)	Queue Length[2]
Two-Way Stop-Controlled:						
A) NE 120th Street / Site Access Driveway						
Northbound Shared Left-Right	C	15.7	0 veh	B	14.0	< 1 veh
Southbound Shared Left-Right	B	13.7	1 veh	B	14.0	1 veh
Eastbound Left-Turn	A	7.8	< 1 veh	A	8.5	< 1 veh
Westbound Left-Turn	A	8.5	0 veh	A	7.7	0 veh
B) Slater Ave NE / Site Access Driveway						
Northbound Left-Turn	B	10.7	< 1 veh	A	9.1	< 1 veh
Southbound Left-Turn	A	8.5	0 veh	B	10.4	0 veh
Eastbound Shared Left-Right	D	28.5	2 veh	C	21.2	1 veh
Westbound Shared Left-Right	C	23.3	< 1 veh	D	27.5	< 1 veh

1. LOS reported by movement for unsignalized intersections.
2. Queues are 95th Percentile queues expressed in vehicles (veh). < 1 veh indicates 95th percentile queue statistically less than 1 vehicle.

As shown in Table 10, the results of the LOS and queue analyses show that all controlled movements at the proposed Slater Mixed-Use project driveways on NE 120th Street and Slater Ave NE are expected to operate at LOS D or better with minimal queuing in 2025 during the AM and PM peak hours. Additionally, no conflicts or safety concerns are expected along both the NE 120th Street and Slater Ave NE corridors with the proposed Slater Mixed-Use project.

Sight Distance at Sight Access

Intersection sight distance and stopping sight distance at the proposed primary site access locations on NE 120th Street and Slater Ave NE were field verified by TENW in October 2020. It should be noted that sight distance was not evaluated at the proposed emergency vehicle only access driveways on NE 120th Street and Slater Ave NE since these driveways would only be used by fire trucks or other vehicles in an emergency situation.

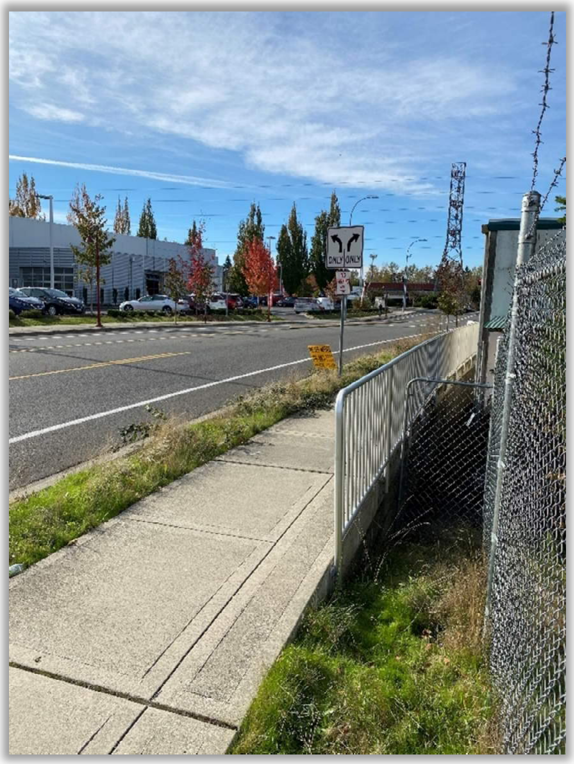
Intersection (entering) sight distance was measured based on the *City of Kirkland Department of Public Works Pre-Approved Plans Policy R-13 (Intersection Sight Distance).* Stopping sight distance was measured based on *AASHTO-Geometric Design of Highways and Streets, 4th Edition.* There is no posted speed limit on NE 120th Street along the project frontage so the speed limit was assumed to be 35 mph consistent with the posted speed limit on NE 120th Street east of Slater Ave NE. The posted speed limit on Slater Ave NE is 35 mph along the project frontage.

Sight Distance at the Driveways on NE 120th Street

City of Kirkland Policy R-13 Table 2 does not include entering sight distance values for a type E3 driveway on a roadway with a 35 mph posted speed and average daily traffic (ADT) less than 6,000. Therefore, on NE 120th Street, the "recommended" (desirable) value for intersection (entering) sight distance is conservatively assumed to be 390 feet based on driveway type E3 with ADT greater than 6,000. The intersection sight distance is measured from a setback point on the driveway approach 14 feet back from the edge of the traveled way. The intersection sight distance looking to the east and west on NE 120th Street from the proposed project access driveways was verified to be in excess of 390 feet. Therefore, intersection sight distance standards are the proposed primary site access driveway on NE 120th Street.

For a 35 mph posted speed (40 mph design speed) on NE 120th Street, the recommended minimum value for stopping sight distance is 305 feet (*AASHTO* Table 3-1) assuming level terrain. Approaching the proposed site access driveway on NE 120th Street, the available stopping sight distances (both eastbound and westbound) were verified to exceed (meet) the applicable standards.

View looking east from the proposed driveway on NE 120th Street

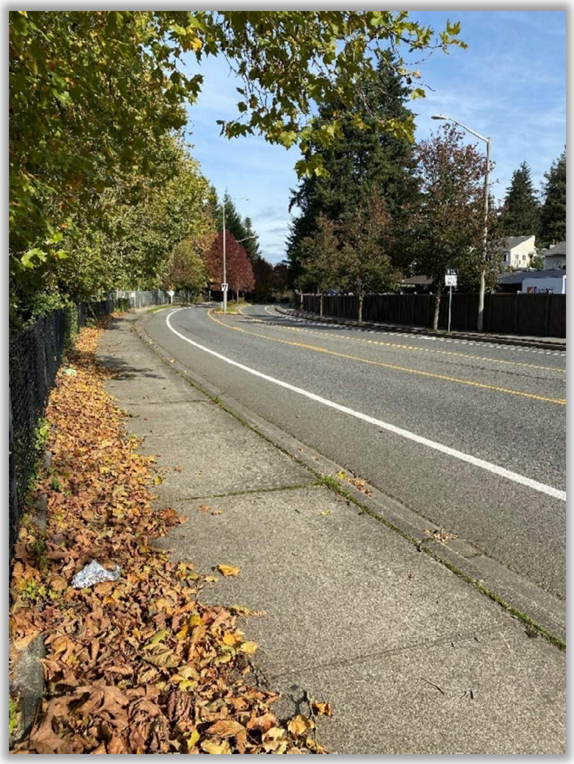


View looking west from the proposed driveway on NE 120th Street

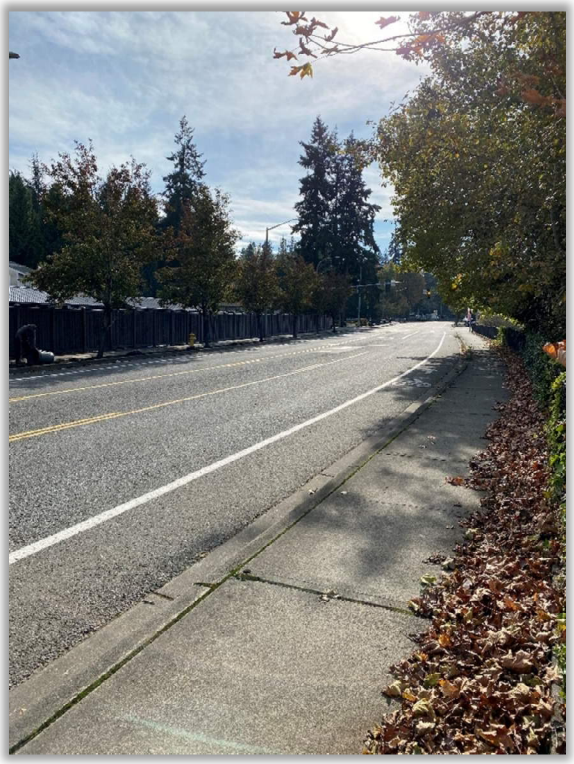
Sight Distance at the Driveways on Slater Ave NE

For a 35 mph posted speed and an ADT over 6,000 on Slater Ave NE, the "recommended" (desirable) value for intersection (entering) sight distance is 390 feet based on driveway type E3 (Policy R-13 Table 2). The intersection sight distance is measured from a setback point on the driveway approach 14 feet back from the edge of the traveled way. The intersection sight distance looking to the north and south on Slater Ave NE from the proposed project driveway was verified to be in excess of 390 feet. Therefore, intersection sight distance standards are met at the proposed site access location on Slater Ave NE.

For a 35 mph posted speed (40 mph design speed) on Slater Ave NE, the recommended minimum value for stopping sight distance is 305 feet (*AASHTO* Table 3-1) assuming level terrain. Approaching the proposed site access driveway on Slater Ave NE, the available stopping sight distance (both northbound and southbound) was verified to exceed (meet) the applicable standards.



View looking north from the proposed driveway on Slater Ave NE



View looking north from the proposed driveway on Slater Ave NE

Queuing Impacts of Study Intersections at Site Driveways

Vehicle queues extending from the two signalized study intersections adjacent to the site (124th Ave NE/NE 120th Street (#8) and Slater Ave NE/NE 120th Street (#9)) were analyzed to determine the potential effect of on-street queuing on Slater Mixed-Use driveway operations.

The queue results were based on the methodology used by the *Synchro 10* traffic software program and were rounded to the nearest 25 feet. The reported queue lengths are 95th percentile queues and represent a condition that is exceeded only five percent of the time. It should be noted that the signal timing was based on existing timing as provided by the City of Kirkland and WSDOT. No optimization of the timing was performed with the addition of background and project-generated traffic.

The results of the AM and PM peak hour queuing analysis are summarized in Table 11. The queue results are only summarized for the approaches for which queues would potentially impact the Slater Mixed-Use driveways. The queue calculation worksheets are included in Appendix H.

Table 11
2025 Peak Hour Queuing Analysis at Study Intersections Adjacent to Site

		2025 With Project			
		AM PEAK HOUR		PM PEAK HOUR	
Intersection / Movement	Existing Storage (ft)[1]	Average Queue	95th % Queue	Average Queue	95th % Queue

		Length (ft)[1]	Length (ft)[1]	Length (ft)[1]	Length (ft)[1]
8) 124th Ave NE / NE 120th St					
Westbound Left-Turn	150' + TWLTL	25'	50'	50'	325'
Westbound Right-Turn	775'	0'	50'	100'	475'
9) Slater Ave NE / NE 120th St					
Eastbound Left-Turn	150' + TWLTL	25'	50'	25'	75'
Eastbound Through-Right	775'	700'	975'	150'	225'
Southbound Left-Turn	85' + 340' TWLTL	600'	875'	75'	150'
Southbound Thru-Right	> 1,000'	400'	575'	450'	625'

1. TWLTL = more storage available in two-way left-turn lane behind turn pocket.
2. Queues are rounded to the nearest 25 feet.

The Slater Mixed-Use project driveway on NE 120th Street is proposed to be located approximately 315 feet east of the 124th Ave NE/NE 120th Street intersection and approximately 420 feet west of the Slater Ave NE/NE 120th Street intersection. As shown in Table 11, the 95th percentile queues (a condition that is exceeded only five percent of the time) from the westbound approach at the 124th Ave NE/NE 120th Street intersection during the PM peak hour are anticipated to extend beyond the location of the proposed driveway. Both the average queues and 95th percentile queues during the AM peak hour and the average queues during the PM peak hour are not anticipated to extend beyond the location of the proposed driveway on NE 120th Street. Both the average and 95th percentile queues for the eastbound through-right at the Slater Ave NE/NE 120th Street intersection are anticipated to extend beyond the location of the proposed driveway. Note that a center two-way left-turn lane exists on NE 120th Street and could be utilized as refuge by vehicles making an exiting left-turn movement from the project driveway onto NE 120th Street during times of congestion.

The proposed project driveway on Slater Ave NE would be located approximately 260 feet north of the intersection of Slater Ave NE/NE 120th Street. As shown in Table 11, both the average and 95th percentile queues from the southbound approach during the AM and PM peak hours at the Slater Ave NE/NE 120th Street intersection are anticipated to extend beyond the location of the proposed driveway. The queue results show that entering northbound left-turns and exiting eastbound left-turns at the proposed driveway on Slater Ave NE may be difficult during the AM and PM peak hours. The Slater Ave Mixed-Use project's garage configuration will allow exiting traffic at these driveways to self-regulate. Vehicles exiting the Slater Mixed-Use site during the AM and PM peak hour who are destined to the north on Slater Ave NE may choose to exit via the driveway on NE 120th Street instead of the driveway on Slater Ave NE. Additionally, it should be noted that approximately 70% of the project generated entering traffic during the AM peak hour is associated with the commercial retail use which is located on the southwest corner of the site. In the event that the southbound left-turn lane queue at the Slater Ave NE/NE 120th Street intersection is blocking the center two-way left-turn lane which provides northbound left-turn access at the project driveway, entering traffic from the east on NE 120th Street or south on Slater Ave NE are likely to use the driveway on NE 120th Street.

Parking

On-site parking would be provided by a 776-stall parking garage for the residential and retail uses. Access to the parking garage would be provided via the project driveways on both NE 120th Street and Slater Ave NE.

Parking Code Requirements

The proposed Slater Mixed-Use development is located in Totem Lake Zone 6A. Table 12 summarizes the minimum off-street parking stalls required per City of Kirkland Zoning Code (KZC) 55.45 for Totem Lake Zone 6A (TL 6A). Note that the minimum parking requirements shown in Table 12 are based on the current land use proposal for the site which includes 484 multifamily apartments and 15,942 SF of commercial (retail) use.

It should be noted that the proposed Slater Mixed-Use development plans to provide 240 on-site bicycle parking spaces. Based on KZC 105.34 (Covered Bicycle Storage), a credit towards parking requirements at a ratio of one (1) less parking stall per six (6) bicycle spaces will be granted resulting in a reduction of 40 parking spaces. The proposed development will also include changing facilities including showers and lockers. The resulting parking requirements summarized below in Table 12 include the reduction for the proposed on-site bicycle parking.

Table 12
Minimum Off-Street Parking Requirements

Land Use		Size	Minimum Off-Street Parking Requirement (stalls)[1]	Required Parking (stalls)
Multifamily Residential				
	Studios	114 units	1.2 / unit	137
	1 Bedroom	199 units	1.3 / unit	259
	2 Bedroom	173 units	1.6 / unit	277
	SUBTOTAL	484 units		673
	Residential Visitors		10% of Total	68
	RESIDENTIAL TOTAL			**741**
Commercial		15,942 SF	1 / 300 SF	54
	COMMERCIAL TOTAL			**54**
			GROSS TOTAL PARKING REQUIRED	795
			Less Reduction for Covered Bicycle Storage (5%)	-34
			NET TOTAL PARKING REQUIRED	**761**

1. Per Kirkland Zoning Code (KZC) 55.45 and KZC 105.20
2. Per KZC 105.34.

As shown in Table 12, the minimum required off-street parking for the Slater Mixed-Use site is 761 parking stalls which would be accommodated by the proposed 776 stall parking supply.

MITIGATION

Concurrency

The project was evaluated for transportation concurrency by the City of Kirkland in September 2020. Based on the results, the City has determined the projects meets the City's transportation concurrency requirements. Therefore, no short-term transportation mitigation was required to obtain concurrency in the City of Kirkland.

SEPA Improvements

The installation of site-specific improvements under SEPA is determined based on the guidelines shown in Table 8. Based on the results of the LOS analysis shown in Table 7, 5 of the 12 study intersections are anticipated to operate at LOS E or LOS F in 2025 with the proposed project. Two study intersections are anticipated to operate at LOS E or LOS F during the AM or PM peak hours in 2025 with the project's proportional share calculated to be more than 15 percent and more than 5 percent, respectively. Therefore, the installation of improvements under SEPA is required at the study intersections of Slater Ave NE / NE 124th Street (#7) and Slater Ave NE / NE 120th Street (#9). Potential SEPA improvements at these two intersections were discussed at length with the City since February 2021. A summary of the SEPA mitigation at these two intersections that has been agreed upon between the City and the project applicant to mitigate the proposed Slater Mixed-Use project's transportation impacts is provided below:

- Slater Ave NE / NE 124th Street (#7): This intersection is one of the highest volume intersections in the City of Kirkland and feasible options to improve the forecasted LOS F operations at this intersection are limited as a result of cost, limited right-of-way, and impacts to private properties. During both the AM and the PM peak hours, the northbound through and right-turn movement volumes are similar and the Slater Mixed-Use project is anticipated to add trips to both the northbound through and right-turn movements. Therefore, to mitigate SEPA impacts at the intersection of Slater Ave NE / NE 124th Street, the project will construct the only feasible improvement at the intersection which includes modification of the northbound approach as follows:

    1. Convert existing northbound shared through-right lane to a drop right-turn only lane. This improvement would include channelization and signage revisions associated with a drop right-turn only lane and signal modifications to add a northbound right-turn overlap phase.

    Mitigation to construct this improvement at the intersection of Slater Ave NE / NE 124th Street is anticipated to result in an improved delay of 74.1 seconds per vehicle (sec/veh) during the AM peak hour in 2025 with the proposed project (compared to LOS F, 86.0 sec/veh without the project and LOS F, 90.6 sec/veh with the project and no improvements). Similarly, the improvement is anticipated to result in an improved delay of 93.4 seconds per vehicle (sec/veh) during the PM peak hour with the proposed project (compared to LOS F, 96.3 sec/veh without the project and LOS F, 100.7 sec/veh with the project and no improvements).

    Although the identified improvement at Slater Ave NE / NE 124th Street would not improve the intersection to LOS E, the proposed mitigation would improve the overall LOS back to a pre-project condition and satisfy the intent of SEPA mitigation because it is reasonable and provides the appropriate mitigation (nexus) between mitigating measures and the Slater Mixed-Use project's specific impacts at the intersection.

- Slater Ave NE / NE 120th Street (#9): In order to mitigate the project's SEPA impacts at the intersection of Slater Ave NE / NE 120th St, the project will be required to construct improvements as follows:
    1. Extend the westbound approach lanes on NE 120th Street (left-turn only and through-right lanes) to provide a total of 200 feet full-width storage length.
    2. Provide a 120-foot taper to transition to the existing roadway section to the east.
    3. Provide a 5-foot bike lane on the north side on NE 120th Street for the full length of the improvement, connecting to the existing bike lane to the east.
    4. Provide vertical curb along the northern edge of the westbound approach improvements consistent with the existing condition.

In addition, based on the results of our access analysis, no improvements at the proposed site access locations are proposed.

Transportation Impact Fees

Transportation mitigation required by the City of Kirkland is payment of a transportation impact fee. The net impact fee shall be calculated based on the project's proposed land use less an impact fee credit for the existing land use. Fees are subject to change, and the final impact fee calculation will be based on the rates and project size in effect at the time of building permit issuance.

Appendix A

Proportional Share Calculations

Table A
City of Kirkland Intersection Proportional Shares

Intersection #	Intersection	Proportional Share (%)	Detailed Analysis Required?
303	120th Ave NE / NE 128th St	0.48%	No
306	**Slater Ave NE / NE 124th St**	**5.61%**	**YES**
307	**Totem Lk Blvd / 120th Ave NE**	**1.78%**	**YES**
308	**NE 124th St / 120th Pl NE**	**1.86%**	**YES**
309	120th Ave NE / NE 118th St	0.27%	No
310	120th Ave NE / NE 116th St	0.89%	No
311	**124th Ave NE / NE 116th St**	**7.60%**	**YES**
312	116th Ave NE / NE 124th St	0.78%	No
314	**Slater Ave NE / NE 120th St**	**9.18%**	**YES**
315	**Totem Lake Blvd / NE 124th St**	**10.95%**	**YES**
317	**I-405 SB off-ramp / NE 124th St**	**3.75%**	**YES**
318	**I-405 NB off-ramp / NE 124th St**	**1.52%**	**YES**
319	**I-405 SB on-ramp / NE 116th St**	**1.56%**	**YES**
320	**I-405 NB off-ramp / NE 116th St**	**3.64%**	**YES**
323	**Slater Ave NE / NE 116th St**	**4.20%**	**YES**
325	128th Lane NE / NE 124th St	0.37%	No
404	124th Ave NE / NE 100th St	0.42%	No
417	132nd Ave NE / NE 100th St	0.73%	No
--	**124th Ave NE / NE 120th St**	**10.09%**	**YES**
--	**Totem Lake Blvd / NE 128th St**	**2.75%**	**YES**

Appendix B

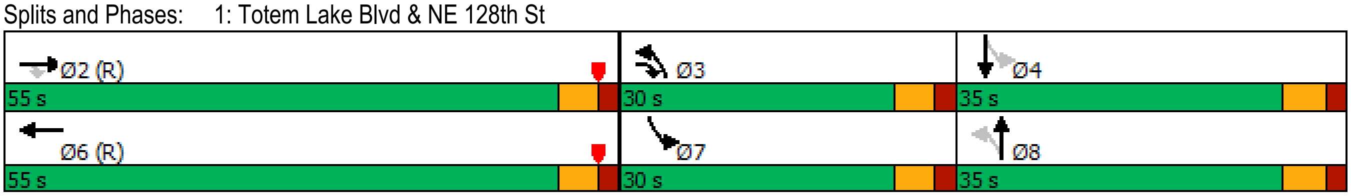
Level of Service (LOS) Worksheets

2020 Existing AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	301	195	0	317	28	119	167	129	29	320	257
Future Volume (vph)	0	301	195	0	317	28	119	167	129	29	320	257
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%			4%			0%	
Storage Length (ft)	0		125	0		0	150		0	50		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		583			545			2241			545	
Travel Time (s)		11.4			10.6			43.7			10.6	
Confl. Peds. (#/hr)	43		16	16		43			15	15		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2	3		6		3	8		7	4	
Permitted Phases			2				8			4		
Detector Phase		2	3		6		3	8		7	4	
Switch Phase												
Minimum Initial (s)		7.0	3.0		7.0		3.0	5.0		3.0	5.0	
Minimum Split (s)		31.5	8.5		35.5		8.5	33.9		8.5	10.9	
Total Split (s)		55.0	30.0		55.0		30.0	35.0		30.0	35.0	
Total Split (%)		45.8%	25.0%		45.8%		25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)		3.5	3.5		3.5		3.5	3.9		3.5	3.9	
All-Red Time (s)		2.0	2.0		2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5		5.5		5.5	5.9		5.5	5.9	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Recall Mode		C-Min	None		C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: Totem Lake Blvd & NE 128th St



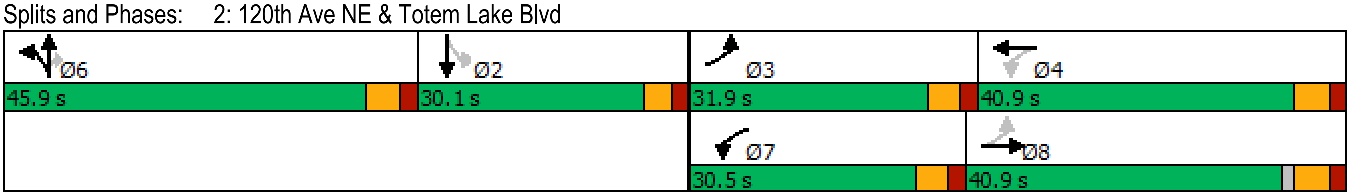
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	301	195	0	317	28	119	167	129	29	320	257
Future Volume (veh/h)	0	301	195	0	317	28	119	167	129	29	320	257
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1997	1997	0	1841	1841	1776	1776	1776	1870	1870	1870
Adj Flow Rate, veh/h	0	301	129	0	317	28	119	167	129	29	320	257
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	4	4	0	4	4	2	2	2	2	2	2
Cap, veh/h	0	2225	1104	0	1903	167	205	472	340	280	379	297
Arrive On Green	0.00	0.59	0.59	0.00	0.59	0.59	0.07	0.25	0.25	0.02	0.20	0.20
Sat Flow, veh/h	0	3895	1679	0	3338	285	1692	1856	1338	1781	1876	1468
Grp Volume(v), veh/h	0	301	129	0	170	175	119	151	145	29	303	274
Grp Sat Flow(s),veh/h/ln	0	1897	1679	0	1749	1782	1692	1687	1507	1781	1777	1567
Q Serve(g_s), s	0.0	4.3	3.4	0.0	5.3	5.4	6.5	8.8	9.5	1.5	19.7	20.3
Cycle Q Clear(g_c), s	0.0	4.3	3.4	0.0	5.3	5.4	6.5	8.8	9.5	1.5	19.7	20.3
Prop In Lane	0.00		1.00	0.00		0.16	1.00		0.89	1.00		0.94
Lane Grp Cap(c), veh/h	0	2225	1104	0	1025	1045	205	429	383	280	360	317
V/C Ratio(X)	0.00	0.14	0.12	0.00	0.17	0.17	0.58	0.35	0.38	0.10	0.84	0.87
Avail Cap(c_a), veh/h	0	2225	1104	0	1025	1045	431	429	383	610	431	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	11.2	7.7	0.0	11.4	11.4	35.0	36.6	36.9	37.1	46.0	46.3
Incr Delay (d2), s/veh	0.0	0.1	0.2	0.0	0.3	0.3	1.8	0.5	0.6	0.1	12.2	16.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.8	1.2	0.0	2.1	2.2	2.7	3.7	3.6	0.7	9.8	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.3	7.9	0.0	11.7	11.7	36.8	37.1	37.5	37.2	58.2	62.5
LnGrp LOS	A	B	A	A	B	B	D	D	D	D	E	E
Approach Vol, veh/h		430			345			415			606	
Approach Delay, s/veh		10.3			11.7			37.2			59.1	
Approach LOS		B			B			D			E	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		75.9	14.0	30.2		75.9	7.7	36.4				
Change Period (Y+Rc), s		5.5	5.5	5.9		5.5	5.5	5.9				
Max Green Setting (Gmax), s		49.5	24.5	29.1		49.5	24.5	29.1				
Max Q Clear Time (g_c+I1), s		6.3	8.5	22.3		7.4	3.5	11.5				
Green Ext Time (p_c), s		3.7	0.2	2.0		3.1	0.0	1.5				
Intersection Summary												
HCM 6th Ctrl Delay			33.2									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	11	511	41	60	262	129	138	206	22	191	53	15
Future Volume (vph)	11	511	41	60	262	129	138	206	22	191	53	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			0%	
Storage Length (ft)	120		0	150		0	150		150	165		0
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2241			1108			295			357	
Travel Time (s)		43.7			21.6			8.0			9.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	2%	2%	2%	5%	5%	5%
Shared Lane Traffic (%)							10%					
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Perm	NA	
Protected Phases	3	8		7	4		6	6			2	
Permitted Phases	8			4					6	2		
Detector Phase	3	8		7	4		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	10.5	12.9		10.5	31.9		33.9	33.9	33.9	11.1	11.1	
Total Split (s)	31.9	40.9		30.5	40.9		45.9	45.9	45.9	30.1	30.1	
Total Split (%)	21.4%	27.5%		20.5%	27.5%		30.8%	30.8%	30.8%	20.2%	20.2%	
Yellow Time (s)	3.5	3.9		3.5	3.9		3.9	3.9	3.9	3.1	3.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.9		5.5	5.9		5.9	5.9	5.9	5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 148.8
Actuated Cycle Length: 84.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: 120th Ave NE & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	511	41	60	262	129	138	206	22	191	53	15
Future Volume (veh/h)	11	511	41	60	262	129	138	206	22	191	53	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1817	1817	1817	2027	2027	2027	1826	1826	1826
Adj Flow Rate, veh/h	12	549	0	65	282	139	148	222	0	205	57	16
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	4	4	4	2	2	2	5	5	5
Cap, veh/h	336	870		321	646	310	333	350	296	380	154	43
Arrive On Green	0.02	0.24	0.00	0.06	0.29	0.29	0.17	0.17	0.00	0.11	0.11	0.11
Sat Flow, veh/h	1795	3676	0	1731	2262	1086	1931	2027	1718	3374	1372	385
Grp Volume(v), veh/h	12	549	0	65	213	208	148	222	0	205	0	73
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1731	1726	1622	1931	2027	1718	1687	0	1757
Q Serve(g_s), s	0.3	7.4	0.0	1.5	5.5	5.7	3.7	5.5	0.0	3.1	0.0	2.1
Cycle Q Clear(g_c), s	0.3	7.4	0.0	1.5	5.5	5.7	3.7	5.5	0.0	3.1	0.0	2.1
Prop In Lane	1.00		0.00	1.00		0.67	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	336	870		321	493	463	333	350	296	380	0	198
V/C Ratio(X)	0.04	0.63		0.20	0.43	0.45	0.44	0.63	0.00	0.54	0.00	0.37
Avail Cap(c_a), veh/h	1185	2318		1022	1117	1050	1428	1499	1271	1560	0	812
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.1	18.3	0.0	14.3	15.8	15.8	20.1	20.8	0.0	22.7	0.0	22.2
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.3	0.6	0.7	0.9	1.9	0.0	1.2	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	2.8	0.0	0.5	1.9	1.9	1.7	2.6	0.0	1.2	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.1	19.1	0.0	14.6	16.4	16.5	21.0	22.7	0.0	23.9	0.0	23.4
LnGrp LOS	B	B		B	B	B	C	C	A	C	A	C
Approach Vol, veh/h		561	A		486			370			278	
Approach Delay, s/veh		19.0			16.2			22.0			23.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.2	6.3	21.3		15.2	8.6	19.0				
Change Period (Y+Rc), s		5.1	5.5	5.9		5.9	5.5	5.9				
Max Green Setting (Gmax), s		25.0	26.4	35.0		40.0	25.0	35.0				
Max Q Clear Time (g_c+I1), s		5.1	2.3	7.7		7.5	3.5	9.4				
Green Ext Time (p_c), s		1.1	0.0	2.6		1.9	0.1	3.7				

Intersection Summary			
HCM 6th Ctrl Delay			19.6
HCM 6th LOS			B

Notes

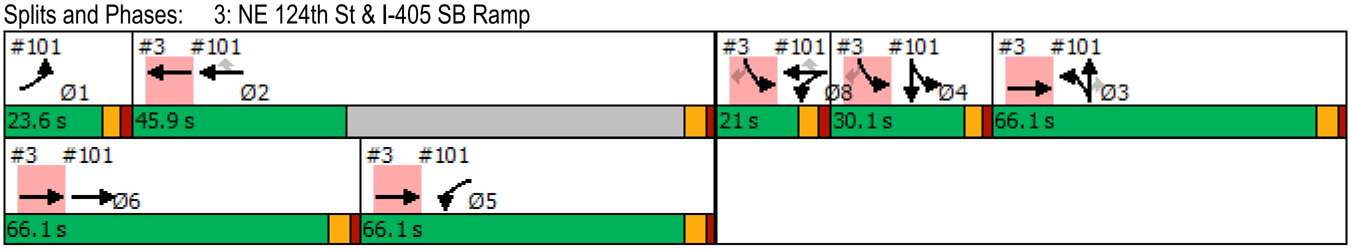
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	995	450	0	366	277						
Future Volume (vph)	0	995	450	0	366	277						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	8	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Right Turn on Red				Yes		Yes						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%						
Shared Lane Traffic (%)						27%						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			45.9				23.6	66.1	30.1	66.1	66.1	21.0
Total Split (%)			18.4%				9%	27%	12%	27%	27%	8%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None

Intersection Summary	
Area Type:	Other
Cycle Length: 249.4	
Actuated Cycle Length: 167.6	
Natural Cycle: 125	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: NE 124th St & I-405 SB Ramp

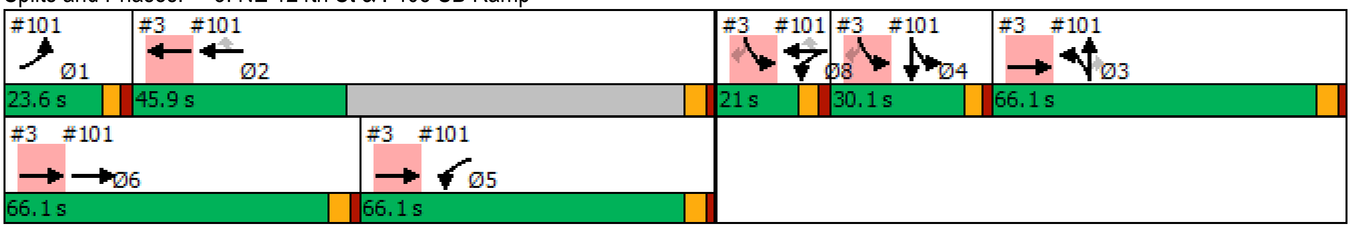


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	995	450	0	366	277						
Future Volume (vph)	0	995	450	0	366	277						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	8	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Satd. Flow (prot)	0	3403	3541	0	3266	1393						
Flt Permitted					0.960							
Satd. Flow (perm)	0	3403	3541	0	3266	1393						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)					9	213						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%						
Shared Lane Traffic (%)						27%						
Lane Group Flow (vph)	0	1047	474	0	464	213						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			45.9				23.6	66.1	30.1	66.1	66.1	21.0
Total Split (%)			18.4%				9%	27%	12%	27%	27%	8%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None
Act Effct Green (s)		112.0	65.9		47.8	47.8						
Actuated g/C Ratio		0.67	0.39		0.29	0.29						
v/c Ratio		0.46	0.34		0.49	0.39						
Control Delay		6.5	36.6		52.0	7.8						
Queue Delay		5.8	0.0		0.0	0.0						
Total Delay		12.4	36.6		52.0	7.8						
LOS		B	D		D	A						
Approach Delay		12.4	36.6		38.1							
Approach LOS		B	D		D							

Intersection Summary	
Area Type:	Other

Cycle Length: 249.4
Actuated Cycle Length: 167.6
Natural Cycle: 125
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 25.5 Intersection LOS: C
Intersection Capacity Utilization 47.8% ICU Level of Service A
Analysis Period (min) 15

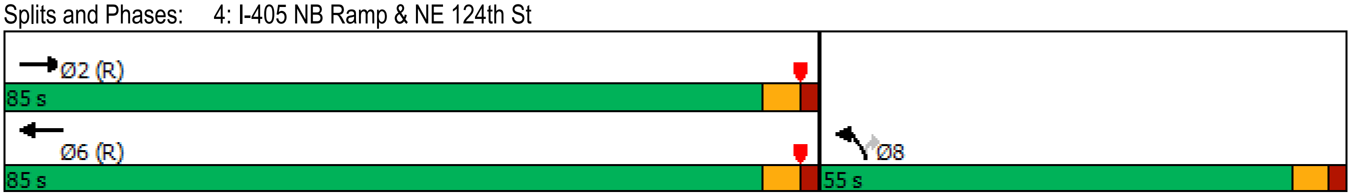
Splits and Phases: 3: NE 124th St & I-405 SB Ramp



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1117	0	0	539	144	267
Future Volume (vph)	1117	0	0	539	144	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			5%	-2%	
Storage Length (ft)		275	0		0	0
Storage Lanes		0	0		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	1373			596	277	
Travel Time (s)	31.2			13.5	6.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	7.0			7.0	5.0	5.0
Minimum Split (s)	13.0			13.0	10.9	10.9
Total Split (s)	85.0			85.0	55.0	55.0
Total Split (%)	60.7%			60.7%	39.3%	39.3%
Yellow Time (s)	4.0			4.0	3.9	3.9
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.0			6.0	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min			C-Min	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 30 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Red	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-405 NB Ramp & NE 124th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1117	0	0	539	144	267
Future Volume (veh/h)	1117	0	0	539	144	267
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1988	0	0	1708	1934	1934
Adj Flow Rate, veh/h	1152	0	0	556	148	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	3	3	3
Cap, veh/h	3231	0	0	2777	213	
Arrive On Green	0.86	0.00	0.00	1.00	0.06	0.00
Sat Flow, veh/h	3976	0	0	3417	3573	1639
Grp Volume(v), veh/h	1152	0	0	556	148	0
Grp Sat Flow(s),veh/h/ln	1889	0	0	1623	1786	1639
Q Serve(g_s), s	8.9	0.0	0.0	0.0	5.7	0.0
Cycle Q Clear(g_c), s	8.9	0.0	0.0	0.0	5.7	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	3231	0	0	2777	213	
V/C Ratio(X)	0.36	0.00	0.00	0.20	0.70	
Avail Cap(c_a), veh/h	3231	0	0	2777	1253	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	0.88	0.00	0.00	0.94	1.00	0.00
Uniform Delay (d), s/veh	2.1	0.0	0.0	0.0	64.6	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	4.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	0.1	2.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.4	0.0	0.0	0.2	69.5	0.0
LnGrp LOS	A	A	A	A	E	
Approach Vol, veh/h	1152			556	148	A
Approach Delay, s/veh	2.4			0.2	69.5	
Approach LOS	A			A	E	

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	125.8	125.8	14.2
Change Period (Y+Rc), s	6.0	6.0	5.9
Max Green Setting (Gmax), s	79.0	79.0	49.1
Max Q Clear Time (g_c+I1), s	10.9	2.0	7.7
Green Ext Time (p_c), s	18.5	6.5	0.7

Intersection Summary	
HCM 6th Ctrl Delay	7.1
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	1273	77	78	935	21	57	2	61	22	4	33
Future Volume (vph)	22	1273	77	78	935	21	57	2	61	22	4	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	11	12	12	12	11	12	12	12
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	130		0	150		0	0		110	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	45			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		596			524			245			186	
Travel Time (s)		11.6			10.2			6.7			5.1	
Confl. Peds. (#/hr)	3		1	1		3			4	4		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.5	30.0		11.5	25.0		30.5	30.5	30.5	23.0	23.0	
Total Split (s)	13.0	87.0		19.0	93.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	9.3%	62.1%		13.6%	66.4%		24.3%	24.3%	24.3%	24.3%	24.3%	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	2.0	2.0	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.5	5.0		5.5	5.0			5.5	5.5		5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 53 (38%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: 120th Pl NE & NE 124th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	1273	77	78	935	21	57	2	61	22	4	33
Future Volume (veh/h)	22	1273	77	78	935	21	57	2	61	22	4	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1934	1934	1934	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	23	1326	80	81	974	22	59	2	0	23	4	34
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	3	3	3	3	3	3	2	2	2
Cap, veh/h	499	2630	158	433	2895	65	150	4	113	69	19	66
Arrive On Green	0.05	1.00	1.00	0.04	0.79	0.79	0.07	0.07	0.00	0.07	0.07	0.07
Sat Flow, veh/h	1781	3405	205	1842	3673	83	1379	54	1572	462	267	918
Grp Volume(v), veh/h	23	691	715	81	487	509	61	0	0	61	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1842	1837	1919	1433	0	1572	1647	0	0
Q Serve(g_s), s	0.4	0.0	0.0	1.2	10.7	10.7	0.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	1.2	10.7	10.7	5.5	0.0	0.0	4.7	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.04	0.97		1.00	0.38		0.56
Lane Grp Cap(c), veh/h	499	1373	1416	433	1448	1512	154	0	113	154	0	0
V/C Ratio(X)	0.05	0.50	0.51	0.19	0.34	0.34	0.40	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	549	1373	1416	535	1448	1512	332	0	320	358	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.85	0.85	0.85	0.85	0.85	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.1	0.0	0.0	2.5	4.3	4.3	62.8	0.0	0.0	62.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.1	1.1	0.1	0.5	0.5	0.6	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.4	0.4	0.4	3.6	3.8	2.2	0.0	0.0	2.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.1	1.1	1.1	2.6	4.8	4.8	63.4	0.0	0.0	63.1	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		1429			1077			61			61	
Approach Delay, s/veh		1.1			4.6			63.4			63.1	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.0	115.4		15.6	11.2	113.2		15.6				
Change Period (Y+Rc), s	5.5	5.0		5.5	5.5	5.0		* 5.5				
Max Green Setting (Gmax), s	7.5	88.0		28.5	13.5	82.0		* 29				
Max Q Clear Time (g_c+I1), s	2.4	12.7		7.5	3.2	2.0		6.7				
Green Ext Time (p_c), s	0.0	2.1		0.1	0.1	4.1		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			5.5									
HCM 6th LOS			A									

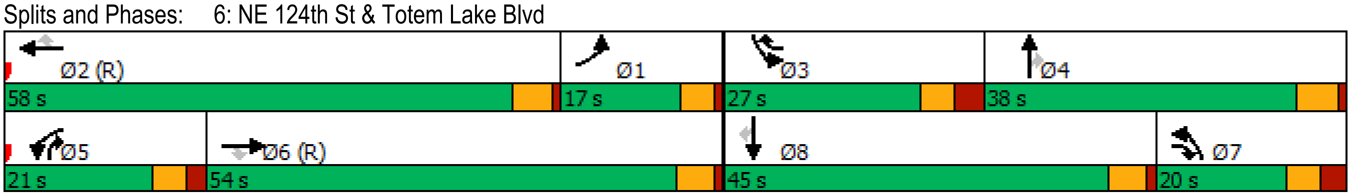
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	737	508	165	805	210	200	208	104	226	391	29
Future Volume (vph)	51	737	508	165	805	210	200	208	104	226	391	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	13	12	10	12	10	12	10	14	11	12
Grade (%)		0%			0%			-5%			0%	
Storage Length (ft)	185		85	180		193	200		170	200		350
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		524			466			250			1108	
Travel Time (s)		10.2			9.1			4.9			21.6	
Confl. Peds. (#/hr)	2		5	5		2	4		9	9		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	6.0	6.0	15.0	6.0	6.0	7.0	6.0	6.0	7.0	7.0
Minimum Split (s)	9.5	42.0	12.5	12.5	31.0	12.5	12.5	37.5	12.5	12.5	35.0	35.0
Total Split (s)	17.0	54.0	20.0	21.0	58.0	27.0	20.0	38.0	21.0	27.0	45.0	45.0
Total Split (%)	12.1%	38.6%	14.3%	15.0%	41.4%	19.3%	14.3%	27.1%	15.0%	19.3%	32.1%	32.1%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.5	3.5	3.5	4.0	4.0
All-Red Time (s)	1.0	1.0	3.0	2.0	1.0	3.0	3.0	1.0	2.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	6.5	5.5	5.0	6.5	6.5	5.5	5.5	6.5	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 64 (46%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: NE 124th St & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	737	508	165	805	210	200	208	104	226	391	29
Future Volume (veh/h)	51	737	508	165	805	210	200	208	104	226	391	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	2037	2037	2037	1961	1885	1885
Adj Flow Rate, veh/h	54	776	463	174	847	139	211	219	27	238	412	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	1	1	1
Cap, veh/h	347	1632	935	197	1345	821	413	472	396	262	585	
Arrive On Green	0.19	0.46	0.46	0.11	0.38	0.38	0.11	0.12	0.12	0.14	0.16	0.00
Sat Flow, veh/h	1781	3554	1643	1781	3554	1579	3763	3870	1688	1867	3582	1598
Grp Volume(v), veh/h	54	776	463	174	847	139	211	219	27	238	412	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1643	1781	1777	1579	1881	1935	1688	1867	1791	1598
Q Serve(g_s), s	3.5	21.2	8.2	13.5	27.2	2.3	7.4	7.4	1.7	17.6	15.2	0.0
Cycle Q Clear(g_c), s	3.5	21.2	8.2	13.5	27.2	2.3	7.4	7.4	1.7	17.6	15.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	347	1632	935	197	1345	821	413	472	396	262	585	
V/C Ratio(X)	0.16	0.48	0.49	0.88	0.63	0.17	0.51	0.46	0.07	0.91	0.70	
Avail Cap(c_a), veh/h	347	1632	935	197	1345	821	413	898	582	273	1023	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	1.00	1.00	1.00	1.00	1.00	1.00	0.76	0.76	0.00
Uniform Delay (d), s/veh	46.8	26.2	6.0	61.4	35.5	6.2	58.8	57.2	41.9	59.3	55.4	0.0
Incr Delay (d2), s/veh	0.2	0.8	1.6	33.4	2.2	0.4	1.1	0.7	0.1	25.2	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	9.1	3.6	7.9	12.1	1.1	3.6	3.7	0.7	10.1	6.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.0	27.0	7.6	94.8	37.7	6.7	59.8	57.9	42.0	84.5	56.5	0.0
LnGrp LOS	D	C	A	F	D	A	E	E	D	F	E	
Approach Vol, veh/h		1293			1160			457			650	A
Approach Delay, s/veh		20.9			42.6			57.9			66.8	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.2	58.0	26.2	23.6	21.0	69.3	21.9	27.9
Change Period (Y+Rc), s	5.0	* 5	6.5	* 6.5	5.5	5.0	6.5	5.0
Max Green Setting (Gmax), s	12.5	* 53	20.5	* 33	15.5	49.0	13.5	40.0
Max Q Clear Time (g_c+I1), s	5.5	29.2	19.6	9.4	15.5	23.2	9.4	17.2
Green Ext Time (p_c), s	0.1	4.2	0.1	1.3	0.0	4.8	0.4	2.6

Intersection Summary	
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	844	36	213	854	186	28	166	240	412	597	224
Future Volume (vph)	123	844	36	213	854	186	28	166	240	412	597	224
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	11	11	11	11	11	11	11
Grade (%)		-2%			-3%			-6%			2%	
Storage Length (ft)	250		80	440		200	150		0	350		0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		421			1236			330			611	
Travel Time (s)		8.2			24.1			6.4			11.9	
Confl. Peds. (#/hr)	10		3	3		10			3	3		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	6.0	10.0		6.0	10.0	10.0
Minimum Split (s)	12.5	36.5	36.5	12.5	39.5	39.5	12.5	39.5		12.5	36.5	36.5
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	14.0	40.0		30.0	56.0	56.0
Total Split (%)	14.3%	35.7%	35.7%	14.3%	35.7%	35.7%	10.0%	28.6%		21.4%	40.0%	40.0%
Yellow Time (s)	3.5	5.0	5.0	3.5	5.0	5.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	1.5	1.5	3.0	1.5	1.5	2.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 140

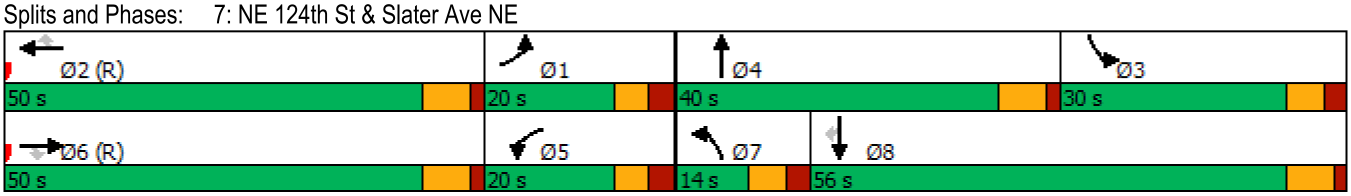
Actuated Cycle Length: 140

Offset: 18 (13%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Splits and Phases: 7: NE 124th St & Slater Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	123	844	36	213	854	186	28	166	240	412	597	224
Future Volume (veh/h)	123	844	36	213	854	186	28	166	240	412	597	224
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1919	1919	1919	1973	1973	1973	2061	2061	2061	1817	1817	1817
Adj Flow Rate, veh/h	124	853	0	215	863	0	28	168	242	416	603	101
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	4	4	4	3	3	3	5	5	5	4	4	4
Cap, veh/h	241	1133		247	1165		56	321	285	360	624	528
Arrive On Green	0.13	0.31	0.00	0.09	0.21	0.00	0.03	0.16	0.16	0.21	0.34	0.34
Sat Flow, veh/h	1827	3645	1626	1879	3749	1672	1963	1958	1737	1731	1817	1536
Grp Volume(v), veh/h	124	853	0	215	863	0	28	168	242	416	603	101
Grp Sat Flow(s),veh/h/ln	1827	1823	1626	1879	1874	1672	1963	1958	1737	1731	1817	1536
Q Serve(g_s), s	8.9	29.5	0.0	15.8	30.2	0.0	2.0	11.0	18.9	29.1	45.6	4.3
Cycle Q Clear(g_c), s	8.9	29.5	0.0	15.8	30.2	0.0	2.0	11.0	18.9	29.1	45.6	4.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	1133		247	1165		56	321	285	360	624	528
V/C Ratio(X)	0.52	0.75		0.87	0.74		0.50	0.52	0.85	1.16	0.97	0.19
Avail Cap(c_a), veh/h	241	1133		247	1165		105	468	416	360	642	543
HCM Platoon Ratio	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.6	43.4	0.0	62.6	50.2	0.0	67.0	53.5	56.9	55.4	45.2	14.0
Incr Delay (d2), s/veh	2.6	4.7	0.0	24.8	3.9	0.0	2.6	0.5	7.5	96.9	26.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	13.9	0.0	9.5	15.3	0.0	1.0	5.4	8.9	22.3	24.9	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	59.2	48.1	0.0	87.4	54.1	0.0	69.6	54.0	64.3	152.3	71.7	14.0
LnGrp LOS	E	D		F	D		E	D	E	F	E	B
Approach Vol, veh/h		977	A		1078	A		438			1120	
Approach Delay, s/veh		49.5			60.7			60.7			96.5	
Approach LOS		D			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.9	50.0	35.6	29.4	24.9	50.0	10.5	54.6
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	13.5	43.5	23.5	33.5	13.5	43.5	7.5	49.5
Max Q Clear Time (g_c+I1), s	10.9	32.2	31.1	20.9	17.8	31.5	4.0	47.6
Green Ext Time (p_c), s	0.1	1.6	0.0	0.7	0.0	3.4	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	68.8
HCM 6th LOS	E

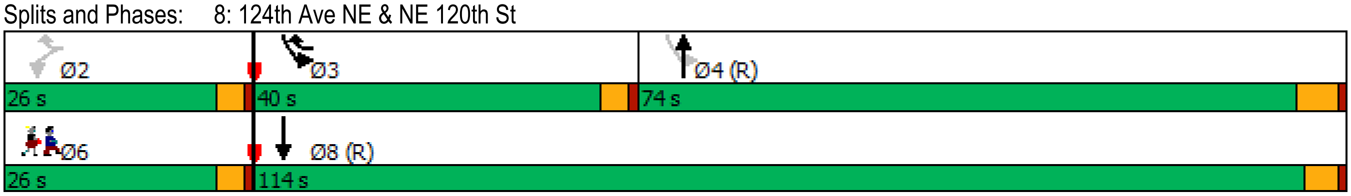
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	16	138	309	16	388	601	
Future Volume (vph)	16	138	309	16	388	601	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	155		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Right Turn on Red		Yes		Yes			
Link Speed (mph)	35		35			35	
Link Distance (ft)	873		1026			216	
Travel Time (s)	17.0		20.0			4.2	
Confl. Peds. (#/hr)	4	4					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	7%	7%	5%	5%	3%	3%	
Shared Lane Traffic (%)							
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	2	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.0	25.5		10.0	24.5	25.0
Total Split (s)	26.0	40.0	74.0		40.0	114.0	26.0
Total Split (%)	18.6%	28.6%	52.9%		28.6%	81.4%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: 124th Ave NE & NE 120th St

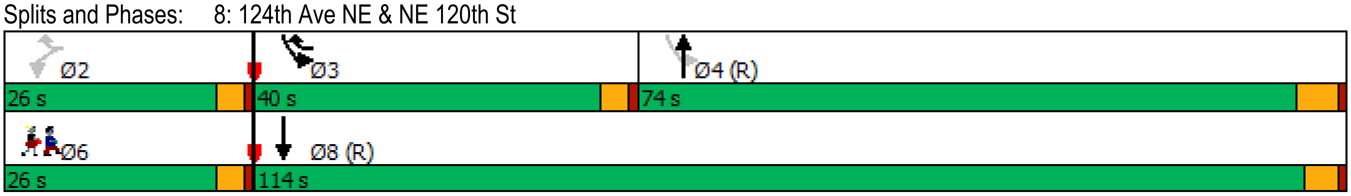


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	16	138	309	16	388	601	
Future Volume (vph)	16	138	309	16	388	601	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	155		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Satd. Flow (prot)	1687	1660	1779	0	1757	1849	
Flt Permitted	0.950				0.540		
Satd. Flow (perm)	1664	1627	1779	0	998	1849	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		147	3				
Link Speed (mph)	35		35			35	
Link Distance (ft)	873		1026			216	
Travel Time (s)	17.0		20.0			4.2	
Confl. Peds. (#/hr)	4	4					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	7%	7%	5%	5%	3%	3%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	17	147	346	0	413	639	
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	2	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.0	25.5		10.0	24.5	25.0
Total Split (s)	26.0	40.0	74.0		40.0	114.0	26.0
Total Split (%)	18.6%	28.6%	52.9%		28.6%	81.4%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	9.6	20.0	106.5		118.4	121.9	
Actuated g/C Ratio	0.07	0.14	0.76		0.85	0.87	
v/c Ratio	0.15	0.41	0.26		0.46	0.40	
Control Delay	60.9	9.5	6.7		4.5	3.7	
Queue Delay	0.0	0.0	0.0		0.2	0.7	
Total Delay	60.9	9.5	6.7		4.6	4.4	
LOS	E	A	A		A	A	
Approach Delay	14.8		6.7			4.5	
Approach LOS	B		A			A	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 6.0 Intersection LOS: A
Intersection Capacity Utilization 56.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 8: 124th Ave NE & NE 120th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	415	14	63	126	105	22	304	182	422	405	12
Future Volume (vph)	7	415	14	63	126	105	22	304	182	422	405	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	10	12	12	10	10	12	11	11	12
Grade (%)		2%			-8%			0%			0%	
Storage Length (ft)	250		0	150		0	125		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		873			458			1244			438	
Travel Time (s)		17.0			8.9			24.2			8.5	
Confl. Peds. (#/hr)	5		5	5		5	2		7	7		2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0	26.0		15.0	25.0		13.0	25.5		13.0	27.5	
Total Split (s)	21.0	46.0		26.0	26.0		18.5	65.5		39.5	65.5	
Total Split (%)	11.9%	26.0%		14.7%	14.7%		10.5%	37.0%		22.3%	37.0%	
Yellow Time (s)	3.5	5.0		3.5	5.0		3.5	4.5		3.5	4.5	
All-Red Time (s)	2.5	1.0		2.5	1.0		2.0	1.0		2.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	

Intersection Summary

Area Type: Other

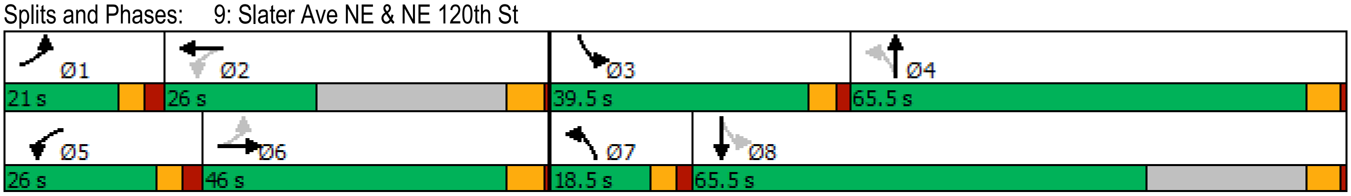
Cycle Length: 177

Actuated Cycle Length: 161.7

Natural Cycle: 135

Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Slater Ave NE & NE 120th St



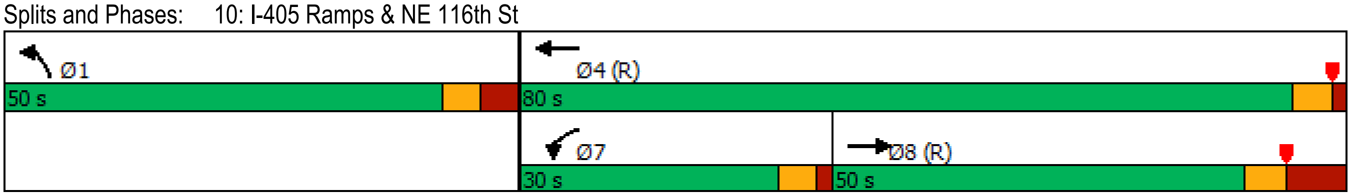
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	415	14	63	126	105	22	304	182	422	405	12
Future Volume (veh/h)	7	415	14	63	126	105	22	304	182	422	405	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	2155	2155	2155	1841	1841	1841	1856	1856	1856
Adj Flow Rate, veh/h	7	432	15	66	131	109	23	317	190	440	422	12
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	4	4	4	4	4	4	3	3	3
Cap, veh/h	284	456	16	156	311	259	388	333	200	464	909	26
Arrive On Green	0.01	0.26	0.26	0.04	0.29	0.29	0.03	0.31	0.31	0.22	0.51	0.51
Sat Flow, veh/h	1759	1773	62	2052	1082	901	1753	1073	643	1767	1795	51
Grp Volume(v), veh/h	7	0	447	66	0	240	23	0	507	440	0	434
Grp Sat Flow(s),veh/h/ln	1759	0	1835	2052	0	1983	1753	0	1716	1767	0	1846
Q Serve(g_s), s	0.4	0.0	32.3	3.2	0.0	13.3	1.2	0.0	39.1	27.5	0.0	20.5
Cycle Q Clear(g_c), s	0.4	0.0	32.3	3.2	0.0	13.3	1.2	0.0	39.1	27.5	0.0	20.5
Prop In Lane	1.00		0.03	1.00		0.45	1.00		0.37	1.00		0.03
Lane Grp Cap(c), veh/h	284	0	472	156	0	570	388	0	533	464	0	935
V/C Ratio(X)	0.02	0.00	0.95	0.42	0.00	0.42	0.06	0.00	0.95	0.95	0.00	0.46
Avail Cap(c_a), veh/h	461	0	543	376	0	570	512	0	762	517	0	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.7	0.0	49.3	38.5	0.0	39.0	30.2	0.0	45.6	39.3	0.0	21.5
Incr Delay (d2), s/veh	0.0	0.0	23.2	0.7	0.0	0.2	0.0	0.0	15.0	25.1	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	17.7	1.6	0.0	6.5	0.5	0.0	18.6	17.6	0.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	72.5	39.2	0.0	39.2	30.2	0.0	60.6	64.4	0.0	21.7
LnGrp LOS	D	A	E	D	A	D	C	A	E	E	A	C
Approach Vol, veh/h		454			306			530			874	
Approach Delay, s/veh		72.0			39.2			59.3			43.2	
Approach LOS		E			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	44.9	35.4	47.5	11.5	40.8	9.0	73.9				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	15.0	20.0	34.0	60.0	20.0	40.0	13.0	60.0				
Max Q Clear Time (g_c+I1), s	2.4	15.3	29.5	41.1	5.2	34.3	3.2	22.5				
Green Ext Time (p_c), s	0.0	0.2	0.4	0.9	0.1	0.4	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			52.6									
HCM 6th LOS			D									

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	539	0	192	324	722	319
Future Volume (vph)	539	0	192	324	722	319
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%			4%	-5%	
Storage Length (ft)		0	300		0	300
Storage Lanes		0	2		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	542			772	220	
Travel Time (s)	12.3			17.5	5.0	
Confl. Peds. (#/hr)					3	2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Free
Protected Phases	8		7	4	1	
Permitted Phases						Free
Detector Phase	8		7	4	1	
Switch Phase						
Minimum Initial (s)	10.0		5.0	7.0	5.0	
Minimum Split (s)	32.9		10.1	24.5	12.6	
Total Split (s)	50.0		30.0	80.0	50.0	
Total Split (%)	38.5%		23.1%	61.5%	38.5%	
Yellow Time (s)	4.0		3.6	4.0	3.6	
All-Red Time (s)	6.0		1.5	1.5	4.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	10.0		5.1	5.5	7.6	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	C-Min		None	C-Min	None	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 60 (46%), Referenced to phase 4:WBT and 8:EBT, Start of Red
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 10: I-405 Ramps & NE 116th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	539	0	192	324	722	319
Future Volume (veh/h)	539	0	192	324	722	319
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2012	0	1746	1746	2052	2052
Adj Flow Rate, veh/h	592	0	211	356	793	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	0	4	4	3	3
Cap, veh/h	1015	0	268	2079	903	
Arrive On Green	1.00	0.00	0.08	0.63	0.24	0.00
Sat Flow, veh/h	2012	0	3227	3406	3791	1739
Grp Volume(v), veh/h	592	0	211	356	793	0
Grp Sat Flow(s),veh/h/ln	2012	0	1613	1659	1895	1739
Q Serve(g_s), s	0.0	0.0	8.3	5.8	26.2	0.0
Cycle Q Clear(g_c), s	0.0	0.0	8.3	5.8	26.2	0.0
Prop In Lane		0.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1015	0	268	2079	903	
V/C Ratio(X)	0.58	0.00	0.79	0.17	0.88	
Avail Cap(c_a), veh/h	1015	0	618	2079	1236	
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.00	0.95	0.95	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	58.5	10.2	47.7	0.0
Incr Delay (d2), s/veh	2.2	0.0	3.7	0.2	5.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	3.6	2.2	13.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.2	0.0	62.2	10.3	53.4	0.0
LnGrp LOS	A	A	E	B	D	
Approach Vol, veh/h	592			567	793	A
Approach Delay, s/veh	2.2			29.6	53.4	
Approach LOS	A			C	D	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				91.4		38.6	15.9	75.6
Change Period (Y+Rc), s				* 10		7.6	5.1	10.0
Max Green Setting (Gmax), s				* 75		42.4	24.9	40.0
Max Q Clear Time (g_c+I1), s				7.8		28.2	10.3	2.0
Green Ext Time (p_c), s				3.2		2.8	0.4	5.6

Intersection Summary			
HCM 6th Ctrl Delay			31.0
HCM 6th LOS			C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

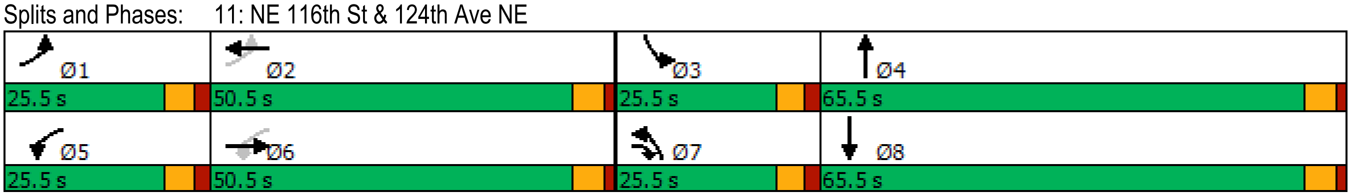
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	137	417	435	242	296	16	160	209	83	26	394	115
Future Volume (vph)	137	417	435	242	296	16	160	209	83	26	394	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	11	11	11	12	11	15	11	11	11
Grade (%)		4%			0%			0%			3%	
Storage Length (ft)	200		0	275		0	250		200	150		190
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		772			374			568			279	
Travel Time (s)		15.0			7.3			11.1			5.4	
Confl. Peds. (#/hr)	6		1	1		6	6		6	6		6
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA		Prot	NA		Prot	NA	
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases	2		6	6								
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	15.0		7.0	15.0	
Minimum Split (s)	12.5	34.0	13.0	12.5	32.0		13.0	34.0		12.5	35.0	
Total Split (s)	25.5	50.5	25.5	25.5	50.5		25.5	65.5		25.5	65.5	
Total Split (%)	15.3%	30.2%	15.3%	15.3%	30.2%		15.3%	39.2%		15.3%	39.2%	
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	1.5	2.0	2.0	1.5		2.0	1.5		2.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes				Yes	
Recall Mode	None	None	None	None	None		None	Min		None	Min	

Intersection Summary

Area Type: Other
Cycle Length: 167
Actuated Cycle Length: 105.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: NE 116th St & 124th Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	417	435	242	296	16	160	209	83	26	394	115
Future Volume (veh/h)	137	417	435	242	296	16	160	209	83	26	394	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1746	1746	1746	1826	1826	1826	1856	1856	1930	1773	1773	1773
Adj Flow Rate, veh/h	140	426	303	247	302	16	163	213	85	27	402	117
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	4	4	4	5	5	5	3	3	3	5	5	5
Cap, veh/h	487	490	543	348	1072	57	303	660	255	67	561	162
Arrive On Green	0.09	0.28	0.28	0.13	0.32	0.32	0.09	0.27	0.27	0.04	0.22	0.22
Sat Flow, veh/h	1663	1746	1471	1739	3351	177	3428	2478	955	1688	2575	741
Grp Volume(v), veh/h	140	426	303	247	156	162	163	149	149	27	261	258
Grp Sat Flow(s),veh/h/ln	1663	1746	1471	1739	1735	1793	1714	1763	1671	1688	1684	1632
Q Serve(g_s), s	4.2	17.8	12.6	7.5	5.1	5.2	3.5	5.2	5.5	1.2	11.0	11.2
Cycle Q Clear(g_c), s	4.2	17.8	12.6	7.5	5.1	5.2	3.5	5.2	5.5	1.2	11.0	11.2
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.57	1.00		0.45
Lane Grp Cap(c), veh/h	487	490	543	348	555	574	303	470	445	67	367	356
V/C Ratio(X)	0.29	0.87	0.56	0.71	0.28	0.28	0.54	0.32	0.33	0.40	0.71	0.72
Avail Cap(c_a), veh/h	777	1025	994	582	1018	1052	894	1379	1307	440	1318	1277
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	26.2	19.2	18.5	19.5	19.5	33.4	22.5	22.6	35.9	27.8	27.8
Incr Delay (d2), s/veh	0.1	1.9	0.3	1.0	0.1	0.1	0.6	0.1	0.2	1.4	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.1	4.0	2.8	2.0	2.0	1.4	2.1	2.1	0.5	4.3	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.1	28.1	19.6	19.5	19.6	19.6	34.0	22.7	22.8	37.3	28.7	28.9
LnGrp LOS	B	C	B	B	B	B	C	C	C	D	C	C
Approach Vol, veh/h		869			565			461			546	
Approach Delay, s/veh		23.0			19.5			26.7			29.2	
Approach LOS		C			B			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.1	30.0	8.6	25.9	15.2	27.0	12.3	22.2				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	20.0	45.0	20.0	60.0	20.0	45.0	20.0	60.0				
Max Q Clear Time (g_c+I1), s	6.2	7.2	3.2	7.5	9.5	19.8	5.5	13.2				
Green Ext Time (p_c), s	0.1	0.3	0.0	0.3	0.2	0.8	0.2	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			24.3									
HCM 6th LOS			C									

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	47	34	493	51	19	433
Future Volume (vph)	47	34	493	51	19	433
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%		0%			-2%
Storage Length (ft)	100	0		0	50	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		25			25
Link Distance (ft)	368		374			161
Travel Time (s)	10.0		10.2			4.4
Confl. Peds. (#/hr)				10	10	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	47	34	493	51	19	433
Future Vol, veh/h	47	34	493	51	19	433
Conflicting Peds, #/hr	0	0	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	100	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	0	-	-	-2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	2	2	4	4
Mvmt Flow	51	37	536	55	21	471

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	852	574	0	0	601	0
Stage 1	574	-	-	-	-	-
Stage 2	278	-	-	-	-	-
Critical Hdwy	5.845	5.845	-	-	4.16	-
Critical Hdwy Stg 1	4.645	-	-	-	-	-
Critical Hdwy Stg 2	5.045	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	-	-	2.238	-
Pot Cap-1 Maneuver	377	549	-	-	963	-
Stage 1	636	-	-	-	-	-
Stage 2	789	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	365	544	-	-	954	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	772	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	365	544	954	-
HCM Lane V/C Ratio	-	-	0.14	0.068	0.022	-
HCM Control Delay (s)	-	-	16.5	12.1	8.9	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.2	0.1	-

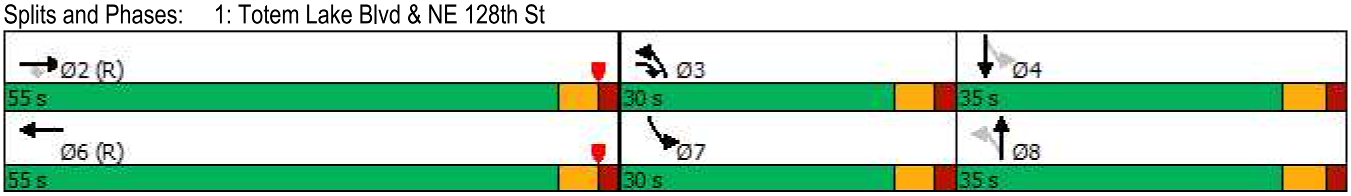
2020 Existing PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	389	192	0	626	69	234	666	167	21	237	113
Future Volume (vph)	0	389	192	0	626	69	234	666	167	21	237	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%			4%			0%	
Storage Length (ft)	0		125	0		0	150		0	50		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		621			649			2242			521	
Travel Time (s)		12.1			12.6			43.7			10.1	
Confl. Peds. (#/hr)	36		11	11		36			12	12		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2	3		6		3	8		7	4	
Permitted Phases			2				8			4		
Detector Phase		2	3		6		3	8		7	4	
Switch Phase												
Minimum Initial (s)		7.0	3.0		7.0		3.0	5.0		3.0	5.0	
Minimum Split (s)		31.5	8.5		35.5		8.5	33.9		8.5	10.9	
Total Split (s)		55.0	30.0		55.0		30.0	35.0		30.0	35.0	
Total Split (%)		45.8%	25.0%		45.8%		25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)		3.5	3.5		3.5		3.5	3.9		3.5	3.9	
All-Red Time (s)		2.0	2.0		2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5		5.5		5.5	5.9		5.5	5.9	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Recall Mode		C-Min	None		C-Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: Totem Lake Blvd & NE 128th St

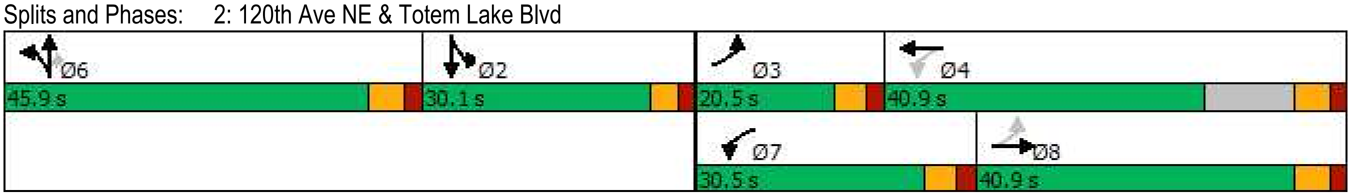


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	389	192	0	626	69	234	666	167	21	237	113
Future Volume (veh/h)	0	389	192	0	626	69	234	666	167	21	237	113
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	2012	2012	0	1870	1870	1776	1776	1776	1885	1885	1885
Adj Flow Rate, veh/h	0	414	118	0	666	73	249	709	178	22	252	120
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	3	3	0	2	2	2	2	2	1	1	1
Cap, veh/h	0	2216	1223	0	1868	204	328	707	177	85	328	151
Arrive On Green	0.00	0.58	0.58	0.00	0.58	0.58	0.14	0.27	0.27	0.01	0.14	0.14
Sat Flow, veh/h	0	3924	1696	0	3316	353	1692	2664	669	1795	2362	1085
Grp Volume(v), veh/h	0	414	118	0	367	372	249	449	438	22	189	183
Grp Sat Flow(s),veh/h/ln	0	1912	1696	0	1777	1799	1692	1687	1645	1795	1791	1656
Q Serve(g_s), s	0.0	6.1	2.5	0.0	13.1	13.2	14.6	31.8	31.8	1.3	12.2	12.9
Cycle Q Clear(g_c), s	0.0	6.1	2.5	0.0	13.1	13.2	14.6	31.8	31.8	1.3	12.2	12.9
Prop In Lane	0.00		1.00	0.00		0.20	1.00		0.41	1.00		0.66
Lane Grp Cap(c), veh/h	0	2216	1223	0	1030	1043	328	448	437	85	249	230
V/C Ratio(X)	0.00	0.19	0.10	0.00	0.36	0.36	0.76	1.00	1.00	0.26	0.76	0.80
Avail Cap(c_a), veh/h	0	2216	1223	0	1030	1043	436	448	437	427	434	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	11.9	5.0	0.0	13.4	13.4	36.1	44.1	44.1	44.7	49.7	50.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	1.0	1.0	3.0	34.4	35.0	1.2	4.7	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	0.8	0.0	5.3	5.4	6.2	17.3	17.0	0.6	5.7	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.1	5.2	0.0	14.3	14.3	39.0	78.5	79.1	45.9	54.5	56.3
LnGrp LOS	A	B	A	A	B	B	D	F	F	D	D	E
Approach Vol, veh/h		532			739			1136			394	
Approach Delay, s/veh		10.6			14.3			70.1			54.8	
Approach LOS		B			B			E			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		75.0	22.4	22.6		75.0	7.2	37.7				
Change Period (Y+Rc), s		5.5	5.5	5.9		5.5	5.5	5.9				
Max Green Setting (Gmax), s		49.5	24.5	29.1		49.5	24.5	29.1				
Max Q Clear Time (g_c+I1), s		8.1	16.6	14.9		15.2	3.3	33.8				
Green Ext Time (p_c), s		4.9	0.3	1.8		7.4	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			41.9									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	347	57	187	600	259	226	223	26	377	90	38
Future Volume (vph)	24	347	57	187	600	259	226	223	26	377	90	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			0%	
Storage Length (ft)	120		0	150		0	150		150	165		0
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2242			1141			315			357	
Travel Time (s)		43.7			22.2			8.6			9.7	
Confl. Peds. (#/hr)	18					18			8	8		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)							10%					
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	3	8		7	4		6	6		2	2	
Permitted Phases	8			4					6			
Detector Phase	3	8		7	4		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	10.5	12.9		10.5	31.9		33.9	33.9	33.9	11.1	11.1	
Total Split (s)	20.5	40.9		30.5	40.9		45.9	45.9	45.9	30.1	30.1	
Total Split (%)	13.9%	27.7%		20.7%	27.7%		31.1%	31.1%	31.1%	20.4%	20.4%	
Yellow Time (s)	3.5	3.9		3.5	3.9		3.9	3.9	3.9	3.1	3.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.9		5.5	5.9		5.9	5.9	5.9	5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min		None	None	None	None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 147.4	
Actuated Cycle Length: 96.9	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 2: 120th Ave NE & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	347	57	187	600	259	226	223	26	377	90	38
Future Volume (veh/h)	24	347	57	187	600	259	226	223	26	377	90	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.98		0.97	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1862	1862	1862	2042	2042	2042	1885	1885	1885
Adj Flow Rate, veh/h	25	361	0	195	625	270	234	234	0	393	94	40
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	1	1	1	1	1	1	1	1	1
Cap, veh/h	204	915		455	794	343	358	376	318	557	200	85
Arrive On Green	0.03	0.25	0.00	0.11	0.33	0.33	0.18	0.18	0.00	0.16	0.16	0.16
Sat Flow, veh/h	1810	3705	0	1773	2383	1029	1945	2042	1731	3483	1249	531
Grp Volume(v), veh/h	25	361	0	195	464	431	234	234	0	393	0	134
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1773	1769	1643	1945	2042	1731	1742	0	1780
Q Serve(g_s), s	0.8	6.3	0.0	5.7	17.9	18.0	8.4	8.0	0.0	8.1	0.0	5.2
Cycle Q Clear(g_c), s	0.8	6.3	0.0	5.7	17.9	18.0	8.4	8.0	0.0	8.1	0.0	5.2
Prop In Lane	1.00		0.00	1.00		0.63	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h	204	915		455	589	547	358	376	318	557	0	285
V/C Ratio(X)	0.12	0.39		0.43	0.79	0.79	0.65	0.62	0.00	0.71	0.00	0.47
Avail Cap(c_a), veh/h	514	1669		851	818	760	1028	1079	915	1150	0	588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.8	23.4	0.0	16.6	22.8	22.8	28.7	28.5	0.0	30.1	0.0	28.9
Incr Delay (d2), s/veh	0.3	0.3	0.0	0.6	3.5	3.8	2.0	1.7	0.0	1.6	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	2.6	0.0	2.2	7.4	6.9	4.1	4.0	0.0	3.4	0.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.1	23.7	0.0	17.2	26.3	26.6	30.7	30.2	0.0	31.8	0.0	30.1
LnGrp LOS	C	C		B	C	C	C	C	A	C	A	C
Approach Vol, veh/h		386	A		1090			468			527	
Approach Delay, s/veh		23.5			24.8			30.4			31.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		17.2	7.5	31.1		19.8	13.6	25.1				
Change Period (Y+Rc), s		5.1	5.5	5.9		5.9	5.5	5.9				
Max Green Setting (Gmax), s		25.0	15.0	35.0		40.0	25.0	35.0				
Max Q Clear Time (g_c+I1), s		10.1	2.8	20.0		10.4	7.7	8.3				
Green Ext Time (p_c), s		2.0	0.0	5.1		2.2	0.5	2.3				

Intersection Summary			
HCM 6th Ctrl Delay			27.1
HCM 6th LOS			C

Notes
User approved volume balancing among the lanes for turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	848	1166	0	539	452						
Future Volume (vph)	0	848	1166	0	539	452						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	11	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Right Turn on Red				Yes		Yes						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Confl. Peds. (#/hr)	1			1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%						
Shared Lane Traffic (%)						31%						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			55.9				23.6	56.1	30.1	56.1	56.1	21.0
Total Split (%)			25.5%				11%	26%	14%	26%	26%	10%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None

Intersection Summary

Area Type: Other

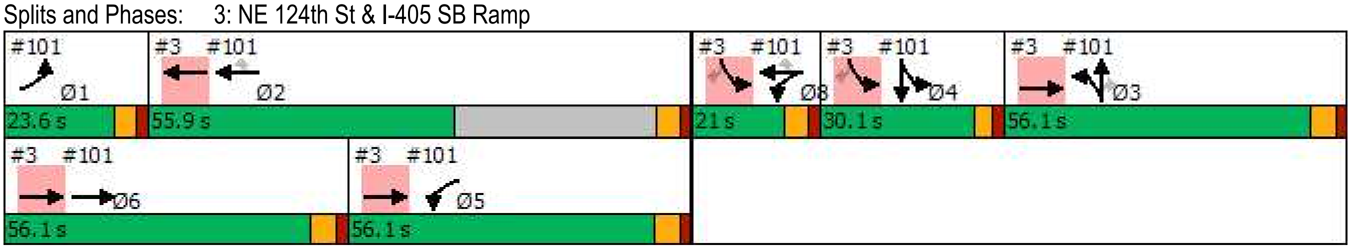
Cycle Length: 219.4

Actuated Cycle Length: 183.8

Natural Cycle: 125

Control Type: Actuated-Uncoordinated

Splits and Phases: 3: NE 124th St & I-405 SB Ramp

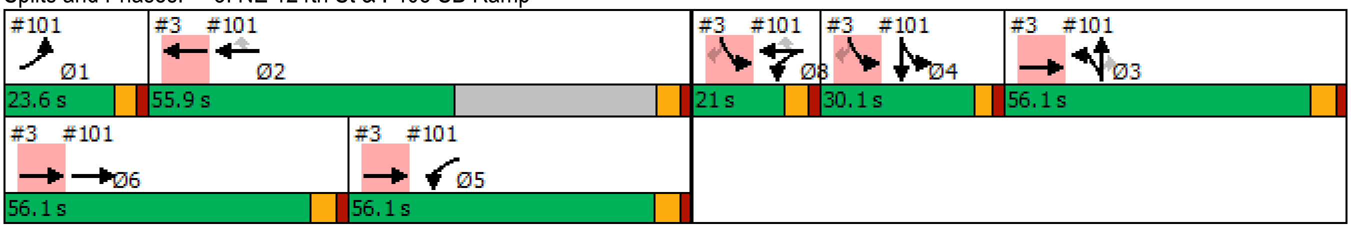


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	848	1166	0	539	452						
Future Volume (vph)	0	848	1166	0	539	452						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	11	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Satd. Flow (prot)	0	3437	3577	0	3289	1407						
Flt Permitted					0.962							
Satd. Flow (perm)	0	3437	3577	0	3289	1407						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)					14	325						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Confl. Peds. (#/hr)	1			1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%						
Shared Lane Traffic (%)						31%						
Lane Group Flow (vph)	0	883	1215	0	707	325						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			55.9				23.6	56.1	30.1	56.1	56.1	21.0
Total Split (%)			25.5%				11%	26%	14%	26%	26%	10%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None
Act Effct Green (s)		127.9	65.2		48.2	48.2						
Actuated g/C Ratio		0.70	0.35		0.26	0.26						
v/c Ratio		0.37	0.96		0.81	0.53						
Control Delay		8.5	75.2		71.8	8.9						
Queue Delay		3.8	0.2		0.0	0.0						
Total Delay		12.2	75.4		71.8	9.0						
LOS		B	E		E	A						
Approach Delay		12.2	75.4		52.0							
Approach LOS		B	E		D							

Intersection Summary

Area Type: Other
Cycle Length: 219.4
Actuated Cycle Length: 183.8
Natural Cycle: 125
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 49.8 Intersection LOS: D
Intersection Capacity Utilization 59.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: NE 124th St & I-405 SB Ramp



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1157	0	0	1201	304	261
Future Volume (vph)	1157	0	0	1201	304	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			5%	-2%	
Storage Length (ft)		275	0		0	0
Storage Lanes		0	0		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	1373			596	277	
Travel Time (s)	31.2			13.5	6.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	7.0			7.0	5.0	5.0
Minimum Split (s)	13.0			13.0	10.9	10.9
Total Split (s)	87.0			87.0	53.0	53.0
Total Split (%)	62.1%			62.1%	37.9%	37.9%
Yellow Time (s)	4.0			4.0	3.9	3.9
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.0			6.0	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min			C-Min	None	None

Intersection Summary

Area Type: Other

Cycle Length: 140

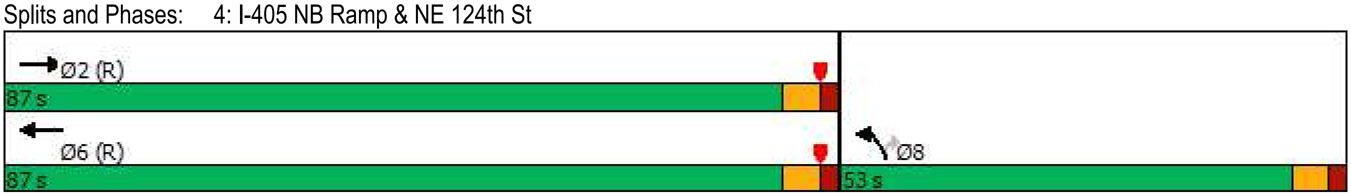
Actuated Cycle Length: 140

Offset: 75 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Red

Natural Cycle: 45

Control Type: Actuated-Coordinated

Splits and Phases: 4: I-405 NB Ramp & NE 124th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1157	0	0	1201	304	261
Future Volume (veh/h)	1157	0	0	1201	304	261
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1988	0	0	1738	1964	1964
Adj Flow Rate, veh/h	1205	0	0	1251	317	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	1	1	1
Cap, veh/h	3040	0	0	2658	399	
Arrive On Green	0.80	0.00	0.00	0.80	0.11	0.00
Sat Flow, veh/h	3976	0	0	3476	3628	1664
Grp Volume(v), veh/h	1205	0	0	1251	317	0
Grp Sat Flow(s),veh/h/ln	1889	0	0	1651	1814	1664
Q Serve(g_s), s	12.8	0.0	0.0	16.7	11.9	0.0
Cycle Q Clear(g_c), s	12.8	0.0	0.0	16.7	11.9	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	3040	0	0	2658	399	
V/C Ratio(X)	0.40	0.00	0.00	0.47	0.79	
Avail Cap(c_a), veh/h	3040	0	0	2658	1221	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.00	0.00	0.77	1.00	0.00
Uniform Delay (d), s/veh	3.9	0.0	0.0	4.3	60.7	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.5	4.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	0.0	4.9	5.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	4.2	0.0	0.0	4.8	65.1	0.0
LnGrp LOS	A	A	A	A	E	
Approach Vol, veh/h	1205			1251	317	A
Approach Delay, s/veh	4.2			4.8	65.1	
Approach LOS	A			A	E	

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	118.7	118.7	21.3
Change Period (Y+Rc), s	6.0	6.0	5.9
Max Green Setting (Gmax), s	81.0	81.0	47.1
Max Q Clear Time (g_c+I1), s	14.8	18.7	13.9
Green Ext Time (p_c), s	19.9	20.9	1.5

Intersection Summary	
HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

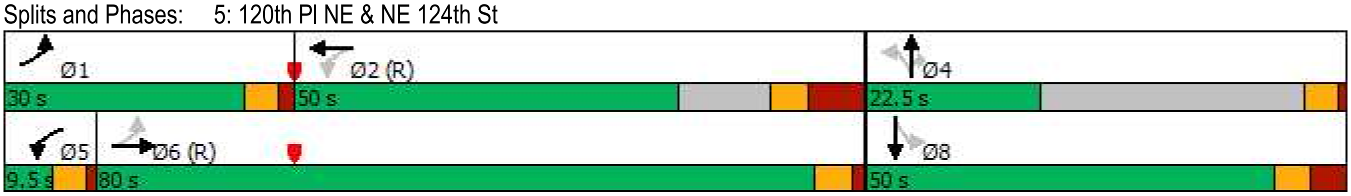
Notes

Unsignalized Delay for [NBR, WBT] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	1260	115	115	1394	48	90	3	87	61	2	45
Future Volume (vph)	43	1260	115	115	1394	48	90	3	87	61	2	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	11	12	12	12	11	12	12	12
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	150		0	150		0	0		110	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		596			524			245			186	
Travel Time (s)		11.6			10.2			6.7			5.1	
Confl. Peds. (#/hr)	5		3	3		5			5	5		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.1	24.5		9.5	29.0		22.5	22.5	22.5	12.6	12.6	
Total Split (s)	30.0	80.0		9.5	50.0		22.5	22.5	22.5	50.0	50.0	
Total Split (%)	21.5%	57.3%		6.8%	35.8%		16.1%	16.1%	16.1%	35.8%	35.8%	
Yellow Time (s)	3.6	4.0		3.5	4.0		3.5	3.5	3.5	3.6	3.6	
All-Red Time (s)	1.5	1.5		1.0	6.0		1.0	1.0	1.0	4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.1	5.5		4.5	10.0			4.5	4.5		7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 139.5	
Actuated Cycle Length: 139.5	
Offset: 60 (43%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: 120th Pl NE & NE 124th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	1260	115	115	1394	48	90	3	87	61	2	45
Future Volume (veh/h)	43	1260	115	115	1394	48	90	3	87	61	2	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1964	1964	1964	1900	1900	1900	1885	1885	1885
Adj Flow Rate, veh/h	44	1286	117	117	1422	49	92	3	0	62	2	46
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	1	1	1
Cap, veh/h	295	2345	213	293	2626	90	171	4	153	126	10	69
Arrive On Green	0.02	0.48	0.48	0.04	0.71	0.71	0.09	0.09	0.00	0.09	0.09	0.09
Sat Flow, veh/h	1781	3293	299	1870	3679	127	1266	41	1610	907	103	726
Grp Volume(v), veh/h	44	692	711	117	720	751	95	0	0	110	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1815	1870	1865	1940	1307	0	1610	1736	0	0
Q Serve(g_s), s	0.9	38.6	38.9	2.4	25.2	25.3	1.9	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.9	38.6	38.9	2.4	25.2	25.3	10.1	0.0	0.0	8.2	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.07	0.97		1.00	0.56		0.42
Lane Grp Cap(c), veh/h	295	1265	1293	293	1332	1385	174	0	153	205	0	0
V/C Ratio(X)	0.15	0.55	0.55	0.40	0.54	0.54	0.54	0.00	0.00	0.54	0.00	0.00
Avail Cap(c_a), veh/h	560	1265	1293	293	1332	1385	221	0	207	513	0	0
HCM Platoon Ratio	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.84	0.53	0.53	0.53	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	20.6	20.7	12.4	9.3	9.4	62.0	0.0	0.0	61.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	1.4	1.4	0.5	0.8	0.8	2.6	0.0	0.0	2.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	17.6	18.1	1.3	9.7	10.1	3.5	0.0	0.0	3.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.6	22.1	22.1	12.8	10.2	10.2	64.6	0.0	0.0	63.3	0.0	0.0
LnGrp LOS	A	C	C	B	B	B	E	A	A	E	A	A
Approach Vol, veh/h		1447			1588			95			110	
Approach Delay, s/veh		21.7			10.4			64.6			63.3	
Approach LOS		C			B			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	109.9		20.9	9.4	109.7		20.9				
Change Period (Y+Rc), s	5.1	10.0		* 7.6	4.5	* 10		7.6				
Max Green Setting (Gmax), s	24.9	40.0		* 18	5.0	* 75		42.4				
Max Q Clear Time (g_c+I1), s	2.9	27.3		12.1	4.4	40.9		10.2				
Green Ext Time (p_c), s	0.1	6.7		0.1	0.0	10.8		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		18.8
HCM 6th LOS		B

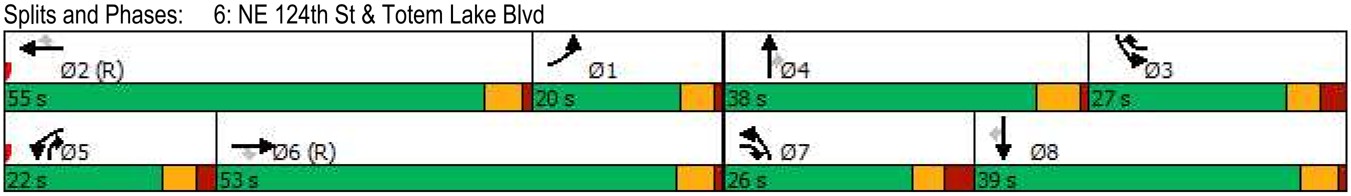
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	946	329	114	969	304	423	591	201	232	311	109
Future Volume (vph)	142	946	329	114	969	304	423	591	201	232	311	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	13	12	10	12	10	12	10	14	11	12
Grade (%)		0%			0%			-5%			0%	
Storage Length (ft)	185		85	180		193	200		170	200		350
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		524			466			259			1141	
Travel Time (s)		10.2			9.1			5.0			22.2	
Confl. Peds. (#/hr)	9		12	12		9	16		22	22		16
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	6.0	6.0	15.0	6.0	6.0	7.0	6.0	6.0	7.0	7.0
Minimum Split (s)	9.5	42.0	12.5	12.5	31.0	12.5	12.5	37.5	12.5	12.5	35.0	35.0
Total Split (s)	20.0	53.0	26.0	22.0	55.0	27.0	26.0	38.0	22.0	27.0	39.0	39.0
Total Split (%)	14.3%	37.9%	18.6%	15.7%	39.3%	19.3%	18.6%	27.1%	15.7%	19.3%	27.9%	27.9%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.5	3.5	3.5	4.0	4.0
All-Red Time (s)	1.0	1.0	3.0	2.0	1.0	3.0	3.0	1.0	2.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	6.5	5.5	5.0	6.5	6.5	5.5	5.5	6.5	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 100 (71%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: NE 124th St & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	142	946	329	114	969	304	423	591	201	232	311	109
Future Volume (veh/h)	142	946	329	114	969	304	423	591	201	232	311	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1961	1900	1900	1900	2082	2082	2082	1945	1870	1870
Adj Flow Rate, veh/h	146	975	271	118	999	260	436	609	132	239	321	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	2	2	2
Cap, veh/h	243	1469	890	142	1289	798	496	825	495	263	762	
Arrive On Green	0.04	0.14	0.14	0.08	0.36	0.36	0.13	0.21	0.21	0.14	0.21	0.00
Sat Flow, veh/h	1795	3582	1647	1810	3610	1594	3846	3955	1708	1853	3554	1585
Grp Volume(v), veh/h	146	975	271	118	999	260	436	609	132	239	321	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1647	1810	1805	1594	1923	1978	1708	1853	1777	1585
Q Serve(g_s), s	11.2	36.2	16.5	9.0	34.4	0.0	15.6	20.2	5.2	17.8	10.9	0.0
Cycle Q Clear(g_c), s	11.2	36.2	16.5	9.0	34.4	0.0	15.6	20.2	5.2	17.8	10.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	243	1469	890	142	1289	798	496	825	495	263	762	
V/C Ratio(X)	0.60	0.66	0.30	0.83	0.77	0.33	0.88	0.74	0.27	0.91	0.42	
Avail Cap(c_a), veh/h	243	1469	890	213	1289	798	536	918	535	271	863	
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.80	0.00
Uniform Delay (d), s/veh	63.2	51.4	27.4	63.6	40.0	20.9	59.9	51.8	17.8	59.2	47.5	0.0
Incr Delay (d2), s/veh	3.4	2.0	0.7	9.7	4.6	1.1	14.7	2.8	0.3	26.8	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	17.9	7.4	4.5	15.9	5.3	8.6	10.3	2.5	10.3	4.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.5	53.3	28.1	73.2	44.6	22.0	74.6	54.7	18.0	86.0	47.8	0.0
LnGrp LOS	E	D	C	E	D	C	E	D	B	F	D	
Approach Vol, veh/h		1392			1377			1177			560	A
Approach Delay, s/veh		49.8			42.8			58.0			64.1	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.9	55.0	26.4	34.7	16.5	62.4	24.6	36.5
Change Period (Y+Rc), s	5.0	* 5	6.5	5.5	5.5	5.0	6.5	* 6.5
Max Green Setting (Gmax), s	15.5	* 50	20.5	32.5	16.5	48.0	19.5	* 34
Max Q Clear Time (g_c+I1), s	13.2	36.4	19.8	22.2	11.0	38.2	17.6	12.9
Green Ext Time (p_c), s	0.1	4.5	0.1	3.1	0.1	3.8	0.5	1.9

Intersection Summary	
HCM 6th Ctrl Delay	51.6
HCM 6th LOS	D

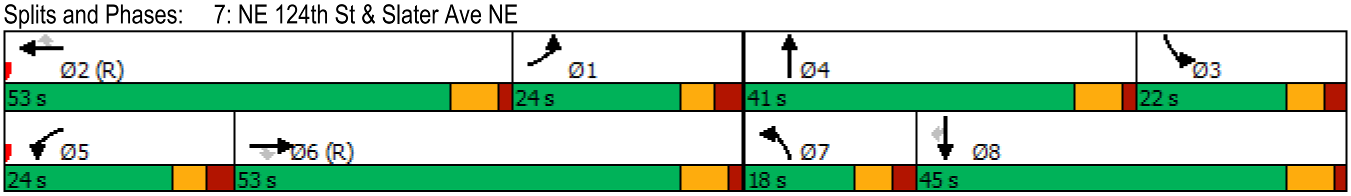
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	253	914	47	202	928	355	32	364	282	228	253	215
Future Volume (vph)	253	914	47	202	928	355	32	364	282	228	253	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	11	11	11	11	11	11	11
Grade (%)		-2%			-3%			-6%			2%	
Storage Length (ft)	250		80	440		200	150		0	350		0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		421			1236			330			668	
Travel Time (s)		8.2			24.1			6.4			13.0	
Confl. Peds. (#/hr)	5		4	4		5	3		5	5		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	6.0	10.0		6.0	10.0	10.0
Minimum Split (s)	12.5	36.5	36.5	12.5	39.5	39.5	12.5	39.5		12.5	36.5	36.5
Total Split (s)	24.0	53.0	53.0	24.0	53.0	53.0	18.0	41.0		22.0	45.0	45.0
Total Split (%)	17.1%	37.9%	37.9%	17.1%	37.9%	37.9%	12.9%	29.3%		15.7%	32.1%	32.1%
Yellow Time (s)	3.5	5.0	5.0	3.5	5.0	5.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	1.5	1.5	3.0	1.5	1.5	2.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 5 (4%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: NE 124th St & Slater Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	253	914	47	202	928	355	32	364	282	228	253	215
Future Volume (veh/h)	253	914	47	202	928	355	32	364	282	228	253	215
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1919	1919	1919	1988	1988	1988	2091	2091	2091	1847	1847	1847
Adj Flow Rate, veh/h	266	962	0	213	977	0	34	383	297	240	266	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	2	2	2
Cap, veh/h	304	1367		234	1255		63	438	335	195	525	445
Arrive On Green	0.17	0.37	0.00	0.25	0.66	0.00	0.03	0.21	0.21	0.11	0.28	0.00
Sat Flow, veh/h	1827	3645	1626	1893	3777	1685	1991	2134	1635	1759	1847	1565
Grp Volume(v), veh/h	266	962	0	213	977	0	34	356	324	240	266	0
Grp Sat Flow(s),veh/h/ln	1827	1823	1626	1893	1889	1685	1991	1986	1783	1759	1847	1565
Q Serve(g_s), s	19.9	31.4	0.0	15.3	25.2	0.0	2.4	24.3	24.7	15.5	16.9	0.0
Cycle Q Clear(g_c), s	19.9	31.4	0.0	15.3	25.2	0.0	2.4	24.3	24.7	15.5	16.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.92	1.00		1.00
Lane Grp Cap(c), veh/h	304	1367		234	1255		63	407	365	195	525	445
V/C Ratio(X)	0.87	0.70		0.91	0.78		0.54	0.87	0.89	1.23	0.51	0.00
Avail Cap(c_a), veh/h	304	1367		237	1255		164	490	439	195	525	445
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.83	0.83	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	56.9	37.2	0.0	51.9	19.9	0.0	66.8	53.9	54.1	62.3	41.9	0.0
Incr Delay (d2), s/veh	24.0	3.1	0.0	30.9	4.0	0.0	2.7	12.6	15.3	141.0	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.2	14.4	0.0	8.3	7.6	0.0	1.2	13.5	12.6	14.5	7.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.9	40.2	0.0	82.8	24.0	0.0	69.5	66.5	69.3	203.2	42.2	0.0
LnGrp LOS	F	D		F	C		E	E	E	F	D	A
Approach Vol, veh/h		1228	A		1190	A		714			506	
Approach Delay, s/veh		49.0			34.5			67.9			118.6	
Approach LOS		D			C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	29.8	53.0	22.0	35.2	23.8	59.0	10.9	46.3				
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5				
Max Green Setting (Gmax), s	17.5	46.5	15.5	34.5	17.5	46.5	11.5	38.5				
Max Q Clear Time (g_c+I1), s	21.9	27.2	17.5	26.7	17.3	33.4	4.4	18.9				
Green Ext Time (p_c), s	0.0	2.1	0.0	1.1	0.0	4.0	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay			57.7									
HCM 6th LOS			E									

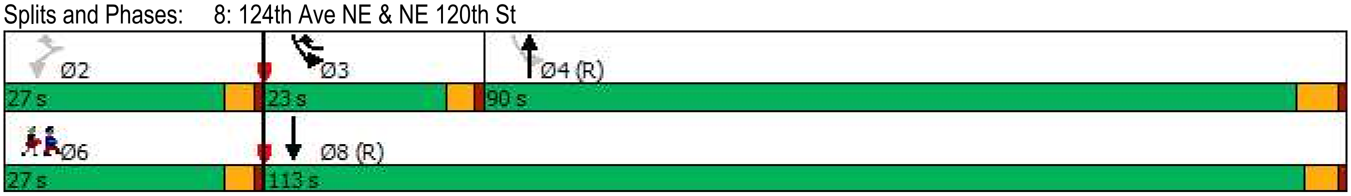
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	47	417	852	31	168	550	
Future Volume (vph)	47	417	852	31	168	550	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	155		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Right Turn on Red		Yes		Yes			
Link Speed (mph)	35		35			35	
Link Distance (ft)	873		1016			207	
Travel Time (s)	17.0		19.8			4.0	
Confl. Peds. (#/hr)	6	7		3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%	
Shared Lane Traffic (%)							
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	3	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.5	28.5		10.5	31.0	25.5
Total Split (s)	27.0	23.0	90.0		23.0	113.0	27.0
Total Split (%)	19.3%	16.4%	64.3%		16.4%	80.7%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 14 (10%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: 124th Ave NE & NE 120th St

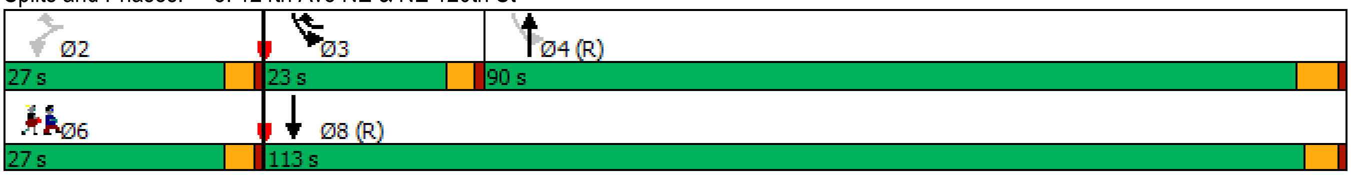


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	47	417	852	31	168	550	
Future Volume (vph)	47	417	852	31	168	550	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	155		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Satd. Flow (prot)	1770	1742	1833	0	1791	1886	
Flt Permitted	0.950				0.207		
Satd. Flow (perm)	1734	1697	1833	0	390	1886	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		162	2				
Link Speed (mph)	35		35			35	
Link Distance (ft)	873		1016			207	
Travel Time (s)	17.0		19.8			4.0	
Confl. Peds. (#/hr)	6	7		3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	48	426	901	0	171	561	
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	3	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.5	28.5		10.5	31.0	25.5
Total Split (s)	27.0	23.0	90.0		23.0	113.0	27.0
Total Split (%)	19.3%	16.4%	64.3%		16.4%	80.7%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	10.4	28.6	98.7		119.6	124.0	
Actuated g/C Ratio	0.07	0.20	0.70		0.85	0.89	
v/c Ratio	0.38	0.89	0.70		0.32	0.34	
Control Delay	67.8	51.9	17.8		6.7	3.5	
Queue Delay	0.0	0.0	0.0		0.0	0.2	
Total Delay	67.8	51.9	17.8		6.7	3.7	
LOS	E	D	B		A	A	
Approach Delay	53.5		17.8			4.4	
Approach LOS	D		B			A	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 14 (10%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 21.2 Intersection LOS: C
Intersection Capacity Utilization 81.2% ICU Level of Service D
Analysis Period (min) 15

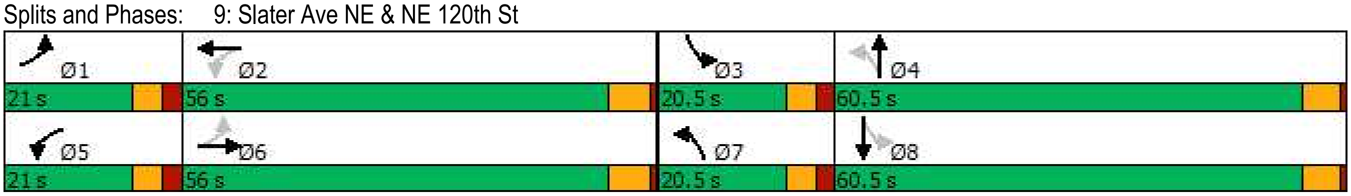
Splits and Phases: 8: 124th Ave NE & NE 120th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	24	139	22	134	287	288	40	488	59	107	358	30
Future Volume (vph)	24	139	22	134	287	288	40	488	59	107	358	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	10	12	12	10	10	12	11	11	12
Grade (%)		3%			-8%			0%			0%	
Storage Length (ft)	250		0	150		0	125		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		873			458			1255			438	
Travel Time (s)		17.0			8.9			24.4			8.5	
Confl. Peds. (#/hr)			3	3			2		4	4		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0	26.0		15.0	25.0		15.0	25.5		20.0	27.5	
Total Split (s)	21.0	56.0		21.0	56.0		20.5	60.5		20.5	60.5	
Total Split (%)	13.3%	35.4%		13.3%	35.4%		13.0%	38.3%		13.0%	38.3%	
Yellow Time (s)	3.5	5.0		3.5	5.0		3.5	4.5		3.5	4.5	
All-Red Time (s)	2.5	1.0		2.5	1.0		2.0	1.0		2.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 158	
Actuated Cycle Length: 138.2	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Slater Ave NE & NE 120th St

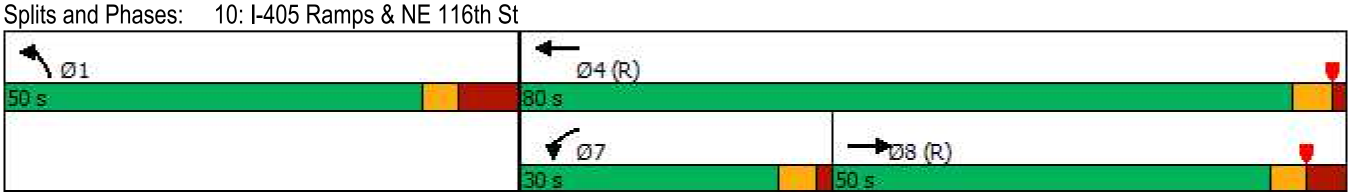


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	24	139	22	134	287	288	40	488	59	107	358	30
Future Volume (veh/h)	24	139	22	134	287	288	40	488	59	107	358	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1788	1788	1788	2185	2185	2185	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	26	151	24	146	312	313	43	530	64	116	389	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	448	71	522	334	335	314	563	68	204	616	52
Arrive On Green	0.03	0.30	0.30	0.07	0.33	0.33	0.04	0.34	0.34	0.06	0.36	0.36
Sat Flow, veh/h	1703	1504	239	2081	998	1001	1781	1636	198	1781	1699	144
Grp Volume(v), veh/h	26	0	175	146	0	625	43	0	594	116	0	422
Grp Sat Flow(s),veh/h/ln	1703	0	1743	2081	0	1999	1781	0	1833	1781	0	1843
Q Serve(g_s), s	1.0	0.0	7.8	4.8	0.0	30.3	1.5	0.0	31.4	4.1	0.0	18.9
Cycle Q Clear(g_c), s	1.0	0.0	7.8	4.8	0.0	30.3	1.5	0.0	31.4	4.1	0.0	18.9
Prop In Lane	1.00		0.14	1.00		0.50	1.00		0.11	1.00		0.08
Lane Grp Cap(c), veh/h	149	0	519	522	0	669	314	0	631	204	0	668
V/C Ratio(X)	0.17	0.00	0.34	0.28	0.00	0.93	0.14	0.00	0.94	0.57	0.00	0.63
Avail Cap(c_a), veh/h	352	0	872	693	0	1000	506	0	1009	364	0	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.5	0.0	27.4	22.0	0.0	32.2	20.8	0.0	31.8	24.6	0.0	26.3
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	9.1	0.1	0.0	8.4	0.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	3.2	2.3	0.0	15.7	0.6	0.0	14.7	1.7	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	0.0	27.6	22.1	0.0	41.3	20.9	0.0	40.2	25.5	0.0	26.7
LnGrp LOS	C	A	C	C	A	D	C	A	D	C	A	C
Approach Vol, veh/h		201			771			637			538	
Approach Delay, s/veh		27.5			37.6			38.9			26.4	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.1	39.5	11.5	39.9	12.8	35.7	9.7	41.7				
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5				
Max Green Setting (Gmax), s	15.0	50.0	15.0	55.0	15.0	50.0	15.0	55.0				
Max Q Clear Time (g_c+I1), s	3.0	32.3	6.1	33.4	6.8	9.8	3.5	20.9				
Green Ext Time (p_c), s	0.0	1.2	0.1	1.0	0.1	0.3	0.0	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			34.2									
HCM 6th LOS			C									

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	505	0	186	1062	437	221
Future Volume (vph)	505	0	186	1062	437	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%			4%	-5%	
Storage Length (ft)		0	300		0	300
Storage Lanes		0	2		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	542			772	220	
Travel Time (s)	12.3			17.5	5.0	
Confl. Peds. (#/hr)					3	2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Free
Protected Phases	8		7	4	1	
Permitted Phases						Free
Detector Phase	8		7	4	1	
Switch Phase						
Minimum Initial (s)	10.0		5.0	7.0	5.0	
Minimum Split (s)	26.6		10.1	24.5	14.6	
Total Split (s)	50.0		30.0	80.0	50.0	
Total Split (%)	38.5%		23.1%	61.5%	38.5%	
Yellow Time (s)	3.6		3.6	4.0	3.6	
All-Red Time (s)	4.0		1.5	1.5	6.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.6		5.1	5.5	9.6	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	C-Min		None	C-Min	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 60 (46%), Referenced to phase 4:WBT and 8:EBT, Start of Red	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 10: I-405 Ramps & NE 116th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	505	0	186	1062	437	221
Future Volume (veh/h)	505	0	186	1062	437	221
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2042	0	1791	1791	2082	2082
Adj Flow Rate, veh/h	555	0	204	1167	480	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	0	1	1	1	1
Cap, veh/h	1224	0	262	2442	577	
Arrive On Green	1.00	0.00	0.08	0.72	0.15	0.00
Sat Flow, veh/h	2042	0	3309	3492	3846	1764
Grp Volume(v), veh/h	555	0	204	1167	480	0
Grp Sat Flow(s),veh/h/ln	2042	0	1654	1701	1923	1764
Q Serve(g_s), s	0.0	0.0	7.9	19.2	15.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	7.9	19.2	15.8	0.0
Prop In Lane		0.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1224	0	262	2442	577	
V/C Ratio(X)	0.45	0.00	0.78	0.48	0.83	
Avail Cap(c_a), veh/h	1224	0	634	2442	1195	
HCM Platoon Ratio	2.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.57	0.57	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	58.7	7.9	53.7	0.0
Incr Delay (d2), s/veh	1.2	0.0	2.2	0.4	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	3.4	6.6	7.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	1.2	0.0	60.9	8.3	56.9	0.0
LnGrp LOS	A	A	E	A	E	
Approach Vol, veh/h	555			1371	480	A
Approach Delay, s/veh	1.2			16.1	56.9	
Approach LOS	A			B	E	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			100.9		29.1	15.4	85.5
Change Period (Y+Rc), s			* 7.6		9.6	5.1	7.6
Max Green Setting (Gmax), s			* 75		40.4	24.9	42.4
Max Q Clear Time (g_c+I1), s			21.2		17.8	9.9	2.0
Green Ext Time (p_c), s			14.8		1.7	0.4	5.1

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

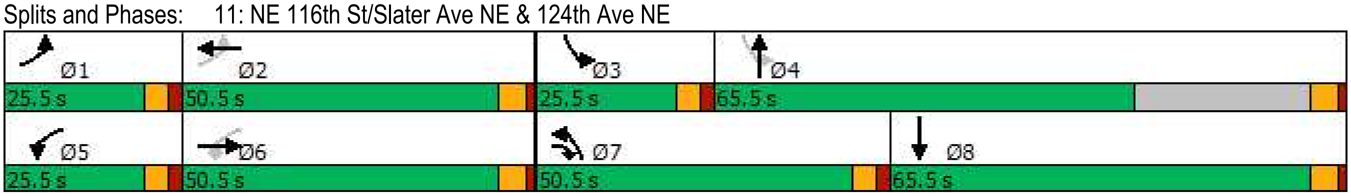
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	330	187	112	521	24	640	691	323	62	277	164
Future Volume (vph)	175	330	187	112	521	24	640	691	323	62	277	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	11	11	11	12	11	15	11	11	11
Grade (%)		4%			0%			0%			3%	
Storage Length (ft)	200		0	275		0	250		200	150		190
Storage Lanes	1		1	1		0	2		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		772			359			568			289	
Travel Time (s)		15.0			7.0			11.1			5.6	
Confl. Peds. (#/hr)	3		11	11		3	16		7	7		16
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA		Prot	NA		D.P+P	NA	
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases	2		6	6						4		
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	11.5	34.0	12.0	11.5	32.0		12.0	34.0		11.5	35.0	
Total Split (s)	25.5	50.5	50.5	25.5	50.5		50.5	65.5		25.5	65.5	
Total Split (%)	13.3%	26.3%	26.3%	13.3%	26.3%		26.3%	34.1%		13.3%	34.1%	
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	1.5	2.0	2.0	1.5		2.0	1.5		2.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min		None	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 192	
Actuated Cycle Length: 121	
Natural Cycle: 105	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 11: NE 116th St/Slater Ave NE & 124th Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	330	187	112	521	24	640	691	323	62	277	164
Future Volume (veh/h)	175	330	187	112	521	24	640	691	323	62	277	164
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1761	1761	1761	1870	1870	1870	1885	1885	1961	1817	1817	1817
Adj Flow Rate, veh/h	188	355	101	120	560	26	688	743	347	67	298	176
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	2	2	2	1	1	1	2	2	2
Cap, veh/h	304	436	700	256	718	33	781	908	424	225	452	259
Arrive On Green	0.11	0.25	0.25	0.07	0.21	0.21	0.22	0.39	0.39	0.05	0.22	0.22
Sat Flow, veh/h	1677	1761	1473	1781	3455	160	3483	2353	1098	1731	2095	1201
Grp Volume(v), veh/h	188	355	101	120	288	298	688	565	525	67	244	230
Grp Sat Flow(s),veh/h/ln	1677	1761	1473	1781	1777	1838	1742	1791	1660	1731	1726	1569
Q Serve(g_s), s	7.8	17.2	3.5	4.5	13.8	13.9	17.3	25.6	25.7	2.0	11.7	12.2
Cycle Q Clear(g_c), s	7.8	17.2	3.5	4.5	13.8	13.9	17.3	25.6	25.7	2.0	11.7	12.2
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.66	1.00		0.77
Lane Grp Cap(c), veh/h	304	436	700	256	369	382	781	691	641	225	372	338
V/C Ratio(X)	0.62	0.81	0.14	0.47	0.78	0.78	0.88	0.82	0.82	0.30	0.66	0.68
Avail Cap(c_a), veh/h	493	877	1068	528	885	915	1734	1189	1102	514	1146	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.2	32.0	13.5	24.5	33.8	33.9	33.9	24.9	24.9	18.9	32.4	32.6
Incr Delay (d2), s/veh	0.8	1.4	0.0	0.5	1.4	1.3	1.3	0.9	1.0	0.3	0.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	7.2	1.1	1.8	5.9	6.1	7.2	10.3	9.6	0.8	4.8	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	33.5	13.6	25.0	35.2	35.2	35.2	25.8	25.9	19.2	33.1	33.5
LnGrp LOS	C	C	B	C	D	D	D	C	C	B	C	C
Approach Vol, veh/h		644			706			1778			541	
Approach Delay, s/veh		28.1			33.5			29.5			31.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	24.3	10.4	40.4	11.7	27.9	25.8	25.0
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	20.0	45.0	20.0	60.0	20.0	45.0	45.0	60.0
Max Q Clear Time (g_c+I1), s	9.8	15.9	4.0	27.7	6.5	19.2	19.3	14.2
Green Ext Time (p_c), s	0.1	0.5	0.0	1.2	0.1	0.5	1.0	0.5

Intersection Summary	
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	121	87	540	104	31	547
Future Volume (vph)	121	87	540	104	31	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%		0%			-2%
Storage Length (ft)	100	0		0	50	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		25			25
Link Distance (ft)	255		359			173
Travel Time (s)	7.0		9.8			4.7
Confl. Peds. (#/hr)				8	8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	121	87	540	104	31	547
Future Vol, veh/h	121	87	540	104	31	547
Conflicting Peds, #/hr	0	0	0	8	8	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	100	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	0	-	-	-2
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	129	93	574	111	33	582

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	995	638	0	0	693	0
Stage 1	638	-	-	-	-	-
Stage 2	357	-	-	-	-	-
Critical Hdwy	5.8	5.8	-	-	4.115	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	323	515	-	-	906	-
Stage 1	611	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	308	511	-	-	899	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	606	-	-	-	-	-
Stage 2	714	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.1	0	0.5
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	308	511	899	-
HCM Lane V/C Ratio	-	-	0.418	0.181	0.037	-
HCM Control Delay (s)	-	-	24.8	13.6	9.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	2	0.7	0.1	-

2025 No Action AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	340	220	0	359	31	135	189	145	32	362	291
Future Volume (vph)	0	340	220	0	359	31	135	189	145	32	362	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%			4%			0%	
Storage Length (ft)	0		125	0		0	150		0	50		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		583			545			2241			545	
Travel Time (s)		11.4			10.6			43.7			10.6	
Confl. Peds. (#/hr)	43		16	16		43			15	15		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2	3		6		3	8		7	4	
Permitted Phases			2				8			4		
Detector Phase		2	3		6		3	8		7	4	
Switch Phase												
Minimum Initial (s)		7.0	3.0		7.0		3.0	5.0		3.0	5.0	
Minimum Split (s)		31.5	8.5		35.5		8.5	33.9		8.5	10.9	
Total Split (s)		55.0	30.0		55.0		30.0	35.0		30.0	35.0	
Total Split (%)		45.8%	25.0%		45.8%		25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)		3.5	3.5		3.5		3.5	3.9		3.5	3.9	
All-Red Time (s)		2.0	2.0		2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5		5.5		5.5	5.9		5.5	5.9	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Recall Mode		C-Min	None		C-Min		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 120

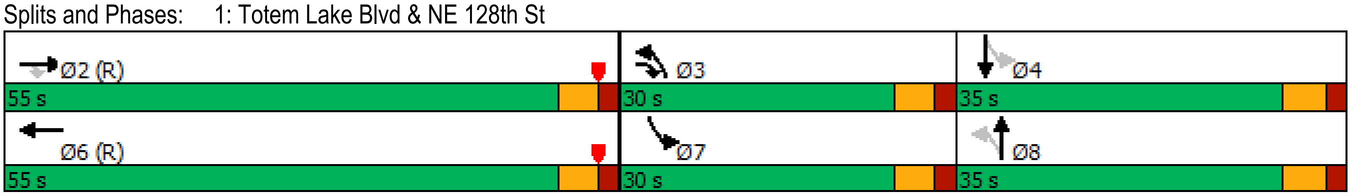
Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Totem Lake Blvd & NE 128th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	340	220	0	359	31	135	189	145	32	362	291
Future Volume (veh/h)	0	340	220	0	359	31	135	189	145	32	362	291
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1997	1997	0	1841	1841	1776	1776	1776	1870	1870	1870
Adj Flow Rate, veh/h	0	340	164	0	359	31	135	189	145	32	362	291
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	4	4	0	4	4	2	2	2	2	2	2
Cap, veh/h	0	2131	1072	0	1826	157	212	515	372	292	412	326
Arrive On Green	0.00	0.56	0.56	0.00	0.56	0.56	0.08	0.28	0.28	0.02	0.22	0.22
Sat Flow, veh/h	0	3895	1678	0	3344	279	1692	1856	1340	1781	1868	1477
Grp Volume(v), veh/h	0	340	164	0	192	198	135	171	163	32	344	309
Grp Sat Flow(s),veh/h/ln	0	1897	1678	0	1749	1783	1692	1687	1509	1781	1777	1568
Q Serve(g_s), s	0.0	5.2	4.7	0.0	6.5	6.6	7.1	9.8	10.5	1.7	22.4	22.9
Cycle Q Clear(g_c), s	0.0	5.2	4.7	0.0	6.5	6.6	7.1	9.8	10.5	1.7	22.4	22.9
Prop In Lane	0.00		1.00	0.00		0.16	1.00		0.89	1.00		0.94
Lane Grp Cap(c), veh/h	0	2131	1072	0	982	1001	212	468	419	292	392	346
V/C Ratio(X)	0.00	0.16	0.15	0.00	0.20	0.20	0.64	0.36	0.39	0.11	0.88	0.89
Avail Cap(c_a), veh/h	0	2131	1072	0	982	1001	427	468	419	620	431	380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.7	8.7	0.0	13.0	13.0	33.7	34.8	35.1	35.3	45.2	45.4
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.0	0.4	0.4	2.2	0.4	0.5	0.1	17.1	21.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	1.7	0.0	2.6	2.7	3.0	4.0	3.9	0.7	11.6	10.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.8	9.0	0.0	13.4	13.4	35.9	35.3	35.7	35.4	62.3	66.6
LnGrp LOS	A	B	A	A	B	B	D	D	D	D	E	E
Approach Vol, veh/h		504			390			469			685	
Approach Delay, s/veh		11.6			13.4			35.6			63.0	
Approach LOS		B			B			D			E	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		72.9	14.7	32.4		72.9	7.9	39.2				
Change Period (Y+Rc), s		5.5	5.5	5.9		5.5	5.5	5.9				
Max Green Setting (Gmax), s		49.5	24.5	29.1		49.5	24.5	29.1				
Max Q Clear Time (g_c+I1), s		7.2	9.1	24.9		8.6	3.7	12.5				
Green Ext Time (p_c), s		4.4	0.2	1.5		3.5	0.0	1.7				

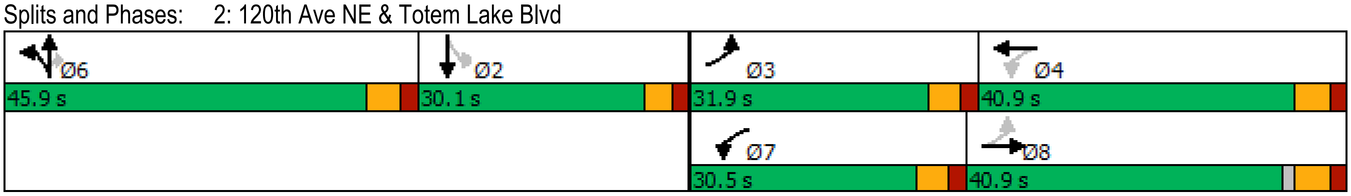
Intersection Summary			
HCM 6th Ctrl Delay			34.6
HCM 6th LOS			C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	578	46	68	297	145	156	233	25	216	60	17
Future Volume (vph)	13	578	46	68	297	145	156	233	25	216	60	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			0%	
Storage Length (ft)	120		0	150		0	150		150	165		0
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2241			1108			295			357	
Travel Time (s)		43.7			21.6			8.0			9.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	2%	2%	2%	5%	5%	5%
Shared Lane Traffic (%)							10%					
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Perm	NA	
Protected Phases	3	8		7	4		6	6			2	
Permitted Phases	8			4					6	2		
Detector Phase	3	8		7	4		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	10.5	12.9		10.5	31.9		33.9	33.9	33.9	11.1	11.1	
Total Split (s)	31.9	40.9		30.5	40.9		45.9	45.9	45.9	30.1	30.1	
Total Split (%)	21.4%	27.5%		20.5%	27.5%		30.8%	30.8%	30.8%	20.2%	20.2%	
Yellow Time (s)	3.5	3.9		3.5	3.9		3.9	3.9	3.9	3.1	3.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.9		5.5	5.9		5.9	5.9	5.9	5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 148.8
Actuated Cycle Length: 94
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: 120th Ave NE & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	578	46	68	297	145	156	233	25	216	60	17
Future Volume (veh/h)	13	578	46	68	297	145	156	233	25	216	60	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1817	1817	1817	2027	2027	2027	1826	1826	1826
Adj Flow Rate, veh/h	14	622	0	73	319	156	168	251	0	232	65	18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	4	4	4	2	2	2	5	5	5
Cap, veh/h	323	933		305	684	327	356	374	317	401	164	45
Arrive On Green	0.02	0.26	0.00	0.06	0.30	0.30	0.18	0.18	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1795	3676	0	1731	2265	1084	1931	2027	1718	3374	1376	381
Grp Volume(v), veh/h	14	622	0	73	242	233	168	251	0	232	0	83
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1731	1726	1622	1931	2027	1718	1687	0	1757
Q Serve(g_s), s	0.3	9.2	0.0	1.8	6.7	7.0	4.6	6.8	0.0	3.9	0.0	2.6
Cycle Q Clear(g_c), s	0.3	9.2	0.0	1.8	6.7	7.0	4.6	6.8	0.0	3.9	0.0	2.6
Prop In Lane	1.00		0.00	1.00		0.67	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	323	933		305	521	490	356	374	317	401	0	209
V/C Ratio(X)	0.04	0.67		0.24	0.46	0.48	0.47	0.67	0.00	0.58	0.00	0.40
Avail Cap(c_a), veh/h	1090	2111		932	1017	956	1300	1365	1157	1420	0	740
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.8	19.7	0.0	15.2	16.8	16.9	21.6	22.5	0.0	24.8	0.0	24.2
Incr Delay (d2), s/veh	0.1	0.8	0.0	0.4	0.6	0.7	1.0	2.1	0.0	1.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.5	0.0	0.6	2.5	2.4	2.1	3.3	0.0	1.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	20.5	0.0	15.6	17.5	17.6	22.6	24.6	0.0	26.1	0.0	25.4
LnGrp LOS	B	C		B	B	B	C	C	A	C	A	C
Approach Vol, veh/h		636	A		548			419			315	
Approach Delay, s/veh		20.4			17.3			23.8			25.9	
Approach LOS		C			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		12.2	6.5	23.8		16.9	9.0	21.4
Change Period (Y+Rc), s		5.1	5.5	5.9		5.9	5.5	5.9
Max Green Setting (Gmax), s		25.0	26.4	35.0		40.0	25.0	35.0
Max Q Clear Time (g_c+I1), s		5.9	2.3	9.0		8.8	3.8	11.2
Green Ext Time (p_c), s		1.2	0.0	2.9		2.1	0.1	4.2

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

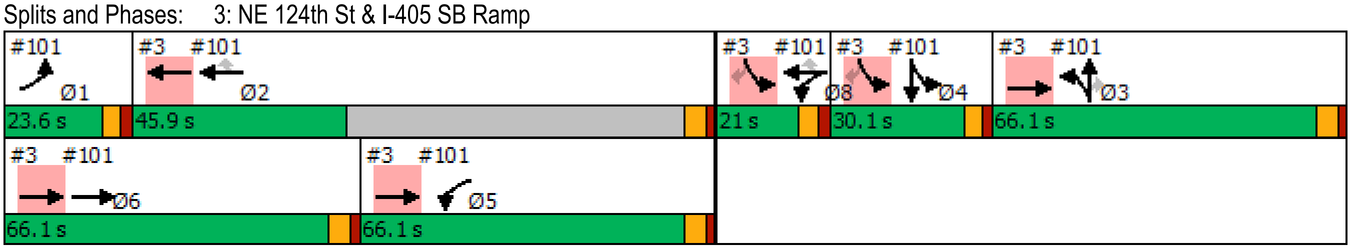
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	1125	509	0	414	314						
Future Volume (vph)	0	1125	509	0	414	314						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	8	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Right Turn on Red				Yes		Yes						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%						
Shared Lane Traffic (%)						27%						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			45.9				23.6	66.1	30.1	66.1	66.1	21.0
Total Split (%)			18.4%				9%	27%	12%	27%	27%	8%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None

Intersection Summary	
Area Type:	Other
Cycle Length: 249.4	
Actuated Cycle Length: 167.6	
Natural Cycle: 125	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: NE 124th St & I-405 SB Ramp

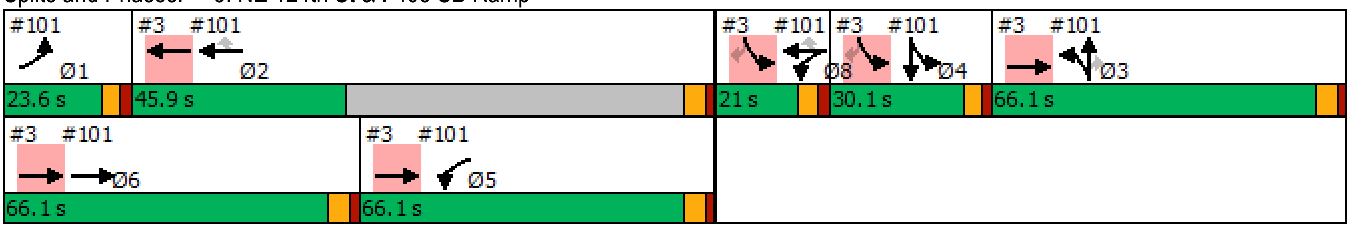


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	1125	509	0	414	314						
Future Volume (vph)	0	1125	509	0	414	314						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	8	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Satd. Flow (prot)	0	3403	3541	0	3270	1393						
Flt Permitted					0.960							
Satd. Flow (perm)	0	3403	3541	0	3270	1393						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)					9	242						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%						
Shared Lane Traffic (%)						27%						
Lane Group Flow (vph)	0	1184	536	0	525	242						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			45.9				23.6	66.1	30.1	66.1	66.1	21.0
Total Split (%)			18.4%				9%	27%	12%	27%	27%	8%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None
Act Effct Green (s)		112.0	65.9		47.8	47.8						
Actuated g/C Ratio		0.67	0.39		0.29	0.29						
v/c Ratio		0.52	0.39		0.56	0.42						
Control Delay		6.9	37.5		53.7	7.7						
Queue Delay		8.5	0.0		0.0	0.0						
Total Delay		15.4	37.5		53.7	7.7						
LOS		B	D		D	A						
Approach Delay		15.4	37.5		39.2							
Approach LOS		B	D		D							

Intersection Summary	
Area Type:	Other

Cycle Length: 249.4	
Actuated Cycle Length: 167.6	
Natural Cycle: 125	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 27.5	Intersection LOS: C
Intersection Capacity Utilization 53.1%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: NE 124th St & I-405 SB Ramp



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1264	0	0	609	163	302
Future Volume (vph)	1264	0	0	609	163	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			5%	-2%	
Storage Length (ft)		275	0		0	0
Storage Lanes		0	0		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	1373			596	277	
Travel Time (s)	31.2			13.5	6.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	7.0			7.0	5.0	5.0
Minimum Split (s)	13.0			13.0	10.9	10.9
Total Split (s)	85.0			85.0	55.0	55.0
Total Split (%)	60.7%			60.7%	39.3%	39.3%
Yellow Time (s)	4.0			4.0	3.9	3.9
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.0			6.0	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min			C-Min	None	None

Intersection Summary

Area Type: Other

Cycle Length: 140

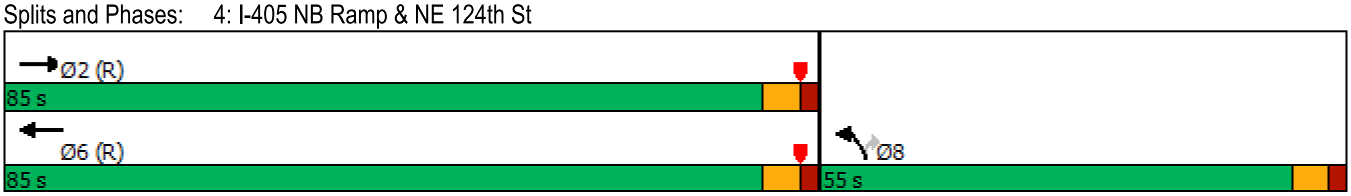
Actuated Cycle Length: 140

Offset: 30 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Red

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 4: I-405 NB Ramp & NE 124th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1264	0	0	609	163	302
Future Volume (veh/h)	1264	0	0	609	163	302
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1988	0	0	1708	1934	1934
Adj Flow Rate, veh/h	1303	0	0	628	168	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	3	3	3
Cap, veh/h	3208	0	0	2757	235	
Arrive On Green	0.85	0.00	0.00	1.00	0.07	0.00
Sat Flow, veh/h	3976	0	0	3417	3573	1639
Grp Volume(v), veh/h	1303	0	0	628	168	0
Grp Sat Flow(s),veh/h/ln	1889	0	0	1623	1786	1639
Q Serve(g_s), s	11.1	0.0	0.0	0.0	6.5	0.0
Cycle Q Clear(g_c), s	11.1	0.0	0.0	0.0	6.5	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	3208	0	0	2757	235	
V/C Ratio(X)	0.41	0.00	0.00	0.23	0.72	
Avail Cap(c_a), veh/h	3208	0	0	2757	1253	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	0.83	0.00	0.00	0.91	1.00	0.00
Uniform Delay (d), s/veh	2.4	0.0	0.0	0.0	64.1	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	4.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	0.0	0.1	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.7	0.0	0.0	0.2	69.0	0.0
LnGrp LOS	A	A	A	A	E	
Approach Vol, veh/h	1303			628	168	A
Approach Delay, s/veh	2.7			0.2	69.0	
Approach LOS	A			A	E	

Timer - Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		124.9				124.9		15.1
Change Period (Y+Rc), s		6.0				6.0		5.9
Max Green Setting (Gmax), s		79.0				79.0		49.1
Max Q Clear Time (g_c+I1), s		13.1				2.0		8.5
Green Ext Time (p_c), s		22.7				7.5		0.8

Intersection Summary	
HCM 6th Ctrl Delay	7.3
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1440	87	88	1058	24	65	2	69	25	5	37
Future Volume (vph)	25	1440	87	88	1058	24	65	2	69	25	5	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	11	12	12	12	11	12	12	12
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	130		0	150		0	0		110	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	45			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		596			524			245			186	
Travel Time (s)		11.6			10.2			6.7			5.1	
Confl. Peds. (#/hr)	3		1	1		3			4	4		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.5	30.0		11.5	25.0		30.5	30.5	30.5	23.0	23.0	
Total Split (s)	13.0	87.0		19.0	93.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	9.3%	62.1%		13.6%	66.4%		24.3%	24.3%	24.3%	24.3%	24.3%	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	2.0	2.0	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.5	5.0		5.5	5.0			5.5	5.5		5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 53 (38%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 5: 120th Pl NE & NE 124th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1440	87	88	1058	24	65	2	69	25	5	37
Future Volume (veh/h)	25	1440	87	88	1058	24	65	2	69	25	5	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1934	1934	1934	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	26	1500	91	92	1102	25	68	2	0	26	5	39
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	3	3	3	3	3	3	2	2	2
Cap, veh/h	441	2598	157	381	2855	65	158	3	127	73	22	75
Arrive On Green	0.05	1.00	1.00	0.04	0.78	0.78	0.08	0.08	0.00	0.08	0.08	0.08
Sat Flow, veh/h	1781	3404	206	1842	3672	83	1324	39	1572	468	272	931
Grp Volume(v), veh/h	26	780	811	92	551	576	70	0	0	70	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1842	1837	1918	1362	0	1572	1671	0	0
Q Serve(g_s), s	0.4	0.0	0.0	1.4	13.4	13.4	1.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	1.4	13.4	13.4	6.9	0.0	0.0	5.3	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.04	0.97		1.00	0.37		0.56
Lane Grp Cap(c), veh/h	441	1356	1399	381	1428	1492	161	0	127	171	0	0
V/C Ratio(X)	0.06	0.58	0.58	0.24	0.39	0.39	0.43	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	488	1356	1399	482	1428	1492	326	0	320	362	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	0.79	0.79	0.79	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.5	0.0	0.0	2.8	4.9	5.0	62.3	0.0	0.0	61.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	1.4	0.1	0.6	0.6	0.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	0.5	0.4	4.6	4.8	2.5	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.5	1.4	1.4	2.9	5.6	5.5	63.0	0.0	0.0	62.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		1617			1219			70			70	
Approach Delay, s/veh		1.4			5.4			63.0			62.2	
Approach LOS		A			A			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.3	113.9		16.8	11.3	111.8		16.8
Change Period (Y+Rc), s	5.5	5.0		5.5	5.5	5.0		* 5.5
Max Green Setting (Gmax), s	7.5	88.0		28.5	13.5	82.0		* 29
Max Q Clear Time (g_c+I1), s	2.4	15.4		8.9	3.4	2.0		7.3
Green Ext Time (p_c), s	0.0	2.5		0.1	0.1	5.1		0.1

Intersection Summary			
HCM 6th Ctrl Delay			5.9
HCM 6th LOS			A

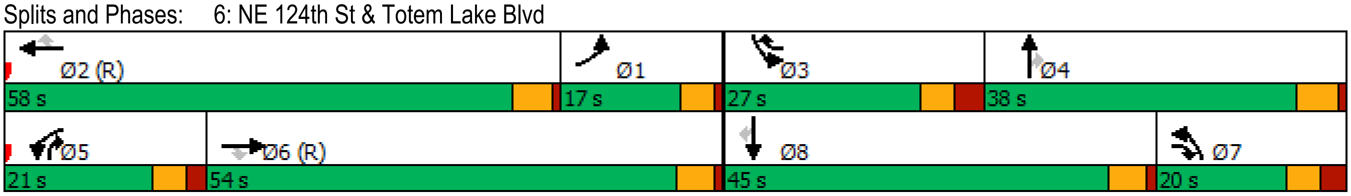
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	834	575	187	911	238	226	235	118	256	442	32
Future Volume (vph)	58	834	575	187	911	238	226	235	118	256	442	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	13	12	10	12	10	12	10	14	11	12
Grade (%)		0%			0%			-5%			0%	
Storage Length (ft)	185		85	180		193	200		170	200		350
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		524			466			466			1108	
Travel Time (s)		10.2			9.1			9.1			21.6	
Confl. Peds. (#/hr)	2		5	5		2	4		9	9		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	6.0	6.0	15.0	6.0	6.0	7.0	6.0	6.0	7.0	7.0
Minimum Split (s)	9.5	42.0	12.5	12.5	31.0	12.5	12.5	37.5	12.5	12.5	35.0	35.0
Total Split (s)	17.0	54.0	20.0	21.0	58.0	27.0	20.0	38.0	21.0	27.0	45.0	45.0
Total Split (%)	12.1%	38.6%	14.3%	15.0%	41.4%	19.3%	14.3%	27.1%	15.0%	19.3%	32.1%	32.1%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.5	3.5	3.5	4.0	4.0
All-Red Time (s)	1.0	1.0	3.0	2.0	1.0	3.0	3.0	1.0	2.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	6.5	5.5	5.0	6.5	6.5	5.5	5.5	6.5	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 64 (46%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: NE 124th St & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	834	575	187	911	238	226	235	118	256	442	32
Future Volume (veh/h)	58	834	575	187	911	238	226	235	118	256	442	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	2037	2037	2037	1961	1885	1885
Adj Flow Rate, veh/h	61	878	533	197	959	162	238	247	46	269	465	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	1	1	1
Cap, veh/h	322	1582	916	197	1345	830	421	502	411	273	627	
Arrive On Green	0.18	0.45	0.45	0.11	0.38	0.38	0.04	0.04	0.04	0.15	0.18	0.00
Sat Flow, veh/h	1781	3554	1643	1781	3554	1579	3763	3870	1690	1867	3582	1598
Grp Volume(v), veh/h	61	878	533	197	959	162	238	247	46	269	465	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1643	1781	1777	1579	1881	1935	1690	1867	1791	1598
Q Serve(g_s), s	4.1	25.5	10.1	15.5	32.2	2.8	8.7	8.7	3.2	20.1	17.2	0.0
Cycle Q Clear(g_c), s	4.1	25.5	10.1	15.5	32.2	2.8	8.7	8.7	3.2	20.1	17.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	1582	916	197	1345	830	421	502	411	273	627	
V/C Ratio(X)	0.19	0.56	0.58	1.00	0.71	0.20	0.56	0.49	0.11	0.98	0.74	
Avail Cap(c_a), veh/h	322	1582	916	197	1345	830	421	898	583	273	1023	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.77	0.77	0.77	1.00	1.00	1.00	0.98	0.98	0.98	0.70	0.70	0.00
Uniform Delay (d), s/veh	48.6	28.6	6.9	62.2	37.0	6.1	64.1	62.5	45.8	59.6	54.8	0.0
Incr Delay (d2), s/veh	0.2	1.1	2.1	63.7	3.2	0.5	1.7	0.7	0.1	41.1	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	11.0	4.5	10.5	14.4	1.3	4.5	4.5	1.4	12.6	7.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.9	29.7	9.0	126.0	40.3	6.6	65.8	63.2	45.9	100.7	56.0	0.0
LnGrp LOS	D	C	A	F	D	A	E	E	D	F	E	
Approach Vol, veh/h		1472			1318			531			734	A
Approach Delay, s/veh		23.0			48.9			62.9			72.4	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	30.3	58.0	27.0	24.7	21.0	67.3	22.2	29.5
Change Period (Y+Rc), s	5.0	* 5	6.5	* 6.5	5.5	5.0	6.5	5.0
Max Green Setting (Gmax), s	12.5	* 53	20.5	* 33	15.5	49.0	13.5	40.0
Max Q Clear Time (g_c+I1), s	6.1	34.2	22.1	10.7	17.5	27.5	10.7	19.2
Green Ext Time (p_c), s	0.1	4.6	0.0	1.5	0.0	5.5	0.3	2.9

Intersection Summary	
HCM 6th Ctrl Delay	45.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	954	40	241	966	210	31	188	271	466	675	254
Future Volume (vph)	140	954	40	241	966	210	31	188	271	466	675	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	11	11	11	11	11	11	11
Grade (%)		-2%			-3%			-6%			2%	
Storage Length (ft)	250		80	440		200	150		0	350		0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		421			1236			330			611	
Travel Time (s)		8.2			24.1			6.4			11.9	
Confl. Peds. (#/hr)	10		3	3		10			3	3		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	6.0	10.0		6.0	10.0	10.0
Minimum Split (s)	12.5	36.5	36.5	12.5	39.5	39.5	12.5	39.5		12.5	36.5	36.5
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	14.0	40.0		30.0	56.0	56.0
Total Split (%)	14.3%	35.7%	35.7%	14.3%	35.7%	35.7%	10.0%	28.6%		21.4%	40.0%	40.0%
Yellow Time (s)	3.5	5.0	5.0	3.5	5.0	5.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	1.5	1.5	3.0	1.5	1.5	2.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 140

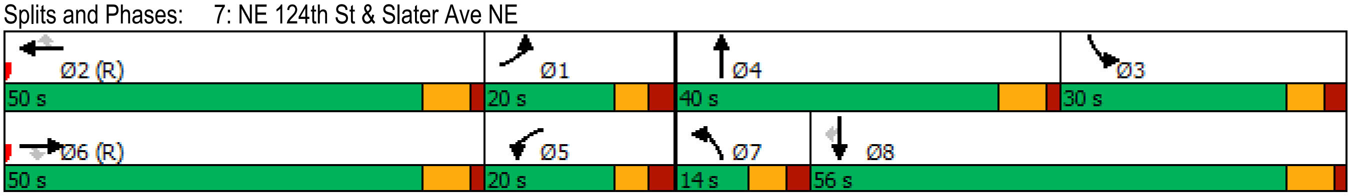
Actuated Cycle Length: 140

Offset: 18 (13%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Splits and Phases: 7: NE 124th St & Slater Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	954	40	241	966	210	31	188	271	466	675	254
Future Volume (veh/h)	140	954	40	241	966	210	31	188	271	466	675	254
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1919	1919	1919	1973	1973	1973	2061	2061	2061	1817	1817	1817
Adj Flow Rate, veh/h	141	964	0	243	976	0	31	190	274	471	682	115
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	4	4	4	3	3	3	5	5	5	4	4	4
Cap, veh/h	219	1133		225	1165		59	353	313	352	642	543
Arrive On Green	0.12	0.31	0.00	0.12	0.31	0.00	0.03	0.18	0.18	0.20	0.35	0.35
Sat Flow, veh/h	1827	3645	1626	1879	3749	1672	1963	1958	1738	1731	1817	1536
Grp Volume(v), veh/h	141	964	0	243	976	0	31	190	274	471	682	115
Grp Sat Flow(s),veh/h/ln	1827	1823	1626	1879	1874	1672	1963	1958	1738	1731	1817	1536
Q Serve(g_s), s	10.3	34.7	0.0	16.8	34.0	0.0	2.2	12.3	21.5	28.5	49.5	4.9
Cycle Q Clear(g_c), s	10.3	34.7	0.0	16.8	34.0	0.0	2.2	12.3	21.5	28.5	49.5	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	1133		225	1165		59	353	313	352	642	543
V/C Ratio(X)	0.64	0.85		1.08	0.84		0.53	0.54	0.87	1.34	1.06	0.21
Avail Cap(c_a), veh/h	219	1133		225	1165		105	468	416	352	642	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	45.2	0.0	61.6	45.0	0.0	66.9	52.1	55.8	55.8	45.2	14.2
Incr Delay (d2), s/veh	7.2	8.1	0.0	79.7	6.7	0.0	2.7	0.5	12.3	170.4	52.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	16.8	0.0	13.0	16.7	0.0	1.1	6.1	10.4	29.0	31.3	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	53.3	0.0	141.3	51.7	0.0	69.6	52.6	68.1	226.1	98.2	14.3
LnGrp LOS	E	D		F	D		E	D	E	F	F	B
Approach Vol, veh/h		1105	A		1219	A		495			1268	
Approach Delay, s/veh		54.9			69.6			62.2			138.1	
Approach LOS		D			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.3	50.0	35.0	31.7	23.3	50.0	10.7	56.0
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	13.5	43.5	23.5	33.5	13.5	43.5	7.5	49.5
Max Q Clear Time (g_c+I1), s	12.3	36.0	30.5	23.5	18.8	36.7	4.2	51.5
Green Ext Time (p_c), s	0.1	1.6	0.0	0.8	0.0	2.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	86.0
HCM 6th LOS	F

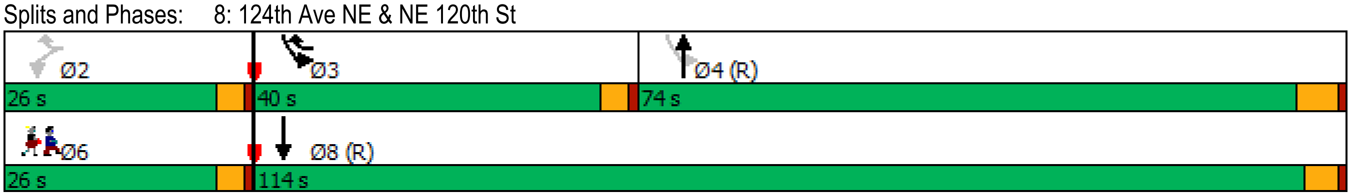
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	18	156	350	18	439	680	
Future Volume (vph)	18	156	350	18	439	680	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	155		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Right Turn on Red		Yes		Yes			
Link Speed (mph)	35		35			35	
Link Distance (ft)	873		1305			466	
Travel Time (s)	17.0		25.4			9.1	
Confl. Peds. (#/hr)	4	4					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	7%	7%	5%	5%	3%	3%	
Shared Lane Traffic (%)							
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	2	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.0	25.5		10.0	24.5	25.0
Total Split (s)	26.0	40.0	74.0		40.0	114.0	26.0
Total Split (%)	18.6%	28.6%	52.9%		28.6%	81.4%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: 124th Ave NE & NE 120th St

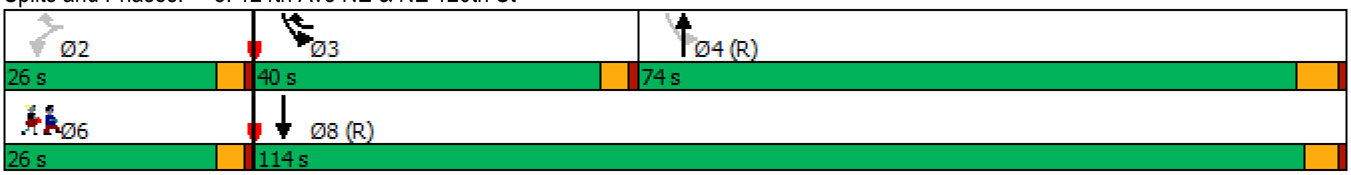


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	18	156	350	18	439	680	
Future Volume (vph)	18	156	350	18	439	680	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	155		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Satd. Flow (prot)	1687	1660	3380	0	1757	3513	
Flt Permitted	0.950				0.521		
Satd. Flow (perm)	1673	1627	3380	0	963	3513	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		166	5				
Link Speed (mph)	35		35			35	
Link Distance (ft)	873		1305			466	
Travel Time (s)	17.0		25.4			9.1	
Confl. Peds. (#/hr)	4	4					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	7%	7%	5%	5%	3%	3%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	19	166	391	0	467	723	
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	2	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.0	25.5		10.0	24.5	25.0
Total Split (s)	26.0	40.0	74.0		40.0	114.0	26.0
Total Split (%)	18.6%	28.6%	52.9%		28.6%	81.4%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	9.6	21.1	105.4		118.4	121.9	
Actuated g/C Ratio	0.07	0.15	0.75		0.85	0.87	
v/c Ratio	0.17	0.43	0.15		0.53	0.24	
Control Delay	61.4	8.9	6.1		5.1	2.0	
Queue Delay	0.0	0.0	0.0		0.2	0.3	
Total Delay	61.4	8.9	6.1		5.3	2.3	
LOS	E	A	A		A	A	
Approach Delay	14.3		6.1			3.5	
Approach LOS	B		A			A	

Intersection Summary

Area Type: Other	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.53	
Intersection Signal Delay: 5.2	Intersection LOS: A
Intersection Capacity Utilization 58.8%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: 124th Ave NE & NE 120th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	470	16	72	143	119	25	344	205	478	458	14
Future Volume (vph)	8	470	16	72	143	119	25	344	205	478	458	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	10	12	12	10	10	12	11	11	12
Grade (%)		2%			-8%			0%			0%	
Storage Length (ft)	250		0	150		0	125		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		873			458			1244			438	
Travel Time (s)		17.0			8.9			24.2			8.5	
Confl. Peds. (#/hr)	5		5	5		5	2		7	7		2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0	26.0		15.0	25.0		13.0	25.5		13.0	27.5	
Total Split (s)	21.0	46.0		26.0	26.0		18.5	65.5		39.5	65.5	
Total Split (%)	11.9%	26.0%		14.7%	14.7%		10.5%	37.0%		22.3%	37.0%	
Yellow Time (s)	3.5	5.0		3.5	5.0		3.5	4.5		3.5	4.5	
All-Red Time (s)	2.5	1.0		2.5	1.0		2.0	1.0		2.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	

Intersection Summary

Area Type: Other

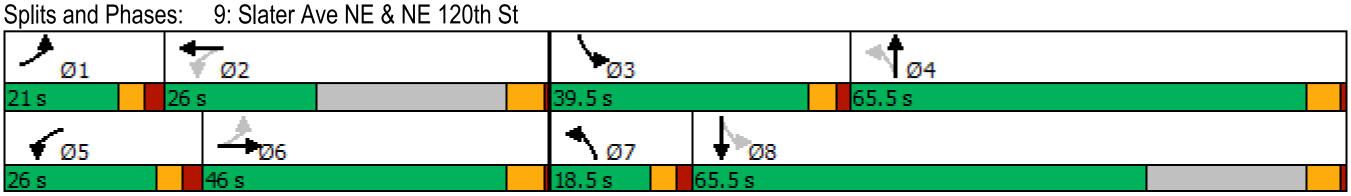
Cycle Length: 177

Actuated Cycle Length: 168.2

Natural Cycle: 145

Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Slater Ave NE & NE 120th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	470	16	72	143	119	25	344	205	478	458	14
Future Volume (veh/h)	8	470	16	72	143	119	25	344	205	478	458	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	0.99		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	2155	2155	2155	1841	1841	1841	1856	1856	1856
Adj Flow Rate, veh/h	8	490	17	75	149	124	26	358	214	498	477	15
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	4	4	4	4	4	4	3	3	3
Cap, veh/h	247	451	16	125	305	254	397	370	221	442	957	30
Arrive On Green	0.01	0.25	0.25	0.04	0.28	0.28	0.03	0.34	0.34	0.22	0.54	0.54
Sat Flow, veh/h	1759	1773	62	2052	1082	901	1753	1075	642	1767	1789	56
Grp Volume(v), veh/h	8	0	507	75	0	273	26	0	572	498	0	492
Grp Sat Flow(s),veh/h/ln	1759	0	1835	2052	0	1983	1753	0	1717	1767	0	1845
Q Serve(g_s), s	0.5	0.0	40.0	4.2	0.0	18.0	1.5	0.0	51.5	34.0	0.0	26.6
Cycle Q Clear(g_c), s	0.5	0.0	40.0	4.2	0.0	18.0	1.5	0.0	51.5	34.0	0.0	26.6
Prop In Lane	1.00		0.03	1.00		0.45	1.00		0.37	1.00		0.03
Lane Grp Cap(c), veh/h	247	0	467	125	0	558	397	0	592	442	0	987
V/C Ratio(X)	0.03	0.00	1.09	0.60	0.00	0.49	0.07	0.00	0.97	1.13	0.00	0.50
Avail Cap(c_a), veh/h	395	0	467	307	0	558	496	0	655	442	0	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.2	0.0	58.6	45.8	0.0	47.1	31.6	0.0	50.6	50.1	0.0	23.2
Incr Delay (d2), s/veh	0.0	0.0	66.9	1.7	0.0	0.2	0.0	0.0	25.1	81.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	27.1	2.2	0.0	9.0	0.6	0.0	26.0	27.5	0.0	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.2	0.0	125.5	47.5	0.0	47.3	31.6	0.0	75.8	131.9	0.0	23.3
LnGrp LOS	D	A	F	D	A	D	C	A	E	F	A	C
Approach Vol, veh/h		515			348			598			990	
Approach Delay, s/veh		124.3			47.4			73.8			77.9	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	50.3	39.5	59.7	12.0	46.0	9.6	89.6
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5
Max Green Setting (Gmax), s	15.0	20.0	34.0	60.0	20.0	40.0	13.0	60.0
Max Q Clear Time (g_c+I1), s	2.5	20.0	36.0	53.5	6.2	42.0	3.5	28.6
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	82.3
HCM 6th LOS	F

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	609	0	217	367	817	361
Future Volume (vph)	609	0	217	367	817	361
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%			4%	-5%	
Storage Length (ft)		0	300		0	300
Storage Lanes		0	2		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	542			772	220	
Travel Time (s)	12.3			17.5	5.0	
Confl. Peds. (#/hr)					3	2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Free
Protected Phases	8		7	4	1	
Permitted Phases						Free
Detector Phase	8		7	4	1	
Switch Phase						
Minimum Initial (s)	10.0		5.0	7.0	5.0	
Minimum Split (s)	32.9		10.1	24.5	12.6	
Total Split (s)	50.0		30.0	80.0	50.0	
Total Split (%)	38.5%		23.1%	61.5%	38.5%	
Yellow Time (s)	4.0		3.6	4.0	3.6	
All-Red Time (s)	6.0		1.5	1.5	4.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	10.0		5.1	5.5	7.6	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	C-Min		None	C-Min	None	

Intersection Summary

Area Type: Other

Cycle Length: 130

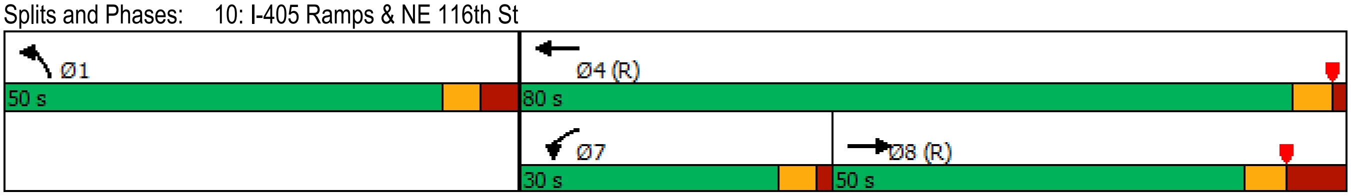
Actuated Cycle Length: 130

Offset: 60 (46%), Referenced to phase 4:WBT and 8:EBT, Start of Red

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 10: I-405 Ramps & NE 116th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	609	0	217	367	817	361
Future Volume (veh/h)	609	0	217	367	817	361
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2012	0	1746	1746	2052	2052
Adj Flow Rate, veh/h	669	0	238	403	898	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	0	4	4	3	3
Cap, veh/h	943	0	295	1989	1006	
Arrive On Green	0.62	0.00	0.09	0.60	0.27	0.00
Sat Flow, veh/h	2012	0	3227	3406	3791	1739
Grp Volume(v), veh/h	669	0	238	403	898	0
Grp Sat Flow(s),veh/h/ln	2012	0	1613	1659	1895	1739
Q Serve(g_s), s	29.2	0.0	9.4	7.2	29.6	0.0
Cycle Q Clear(g_c), s	29.2	0.0	9.4	7.2	29.6	0.0
Prop In Lane		0.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	943	0	295	1989	1006	
V/C Ratio(X)	0.71	0.00	0.81	0.20	0.89	
Avail Cap(c_a), veh/h	943	0	618	1989	1236	
HCM Platoon Ratio	1.33	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.00	0.93	0.93	1.00	0.00
Uniform Delay (d), s/veh	18.5	0.0	57.9	11.9	46.0	0.0
Incr Delay (d2), s/veh	4.0	0.0	3.6	0.2	7.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	0.0	4.0	2.7	15.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.5	0.0	61.5	12.1	53.4	0.0
LnGrp LOS	C	A	E	B	D	
Approach Vol, veh/h	669			641	898	A
Approach Delay, s/veh	22.5			30.4	53.4	
Approach LOS	C			C	D	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	87.9	42.1	17.0	70.9
Change Period (Y+Rc), s	* 10	7.6	5.1	10.0
Max Green Setting (Gmax), s	* 75	42.4	24.9	40.0
Max Q Clear Time (g_c+I1), s	9.2	31.6	11.4	31.2
Green Ext Time (p_c), s	3.7	2.8	0.5	3.5

Intersection Summary	
HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	472	492	274	335	18	181	237	93	29	445	130
Future Volume (vph)	155	472	492	274	335	18	181	237	93	29	445	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	11	11	11	12	11	15	11	11	11
Grade (%)		4%			0%			0%			3%	
Storage Length (ft)	200		0	275		0	250		200	150		190
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		772			374			568			1305	
Travel Time (s)		15.0			7.3			11.1			25.4	
Confl. Peds. (#/hr)	6		1	1		6	6		6	6		6
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA		Prot	NA		Prot	NA	
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases	2		6	6								
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	15.0		7.0	15.0	
Minimum Split (s)	12.5	34.0	13.0	12.5	32.0		13.0	34.0		12.5	35.0	
Total Split (s)	25.5	50.5	25.5	25.5	50.5		25.5	65.5		25.5	65.5	
Total Split (%)	15.3%	30.2%	15.3%	15.3%	30.2%		15.3%	39.2%		15.3%	39.2%	
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	1.5	2.0	2.0	1.5		2.0	1.5		2.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes				Yes	
Recall Mode	None	None	None	None	None		None	Min		None	Min	

Intersection Summary

Area Type: Other

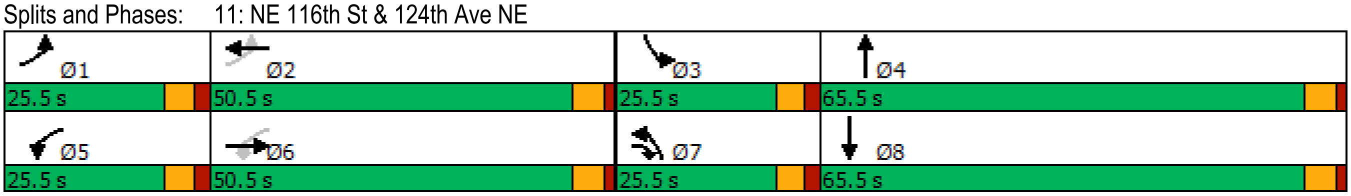
Cycle Length: 167

Actuated Cycle Length: 124.5

Natural Cycle: 95

Control Type: Actuated-Uncoordinated

Splits and Phases: 11: NE 116th St & 124th Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	472	492	274	335	18	181	237	93	29	445	130
Future Volume (veh/h)	155	472	492	274	335	18	181	237	93	29	445	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1746	1746	1746	1826	1826	1826	1856	1856	1930	1773	1773	1773
Adj Flow Rate, veh/h	158	482	396	280	342	18	185	242	95	30	454	133
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	4	4	4	5	5	5	3	3	3	5	5	5
Cap, veh/h	491	532	569	342	1195	63	280	645	245	71	563	164
Arrive On Green	0.08	0.30	0.30	0.13	0.36	0.36	0.08	0.26	0.26	0.04	0.22	0.22
Sat Flow, veh/h	1663	1746	1471	1739	3352	176	3428	2487	947	1688	2569	746
Grp Volume(v), veh/h	158	482	396	280	176	184	185	169	168	30	296	291
Grp Sat Flow(s),veh/h/ln	1663	1746	1471	1739	1735	1793	1714	1763	1672	1688	1684	1631
Q Serve(g_s), s	5.0	22.4	19.1	9.1	6.2	6.2	4.4	6.6	7.0	1.5	14.1	14.3
Cycle Q Clear(g_c), s	5.0	22.4	19.1	9.1	6.2	6.2	4.4	6.6	7.0	1.5	14.1	14.3
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.57	1.00		0.46
Lane Grp Cap(c), veh/h	491	532	569	342	618	639	280	457	433	71	369	358
V/C Ratio(X)	0.32	0.91	0.70	0.82	0.29	0.29	0.66	0.37	0.39	0.42	0.80	0.81
Avail Cap(c_a), veh/h	749	931	905	522	924	955	812	1252	1188	400	1197	1159
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.0	28.2	21.7	19.6	19.5	19.5	37.6	25.6	25.8	39.5	31.2	31.3
Incr Delay (d2), s/veh	0.1	3.4	0.6	3.4	0.1	0.1	1.0	0.2	0.2	1.5	1.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	9.3	6.2	3.7	2.4	2.5	1.8	2.7	2.7	0.6	5.6	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.1	31.6	22.3	23.0	19.6	19.6	38.6	25.8	26.0	41.0	32.8	33.0
LnGrp LOS	B	C	C	C	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1036			640			522			617	
Approach Delay, s/veh		25.5			21.1			30.4			33.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.4	35.6	9.0	27.4	16.8	31.2	12.4	24.0				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	20.0	45.0	20.0	60.0	20.0	45.0	20.0	60.0				
Max Q Clear Time (g_c+I1), s	7.0	8.2	3.5	9.0	11.1	24.4	6.4	16.3				
Green Ext Time (p_c), s	0.1	0.3	0.0	0.3	0.2	1.0	0.2	0.6				
Intersection Summary												
HCM 6th Ctrl Delay			27.1									
HCM 6th LOS			C									

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	53	38	558	58	22	490
Future Volume (vph)	53	38	558	58	22	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%		0%			-2%
Storage Length (ft)	100	0		0	50	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		25			25
Link Distance (ft)	368		374			161
Travel Time (s)	10.0		10.2			4.4
Confl. Peds. (#/hr)				10	10	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection						
Int Delay, s/veh	1.4					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	38	558	58	22	490
Future Vol, veh/h	53	38	558	58	22	490
Conflicting Peds, #/hr	0	0	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	100	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	0	-	-	-2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	2	2	4	4
Mvmt Flow	58	41	607	63	24	533

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	964	649	0	0	680	0
Stage 1	649	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Critical Hdwy	5.845	5.845	-	-	4.16	-
Critical Hdwy Stg 1	4.645	-	-	-	-	-
Critical Hdwy Stg 2	5.045	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	-	-	2.238	-
Pot Cap-1 Maneuver	330	501	-	-	899	-
Stage 1	597	-	-	-	-	-
Stage 2	763	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	318	496	-	-	890	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	591	-	-	-	-	-
Stage 2	742	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.3	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	318	496	890	-
HCM Lane V/C Ratio	-	-	0.181	0.083	0.027	-
HCM Control Delay (s)	-	-	18.8	12.9	9.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	0.1	-

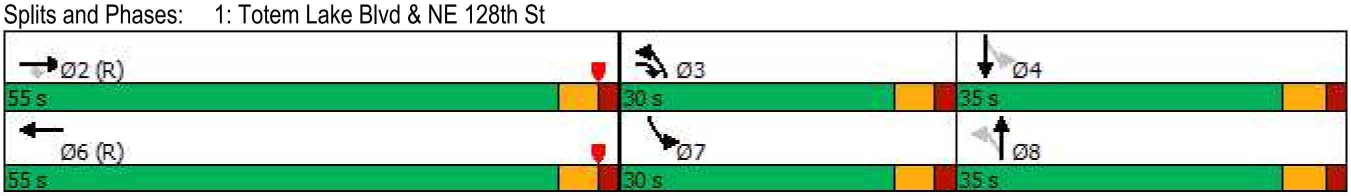
2025 No Action PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	454	237	0	697	83	258	735	185	33	270	125
Future Volume (vph)	0	454	237	0	697	83	258	735	185	33	270	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%			4%			0%	
Storage Length (ft)	0		125	0		0	150		0	50		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		621			649			2242			521	
Travel Time (s)		12.1			12.6			43.7			10.1	
Confl. Peds. (#/hr)	36		11	11		36			12	12		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2	3		6		3	8		7	4	
Permitted Phases			2				8			4		
Detector Phase		2	3		6		3	8		7	4	
Switch Phase												
Minimum Initial (s)		7.0	3.0		7.0		3.0	5.0		3.0	5.0	
Minimum Split (s)		31.5	8.5		35.5		8.5	33.9		8.5	10.9	
Total Split (s)		55.0	30.0		55.0		30.0	35.0		30.0	35.0	
Total Split (%)		45.8%	25.0%		45.8%		25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)		3.5	3.5		3.5		3.5	3.9		3.5	3.9	
All-Red Time (s)		2.0	2.0		2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5		5.5		5.5	5.9		5.5	5.9	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Recall Mode		C-Min	None		C-Min		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: Totem Lake Blvd & NE 128th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	454	237	0	697	83	258	735	185	33	270	125
Future Volume (veh/h)	0	454	237	0	697	83	258	735	185	33	270	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	2012	2012	0	1870	1870	1776	1776	1776	1885	1885	1885
Adj Flow Rate, veh/h	0	483	137	0	741	88	274	782	197	35	287	133
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	3	3	0	2	2	2	2	2	1	1	1
Cap, veh/h	0	2123	1199	0	1772	210	345	748	188	101	364	164
Arrive On Green	0.00	0.56	0.56	0.00	0.56	0.56	0.15	0.28	0.28	0.02	0.15	0.15
Sat Flow, veh/h	0	3924	1695	0	3285	379	1692	2662	671	1795	2381	1072
Grp Volume(v), veh/h	0	483	137	0	412	417	274	496	483	35	214	206
Grp Sat Flow(s),veh/h/ln	0	1912	1695	0	1777	1793	1692	1687	1645	1795	1791	1662
Q Serve(g_s), s	0.0	7.7	3.1	0.0	16.1	16.1	15.8	33.7	33.7	2.0	13.8	14.4
Cycle Q Clear(g_c), s	0.0	7.7	3.1	0.0	16.1	16.1	15.8	33.7	33.7	2.0	13.8	14.4
Prop In Lane	0.00		1.00	0.00		0.21	1.00		0.41	1.00		0.64
Lane Grp Cap(c), veh/h	0	2123	1199	0	987	996	345	474	462	101	274	254
V/C Ratio(X)	0.00	0.23	0.11	0.00	0.42	0.42	0.79	1.05	1.05	0.35	0.78	0.81
Avail Cap(c_a), veh/h	0	2123	1199	0	987	996	435	474	462	427	434	403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.35	0.35	0.35	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	13.6	5.6	0.0	15.4	15.5	34.6	43.1	43.1	43.0	48.9	49.1
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	1.3	1.3	2.6	37.4	37.7	1.5	4.8	6.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.3	1.1	0.0	6.6	6.7	6.6	18.7	18.2	0.9	6.5	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.8	5.8	0.0	16.8	16.7	37.1	80.6	80.9	44.5	53.7	55.7
LnGrp LOS	A	B	A	A	B	B	D	F	F	D	D	E
Approach Vol, veh/h		620			829			1253			455	
Approach Delay, s/veh		12.1			16.7			71.2			53.9	
Approach LOS		B			B			E			D	

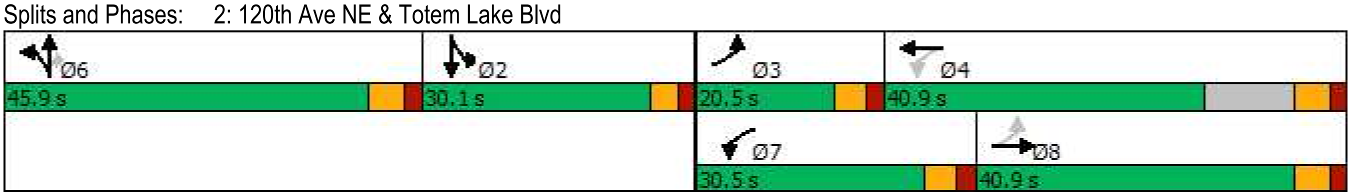
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		72.1	23.6	24.3		72.1	8.3	39.6				
Change Period (Y+Rc), s		5.5	5.5	5.9		5.5	5.5	5.9				
Max Green Setting (Gmax), s		49.5	24.5	29.1		49.5	24.5	29.1				
Max Q Clear Time (g_c+I1), s		9.7	17.8	16.4		18.1	4.0	35.7				
Green Ext Time (p_c), s		5.9	0.3	2.0		8.4	0.0	0.0				

Intersection Summary			
HCM 6th Ctrl Delay			42.8
HCM 6th LOS			D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	429	63	206	742	317	255	274	28	438	116	46
Future Volume (vph)	38	429	63	206	742	317	255	274	28	438	116	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			0%	
Storage Length (ft)	120		0	150		0	150		150	165		0
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2242			1141			315			357	
Travel Time (s)		43.7			22.2			8.6			9.7	
Confl. Peds. (#/hr)	18					18			8	8		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)							10%					
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	3	8		7	4		6	6		2	2	
Permitted Phases	8			4					6			
Detector Phase	3	8		7	4		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	10.5	12.9		10.5	31.9		33.9	33.9	33.9	11.1	11.1	
Total Split (s)	20.5	40.9		30.5	40.9		45.9	45.9	45.9	30.1	30.1	
Total Split (%)	13.9%	27.7%		20.7%	27.7%		31.1%	31.1%	31.1%	20.4%	20.4%	
Yellow Time (s)	3.5	3.9		3.5	3.9		3.9	3.9	3.9	3.1	3.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.9		5.5	5.9		5.9	5.9	5.9	5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min		None	None	None	None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 147.4	
Actuated Cycle Length: 112.4	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 2: 120th Ave NE & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	429	63	206	742	317	255	274	28	438	116	46
Future Volume (veh/h)	38	429	63	206	742	317	255	274	28	438	116	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.99		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1862	1862	1862	2042	2042	2042	1885	1885	1885
Adj Flow Rate, veh/h	40	447	0	215	773	330	266	285	0	456	121	48
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	1	1	1	1	1	1	1	1	1
Cap, veh/h	168	1032		440	859	366	376	395	335	594	218	87
Arrive On Green	0.03	0.29	0.00	0.11	0.36	0.36	0.19	0.19	0.00	0.17	0.17	0.17
Sat Flow, veh/h	1810	3705	0	1773	2395	1021	1945	2042	1731	3483	1278	507
Grp Volume(v), veh/h	40	447	0	215	571	532	266	285	0	456	0	169
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1773	1769	1647	1945	2042	1731	1742	0	1785
Q Serve(g_s), s	1.4	9.3	0.0	7.5	28.2	28.3	11.8	12.1	0.0	11.5	0.0	8.0
Cycle Q Clear(g_c), s	1.4	9.3	0.0	7.5	28.2	28.3	11.8	12.1	0.0	11.5	0.0	8.0
Prop In Lane	1.00		0.00	1.00		0.62	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	168	1032		440	634	590	376	395	335	594	0	305
V/C Ratio(X)	0.24	0.43		0.49	0.90	0.90	0.71	0.72	0.00	0.77	0.00	0.55
Avail Cap(c_a), veh/h	399	1369		729	670	624	843	885	750	943	0	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.5	26.9	0.0	18.9	28.0	28.1	34.8	34.9	0.0	36.5	0.0	35.1
Incr Delay (d2), s/veh	0.7	0.3	0.0	0.8	14.7	15.8	2.4	2.5	0.0	2.1	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.9	0.0	3.0	13.8	13.1	5.8	6.2	0.0	5.1	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	27.2	0.0	19.7	42.8	43.9	37.2	37.4	0.0	38.6	0.0	36.6
LnGrp LOS	C	C		B	D	D	D	D	A	D	A	D
Approach Vol, veh/h		487	A		1318			551			625	
Approach Delay, s/veh		27.0			39.5			37.3			38.1	
Approach LOS		C			D			D			D	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		20.9	8.7	39.0		23.8	15.4	32.3				
Change Period (Y+Rc), s		5.1	5.5	5.9		5.9	5.5	5.9				
Max Green Setting (Gmax), s		25.0	15.0	35.0		40.0	25.0	35.0				
Max Q Clear Time (g_c+I1), s		13.5	3.4	30.3		14.1	9.5	11.3				
Green Ext Time (p_c), s		2.2	0.0	2.8		2.7	0.5	2.9				

Intersection Summary			
HCM 6th Ctrl Delay			36.7
HCM 6th LOS			D

Notes

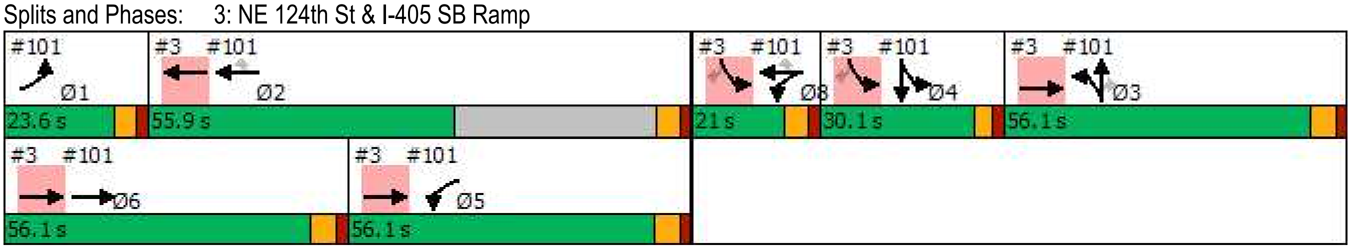
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	961	1356	0	643	561						
Future Volume (vph)	0	961	1356	0	643	561						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	11	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Right Turn on Red				Yes		Yes						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Confl. Peds. (#/hr)	1			1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%						
Shared Lane Traffic (%)						33%						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			55.9				23.6	56.1	30.1	56.1	56.1	21.0
Total Split (%)			25.5%				11%	26%	14%	26%	26%	10%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None

Intersection Summary	
Area Type:	Other
Cycle Length: 219.4	
Actuated Cycle Length: 183.8	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: NE 124th St & I-405 SB Ramp

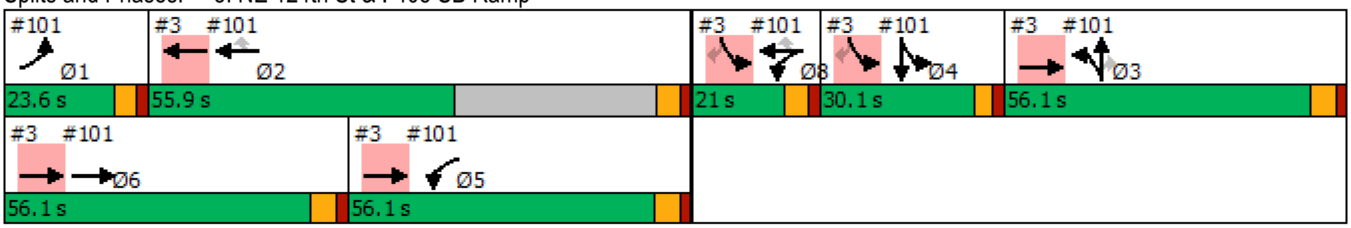


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	961	1356	0	643	561						
Future Volume (vph)	0	961	1356	0	643	561						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	11	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Satd. Flow (prot)	0	3437	3577	0	3282	1407						
Flt Permitted					0.963							
Satd. Flow (perm)	0	3437	3577	0	3282	1407						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)					16	391						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Confl. Peds. (#/hr)	1			1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%						
Shared Lane Traffic (%)						33%						
Lane Group Flow (vph)	0	1001	1413	0	863	391						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			55.9				23.6	56.1	30.1	56.1	56.1	21.0
Total Split (%)			25.5%				11%	26%	14%	26%	26%	10%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None
Act Effct Green (s)		127.9	65.2		48.2	48.2						
Actuated g/C Ratio		0.70	0.35		0.26	0.26						
v/c Ratio		0.42	1.11		0.99	0.60						
Control Delay		8.9	116.1		92.9	9.1						
Queue Delay		4.6	0.6		0.0	0.0						
Total Delay		13.5	116.7		92.9	9.1						
LOS		B	F		F	A						
Approach Delay		13.5	116.7		66.8							
Approach LOS		B	F		E							

Intersection Summary

Area Type: Other
Cycle Length: 219.4
Actuated Cycle Length: 183.8
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 71.5 Intersection LOS: E
Intersection Capacity Utilization 68.4% ICU Level of Service C
Analysis Period (min) 15

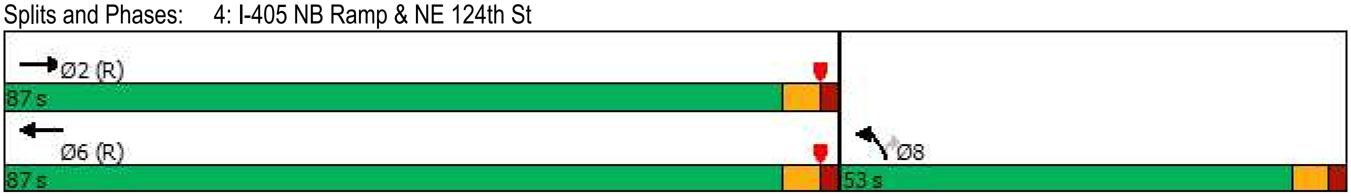
Splits and Phases: 3: NE 124th St & I-405 SB Ramp



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1351	0	0	1388	340	313
Future Volume (vph)	1351	0	0	1388	340	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			5%	-2%	
Storage Length (ft)		275	0		0	0
Storage Lanes		0	0		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	1373			596	277	
Travel Time (s)	31.2			13.5	6.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	7.0			7.0	5.0	5.0
Minimum Split (s)	13.0			13.0	10.9	10.9
Total Split (s)	87.0			87.0	53.0	53.0
Total Split (%)	62.1%			62.1%	37.9%	37.9%
Yellow Time (s)	4.0			4.0	3.9	3.9
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.0			6.0	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min			C-Min	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 75 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Red	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-405 NB Ramp & NE 124th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1351	0	0	1388	340	313
Future Volume (veh/h)	1351	0	0	1388	340	313
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1988	0	0	1738	1964	1964
Adj Flow Rate, veh/h	1407	0	0	1446	354	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	1	1	1
Cap, veh/h	2998	0	0	2621	440	
Arrive On Green	0.79	0.00	0.00	0.53	0.12	0.00
Sat Flow, veh/h	3976	0	0	3476	3628	1664
Grp Volume(v), veh/h	1407	0	0	1446	354	0
Grp Sat Flow(s),veh/h/ln	1889	0	0	1651	1814	1664
Q Serve(g_s), s	17.1	0.0	0.0	40.6	13.3	0.0
Cycle Q Clear(g_c), s	17.1	0.0	0.0	40.6	13.3	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2998	0	0	2621	440	
V/C Ratio(X)	0.47	0.00	0.00	0.55	0.81	
Avail Cap(c_a), veh/h	2998	0	0	2621	1221	
HCM Platoon Ratio	1.00	1.00	1.00	0.67	1.00	1.00
Upstream Filter(I)	0.67	0.00	0.00	0.64	1.00	0.00
Uniform Delay (d), s/veh	4.7	0.0	0.0	16.3	59.9	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	4.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	0.0	0.0	16.9	6.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.1	0.0	0.0	16.8	64.1	0.0
LnGrp LOS	A	A	A	B	E	
Approach Vol, veh/h	1407			1446	354	A
Approach Delay, s/veh	5.1			16.8	64.1	
Approach LOS	A			B	E	

Timer - Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		117.1				117.1		22.9
Change Period (Y+Rc), s		6.0				6.0		5.9
Max Green Setting (Gmax), s		81.0				81.0		47.1
Max Q Clear Time (g_c+I1), s		19.1				42.6		15.3
Green Ext Time (p_c), s		25.5				21.3		1.7

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBT] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1487	130	148	1591	53	110	19	150	68	16	50
Future Volume (vph)	47	1487	130	148	1591	53	110	19	150	68	16	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	11	12	12	12	11	12	12	12
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	150		0	150		0	0		110	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		596			524			245			186	
Travel Time (s)		11.6			10.2			6.7			5.1	
Confl. Peds. (#/hr)	5		3	3		5			5	5		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.1	24.5		9.5	29.0		22.5	22.5	22.5	12.6	12.6	
Total Split (s)	30.0	80.0		9.5	50.0		22.5	22.5	22.5	50.0	50.0	
Total Split (%)	21.5%	57.3%		6.8%	35.8%		16.1%	16.1%	16.1%	35.8%	35.8%	
Yellow Time (s)	3.6	4.0		3.5	4.0		3.5	3.5	3.5	3.6	3.6	
All-Red Time (s)	1.5	1.5		1.0	6.0		1.0	1.0	1.0	4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.1	5.5		4.5	10.0			4.5	4.5		7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 139.5

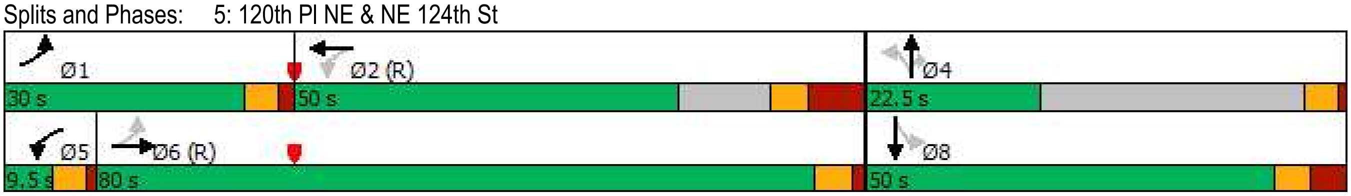
Actuated Cycle Length: 139.5

Offset: 60 (43%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 5: 120th Pl NE & NE 124th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	1487	130	148	1591	53	110	19	150	68	16	50
Future Volume (veh/h)	47	1487	130	148	1591	53	110	19	150	68	16	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1964	1964	1964	1900	1900	1900	1885	1885	1885
Adj Flow Rate, veh/h	48	1517	133	151	1623	54	112	19	0	69	16	51
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	1	1	1
Cap, veh/h	235	2267	197	202	2531	84	178	22	194	134	33	77
Arrive On Green	0.01	0.23	0.23	0.04	0.69	0.69	0.12	0.12	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1781	3306	288	1870	3684	122	1075	182	1610	789	275	638
Grp Volume(v), veh/h	48	810	840	151	819	858	131	0	0	136	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1817	1870	1865	1941	1258	0	1610	1702	0	0
Q Serve(g_s), s	1.1	58.1	59.1	3.4	34.3	34.7	4.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	58.1	59.1	3.4	34.3	34.7	14.6	0.0	0.0	10.5	0.0	0.0
Prop In Lane	1.00		0.16	1.00		0.06	0.85		1.00	0.51		0.37
Lane Grp Cap(c), veh/h	235	1218	1246	202	1281	1333	200	0	194	244	0	0
V/C Ratio(X)	0.20	0.66	0.67	0.75	0.64	0.64	0.66	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	498	1218	1246	202	1281	1333	211	0	207	519	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.75	0.75	0.75	0.18	0.18	0.18	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.1	39.5	39.9	28.6	12.2	12.3	60.8	0.0	0.0	58.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.2	2.2	2.8	0.4	0.4	6.7	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	28.5	29.6	3.7	13.4	14.1	5.0	0.0	0.0	4.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.4	41.7	42.1	31.4	12.7	12.7	67.6	0.0	0.0	60.7	0.0	0.0
LnGrp LOS	B	D	D	C	B	B	E	A	A	E	A	A
Approach Vol, veh/h		1698			1828			131			136	
Approach Delay, s/veh		41.0			14.2			67.6			60.7	
Approach LOS		D			B			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	106.2		24.5	9.5	106.0		24.5				
Change Period (Y+Rc), s	5.1	10.0		* 7.6	4.5	* 10		7.6				
Max Green Setting (Gmax), s	24.9	40.0		* 18	5.0	* 75		42.4				
Max Q Clear Time (g_c+I1), s	3.1	36.7		16.6	5.4	61.1		12.5				
Green Ext Time (p_c), s	0.1	2.6		0.1	0.0	8.4		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			29.7									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	1120	387	161	1148	383	485	693	266	291	360	122
Future Volume (vph)	161	1120	387	161	1148	383	485	693	266	291	360	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	13	12	10	12	10	12	10	14	11	12
Grade (%)		0%			0%			-5%			0%	
Storage Length (ft)	185		85	180		193	200		170	200		350
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		524			466			466			1141	
Travel Time (s)		10.2			9.1			9.1			22.2	
Confl. Peds. (#/hr)	9		12	12		9	16		22	22		16
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	6.0	6.0	15.0	6.0	6.0	7.0	6.0	6.0	7.0	7.0
Minimum Split (s)	9.5	42.0	12.5	12.5	31.0	12.5	12.5	37.5	12.5	12.5	35.0	35.0
Total Split (s)	20.0	53.0	26.0	22.0	55.0	27.0	26.0	38.0	22.0	27.0	39.0	39.0
Total Split (%)	14.3%	37.9%	18.6%	15.7%	39.3%	19.3%	18.6%	27.1%	15.7%	19.3%	27.9%	27.9%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.5	3.5	3.5	4.0	4.0
All-Red Time (s)	1.0	1.0	3.0	2.0	1.0	3.0	3.0	1.0	2.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	6.5	5.5	5.0	6.5	6.5	5.5	5.5	6.5	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 140

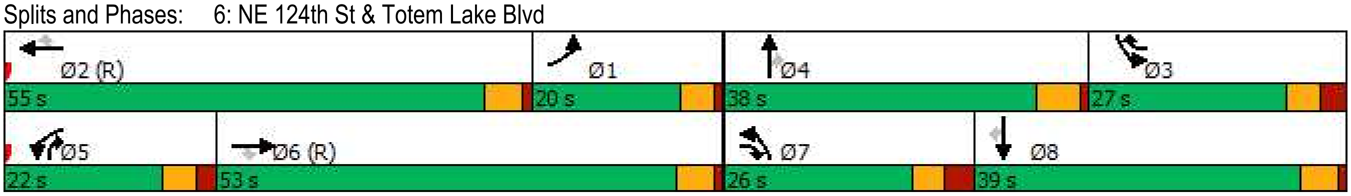
Actuated Cycle Length: 140

Offset: 100 (71%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Splits and Phases: 6: NE 124th St & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	1120	387	161	1148	383	485	693	266	291	360	122
Future Volume (veh/h)	161	1120	387	161	1148	383	485	693	266	291	360	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1961	1900	1900	1900	2082	2082	2082	1945	1870	1870
Adj Flow Rate, veh/h	166	1155	326	166	1184	340	500	714	202	300	371	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	2	2	2
Cap, veh/h	217	1323	839	190	1289	805	536	863	559	271	775	
Arrive On Green	0.04	0.12	0.12	0.11	0.36	0.36	0.19	0.29	0.29	0.15	0.22	0.00
Sat Flow, veh/h	1795	3582	1645	1810	3610	1594	3846	3955	1711	1853	3554	1585
Grp Volume(v), veh/h	166	1155	326	166	1184	340	500	714	202	300	371	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1645	1810	1805	1594	1923	1978	1711	1853	1777	1585
Q Serve(g_s), s	12.8	44.4	20.3	12.7	43.9	0.0	17.9	23.6	7.2	20.5	12.8	0.0
Cycle Q Clear(g_c), s	12.8	44.4	20.3	12.7	43.9	0.0	17.9	23.6	7.2	20.5	12.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	217	1323	839	190	1289	805	536	863	559	271	775	
V/C Ratio(X)	0.76	0.87	0.39	0.87	0.92	0.42	0.93	0.83	0.36	1.11	0.48	
Avail Cap(c_a), veh/h	217	1323	839	213	1289	805	536	918	583	271	863	
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	0.62	0.62	0.62	1.00	1.00	1.00	0.78	0.78	0.78	0.73	0.73	0.00
Uniform Delay (d), s/veh	65.2	58.2	30.5	61.7	43.0	21.9	56.4	47.2	14.4	59.8	47.8	0.0
Incr Delay (d2), s/veh	9.6	5.3	0.8	26.3	11.9	1.6	19.8	4.8	0.3	78.4	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	22.4	9.1	7.2	21.4	7.3	9.8	11.6	3.2	15.5	5.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.8	63.5	31.3	88.0	54.9	23.5	76.2	52.0	14.7	138.2	48.1	0.0
LnGrp LOS	E	E	C	F	D	C	E	D	B	F	D	
Approach Vol, veh/h		1647			1690			1416			671	A
Approach Delay, s/veh		58.3			51.8			55.2			88.4	
Approach LOS		E			D			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.9	55.0	27.0	36.1	20.2	56.7	26.0	37.1				
Change Period (Y+Rc), s	5.0	* 5	6.5	5.5	5.5	5.0	6.5	* 6.5				
Max Green Setting (Gmax), s	15.5	* 50	20.5	32.5	16.5	48.0	19.5	* 34				
Max Q Clear Time (g_c+I1), s	14.8	45.9	22.5	25.6	14.7	46.4	19.9	14.8				
Green Ext Time (p_c), s	0.1	2.4	0.0	2.9	0.1	1.1	0.0	2.2				

Intersection Summary			
HCM 6th Ctrl Delay			59.2
HCM 6th LOS			E

Notes

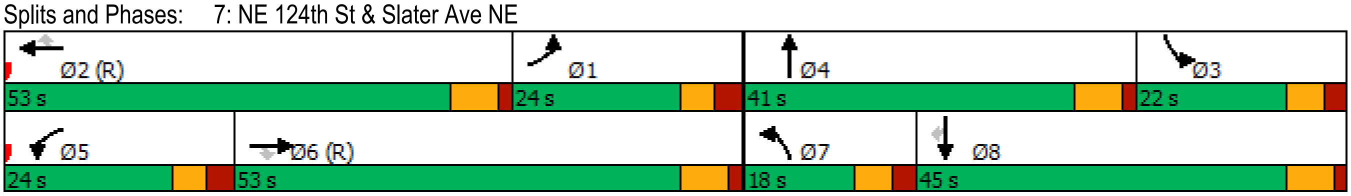
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	317	1114	52	265	1134	408	36	418	359	280	283	259
Future Volume (vph)	317	1114	52	265	1134	408	36	418	359	280	283	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	11	11	11	11	11	11	11
Grade (%)		-2%			-3%			-6%			2%	
Storage Length (ft)	250		80	440		200	150		0	350		0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		421			1236			330			661	
Travel Time (s)		8.2			24.1			6.4			12.9	
Confl. Peds. (#/hr)	5		4	4		5	3		5	5		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	6.0	10.0		6.0	10.0	10.0
Minimum Split (s)	12.5	36.5	36.5	12.5	39.5	39.5	12.5	39.5		12.5	36.5	36.5
Total Split (s)	24.0	53.0	53.0	24.0	53.0	53.0	18.0	41.0		22.0	45.0	45.0
Total Split (%)	17.1%	37.9%	37.9%	17.1%	37.9%	37.9%	12.9%	29.3%		15.7%	32.1%	32.1%
Yellow Time (s)	3.5	5.0	5.0	3.5	5.0	5.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	1.5	1.5	3.0	1.5	1.5	2.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 5 (4%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: NE 124th St & Slater Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	317	1114	52	265	1134	408	36	418	359	280	283	259
Future Volume (veh/h)	317	1114	52	265	1134	408	36	418	359	280	283	259
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1919	1919	1919	1988	1988	1988	2091	2091	2091	1847	1847	1847
Adj Flow Rate, veh/h	334	1173	0	279	1194	0	38	440	378	295	298	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	2	2	2
Cap, veh/h	252	1258		237	1255		66	472	404	195	575	487
Arrive On Green	0.14	0.35	0.00	0.17	0.44	0.00	0.03	0.23	0.23	0.11	0.31	0.00
Sat Flow, veh/h	1827	3645	1626	1893	3777	1685	1991	2022	1730	1759	1847	1565
Grp Volume(v), veh/h	334	1173	0	279	1194	0	38	432	386	295	298	0
Grp Sat Flow(s),veh/h/ln	1827	1823	1626	1893	1889	1685	1991	1986	1766	1759	1847	1565
Q Serve(g_s), s	19.3	43.5	0.0	17.5	42.6	0.0	2.6	29.8	30.0	15.5	18.6	0.0
Cycle Q Clear(g_c), s	19.3	43.5	0.0	17.5	42.6	0.0	2.6	29.8	30.0	15.5	18.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Lane Grp Cap(c), veh/h	252	1258		237	1255		66	464	412	195	575	487
V/C Ratio(X)	1.33	0.93		1.18	0.95		0.58	0.93	0.94	1.51	0.52	0.00
Avail Cap(c_a), veh/h	252	1258		237	1255		164	490	435	195	575	487
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.83	0.83	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	60.3	44.3	0.0	58.4	38.0	0.0	66.7	52.6	52.6	62.3	39.6	0.0
Incr Delay (d2), s/veh	171.2	13.6	0.0	110.7	14.2	0.0	2.9	23.5	26.3	256.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.9	21.7	0.0	15.3	20.6	0.0	1.4	17.8	16.2	20.8	8.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	231.5	57.9	0.0	169.1	52.2	0.0	69.7	76.1	78.9	318.5	40.0	0.0
LnGrp LOS	F	E		F	D		E	E	E	F	D	A
Approach Vol, veh/h		1507	A		1473	A		856			593	
Approach Delay, s/veh		96.4			74.3			77.1			178.6	
Approach LOS		F			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	53.0	22.0	39.2	24.0	54.8	11.1	50.1
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	17.5	46.5	15.5	34.5	17.5	46.5	11.5	38.5
Max Q Clear Time (g_c+I1), s	21.3	44.6	17.5	32.0	19.5	45.5	4.6	20.6
Green Ext Time (p_c), s	0.0	0.8	0.0	0.6	0.0	0.6	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	96.3
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	52	461	940	34	186	607	
Future Volume (vph)	52	461	940	34	186	607	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	155		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Right Turn on Red		Yes		Yes			
Link Speed (mph)	35		35			35	
Link Distance (ft)	873		1305			466	
Travel Time (s)	17.0		25.4			9.1	
Confl. Peds. (#/hr)	6	7		3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%	
Shared Lane Traffic (%)							
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	3	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.5	28.5		10.5	31.0	25.5
Total Split (s)	27.0	23.0	90.0		23.0	113.0	27.0
Total Split (%)	19.3%	16.4%	64.3%		16.4%	80.7%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None

Intersection Summary

Area Type: Other

Cycle Length: 140

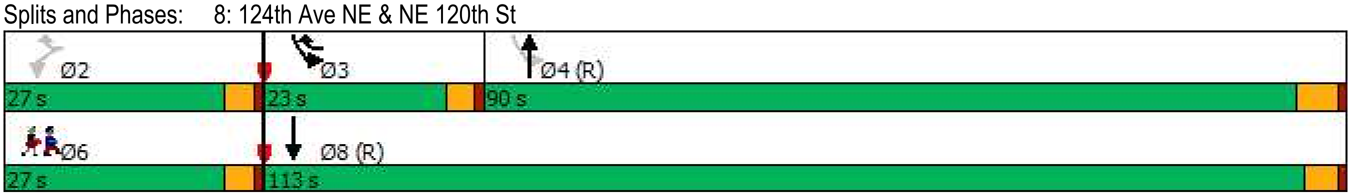
Actuated Cycle Length: 140

Offset: 14 (10%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Splits and Phases: 8: 124th Ave NE & NE 120th St

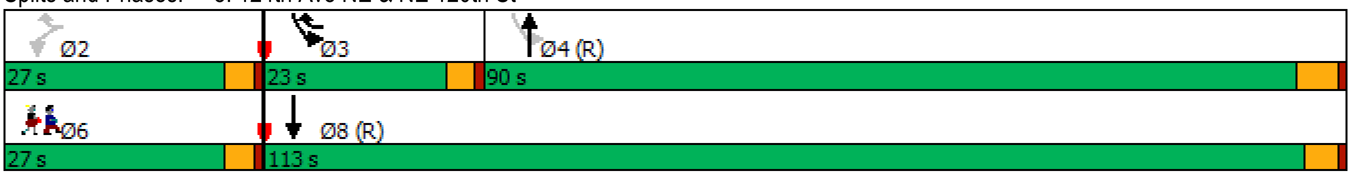


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	52	461	940	34	186	607	
Future Volume (vph)	52	461	940	34	186	607	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	155		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Satd. Flow (prot)	1770	1742	3483	0	1791	3583	
Flt Permitted	0.950				0.247		
Satd. Flow (perm)	1748	1697	3483	0	465	3583	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		132	5				
Link Speed (mph)	35		35			35	
Link Distance (ft)	873		1305			466	
Travel Time (s)	17.0		25.4			9.1	
Confl. Peds. (#/hr)	6	7		3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	53	470	994	0	190	619	
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	3	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.5	28.5		10.5	31.0	25.5
Total Split (s)	27.0	23.0	90.0		23.0	113.0	27.0
Total Split (%)	19.3%	16.4%	64.3%		16.4%	80.7%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	10.6	32.9	94.4		119.4	123.8	
Actuated g/C Ratio	0.08	0.24	0.67		0.85	0.88	
v/c Ratio	0.40	0.93	0.42		0.31	0.20	
Control Delay	68.6	61.4	12.2		4.5	1.8	
Queue Delay	0.0	0.2	0.0		0.0	0.1	
Total Delay	68.6	61.6	12.2		4.5	2.0	
LOS	E	E	B		A	A	
Approach Delay	62.4		12.2			2.6	
Approach LOS	E		B			A	

Intersection Summary

Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 14 (10%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 20.1	Intersection LOS: C
Intersection Capacity Utilization 64.3%	ICU Level of Service C
Analysis Period (min) 15	

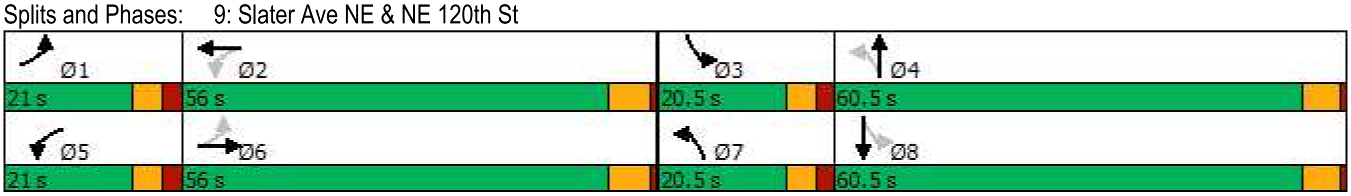
Splits and Phases: 8: 124th Ave NE & NE 120th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	154	25	148	318	318	44	587	65	119	429	33
Future Volume (vph)	34	154	25	148	318	318	44	587	65	119	429	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	10	12	12	10	10	12	11	11	12
Grade (%)		3%			-8%			0%			0%	
Storage Length (ft)	250		0	150		0	125		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		873			458			1255			438	
Travel Time (s)		17.0			8.9			24.4			8.5	
Confl. Peds. (#/hr)			3	3			2		4	4		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0	26.0		15.0	25.0		15.0	25.5		20.0	27.5	
Total Split (s)	21.0	56.0		21.0	56.0		20.5	60.5		20.5	60.5	
Total Split (%)	13.3%	35.4%		13.3%	35.4%		13.0%	38.3%		13.0%	38.3%	
Yellow Time (s)	3.5	5.0		3.5	5.0		3.5	4.5		3.5	4.5	
All-Red Time (s)	2.5	1.0		2.5	1.0		2.0	1.0		2.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 158	
Actuated Cycle Length: 143.3	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Slater Ave NE & NE 120th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	34	154	25	148	318	318	44	587	65	119	429	33
Future Volume (veh/h)	34	154	25	148	318	318	44	587	65	119	429	33
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1788	1788	1788	2185	2185	2185	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	37	167	27	161	346	346	48	638	71	129	466	36
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	483	78	517	355	355	288	646	72	160	707	55
Arrive On Green	0.03	0.32	0.32	0.07	0.36	0.36	0.04	0.39	0.39	0.06	0.41	0.41
Sat Flow, veh/h	1703	1500	243	2081	1000	1000	1781	1652	184	1781	1713	132
Grp Volume(v), veh/h	37	0	194	161	0	692	48	0	709	129	0	502
Grp Sat Flow(s),veh/h/ln	1703	0	1743	2081	0	2000	1781	0	1836	1781	0	1846
Q Serve(g_s), s	2.0	0.0	11.9	7.2	0.0	48.0	2.2	0.0	53.9	6.1	0.0	30.9
Cycle Q Clear(g_c), s	2.0	0.0	11.9	7.2	0.0	48.0	2.2	0.0	53.9	6.1	0.0	30.9
Prop In Lane	1.00		0.14	1.00		0.50	1.00		0.10	1.00		0.07
Lane Grp Cap(c), veh/h	117	0	561	517	0	711	288	0	718	160	0	761
V/C Ratio(X)	0.32	0.00	0.35	0.31	0.00	0.97	0.17	0.00	0.99	0.81	0.00	0.66
Avail Cap(c_a), veh/h	243	0	619	602	0	711	414	0	718	247	0	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.0	0.0	36.4	28.8	0.0	44.7	26.6	0.0	42.5	33.8	0.0	33.4
Incr Delay (d2), s/veh	0.6	0.0	0.1	0.1	0.0	27.1	0.1	0.0	30.3	5.4	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	5.1	3.6	0.0	28.7	1.0	0.0	29.9	2.8	0.0	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.5	28.9	0.0	71.8	26.7	0.0	72.8	39.2	0.0	35.0
LnGrp LOS	D	A	D	C	A	E	C	A	E	D	A	D
Approach Vol, veh/h		231			853			757			631	
Approach Delay, s/veh		36.7			63.7			69.9			35.9	
Approach LOS		D			E			E			D	

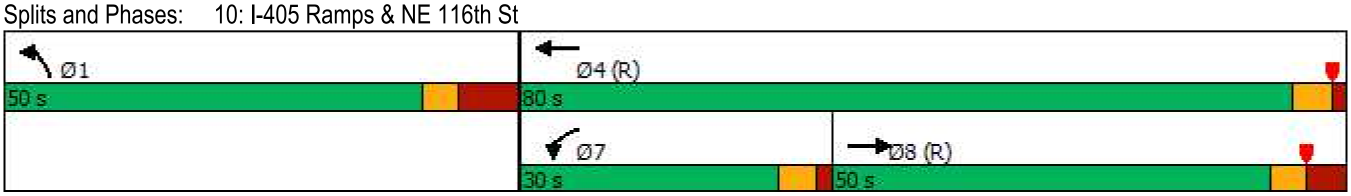
Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.6	56.0	13.6	60.5	15.3	51.3	10.6	63.5
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5
Max Green Setting (Gmax), s	15.0	50.0	15.0	55.0	15.0	50.0	15.0	55.0
Max Q Clear Time (g_c+I1), s	4.0	50.0	8.1	55.9	9.2	13.9	4.2	32.9
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.1	0.3	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	56.0
HCM 6th LOS	E

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	622	0	253	1282	559	290
Future Volume (vph)	622	0	253	1282	559	290
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%			4%	-5%	
Storage Length (ft)		0	300		0	300
Storage Lanes		0	2		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	542			772	220	
Travel Time (s)	12.3			17.5	5.0	
Confl. Peds. (#/hr)					3	2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Free
Protected Phases	8		7	4	1	
Permitted Phases						Free
Detector Phase	8		7	4	1	
Switch Phase						
Minimum Initial (s)	10.0		5.0	7.0	5.0	
Minimum Split (s)	26.6		10.1	24.5	14.6	
Total Split (s)	50.0		30.0	80.0	50.0	
Total Split (%)	38.5%		23.1%	61.5%	38.5%	
Yellow Time (s)	3.6		3.6	4.0	3.6	
All-Red Time (s)	4.0		1.5	1.5	6.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.6		5.1	5.5	9.6	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	C-Min		None	C-Min	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 60 (46%), Referenced to phase 4:WBT and 8:EBT, Start of Red	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 10: I-405 Ramps & NE 116th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	622	0	253	1282	559	290
Future Volume (veh/h)	622	0	253	1282	559	290
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2042	0	1791	1791	2082	2082
Adj Flow Rate, veh/h	684	0	278	1409	614	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	0	1	1	1	1
Cap, veh/h	1102	0	338	2317	718	
Arrive On Green	0.72	0.00	0.10	0.68	0.19	0.00
Sat Flow, veh/h	2042	0	3309	3492	3846	1764
Grp Volume(v), veh/h	684	0	278	1409	614	0
Grp Sat Flow(s),veh/h/ln	2042	0	1654	1701	1923	1764
Q Serve(g_s), s	22.2	0.0	10.7	29.3	20.1	0.0
Cycle Q Clear(g_c), s	22.2	0.0	10.7	29.3	20.1	0.0
Prop In Lane		0.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1102	0	338	2317	718	
V/C Ratio(X)	0.62	0.00	0.82	0.61	0.85	
Avail Cap(c_a), veh/h	1102	0	634	2317	1195	
HCM Platoon Ratio	1.33	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.44	0.44	1.00	0.00
Uniform Delay (d), s/veh	11.6	0.0	57.2	11.3	51.1	0.0
Incr Delay (d2), s/veh	2.6	0.0	1.7	0.5	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	4.6	10.5	10.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.2	0.0	58.9	11.8	54.5	0.0
LnGrp LOS	B	A	E	B	D	
Approach Vol, veh/h	684			1687	614	A
Approach Delay, s/veh	14.2			19.6	54.5	
Approach LOS	B			B	D	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				96.1		33.9	18.4	77.7
Change Period (Y+Rc), s				* 7.6		9.6	5.1	7.6
Max Green Setting (Gmax), s				* 75		40.4	24.9	42.4
Max Q Clear Time (g_c+I1), s				31.3		22.1	12.7	24.2
Green Ext Time (p_c), s				18.7		2.2	0.6	5.5

Intersection Summary	
HCM 6th Ctrl Delay	25.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

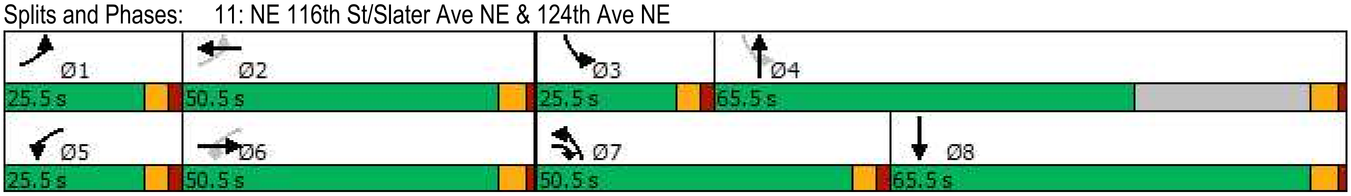
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	416	224	129	625	28	748	817	376	69	316	247
Future Volume (vph)	235	416	224	129	625	28	748	817	376	69	316	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	11	11	11	12	11	15	11	11	11
Grade (%)		4%			0%			0%			3%	
Storage Length (ft)	200		0	275		0	250		200	150		190
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		772			359			568			1305	
Travel Time (s)		15.0			7.0			11.1			25.4	
Confl. Peds. (#/hr)	3		11	11		3	16		7	7		16
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA		Prot	NA		D.P+P	NA	
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases	2		6	6						4		
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	11.5	34.0	12.0	11.5	32.0		12.0	34.0		11.5	35.0	
Total Split (s)	25.5	50.5	50.5	25.5	50.5		50.5	65.5		25.5	65.5	
Total Split (%)	13.3%	26.3%	26.3%	13.3%	26.3%		26.3%	34.1%		13.3%	34.1%	
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	1.5	2.0	2.0	1.5		2.0	1.5		2.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min		None	Min	

Intersection Summary

Area Type: Other
Cycle Length: 192
Actuated Cycle Length: 153.2
Natural Cycle: 115
Control Type: Actuated-Uncoordinated

Splits and Phases: 11: NE 116th St/Slater Ave NE & 124th Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	416	224	129	625	28	748	817	376	69	316	247
Future Volume (veh/h)	235	416	224	129	625	28	748	817	376	69	316	247
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1761	1761	1761	1870	1870	1870	1885	1885	1961	1817	1817	1817
Adj Flow Rate, veh/h	253	447	141	139	672	30	804	878	404	74	340	266
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	2	2	2	1	1	1	2	2	2
Cap, veh/h	300	484	780	211	738	33	875	1009	460	173	404	309
Arrive On Green	0.13	0.27	0.27	0.07	0.21	0.21	0.25	0.42	0.42	0.05	0.22	0.22
Sat Flow, veh/h	1677	1761	1475	1781	3462	154	3483	2374	1083	1731	1842	1410
Grp Volume(v), veh/h	253	447	141	139	345	357	804	660	622	74	318	288
Grp Sat Flow(s),veh/h/ln	1677	1761	1475	1781	1777	1840	1742	1791	1666	1731	1726	1526
Q Serve(g_s), s	14.0	29.7	6.0	6.7	22.8	22.8	27.0	40.4	41.2	2.8	21.2	21.8
Cycle Q Clear(g_c), s	14.0	29.7	6.0	6.7	22.8	22.8	27.0	40.4	41.2	2.8	21.2	21.8
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.65	1.00		0.92
Lane Grp Cap(c), veh/h	300	484	780	211	379	392	875	761	708	173	379	335
V/C Ratio(X)	0.84	0.92	0.18	0.66	0.91	0.91	0.92	0.87	0.88	0.43	0.84	0.86
Avail Cap(c_a), veh/h	355	659	926	379	664	688	1302	893	830	382	861	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	42.4	15.0	32.1	46.2	46.2	43.9	31.5	31.8	26.2	45.0	45.2
Incr Delay (d2), s/veh	12.8	13.3	0.0	1.3	4.9	4.9	5.9	7.2	8.5	0.6	1.9	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	14.4	2.0	2.9	10.4	10.8	12.2	18.4	17.7	1.2	9.2	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	55.7	15.0	33.4	51.2	51.1	49.8	38.8	40.3	26.8	46.9	47.7
LnGrp LOS	D	E	B	C	D	D	D	D	D	C	D	D
Approach Vol, veh/h		841			841			2086			680	
Approach Delay, s/veh		45.9			48.2			43.5			45.1	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.6	31.1	11.0	56.6	14.2	38.6	35.7	31.9				
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5				
Max Green Setting (Gmax), s	20.0	45.0	20.0	60.0	20.0	45.0	45.0	60.0				
Max Q Clear Time (g_c+I1), s	16.0	24.8	4.8	43.2	8.7	31.7	29.0	23.8				
Green Ext Time (p_c), s	0.1	0.7	0.0	1.5	0.1	0.6	1.2	0.7				
Intersection Summary												
HCM 6th Ctrl Delay			45.1									
HCM 6th LOS			D									

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	134	96	666	115	34	659
Future Volume (vph)	134	96	666	115	34	659
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%		0%			-2%
Storage Length (ft)	100	0		0	50	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		25			25
Link Distance (ft)	255		359			173
Travel Time (s)	7.0		9.8			4.7
Confl. Peds. (#/hr)				8	8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection						
Int Delay, s/veh	4.3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	134	96	666	115	34	659
Future Vol, veh/h	134	96	666	115	34	659
Conflicting Peds, #/hr	0	0	0	8	8	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	100	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	0	-	-	-2
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	143	102	709	122	36	701

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1201	778	0	0	839	0
Stage 1	778	-	-	-	-	-
Stage 2	423	-	-	-	-	-
Critical Hdwy	5.8	5.8	-	-	4.115	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	252	436	-	-	799	-
Stage 1	543	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	239	433	-	-	793	-
Mov Cap-2 Maneuver	239	-	-	-	-	-
Stage 1	539	-	-	-	-	-
Stage 2	666	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30	0	0.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	239	433	793	-
HCM Lane V/C Ratio	-	-	0.596	0.236	0.046	-
HCM Control Delay (s)	-	-	40.1	15.9	9.8	-
HCM Lane LOS	-	-	E	C	A	-
HCM 95th %tile Q(veh)	-	-	3.4	0.9	0.1	-

2025 With-Project AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	340	224	0	359	31	143	197	146	32	370	291
Future Volume (vph)	0	340	224	0	359	31	143	197	146	32	370	291
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%			4%			0%	
Storage Length (ft)	0		125	0		0	150		0	50		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		583			545			2241			545	
Travel Time (s)		11.4			10.6			43.7			10.6	
Confl. Peds. (#/hr)	43		16	16		43			15	15		
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2	3		6		3	8		7	4	
Permitted Phases			2				8			4		
Detector Phase		2	3		6		3	8		7	4	
Switch Phase												
Minimum Initial (s)		7.0	3.0		7.0		3.0	5.0		3.0	5.0	
Minimum Split (s)		31.5	8.5		35.5		8.5	33.9		8.5	10.9	
Total Split (s)		55.0	30.0		55.0		30.0	35.0		30.0	35.0	
Total Split (%)		45.8%	25.0%		45.8%		25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)		3.5	3.5		3.5		3.5	3.9		3.5	3.9	
All-Red Time (s)		2.0	2.0		2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5		5.5		5.5	5.9		5.5	5.9	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Recall Mode		C-Min	None		C-Min		None	None		None	None	

Intersection Summary

Area Type: Other

Cycle Length: 120

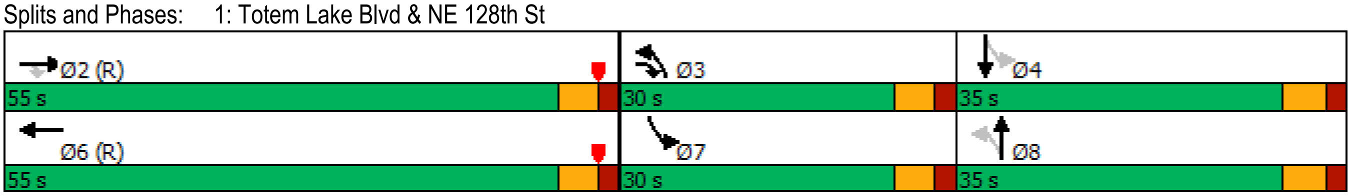
Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 1: Totem Lake Blvd & NE 128th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	340	224	0	359	31	143	197	146	32	370	291
Future Volume (veh/h)	0	340	224	0	359	31	143	197	146	32	370	291
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1997	1997	0	1841	1841	1776	1776	1776	1870	1870	1870
Adj Flow Rate, veh/h	0	340	170	0	359	31	143	197	146	32	370	291
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	4	4	0	4	4	2	2	2	2	2	2
Cap, veh/h	0	2111	1070	0	1809	155	218	533	373	294	420	325
Arrive On Green	0.00	0.56	0.56	0.00	0.56	0.56	0.08	0.28	0.28	0.02	0.22	0.22
Sat Flow, veh/h	0	3895	1678	0	3344	279	1692	1883	1318	1781	1887	1461
Grp Volume(v), veh/h	0	340	170	0	192	198	143	175	168	32	348	313
Grp Sat Flow(s),veh/h/ln	0	1897	1678	0	1749	1783	1692	1687	1514	1781	1777	1572
Q Serve(g_s), s	0.0	5.2	4.9	0.0	6.6	6.7	7.5	10.0	10.7	1.7	22.7	23.2
Cycle Q Clear(g_c), s	0.0	5.2	4.9	0.0	6.6	6.7	7.5	10.0	10.7	1.7	22.7	23.2
Prop In Lane	0.00		1.00	0.00		0.16	1.00		0.87	1.00		0.93
Lane Grp Cap(c), veh/h	0	2111	1070	0	973	991	218	477	428	294	395	350
V/C Ratio(X)	0.00	0.16	0.16	0.00	0.20	0.20	0.66	0.37	0.39	0.11	0.88	0.90
Avail Cap(c_a), veh/h	0	2111	1070	0	973	991	427	477	428	622	431	381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.92	0.92	0.92	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	13.0	8.8	0.0	13.3	13.3	33.5	34.4	34.7	35.1	45.1	45.3
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.0	0.5	0.5	2.3	0.4	0.5	0.1	17.7	21.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	1.8	0.0	2.6	2.7	3.2	4.1	4.0	0.7	11.8	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.1	9.1	0.0	13.7	13.7	35.8	34.9	35.2	35.2	62.8	67.0
LnGrp LOS	A	B	A	A	B	B	D	C	D	D	E	E
Approach Vol, veh/h		510			390			486			693	
Approach Delay, s/veh		11.8			13.7			35.3			63.4	
Approach LOS		B			B			D			E	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		72.2	15.2	32.6		72.2	7.9	39.8				
Change Period (Y+Rc), s		5.5	5.5	5.9		5.5	5.5	5.9				
Max Green Setting (Gmax), s		49.5	24.5	29.1		49.5	24.5	29.1				
Max Q Clear Time (g_c+I1), s		7.2	9.5	25.2		8.7	3.7	12.7				
Green Ext Time (p_c), s		4.4	0.2	1.5		3.5	0.0	1.8				

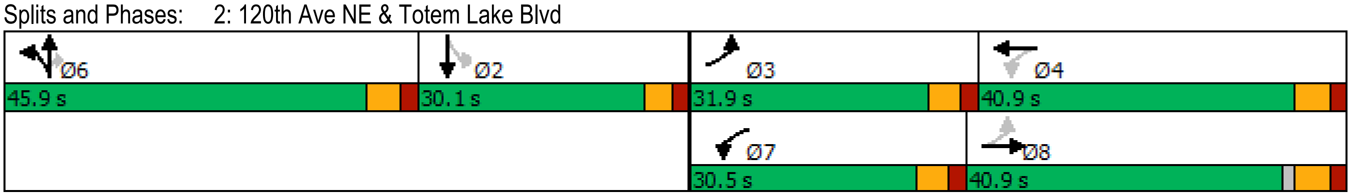
Intersection Summary		
HCM 6th Ctrl Delay		34.9
HCM 6th LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	13	590	46	74	314	152	156	233	25	218	60	17
Future Volume (vph)	13	590	46	74	314	152	156	233	25	218	60	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			0%	
Storage Length (ft)	120		0	150		0	150		150	165		0
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2241			1108			295			357	
Travel Time (s)		43.7			21.6			8.0			9.7	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	4%	4%	4%	2%	2%	2%	5%	5%	5%
Shared Lane Traffic (%)							10%					
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Perm	NA	
Protected Phases	3	8		7	4		6	6			2	
Permitted Phases	8			4					6	2		
Detector Phase	3	8		7	4		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	10.5	12.9		10.5	31.9		33.9	33.9	33.9	11.1	11.1	
Total Split (s)	31.9	40.9		30.5	40.9		45.9	45.9	45.9	30.1	30.1	
Total Split (%)	21.4%	27.5%		20.5%	27.5%		30.8%	30.8%	30.8%	20.2%	20.2%	
Yellow Time (s)	3.5	3.9		3.5	3.9		3.9	3.9	3.9	3.1	3.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.9		5.5	5.9		5.9	5.9	5.9	5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min		None	None	None	None	None	

Intersection Summary

Area Type: Other
Cycle Length: 148.8
Actuated Cycle Length: 95.7
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: 120th Ave NE & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	590	46	74	314	152	156	233	25	218	60	17
Future Volume (veh/h)	13	590	46	74	314	152	156	233	25	218	60	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1817	1817	1817	2027	2027	2027	1826	1826	1826
Adj Flow Rate, veh/h	14	634	0	80	338	163	168	251	0	234	65	18
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	1	1	1	4	4	4	2	2	2	5	5	5
Cap, veh/h	317	944		307	699	331	355	373	316	401	164	45
Arrive On Green	0.02	0.26	0.00	0.06	0.31	0.31	0.18	0.18	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1795	3676	0	1731	2274	1076	1931	2027	1718	3374	1376	381
Grp Volume(v), veh/h	14	634	0	80	255	246	168	251	0	234	0	83
Grp Sat Flow(s),veh/h/ln	1795	1791	0	1731	1726	1624	1931	2027	1718	1687	0	1757
Q Serve(g_s), s	0.3	9.5	0.0	2.0	7.2	7.4	4.7	6.9	0.0	3.9	0.0	2.6
Cycle Q Clear(g_c), s	0.3	9.5	0.0	2.0	7.2	7.4	4.7	6.9	0.0	3.9	0.0	2.6
Prop In Lane	1.00		0.00	1.00		0.66	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	317	944		307	531	499	355	373	316	401	0	209
V/C Ratio(X)	0.04	0.67		0.26	0.48	0.49	0.47	0.67	0.00	0.58	0.00	0.40
Avail Cap(c_a), veh/h	1074	2085		920	1005	945	1284	1348	1143	1402	0	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.9	19.8	0.0	15.2	16.9	17.0	21.9	22.9	0.0	25.1	0.0	24.5
Incr Delay (d2), s/veh	0.1	0.8	0.0	0.4	0.7	0.8	1.0	2.1	0.0	1.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	3.6	0.0	0.7	2.6	2.6	2.1	3.4	0.0	1.6	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.9	20.7	0.0	15.7	17.6	17.8	22.9	25.0	0.0	26.4	0.0	25.7
LnGrp LOS	B	C		B	B	B	C	C	A	C	A	C
Approach Vol, veh/h		648	A		581			419			317	
Approach Delay, s/veh		20.6			17.4			24.2			26.2	
Approach LOS		C			B			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		12.3	6.5	24.4		17.0	9.2	21.7				
Change Period (Y+Rc), s		5.1	5.5	5.9		5.9	5.5	5.9				
Max Green Setting (Gmax), s		25.0	26.4	35.0		40.0	25.0	35.0				
Max Q Clear Time (g_c+I1), s		5.9	2.3	9.4		8.9	4.0	11.5				
Green Ext Time (p_c), s		1.2	0.0	3.1		2.1	0.2	4.3				

Intersection Summary			
HCM 6th Ctrl Delay			21.3
HCM 6th LOS			C

Notes

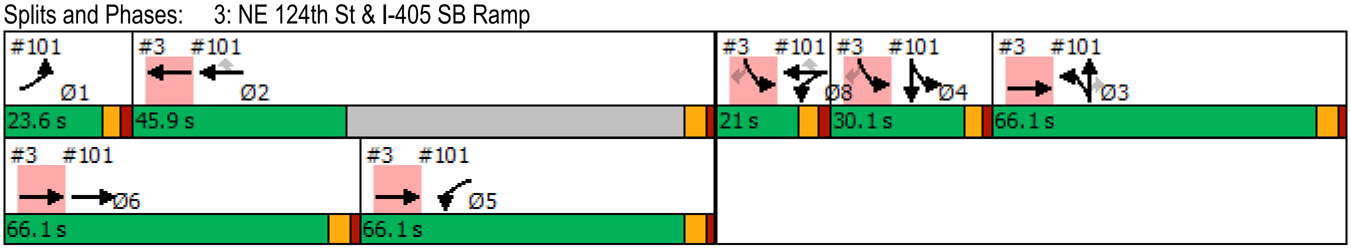
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	1129	526	0	428	314						
Future Volume (vph)	0	1129	526	0	428	314						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	8	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Right Turn on Red				Yes		Yes						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%						
Shared Lane Traffic (%)						26%						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			45.9				23.6	66.1	30.1	66.1	66.1	21.0
Total Split (%)			18.4%				9%	27%	12%	27%	27%	8%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None

Intersection Summary	
Area Type:	Other
Cycle Length: 249.4	
Actuated Cycle Length: 167.6	
Natural Cycle: 125	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: NE 124th St & I-405 SB Ramp

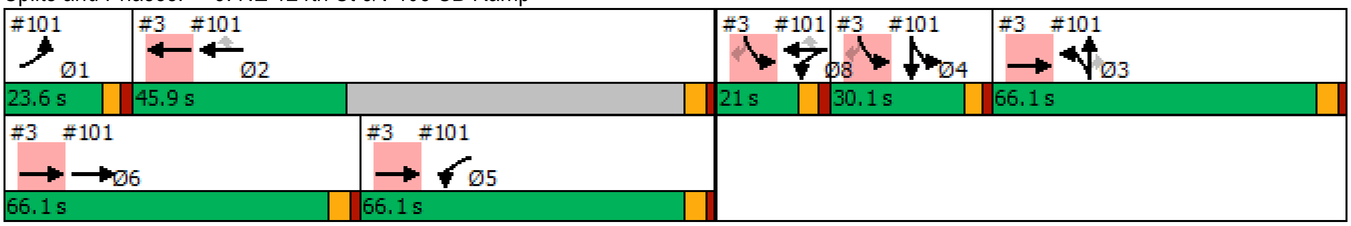


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	1129	526	0	428	314						
Future Volume (vph)	0	1129	526	0	428	314						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	8	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Satd. Flow (prot)	0	3403	3541	0	3273	1393						
Flt Permitted					0.960							
Satd. Flow (perm)	0	3403	3541	0	3273	1393						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)					8	245						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%						
Shared Lane Traffic (%)						26%						
Lane Group Flow (vph)	0	1188	554	0	537	245						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			45.9				23.6	66.1	30.1	66.1	66.1	21.0
Total Split (%)			18.4%				9%	27%	12%	27%	27%	8%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None
Act Effct Green (s)		112.0	65.9		47.8	47.8						
Actuated g/C Ratio		0.67	0.39		0.29	0.29						
v/c Ratio		0.52	0.40		0.57	0.43						
Control Delay		6.9	37.8		54.2	7.7						
Queue Delay		8.6	0.0		0.0	0.0						
Total Delay		15.5	37.8		54.2	7.7						
LOS		B	D		D	A						
Approach Delay		15.5	37.8		39.6							
Approach LOS		B	D		D							

Intersection Summary	
Area Type:	Other

Cycle Length: 249.4
Actuated Cycle Length: 167.6
Natural Cycle: 125
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 27.9 Intersection LOS: C
Intersection Capacity Utilization 53.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: NE 124th St & I-405 SB Ramp

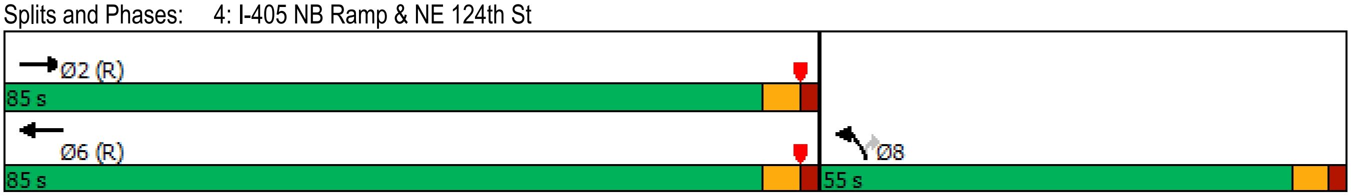


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1282	0	0	626	163	302
Future Volume (vph)	1282	0	0	626	163	302
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			5%	-2%	
Storage Length (ft)		275	0		0	0
Storage Lanes		0	0		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	1373			596	277	
Travel Time (s)	31.2			13.5	6.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	2%	3%	3%	3%	3%
Shared Lane Traffic (%)						
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	7.0			7.0	5.0	5.0
Minimum Split (s)	13.0			13.0	10.9	10.9
Total Split (s)	85.0			85.0	55.0	55.0
Total Split (%)	60.7%			60.7%	39.3%	39.3%
Yellow Time (s)	4.0			4.0	3.9	3.9
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.0			6.0	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min			C-Min	None	None

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 30 (21%), Referenced to phase 2:EBT and 6:WBT, Start of Red
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 4: I-405 NB Ramp & NE 124th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1282	0	0	626	163	302
Future Volume (veh/h)	1282	0	0	626	163	302
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1988	0	0	1708	1934	1934
Adj Flow Rate, veh/h	1322	0	0	645	168	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	3	3	3
Cap, veh/h	3208	0	0	2757	235	
Arrive On Green	0.85	0.00	0.00	1.00	0.07	0.00
Sat Flow, veh/h	3976	0	0	3417	3573	1639
Grp Volume(v), veh/h	1322	0	0	645	168	0
Grp Sat Flow(s),veh/h/ln	1889	0	0	1623	1786	1639
Q Serve(g_s), s	11.4	0.0	0.0	0.0	6.5	0.0
Cycle Q Clear(g_c), s	11.4	0.0	0.0	0.0	6.5	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	3208	0	0	2757	235	
V/C Ratio(X)	0.41	0.00	0.00	0.23	0.72	
Avail Cap(c_a), veh/h	3208	0	0	2757	1253	
HCM Platoon Ratio	1.00	1.00	1.00	2.00	1.00	1.00
Upstream Filter(I)	0.83	0.00	0.00	0.90	1.00	0.00
Uniform Delay (d), s/veh	2.4	0.0	0.0	0.0	64.1	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.2	4.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0	0.1	3.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.8	0.0	0.0	0.2	69.0	0.0
LnGrp LOS	A	A	A	A	E	
Approach Vol, veh/h	1322			645	168	A
Approach Delay, s/veh	2.8			0.2	69.0	
Approach LOS	A			A	E	

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	124.9	124.9	15.1
Change Period (Y+Rc), s	6.0	6.0	5.9
Max Green Setting (Gmax), s	79.0	79.0	49.1
Max Q Clear Time (g_c+I1), s	13.4	2.0	8.5
Green Ext Time (p_c), s	23.3	7.8	0.8

Intersection Summary	
HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Notes

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	1458	87	88	1087	24	65	2	69	25	5	37
Future Volume (vph)	25	1458	87	88	1087	24	65	2	69	25	5	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	11	12	12	12	11	12	12	12
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	130		0	150		0	0		110	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	45			60			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		596			524			245			186	
Travel Time (s)		11.6			10.2			6.7			5.1	
Confl. Peds. (#/hr)	3		1	1		3			4	4		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	11.5	30.0		11.5	25.0		30.5	30.5	30.5	23.0	23.0	
Total Split (s)	13.0	87.0		19.0	93.0		34.0	34.0	34.0	34.0	34.0	
Total Split (%)	9.3%	62.1%		13.6%	66.4%		24.3%	24.3%	24.3%	24.3%	24.3%	
Yellow Time (s)	3.5	4.0		3.5	4.0		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.0	1.0		2.0	1.0		2.0	2.0	2.0	1.5	1.5	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.5	5.0		5.5	5.0			5.5	5.5		5.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	

Intersection Summary

Area Type: Other

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 53 (38%), Referenced to phase 2:WBTL and 6:EBTL, Start of 1st Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 5: 120th Pl NE & NE 124th St

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	1458	87	88	1087	24	65	2	69	25	5	37
Future Volume (veh/h)	25	1458	87	88	1087	24	65	2	69	25	5	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1934	1934	1934	1856	1856	1856	1870	1870	1870
Adj Flow Rate, veh/h	26	1519	91	92	1132	25	68	2	0	26	5	39
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	3	3	3	3	3	3	2	2	2
Cap, veh/h	429	2600	155	376	2857	63	158	3	127	73	22	75
Arrive On Green	0.05	1.00	1.00	0.04	0.78	0.78	0.08	0.08	0.00	0.08	0.08	0.08
Sat Flow, veh/h	1781	3407	203	1842	3675	81	1324	39	1572	468	272	931
Grp Volume(v), veh/h	26	789	821	92	566	591	70	0	0	70	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1833	1842	1837	1919	1362	0	1572	1671	0	0
Q Serve(g_s), s	0.4	0.0	0.0	1.4	13.9	13.9	1.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	0.0	0.0	1.4	13.9	13.9	6.9	0.0	0.0	5.3	0.0	0.0
Prop In Lane	1.00		0.11	1.00		0.04	0.97		1.00	0.37		0.56
Lane Grp Cap(c), veh/h	429	1356	1399	376	1428	1492	161	0	127	171	0	0
V/C Ratio(X)	0.06	0.58	0.59	0.24	0.40	0.40	0.43	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	476	1356	1399	477	1428	1492	326	0	320	362	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	0.76	0.76	0.76	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.5	0.0	0.0	2.8	5.0	5.0	62.3	0.0	0.0	61.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.4	1.4	0.1	0.6	0.6	0.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.5	0.6	0.4	4.8	5.0	2.5	0.0	0.0	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	3.6	1.4	1.4	2.9	5.6	5.6	63.0	0.0	0.0	62.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	E	A	A	E	A	A
Approach Vol, veh/h		1636			1249			70			70	
Approach Delay, s/veh		1.5			5.4			63.0			62.2	
Approach LOS		A			A			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	113.9		16.8	11.3	111.8		16.8				
Change Period (Y+Rc), s	5.5	5.0		5.5	5.5	5.0		* 5.5				
Max Green Setting (Gmax), s	7.5	88.0		28.5	13.5	82.0		* 29				
Max Q Clear Time (g_c+I1), s	2.4	15.9		8.9	3.4	2.0		7.3				
Green Ext Time (p_c), s	0.0	2.6		0.1	0.1	5.2		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			5.9									
HCM 6th LOS			A									

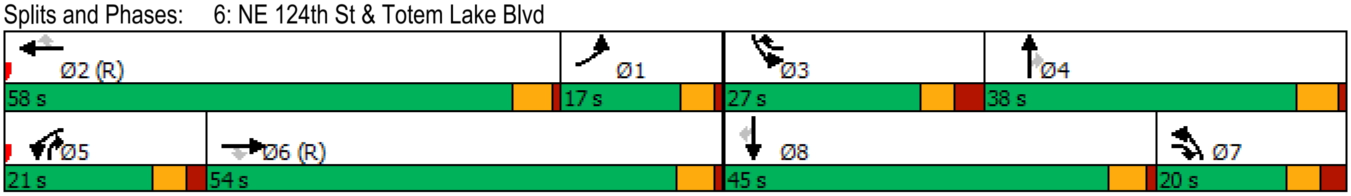
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	834	593	188	911	238	256	265	120	256	456	32
Future Volume (vph)	58	834	593	188	911	238	256	265	120	256	456	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	13	12	10	12	10	12	10	14	11	12
Grade (%)		0%			0%			-5%			0%	
Storage Length (ft)	185		85	180		193	200		170	200		350
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		524			466			466			1108	
Travel Time (s)		10.2			9.1			9.1			21.6	
Confl. Peds. (#/hr)	2		5	5		2	4		9	9		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	4%	4%	4%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	6.0	6.0	15.0	6.0	6.0	7.0	6.0	6.0	7.0	7.0
Minimum Split (s)	9.5	42.0	12.5	12.5	31.0	12.5	12.5	37.5	12.5	12.5	35.0	35.0
Total Split (s)	17.0	54.0	20.0	21.0	58.0	27.0	20.0	38.0	21.0	27.0	45.0	45.0
Total Split (%)	12.1%	38.6%	14.3%	15.0%	41.4%	19.3%	14.3%	27.1%	15.0%	19.3%	32.1%	32.1%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.5	3.5	3.5	4.0	4.0
All-Red Time (s)	1.0	1.0	3.0	2.0	1.0	3.0	3.0	1.0	2.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	6.5	5.5	5.0	6.5	6.5	5.5	5.5	6.5	5.0	5.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag	Lead	Lead	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 64 (46%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: NE 124th St & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	834	593	188	911	238	256	265	120	256	456	32
Future Volume (veh/h)	58	834	593	188	911	238	256	265	120	256	456	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1945	1870	1870	1870	2037	2037	2037	1961	1885	1885
Adj Flow Rate, veh/h	61	878	567	198	959	158	269	279	49	269	480	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	4	4	4	1	1	1
Cap, veh/h	310	1558	911	197	1345	830	434	528	422	273	639	
Arrive On Green	0.17	0.44	0.44	0.11	0.38	0.38	0.04	0.05	0.05	0.15	0.18	0.00
Sat Flow, veh/h	1781	3554	1643	1781	3554	1579	3763	3870	1692	1867	3582	1598
Grp Volume(v), veh/h	61	878	567	198	959	158	269	279	49	269	480	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1643	1781	1777	1579	1881	1935	1692	1867	1791	1598
Q Serve(g_s), s	4.1	25.8	11.1	15.5	32.2	2.8	9.9	9.9	3.4	20.1	17.8	0.0
Cycle Q Clear(g_c), s	4.1	25.8	11.1	15.5	32.2	2.8	9.9	9.9	3.4	20.1	17.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	310	1558	911	197	1345	830	434	528	422	273	639	
V/C Ratio(X)	0.20	0.56	0.62	1.00	0.71	0.19	0.62	0.53	0.12	0.98	0.75	
Avail Cap(c_a), veh/h	310	1558	911	197	1345	830	434	898	584	273	1023	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	0.76	0.76	0.76	1.00	1.00	1.00	0.97	0.97	0.97	0.70	0.70	0.00
Uniform Delay (d), s/veh	49.4	29.3	7.3	62.3	37.0	6.0	64.3	62.4	45.3	59.6	54.6	0.0
Incr Delay (d2), s/veh	0.2	1.1	2.4	65.1	3.2	0.5	2.6	0.8	0.1	41.1	1.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	11.2	5.1	10.5	14.4	1.3	5.1	5.2	1.5	12.6	8.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.7	30.4	9.7	127.4	40.3	6.5	66.9	63.2	45.4	100.7	55.9	0.0
LnGrp LOS	D	C	A	F	D	A	E	E	D	F	E	
Approach Vol, veh/h		1506			1315			597			749	A
Approach Delay, s/veh		23.4			49.3			63.4			72.0	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.4	58.0	27.0	25.6	21.0	66.4	22.6	30.0
Change Period (Y+Rc), s	5.0	* 5	6.5	* 6.5	5.5	5.0	6.5	5.0
Max Green Setting (Gmax), s	12.5	* 53	20.5	* 33	15.5	49.0	13.5	40.0
Max Q Clear Time (g_c+I1), s	6.1	34.2	22.1	11.9	17.5	27.8	11.9	19.8
Green Ext Time (p_c), s	0.1	4.6	0.0	1.7	0.0	5.6	0.2	3.0

Intersection Summary		
HCM 6th Ctrl Delay		46.1
HCM 6th LOS		D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	954	41	251	966	210	31	206	289	466	680	254
Future Volume (vph)	140	954	41	251	966	210	31	206	289	466	680	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	11	11	11	11	11	11	11
Grade (%)		-2%			-3%			-6%			2%	
Storage Length (ft)	250		80	440		200	150		0	350		0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		421			1236			330			611	
Travel Time (s)		8.2			24.1			6.4			11.9	
Confl. Peds. (#/hr)	10		3	3		10			3	3		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	6.0	10.0		6.0	10.0	10.0
Minimum Split (s)	12.5	36.5	36.5	12.5	39.5	39.5	12.5	39.5		12.5	36.5	36.5
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	14.0	40.0		30.0	56.0	56.0
Total Split (%)	14.3%	35.7%	35.7%	14.3%	35.7%	35.7%	10.0%	28.6%		21.4%	40.0%	40.0%
Yellow Time (s)	3.5	5.0	5.0	3.5	5.0	5.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	1.5	1.5	3.0	1.5	1.5	2.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None

Intersection Summary

Area Type: Other

Cycle Length: 140

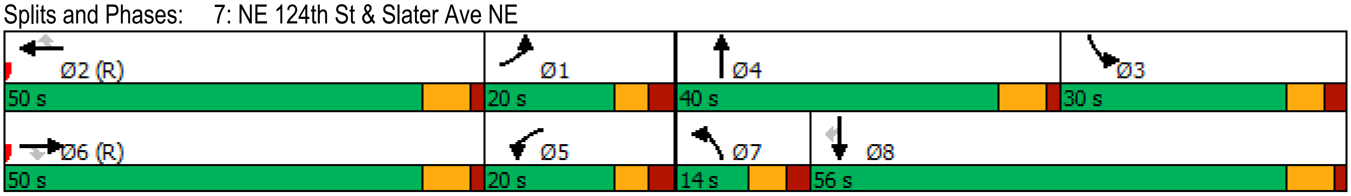
Actuated Cycle Length: 140

Offset: 18 (13%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Splits and Phases: 7: NE 124th St & Slater Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	954	41	251	966	210	31	206	289	466	680	254
Future Volume (veh/h)	140	954	41	251	966	210	31	206	289	466	680	254
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1919	1919	1919	1973	1973	1973	2061	2061	2061	1817	1817	1817
Adj Flow Rate, veh/h	141	964	0	254	976	0	31	208	292	471	687	115
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	4	4	4	3	3	3	5	5	5	4	4	4
Cap, veh/h	219	1133		225	1165		59	371	329	336	642	543
Arrive On Green	0.12	0.31	0.00	0.12	0.31	0.00	0.03	0.19	0.19	0.19	0.35	0.35
Sat Flow, veh/h	1827	3645	1626	1879	3749	1672	1963	1958	1738	1731	1817	1536
Grp Volume(v), veh/h	141	964	0	254	976	0	31	208	292	471	687	115
Grp Sat Flow(s),veh/h/ln	1827	1823	1626	1879	1874	1672	1963	1958	1738	1731	1817	1536
Q Serve(g_s), s	10.3	34.7	0.0	16.8	34.0	0.0	2.2	13.5	22.9	27.2	49.5	4.9
Cycle Q Clear(g_c), s	10.3	34.7	0.0	16.8	34.0	0.0	2.2	13.5	22.9	27.2	49.5	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	1133		225	1165		59	371	329	336	642	543
V/C Ratio(X)	0.64	0.85		1.13	0.84		0.53	0.56	0.89	1.40	1.07	0.21
Avail Cap(c_a), veh/h	219	1133		225	1165		105	468	416	336	642	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	45.2	0.0	61.6	45.0	0.0	66.9	51.5	55.3	56.4	45.2	14.2
Incr Delay (d2), s/veh	7.2	8.1	0.0	95.9	6.7	0.0	2.7	0.5	15.0	197.8	55.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	16.8	0.0	14.0	16.7	0.0	1.1	6.7	11.3	30.2	31.8	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	53.3	0.0	157.5	51.7	0.0	69.6	52.0	70.2	254.2	100.7	14.3
LnGrp LOS	E	D		F	D		E	D	E	F	F	B
Approach Vol, veh/h		1105	A		1230	A		531			1273	
Approach Delay, s/veh		54.9			73.5			63.0			149.7	
Approach LOS		D			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.3	50.0	33.7	33.0	23.3	50.0	10.7	56.0
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	13.5	43.5	23.5	33.5	13.5	43.5	7.5	49.5
Max Q Clear Time (g_c+I1), s	12.3	36.0	29.2	24.9	18.8	36.7	4.2	51.5
Green Ext Time (p_c), s	0.1	1.6	0.0	0.8	0.0	2.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	90.6
HCM 6th LOS	F

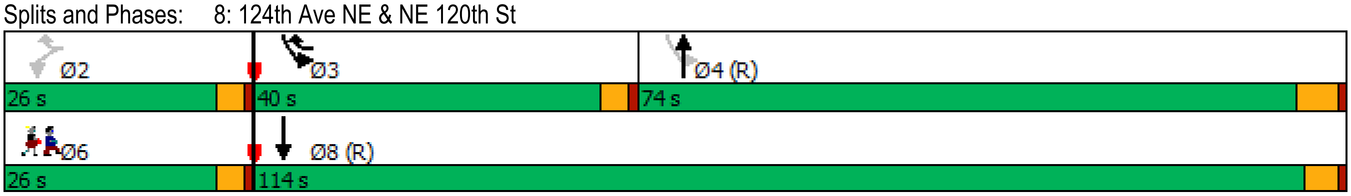
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	29	218	350	24	472	680	
Future Volume (vph)	29	218	350	24	472	680	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	150		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Right Turn on Red		Yes		Yes			
Link Speed (mph)	35		35			35	
Link Distance (ft)	509		1305			466	
Travel Time (s)	9.9		25.4			9.1	
Confl. Peds. (#/hr)	4	4					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	7%	7%	5%	5%	3%	3%	
Shared Lane Traffic (%)							
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	2	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.0	25.5		10.0	24.5	25.0
Total Split (s)	26.0	40.0	74.0		40.0	114.0	26.0
Total Split (%)	18.6%	28.6%	52.9%		28.6%	81.4%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: 124th Ave NE & NE 120th St

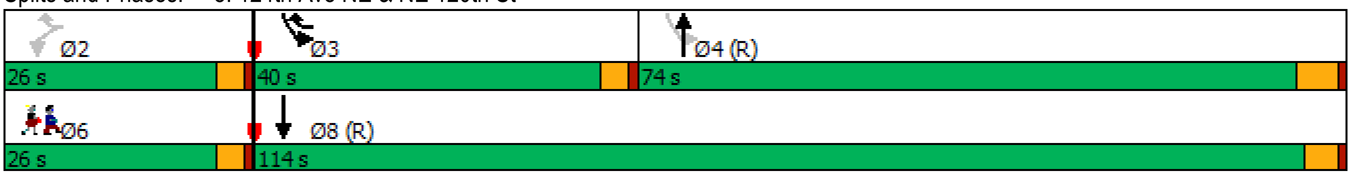


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	29	218	350	24	472	680	
Future Volume (vph)	29	218	350	24	472	680	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	150		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Satd. Flow (prot)	1687	1660	3370	0	1757	3513	
Flt Permitted	0.950				0.517		
Satd. Flow (perm)	1673	1627	3370	0	956	3513	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		232	7				
Link Speed (mph)	35		35			35	
Link Distance (ft)	509		1305			466	
Travel Time (s)	9.9		25.4			9.1	
Confl. Peds. (#/hr)	4	4					
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	
Heavy Vehicles (%)	7%	7%	5%	5%	3%	3%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	31	232	398	0	502	723	
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	2	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.0	25.5		10.0	24.5	25.0
Total Split (s)	26.0	40.0	74.0		40.0	114.0	26.0
Total Split (%)	18.6%	28.6%	52.9%		28.6%	81.4%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	10.2	22.7	103.8		117.8	121.3	
Actuated g/C Ratio	0.07	0.16	0.74		0.84	0.87	
v/c Ratio	0.26	0.50	0.16		0.57	0.24	
Control Delay	63.8	8.5	6.6		5.8	2.1	
Queue Delay	0.0	0.0	0.0		0.3	0.3	
Total Delay	63.8	8.5	6.6		6.0	2.4	
LOS	E	A	A		A	A	
Approach Delay	15.0		6.6			3.9	
Approach LOS	B		A			A	

Intersection Summary

Area Type: Other	
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.57	
Intersection Signal Delay: 6.0	Intersection LOS: A
Intersection Capacity Utilization 60.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 8: 124th Ave NE & NE 120th St

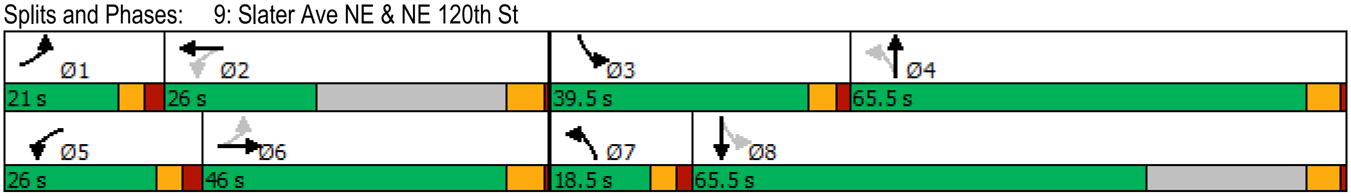


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	474	23	71	147	122	31	357	202	482	479	48
Future Volume (vph)	35	474	23	71	147	122	31	357	202	482	479	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	10	12	12	10	10	12	11	11	12
Grade (%)		2%			-8%			0%			0%	
Storage Length (ft)	250		0	150		0	125		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		365			458			1244			343	
Travel Time (s)		7.1			8.9			24.2			6.7	
Confl. Peds. (#/hr)	5		5	5		5	2		7	7		2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0	26.0		15.0	25.0		13.0	25.5		13.0	27.5	
Total Split (s)	21.0	46.0		26.0	26.0		18.5	65.5		39.5	65.5	
Total Split (%)	11.9%	26.0%		14.7%	14.7%		10.5%	37.0%		22.3%	37.0%	
Yellow Time (s)	3.5	5.0		3.5	5.0		3.5	4.5		3.5	4.5	
All-Red Time (s)	2.5	1.0		2.5	1.0		2.0	1.0		2.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	

Intersection Summary

Area Type: Other
Cycle Length: 177
Actuated Cycle Length: 167.7
Natural Cycle: 145
Control Type: Actuated-Uncoordinated

Splits and Phases: 9: Slater Ave NE & NE 120th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	474	23	71	147	122	31	357	202	482	479	48
Future Volume (veh/h)	35	474	23	71	147	122	31	357	202	482	479	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1847	1847	1847	2155	2155	2155	1841	1841	1841	1856	1856	1856
Adj Flow Rate, veh/h	36	494	24	74	153	127	32	372	210	502	499	50
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	4	4	4	4	4	4	3	3	3
Cap, veh/h	249	441	21	124	282	234	378	384	217	439	888	89
Arrive On Green	0.03	0.25	0.25	0.04	0.26	0.26	0.03	0.35	0.35	0.21	0.54	0.54
Sat Flow, veh/h	1759	1746	85	2052	1083	899	1753	1100	621	1767	1658	166
Grp Volume(v), veh/h	36	0	518	74	0	280	32	0	582	502	0	549
Grp Sat Flow(s),veh/h/ln	1759	0	1831	2052	0	1982	1753	0	1721	1767	0	1824
Q Serve(g_s), s	2.4	0.0	40.0	4.2	0.0	19.3	1.8	0.0	52.6	34.0	0.0	31.7
Cycle Q Clear(g_c), s	2.4	0.0	40.0	4.2	0.0	19.3	1.8	0.0	52.6	34.0	0.0	31.7
Prop In Lane	1.00		0.05	1.00		0.45	1.00		0.36	1.00		0.09
Lane Grp Cap(c), veh/h	249	0	462	124	0	517	378	0	601	439	0	977
V/C Ratio(X)	0.14	0.00	1.12	0.60	0.00	0.54	0.08	0.00	0.97	1.14	0.00	0.56
Avail Cap(c_a), veh/h	363	0	462	305	0	517	472	0	652	439	0	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.6	0.0	59.2	46.4	0.0	50.4	31.2	0.0	50.6	50.7	0.0	24.4
Incr Delay (d2), s/veh	0.1	0.0	78.9	1.7	0.0	0.6	0.0	0.0	25.9	88.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	28.6	2.2	0.0	9.7	0.8	0.0	26.8	28.3	0.0	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.7	0.0	138.0	48.1	0.0	51.0	31.3	0.0	76.6	139.2	0.0	24.9
LnGrp LOS	D	A	F	D	A	D	C	A	E	F	A	C
Approach Vol, veh/h		554			354			614			1051	
Approach Delay, s/veh		131.8			50.4			74.2			79.5	
Approach LOS		F			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	47.3	39.5	60.8	12.0	46.0	10.0	90.3
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5
Max Green Setting (Gmax), s	15.0	20.0	34.0	60.0	20.0	40.0	13.0	60.0
Max Q Clear Time (g_c+I1), s	4.4	21.3	36.0	54.6	6.2	42.0	3.8	33.7
Green Ext Time (p_c), s	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	85.5
HCM 6th LOS	F

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	614	0	241	379	817	372
Future Volume (vph)	614	0	241	379	817	372
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%			4%	-5%	
Storage Length (ft)		0	300		0	300
Storage Lanes		0	2		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	542			772	220	
Travel Time (s)	12.3			17.5	5.0	
Confl. Peds. (#/hr)					3	2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	3%	3%	4%	4%	3%	3%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Free
Protected Phases	8		7	4	1	
Permitted Phases						Free
Detector Phase	8		7	4	1	
Switch Phase						
Minimum Initial (s)	10.0		5.0	7.0	5.0	
Minimum Split (s)	32.9		10.1	24.5	12.6	
Total Split (s)	50.0		30.0	80.0	50.0	
Total Split (%)	38.5%		23.1%	61.5%	38.5%	
Yellow Time (s)	4.0		3.6	4.0	3.6	
All-Red Time (s)	6.0		1.5	1.5	4.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	10.0		5.1	5.5	7.6	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	C-Min		None	C-Min	None	

Intersection Summary

Area Type: Other

Cycle Length: 130

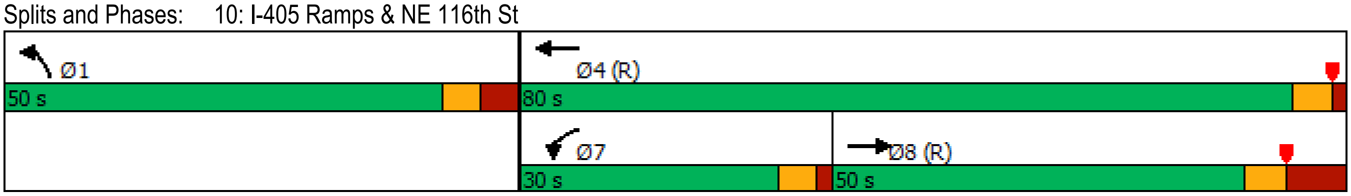
Actuated Cycle Length: 130

Offset: 60 (46%), Referenced to phase 4:WBT and 8:EBT, Start of Red

Natural Cycle: 90

Control Type: Actuated-Coordinated

Splits and Phases: 10: I-405 Ramps & NE 116th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	614	0	241	379	817	372
Future Volume (veh/h)	614	0	241	379	817	372
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2012	0	1746	1746	2052	2052
Adj Flow Rate, veh/h	675	0	265	416	898	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	0	4	4	3	3
Cap, veh/h	925	0	323	1989	1006	
Arrive On Green	0.61	0.00	0.10	0.60	0.27	0.00
Sat Flow, veh/h	2012	0	3227	3406	3791	1739
Grp Volume(v), veh/h	675	0	265	416	898	0
Grp Sat Flow(s),veh/h/ln	2012	0	1613	1659	1895	1739
Q Serve(g_s), s	30.6	0.0	10.5	7.5	29.6	0.0
Cycle Q Clear(g_c), s	30.6	0.0	10.5	7.5	29.6	0.0
Prop In Lane		0.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	925	0	323	1989	1006	
V/C Ratio(X)	0.73	0.00	0.82	0.21	0.89	
Avail Cap(c_a), veh/h	925	0	618	1989	1236	
HCM Platoon Ratio	1.33	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.00	0.93	0.93	1.00	0.00
Uniform Delay (d), s/veh	19.6	0.0	57.3	11.9	46.0	0.0
Incr Delay (d2), s/veh	4.4	0.0	3.6	0.2	7.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.6	0.0	4.4	2.8	15.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.0	0.0	61.0	12.2	53.4	0.0
LnGrp LOS	C	A	E	B	D	
Approach Vol, veh/h	675			681	898	A
Approach Delay, s/veh	24.0			31.2	53.4	
Approach LOS	C			C	D	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	87.9	42.1	18.1	69.8
Change Period (Y+Rc), s	* 10	7.6	5.1	10.0
Max Green Setting (Gmax), s	* 75	42.4	24.9	40.0
Max Q Clear Time (g_c+I1), s	9.5	31.6	12.5	32.6
Green Ext Time (p_c), s	3.8	2.8	0.6	3.1

Intersection Summary	
HCM 6th Ctrl Delay	37.9
HCM 6th LOS	D

Notes

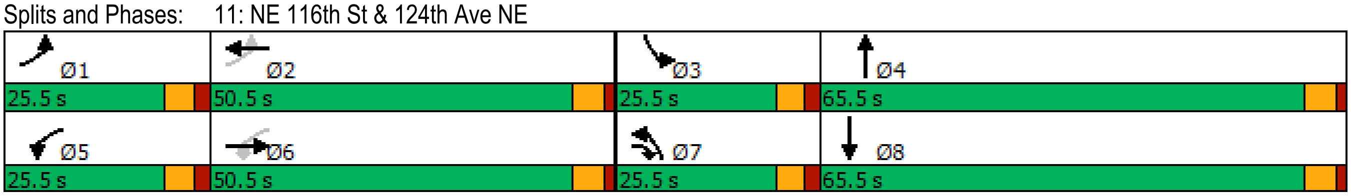
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	484	492	277	362	18	181	239	97	29	447	139
Future Volume (vph)	159	484	492	277	362	18	181	239	97	29	447	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	11	11	11	12	11	15	11	11	11
Grade (%)		4%			0%			0%			3%	
Storage Length (ft)	200		0	275		0	250		200	150		0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		772			374			568			1305	
Travel Time (s)		15.0			7.3			11.1			25.4	
Confl. Peds. (#/hr)	6		1	1		6	6		6	6		6
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA		Prot	NA		Prot	NA	
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases	2		6	6								
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	7.0	10.0	7.0	7.0	10.0		7.0	15.0		7.0	15.0	
Minimum Split (s)	12.5	34.0	13.0	12.5	32.0		13.0	34.0		12.5	35.0	
Total Split (s)	25.5	50.5	25.5	25.5	50.5		25.5	65.5		25.5	65.5	
Total Split (%)	15.3%	30.2%	15.3%	15.3%	30.2%		15.3%	39.2%		15.3%	39.2%	
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	1.5	2.0	2.0	1.5		2.0	1.5		2.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes				Yes	
Recall Mode	None	None	None	None	None		None	Min		None	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 167	
Actuated Cycle Length: 125.1	
Natural Cycle: 95	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 11: NE 116th St & 124th Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	159	484	492	277	362	18	181	239	97	29	447	139
Future Volume (veh/h)	159	484	492	277	362	18	181	239	97	29	447	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1746	1746	1746	1826	1826	1826	1856	1856	1930	1773	1773	1773
Adj Flow Rate, veh/h	162	494	398	283	369	18	185	244	99	30	456	142
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	4	4	4	5	5	5	3	3	3	5	5	5
Cap, veh/h	483	541	574	339	1213	59	275	640	252	70	560	173
Arrive On Green	0.08	0.31	0.31	0.13	0.36	0.36	0.08	0.26	0.26	0.04	0.22	0.22
Sat Flow, veh/h	1663	1746	1471	1739	3366	164	3428	2462	969	1688	2528	781
Grp Volume(v), veh/h	162	494	398	283	190	197	185	173	170	30	303	295
Grp Sat Flow(s),veh/h/ln	1663	1746	1471	1739	1735	1795	1714	1763	1668	1688	1684	1625
Q Serve(g_s), s	5.2	23.5	19.5	9.3	6.8	6.8	4.5	6.9	7.3	1.5	14.7	14.9
Cycle Q Clear(g_c), s	5.2	23.5	19.5	9.3	6.8	6.8	4.5	6.9	7.3	1.5	14.7	14.9
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.58	1.00		0.48
Lane Grp Cap(c), veh/h	483	541	574	339	625	647	275	458	434	70	373	360
V/C Ratio(X)	0.34	0.91	0.69	0.84	0.30	0.31	0.67	0.38	0.39	0.43	0.81	0.82
Avail Cap(c_a), veh/h	730	911	886	509	905	937	795	1226	1160	391	1171	1130
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.1	28.7	22.0	20.0	19.8	19.8	38.6	26.2	26.3	40.3	31.9	32.0
Incr Delay (d2), s/veh	0.2	4.9	0.6	4.6	0.1	0.1	1.1	0.2	0.2	1.5	1.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	10.0	6.4	3.9	2.6	2.7	1.9	2.8	2.8	0.6	5.9	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	33.6	22.6	24.6	19.9	19.9	39.6	26.4	26.5	41.9	33.5	33.8
LnGrp LOS	B	C	C	C	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1054			670			528			628	
Approach Delay, s/veh		26.6			21.9			31.1			34.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	36.6	9.1	27.9	17.0	32.2	12.4	24.6
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	20.0	45.0	20.0	60.0	20.0	45.0	20.0	60.0
Max Q Clear Time (g_c+I1), s	7.2	8.8	3.5	9.3	11.3	25.5	6.5	16.9
Green Ext Time (p_c), s	0.1	0.4	0.0	0.3	0.2	1.0	0.2	0.6

Intersection Summary		
HCM 6th Ctrl Delay		27.9
HCM 6th LOS		C

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	53	38	574	58	22	520
Future Volume (vph)	53	38	574	58	22	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%		0%			-2%
Storage Length (ft)	100	0		0	50	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		25			25
Link Distance (ft)	368		374			161
Travel Time (s)	10.0		10.2			4.4
Confl. Peds. (#/hr)				10	10	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	2%	2%	4%	4%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	53	38	574	58	22	520
Future Vol, veh/h	53	38	574	58	22	520
Conflicting Peds, #/hr	0	0	0	10	10	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	100	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	0	-	-	-2
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	2	2	4	4
Mvmt Flow	58	41	624	63	24	565

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	997	666	0	0	697	0
Stage 1	666	-	-	-	-	-
Stage 2	331	-	-	-	-	-
Critical Hdwy	5.845	5.845	-	-	4.16	-
Critical Hdwy Stg 1	4.645	-	-	-	-	-
Critical Hdwy Stg 2	5.045	-	-	-	-	-
Follow-up Hdwy	3.5285	3.3285	-	-	2.238	-
Pot Cap-1 Maneuver	317	491	-	-	886	-
Stage 1	588	-	-	-	-	-
Stage 2	751	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	305	486	-	-	878	-
Mov Cap-2 Maneuver	305	-	-	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	731	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.8	0	0.4
HCM LOS	C		

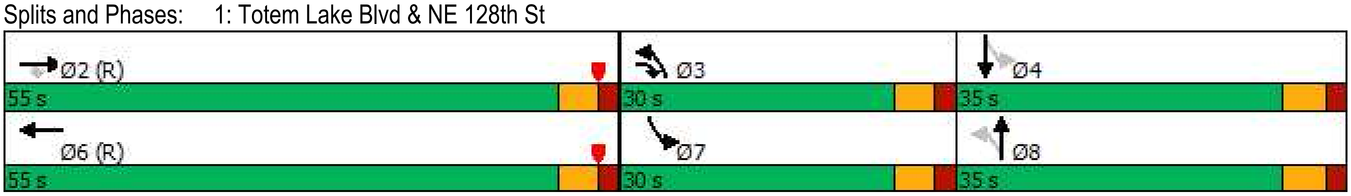
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	305	486	878	-
HCM Lane V/C Ratio	-	-	0.189	0.085	0.027	-
HCM Control Delay (s)	-	-	19.5	13.1	9.2	-
HCM Lane LOS	-	-	C	B	A	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	0.1	-

2025 With-Project PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	454	244	0	697	83	262	739	186	33	284	125
Future Volume (vph)	0	454	244	0	697	83	262	739	186	33	284	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-4%			0%			4%			0%	
Storage Length (ft)	0		125	0		0	150		0	50		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		621			649			2242			521	
Travel Time (s)		12.1			12.6			43.7			10.1	
Confl. Peds. (#/hr)	36		11	11		36			12	12		
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type		NA	pm+ov		NA		pm+pt	NA		pm+pt	NA	
Protected Phases		2	3		6		3	8		7	4	
Permitted Phases			2				8			4		
Detector Phase		2	3		6		3	8		7	4	
Switch Phase												
Minimum Initial (s)		7.0	3.0		7.0		3.0	5.0		3.0	5.0	
Minimum Split (s)		31.5	8.5		35.5		8.5	33.9		8.5	10.9	
Total Split (s)		55.0	30.0		55.0		30.0	35.0		30.0	35.0	
Total Split (%)		45.8%	25.0%		45.8%		25.0%	29.2%		25.0%	29.2%	
Yellow Time (s)		3.5	3.5		3.5		3.5	3.9		3.5	3.9	
All-Red Time (s)		2.0	2.0		2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.5	5.5		5.5		5.5	5.9		5.5	5.9	
Lead/Lag			Lead				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes				Yes	Yes		Yes	Yes	
Recall Mode		C-Min	None		C-Min		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Red	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: Totem Lake Blvd & NE 128th St

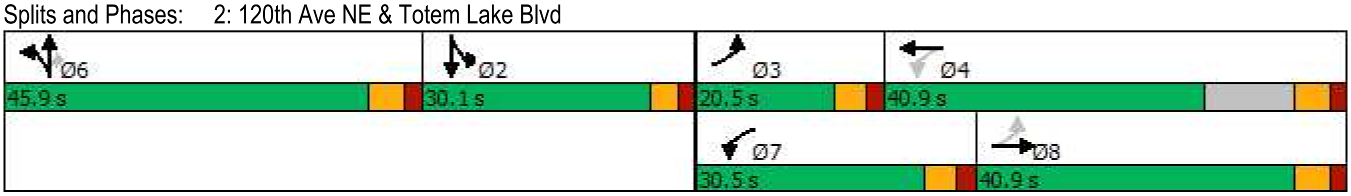


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	454	244	0	697	83	262	739	186	33	284	125
Future Volume (veh/h)	0	454	244	0	697	83	262	739	186	33	284	125
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	0.99		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	2012	2012	0	1870	1870	1776	1776	1776	1885	1885	1885
Adj Flow Rate, veh/h	0	483	90	0	741	88	279	786	198	35	302	133
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	0	3	3	0	2	2	2	2	2	1	1	1
Cap, veh/h	0	2101	1192	0	1754	208	348	763	192	101	380	163
Arrive On Green	0.00	0.55	0.55	0.00	0.55	0.55	0.15	0.29	0.29	0.02	0.16	0.16
Sat Flow, veh/h	0	3924	1695	0	3285	379	1692	2662	671	1795	2422	1039
Grp Volume(v), veh/h	0	483	90	0	412	417	279	498	486	35	221	214
Grp Sat Flow(s),veh/h/ln	0	1912	1695	0	1777	1793	1692	1687	1645	1795	1791	1669
Q Serve(g_s), s	0.0	7.8	2.0	0.0	16.3	16.4	16.0	34.4	34.4	2.0	14.3	14.9
Cycle Q Clear(g_c), s	0.0	7.8	2.0	0.0	16.3	16.4	16.0	34.4	34.4	2.0	14.3	14.9
Prop In Lane	0.00		1.00	0.00		0.21	1.00		0.41	1.00		0.62
Lane Grp Cap(c), veh/h	0	2101	1192	0	976	985	348	484	472	101	281	262
V/C Ratio(X)	0.00	0.23	0.08	0.00	0.42	0.42	0.80	1.03	1.03	0.35	0.79	0.81
Avail Cap(c_a), veh/h	0	2101	1192	0	976	985	435	484	472	427	434	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	1.00	0.34	0.34	0.34	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	13.9	5.6	0.0	15.9	15.9	34.2	42.8	42.8	42.6	48.6	48.9
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.0	1.3	1.3	2.7	31.8	32.1	1.5	5.2	7.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.4	0.7	0.0	6.8	6.8	6.7	18.3	17.9	0.9	6.7	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.2	5.7	0.0	17.2	17.2	36.9	74.6	74.9	44.1	53.8	56.1
LnGrp LOS	A	B	A	A	B	B	D	F	F	D	D	E
Approach Vol, veh/h		573			829			1263			470	
Approach Delay, s/veh		12.9			17.2			66.4			54.1	
Approach LOS		B			B			E			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		71.4	23.8	24.8		71.4	8.2	40.3				
Change Period (Y+Rc), s		5.5	5.5	5.9		5.5	5.5	5.9				
Max Green Setting (Gmax), s		49.5	24.5	29.1		49.5	24.5	29.1				
Max Q Clear Time (g_c+I1), s		9.8	18.0	16.9		18.4	4.0	36.4				
Green Ext Time (p_c), s		5.6	0.3	2.0		8.4	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			41.8									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	450	63	209	751	322	255	274	28	442	116	46
Future Volume (vph)	38	450	63	209	751	322	255	274	28	442	116	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			2%			-4%			0%	
Storage Length (ft)	120		0	150		0	150		150	165		0
Storage Lanes	1		0	1		0	1		1	2		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		2242			1141			315			357	
Travel Time (s)		43.7			22.2			8.6			9.7	
Confl. Peds. (#/hr)	18					18			8	8		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)							10%					
Turn Type	pm+pt	NA		pm+pt	NA		Split	NA	Perm	Split	NA	
Protected Phases	3	8		7	4		6	6		2	2	
Permitted Phases	8			4					6			
Detector Phase	3	8		7	4		6	6	6	2	2	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	7.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	10.5	12.9		10.5	31.9		33.9	33.9	33.9	11.1	11.1	
Total Split (s)	20.5	40.9		30.5	40.9		45.9	45.9	45.9	30.1	30.1	
Total Split (%)	13.9%	27.7%		20.7%	27.7%		31.1%	31.1%	31.1%	20.4%	20.4%	
Yellow Time (s)	3.5	3.9		3.5	3.9		3.9	3.9	3.9	3.1	3.1	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5	5.9		5.5	5.9		5.9	5.9	5.9	5.1	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lead	Lead	Lag	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	Min		None	Min		None	None	None	None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 147.4	
Actuated Cycle Length: 113.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 2: 120th Ave NE & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	450	63	209	751	322	255	274	28	442	116	46
Future Volume (veh/h)	38	450	63	209	751	322	255	274	28	442	116	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	0.99		0.97	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1862	1862	1862	2042	2042	2042	1885	1885	1885
Adj Flow Rate, veh/h	40	469	0	218	782	335	266	285	0	460	121	48
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	0	0	1	1	1	1	1	1	1	1	1
Cap, veh/h	165	1033		433	861	368	375	394	334	597	219	87
Arrive On Green	0.03	0.29	0.00	0.11	0.36	0.36	0.19	0.19	0.00	0.17	0.17	0.17
Sat Flow, veh/h	1810	3705	0	1773	2392	1023	1945	2042	1731	3483	1278	507
Grp Volume(v), veh/h	40	469	0	218	578	539	266	285	0	460	0	169
Grp Sat Flow(s),veh/h/ln	1810	1805	0	1773	1769	1647	1945	2042	1731	1742	0	1785
Q Serve(g_s), s	1.4	9.9	0.0	7.6	28.9	29.0	11.9	12.2	0.0	11.7	0.0	8.1
Cycle Q Clear(g_c), s	1.4	9.9	0.0	7.6	28.9	29.0	11.9	12.2	0.0	11.7	0.0	8.1
Prop In Lane	1.00		0.00	1.00		0.62	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h	165	1033		433	637	593	375	394	334	597	0	306
V/C Ratio(X)	0.24	0.45		0.50	0.91	0.91	0.71	0.72	0.00	0.77	0.00	0.55
Avail Cap(c_a), veh/h	394	1359		717	666	620	837	879	745	937	0	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.8	27.2	0.0	19.1	28.3	28.3	35.1	35.2	0.0	36.8	0.0	35.2
Incr Delay (d2), s/veh	0.8	0.3	0.0	0.9	15.9	17.2	2.5	2.5	0.0	2.1	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	4.2	0.0	3.1	14.3	13.6	5.9	6.3	0.0	5.1	0.0	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	27.5	0.0	20.0	44.2	45.5	37.5	37.7	0.0	38.9	0.0	36.8
LnGrp LOS	C	C		B	D	D	D	D	A	D	A	D
Approach Vol, veh/h		509	A		1335			551			629	
Approach Delay, s/veh		27.4			40.8			37.6			38.3	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	2	3	4	6	7	8
Phs Duration (G+Y+Rc), s	21.0	8.7	39.4	23.8	15.6	32.5
Change Period (Y+Rc), s	5.1	5.5	5.9	5.9	5.5	5.9
Max Green Setting (Gmax), s	25.0	15.0	35.0	40.0	25.0	35.0
Max Q Clear Time (g_c+I1), s	13.7	3.4	31.0	14.2	9.6	11.9
Green Ext Time (p_c), s	2.2	0.0	2.5	2.7	0.5	3.0

Intersection Summary	
HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

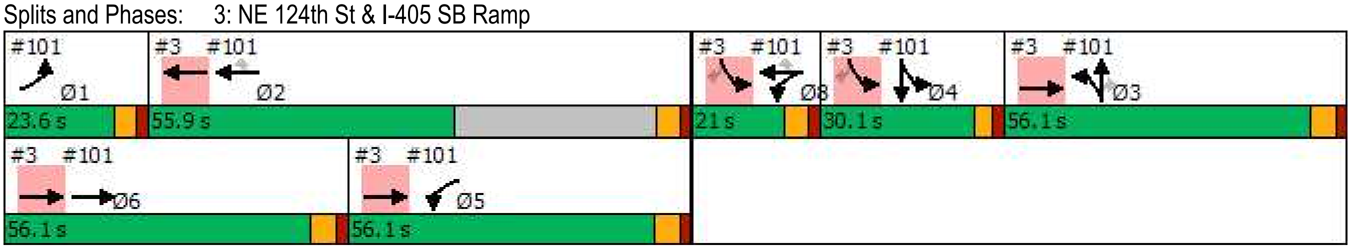
User approved volume balancing among the lanes for turning movement.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	968	1365	0	670	561						
Future Volume (vph)	0	968	1365	0	670	561						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	11	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Right Turn on Red				Yes		Yes						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Confl. Peds. (#/hr)	1			1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%						
Shared Lane Traffic (%)						31%						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			55.9				23.6	56.1	30.1	56.1	56.1	21.0
Total Split (%)			25.5%				11%	26%	14%	26%	26%	10%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None

Intersection Summary	
Area Type:	Other
Cycle Length: 219.4	
Actuated Cycle Length: 183.8	
Natural Cycle: 145	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: NE 124th St & I-405 SB Ramp

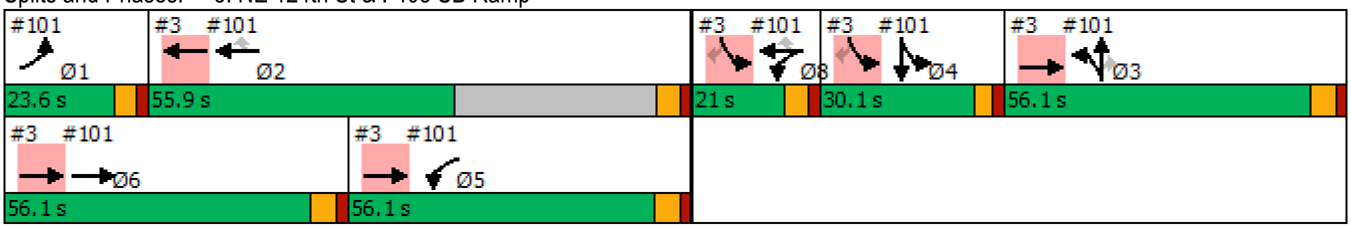


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø1	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations												
Traffic Volume (vph)	0	968	1365	0	670	561						
Future Volume (vph)	0	968	1365	0	670	561						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Lane Width (ft)	11	11	11	11	11	11						
Grade (%)		3%	-5%		0%							
Storage Length (ft)	0			0	300	300						
Storage Lanes	0			0	1	1						
Taper Length (ft)	25				25							
Satd. Flow (prot)	0	3437	3577	0	3289	1407						
Flt Permitted					0.962							
Satd. Flow (perm)	0	3437	3577	0	3289	1407						
Right Turn on Red				Yes		Yes						
Satd. Flow (RTOR)					14	403						
Link Speed (mph)		35	35		40							
Link Distance (ft)		294	1373		752							
Travel Time (s)		5.7	26.7		12.8							
Confl. Peds. (#/hr)	1			1								
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%						
Shared Lane Traffic (%)						31%						
Lane Group Flow (vph)	0	1008	1422	0	879	403						
Turn Type		NA	NA		Prot	Perm						
Protected Phases		3 6 5	2		4 8		1	3	4	5	6	8
Permitted Phases		3 6 5				4 8						
Detector Phase			2		4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				3.0	10.0	10.0	10.0	10.0	3.0
Minimum Split (s)			22.9				8.6	27.1	25.1	16.1	27.1	9.0
Total Split (s)			55.9				23.6	56.1	30.1	56.1	56.1	21.0
Total Split (%)			25.5%				11%	26%	14%	26%	26%	10%
Yellow Time (s)			3.9				3.6	4.1	3.1	4.1	4.1	4.0
All-Red Time (s)			2.0				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)			-2.0									
Total Lost Time (s)			3.9									
Lead/Lag			Lag				Lead		Lag	Lag	Lead	Lead
Lead-Lag Optimize?												
Recall Mode			Min				None	None	None	Min	Min	None
Act Effct Green (s)		127.9	65.2		48.2	48.2						
Actuated g/C Ratio		0.70	0.35		0.26	0.26						
v/c Ratio		0.42	1.12		1.01	0.61						
Control Delay		9.0	118.5		96.8	9.1						
Queue Delay		4.6	0.6		0.0	0.0						
Total Delay		13.6	119.2		96.8	9.1						
LOS		B	F		F	A						
Approach Delay		13.6	119.2		69.2							
Approach LOS		B	F		E							

Intersection Summary

Area Type: Other
Cycle Length: 219.4
Actuated Cycle Length: 183.8
Natural Cycle: 145
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 73.3 Intersection LOS: E
Intersection Capacity Utilization 69.4% ICU Level of Service C
Analysis Period (min) 15

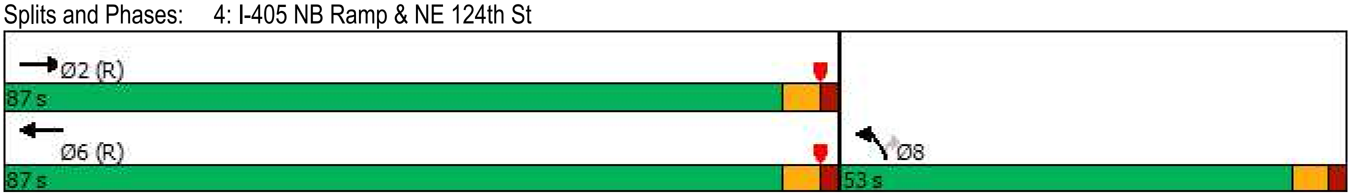
Splits and Phases: 3: NE 124th St & I-405 SB Ramp



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1385	0	0	1397	340	313
Future Volume (vph)	1385	0	0	1397	340	313
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-3%			5%	-2%	
Storage Length (ft)		275	0		0	0
Storage Lanes		0	0		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	1373			596	277	
Travel Time (s)	31.2			13.5	6.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	NA			NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases						8
Detector Phase	2			6	8	8
Switch Phase						
Minimum Initial (s)	7.0			7.0	5.0	5.0
Minimum Split (s)	13.0			13.0	10.9	10.9
Total Split (s)	87.0			87.0	53.0	53.0
Total Split (%)	62.1%			62.1%	37.9%	37.9%
Yellow Time (s)	4.0			4.0	3.9	3.9
All-Red Time (s)	2.0			2.0	2.0	2.0
Lost Time Adjust (s)	0.0			0.0	0.0	0.0
Total Lost Time (s)	6.0			6.0	5.9	5.9
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Min			C-Min	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 75 (54%), Referenced to phase 2:EBT and 6:WBT, Start of Red	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: I-405 NB Ramp & NE 124th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1385	0	0	1397	340	313
Future Volume (veh/h)	1385	0	0	1397	340	313
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1988	0	0	1738	1964	1964
Adj Flow Rate, veh/h	1443	0	0	1455	354	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	0	0	1	1	1
Cap, veh/h	2998	0	0	2621	440	
Arrive On Green	0.79	0.00	0.00	0.53	0.12	0.00
Sat Flow, veh/h	3976	0	0	3476	3628	1664
Grp Volume(v), veh/h	1443	0	0	1455	354	0
Grp Sat Flow(s),veh/h/ln	1889	0	0	1651	1814	1664
Q Serve(g_s), s	17.8	0.0	0.0	41.0	13.3	0.0
Cycle Q Clear(g_c), s	17.8	0.0	0.0	41.0	13.3	0.0
Prop In Lane		0.00	0.00		1.00	1.00
Lane Grp Cap(c), veh/h	2998	0	0	2621	440	
V/C Ratio(X)	0.48	0.00	0.00	0.56	0.81	
Avail Cap(c_a), veh/h	2998	0	0	2621	1221	
HCM Platoon Ratio	1.00	1.00	1.00	0.67	1.00	1.00
Upstream Filter(I)	0.66	0.00	0.00	0.63	1.00	0.00
Uniform Delay (d), s/veh	4.8	0.0	0.0	16.3	59.9	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.5	4.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	17.0	6.4	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	5.2	0.0	0.0	16.9	64.1	0.0
LnGrp LOS	A	A	A	B	E	
Approach Vol, veh/h	1443			1455	354	A
Approach Delay, s/veh	5.2			16.9	64.1	
Approach LOS	A			B	E	

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	117.1	117.1	22.9
Change Period (Y+Rc), s	6.0	6.0	5.9
Max Green Setting (Gmax), s	81.0	81.0	47.1
Max Q Clear Time (g_c+I1), s	19.8	43.0	15.3
Green Ext Time (p_c), s	26.5	21.4	1.7

Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

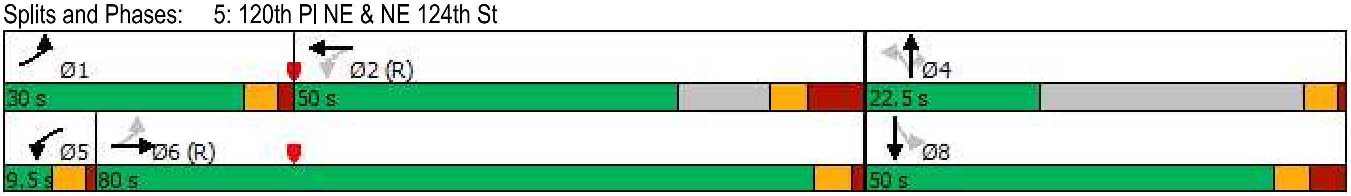
Notes

Unsignalized Delay for [NBR, WBT] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	1521	130	148	1607	53	110	19	150	68	16	50
Future Volume (vph)	47	1521	130	148	1607	53	110	19	150	68	16	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	11	12	12	12	11	12	12	12
Grade (%)		0%			-2%			0%			0%	
Storage Length (ft)	150		0	150		0	0		110	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		596			524			245			186	
Travel Time (s)		11.6			10.2			6.7			5.1	
Confl. Peds. (#/hr)	5		3	3		5			5	5		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			8	
Permitted Phases	6			2			4		4	8		
Detector Phase	1	6		5	2		4	4	4	8	8	
Switch Phase												
Minimum Initial (s)	5.0	7.0		5.0	10.0		5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	10.1	24.5		9.5	29.0		22.5	22.5	22.5	12.6	12.6	
Total Split (s)	30.0	80.0		9.5	50.0		22.5	22.5	22.5	50.0	50.0	
Total Split (%)	21.5%	57.3%		6.8%	35.8%		16.1%	16.1%	16.1%	35.8%	35.8%	
Yellow Time (s)	3.6	4.0		3.5	4.0		3.5	3.5	3.5	3.6	3.6	
All-Red Time (s)	1.5	1.5		1.0	6.0		1.0	1.0	1.0	4.0	4.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.1	5.5		4.5	10.0			4.5	4.5		7.6	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Min		None	C-Min		None	None	None	None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 139.5	
Actuated Cycle Length: 139.5	
Offset: 60 (43%), Referenced to phase 2:WBTL and 6:EBTL, Start of Green	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: 120th Pl NE & NE 124th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	1521	130	148	1607	53	110	19	150	68	16	50
Future Volume (veh/h)	47	1521	130	148	1607	53	110	19	150	68	16	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	0.99		1.00	0.99		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1964	1964	1964	1900	1900	1900	1885	1885	1885
Adj Flow Rate, veh/h	48	1552	133	151	1640	54	112	19	0	69	16	51
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	1	1	1	0	0	0	1	1	1
Cap, veh/h	231	2272	193	196	2532	83	178	22	194	134	33	77
Arrive On Green	0.01	0.23	0.23	0.04	0.69	0.69	0.12	0.12	0.00	0.12	0.12	0.12
Sat Flow, veh/h	1781	3314	282	1870	3686	121	1075	182	1610	789	275	638
Grp Volume(v), veh/h	48	826	859	151	827	867	131	0	0	136	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1818	1870	1865	1941	1258	0	1610	1702	0	0
Q Serve(g_s), s	1.1	59.5	60.6	3.4	34.9	35.3	4.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.1	59.5	60.6	3.4	34.9	35.3	14.6	0.0	0.0	10.5	0.0	0.0
Prop In Lane	1.00		0.15	1.00		0.06	0.85		1.00	0.51		0.37
Lane Grp Cap(c), veh/h	231	1218	1247	196	1281	1334	200	0	194	244	0	0
V/C Ratio(X)	0.21	0.68	0.69	0.77	0.65	0.65	0.66	0.00	0.00	0.56	0.00	0.00
Avail Cap(c_a), veh/h	494	1218	1247	196	1281	1334	211	0	207	519	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.74	0.16	0.16	0.16	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.4	40.0	40.5	29.7	12.3	12.4	60.8	0.0	0.0	58.7	0.0	0.0
Incr Delay (d2), s/veh	0.2	2.3	2.3	3.1	0.4	0.4	6.7	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	29.2	30.4	3.7	13.6	14.3	5.0	0.0	0.0	4.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.6	42.3	42.8	32.8	12.7	12.8	67.6	0.0	0.0	60.7	0.0	0.0
LnGrp LOS	B	D	D	C	B	B	E	A	A	E	A	A
Approach Vol, veh/h		1733			1845			131			136	
Approach Delay, s/veh		41.7			14.4			67.6			60.7	
Approach LOS		D			B			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.3	106.2		24.5	9.5	106.0		24.5				
Change Period (Y+Rc), s	5.1	10.0		* 7.6	4.5	* 10		7.6				
Max Green Setting (Gmax), s	24.9	40.0		* 18	5.0	* 75		42.4				
Max Q Clear Time (g_c+I1), s	3.1	37.3		16.6	5.4	62.6		12.5				
Green Ext Time (p_c), s	0.1	2.1		0.1	0.0	7.9		0.4				

Intersection Summary			
HCM 6th Ctrl Delay			30.2
HCM 6th LOS			C

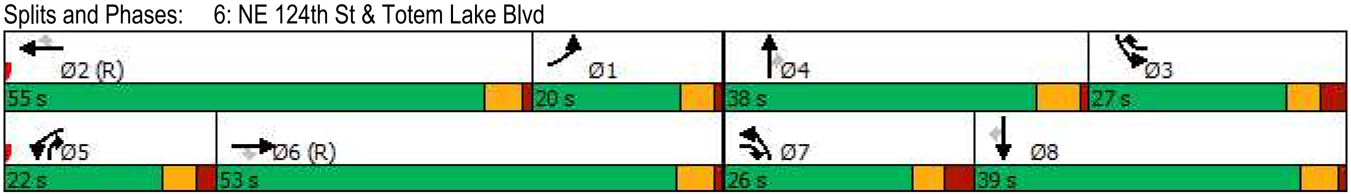
Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	1120	421	163	1148	383	501	710	267	291	385	122
Future Volume (vph)	161	1120	421	163	1148	383	501	710	267	291	385	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	13	12	10	12	10	12	10	14	11	12
Grade (%)		0%			0%			-5%			0%	
Storage Length (ft)	185		85	180		193	200		170	200		350
Storage Lanes	1		1	1		1	2		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		524			466			466			1141	
Travel Time (s)		10.2			9.1			9.1			22.2	
Confl. Peds. (#/hr)	9		12	12		9	16		22	22		16
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	6.0	6.0	15.0	6.0	6.0	7.0	6.0	6.0	7.0	7.0
Minimum Split (s)	9.5	42.0	12.5	12.5	31.0	12.5	12.5	37.5	12.5	12.5	35.0	35.0
Total Split (s)	20.0	53.0	26.0	22.0	55.0	27.0	26.0	38.0	22.0	27.0	39.0	39.0
Total Split (%)	14.3%	37.9%	18.6%	15.7%	39.3%	19.3%	18.6%	27.1%	15.7%	19.3%	27.9%	27.9%
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0	3.5	3.5	4.5	3.5	3.5	4.0	4.0
All-Red Time (s)	1.0	1.0	3.0	2.0	1.0	3.0	3.0	1.0	2.0	3.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	5.0	6.5	5.5	5.0	6.5	6.5	5.5	5.5	6.5	5.0	5.0
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	None	None	C-Max	None	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 100 (71%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	

Splits and Phases: 6: NE 124th St & Totem Lake Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	161	1120	421	163	1148	383	501	710	267	291	385	122
Future Volume (veh/h)	161	1120	421	163	1148	383	501	710	267	291	385	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1961	1900	1900	1900	2082	2082	2082	1945	1870	1870
Adj Flow Rate, veh/h	166	1155	367	168	1184	340	516	732	203	300	397	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	2	2	2
Cap, veh/h	214	1314	835	192	1289	805	536	870	564	271	781	
Arrive On Green	0.04	0.12	0.12	0.11	0.36	0.36	0.19	0.29	0.29	0.15	0.22	0.00
Sat Flow, veh/h	1795	3582	1645	1810	3610	1594	3846	3955	1711	1853	3554	1585
Grp Volume(v), veh/h	166	1155	367	168	1184	340	516	732	203	300	397	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1645	1810	1805	1594	1923	1978	1711	1853	1777	1585
Q Serve(g_s), s	12.8	44.4	23.1	12.8	43.9	0.0	18.6	24.3	7.2	20.5	13.7	0.0
Cycle Q Clear(g_c), s	12.8	44.4	23.1	12.8	43.9	0.0	18.6	24.3	7.2	20.5	13.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	214	1314	835	192	1289	805	536	870	564	271	781	
V/C Ratio(X)	0.77	0.88	0.44	0.87	0.92	0.42	0.96	0.84	0.36	1.11	0.51	
Avail Cap(c_a), veh/h	214	1314	835	213	1289	805	536	918	585	271	863	
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	1.00	1.00	1.00	0.76	0.76	0.76	0.71	0.71	0.00
Uniform Delay (d), s/veh	65.4	58.5	31.6	61.6	43.0	21.9	56.7	47.2	14.2	59.8	48.0	0.0
Incr Delay (d2), s/veh	10.1	5.4	1.0	26.9	11.9	1.6	25.1	5.3	0.3	77.8	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	22.4	10.4	7.3	21.4	7.3	10.5	12.0	3.2	15.4	6.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.5	63.9	32.6	88.5	54.9	23.5	81.7	52.6	14.5	137.6	48.3	0.0
LnGrp LOS	E	E	C	F	D	C	F	D	B	F	D	
Approach Vol, veh/h		1688			1692			1451			697	A
Approach Delay, s/veh		58.3			51.9			57.6			86.7	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.7	55.0	27.0	36.3	20.4	56.4	26.0	37.3
Change Period (Y+Rc), s	5.0	* 5	6.5	5.5	5.5	5.0	6.5	* 6.5
Max Green Setting (Gmax), s	15.5	* 50	20.5	32.5	16.5	48.0	19.5	* 34
Max Q Clear Time (g_c+I1), s	14.8	45.9	22.5	26.3	14.8	46.4	20.6	15.7
Green Ext Time (p_c), s	0.1	2.4	0.0	2.8	0.1	1.1	0.0	2.3

Intersection Summary	
HCM 6th Ctrl Delay	59.7
HCM 6th LOS	E

Notes

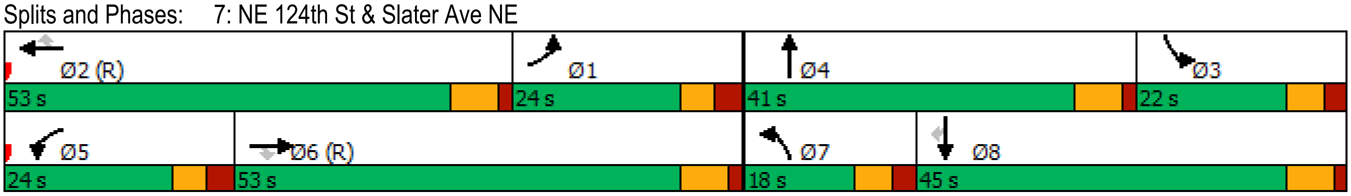
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	317	1114	53	283	1134	408	36	428	369	280	292	259
Future Volume (vph)	317	1114	53	283	1134	408	36	428	369	280	292	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	11	11	11	11	11	11	11
Grade (%)		-2%			-3%			-6%			2%	
Storage Length (ft)	250		80	440		200	150		0	350		0
Storage Lanes	1		1	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		421			1236			330			673	
Travel Time (s)		8.2			24.1			6.4			13.1	
Confl. Peds. (#/hr)	5		4	4		5	3		5	5		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2						8
Detector Phase	1	6	6	5	2	2	7	4		3	8	8
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	6.0	10.0		6.0	10.0	10.0
Minimum Split (s)	12.5	36.5	36.5	12.5	39.5	39.5	12.5	39.5		12.5	36.5	36.5
Total Split (s)	24.0	53.0	53.0	24.0	53.0	53.0	18.0	41.0		22.0	45.0	45.0
Total Split (%)	17.1%	37.9%	37.9%	17.1%	37.9%	37.9%	12.9%	29.3%		15.7%	32.1%	32.1%
Yellow Time (s)	3.5	5.0	5.0	3.5	5.0	5.0	4.0	5.0		4.0	5.0	5.0
All-Red Time (s)	3.0	1.5	1.5	3.0	1.5	1.5	2.5	1.5		2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5		6.5	6.5	6.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead		Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None		None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 5 (4%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: NE 124th St & Slater Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	317	1114	53	283	1134	408	36	428	369	280	292	259
Future Volume (veh/h)	317	1114	53	283	1134	408	36	428	369	280	292	259
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1919	1919	1919	1988	1988	1988	2091	2091	2091	1847	1847	1847
Adj Flow Rate, veh/h	334	1173	0	298	1194	0	38	451	388	295	307	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	2	2	2
Cap, veh/h	244	1243		237	1255		66	480	412	195	582	493
Arrive On Green	0.13	0.34	0.00	0.17	0.44	0.00	0.03	0.24	0.24	0.11	0.32	0.00
Sat Flow, veh/h	1827	3645	1626	1893	3777	1685	1991	2020	1733	1759	1847	1565
Grp Volume(v), veh/h	334	1173	0	298	1194	0	38	444	395	295	307	0
Grp Sat Flow(s),veh/h/ln	1827	1823	1626	1893	1889	1685	1991	1986	1766	1759	1847	1565
Q Serve(g_s), s	18.7	43.8	0.0	17.5	42.6	0.0	2.6	30.7	30.8	15.5	19.1	0.0
Cycle Q Clear(g_c), s	18.7	43.8	0.0	17.5	42.6	0.0	2.6	30.7	30.8	15.5	19.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.98	1.00		1.00
Lane Grp Cap(c), veh/h	244	1243		237	1255		66	472	420	195	582	493
V/C Ratio(X)	1.37	0.94		1.26	0.95		0.58	0.94	0.94	1.51	0.53	0.00
Avail Cap(c_a), veh/h	244	1243		237	1255		164	490	435	195	582	493
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.83	0.83	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	60.6	44.8	0.0	58.4	38.0	0.0	66.7	52.4	52.4	62.3	39.4	0.0
Incr Delay (d2), s/veh	188.7	15.2	0.0	141.8	14.2	0.0	2.9	25.4	28.0	256.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.4	22.1	0.0	17.3	20.6	0.0	1.4	18.5	16.8	20.8	8.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	249.4	60.0	0.0	200.2	52.2	0.0	69.7	77.8	80.5	318.5	39.8	0.0
LnGrp LOS	F	E		F	D		E	E	F	F	D	A
Approach Vol, veh/h		1507	A		1492	A		877			602	
Approach Delay, s/veh		102.0			81.8			78.6			176.4	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.2	53.0	22.0	39.8	24.0	54.2	11.1	50.6
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	17.5	46.5	15.5	34.5	17.5	46.5	11.5	38.5
Max Q Clear Time (g_c+I1), s	20.7	44.6	17.5	32.8	19.5	45.8	4.6	21.1
Green Ext Time (p_c), s	0.0	0.8	0.0	0.5	0.0	0.5	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	100.7
HCM 6th LOS	F

Notes

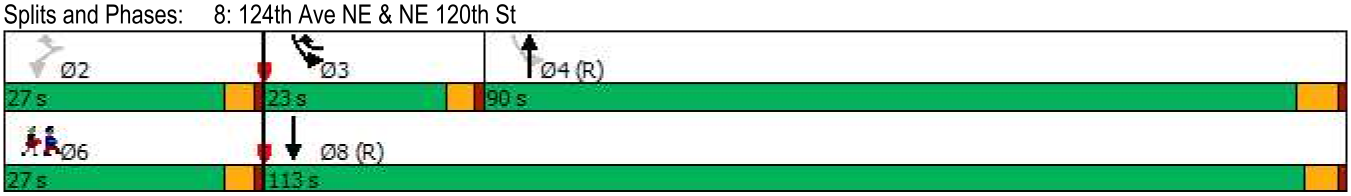
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	58	495	940	45	247	607	
Future Volume (vph)	58	495	940	45	247	607	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	150		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Right Turn on Red		Yes		Yes			
Link Speed (mph)	35		35			35	
Link Distance (ft)	448		1305			466	
Travel Time (s)	8.7		25.4			9.1	
Confl. Peds. (#/hr)	6	7		3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%	
Shared Lane Traffic (%)							
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	3	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.5	28.5		10.5	31.0	25.5
Total Split (s)	27.0	23.0	90.0		23.0	113.0	27.0
Total Split (%)	19.3%	16.4%	64.3%		16.4%	80.7%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 14 (10%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 8: 124th Ave NE & NE 120th St

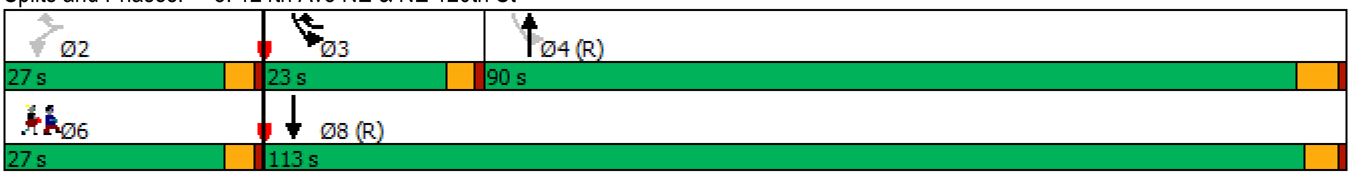


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø6
Lane Configurations							
Traffic Volume (vph)	58	495	940	45	247	607	
Future Volume (vph)	58	495	940	45	247	607	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	15	12	12	13	13	
Grade (%)	0%		2%			6%	
Storage Length (ft)	250	0		0	150		
Storage Lanes	1	1		0	1		
Taper Length (ft)	25				25		
Satd. Flow (prot)	1770	1742	3475	0	1791	3583	
Flt Permitted	0.950				0.240		
Satd. Flow (perm)	1748	1697	3475	0	452	3583	
Right Turn on Red		Yes		Yes			
Satd. Flow (RTOR)		132	6				
Link Speed (mph)	35		35			35	
Link Distance (ft)	448		1305			466	
Travel Time (s)	8.7		25.4			9.1	
Confl. Peds. (#/hr)	6	7		3	3		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	59	505	1005	0	252	619	
Turn Type	Perm	pm+ov	NA		D.P+P	NA	
Protected Phases		3	4		3	8	6
Permitted Phases	2	2			4		
Detector Phase	2	3	4		3	8	
Switch Phase							
Minimum Initial (s)	6.0	6.0	20.0		6.0	20.0	6.0
Minimum Split (s)	10.0	10.5	28.5		10.5	31.0	25.5
Total Split (s)	27.0	23.0	90.0		23.0	113.0	27.0
Total Split (%)	19.3%	16.4%	64.3%		16.4%	80.7%	19%
Yellow Time (s)	3.0	3.0	4.5		3.0	3.5	3.0
All-Red Time (s)	1.0	1.0	1.0		1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	5.5		4.0	4.5	
Lead/Lag		Lead	Lag		Lead		
Lead-Lag Optimize?		Yes	Yes		Yes		
Recall Mode	None	None	C-Max		None	C-Max	None
Act Effct Green (s)	10.9	34.9	92.4		119.1	123.5	
Actuated g/C Ratio	0.08	0.25	0.66		0.85	0.88	
v/c Ratio	0.44	0.95	0.44		0.40	0.20	
Control Delay	69.7	65.6	13.3		8.0	1.8	
Queue Delay	0.0	0.5	0.0		0.0	0.1	
Total Delay	69.7	66.2	13.3		8.0	1.9	
LOS	E	E	B		A	A	
Approach Delay	66.5		13.3			3.7	
Approach LOS	E		B			A	

Intersection Summary

Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 14 (10%), Referenced to phase 4:NBSB and 8:SBT, Start of 1st Green	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 22.2	Intersection LOS: C
Intersection Capacity Utilization 66.7%	ICU Level of Service C
Analysis Period (min) 15	

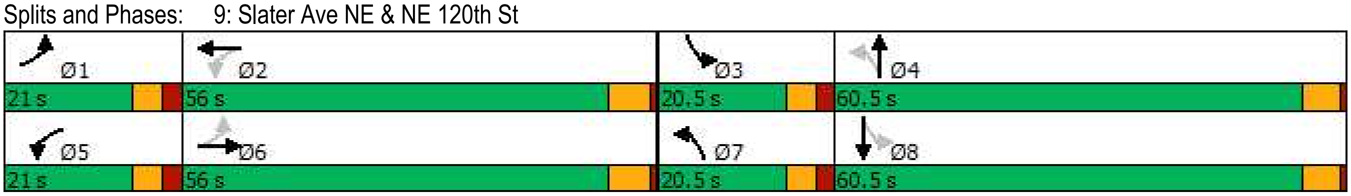
Splits and Phases: 8: 124th Ave NE & NE 120th St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	157	29	146	326	323	51	611	64	123	444	56
Future Volume (vph)	59	157	29	146	326	323	51	611	64	123	444	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	11	12	10	12	12	10	10	12	11	11	12
Grade (%)		3%			-8%			0%			0%	
Storage Length (ft)	250		0	150		0	125		0	150		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		425			458			1255			403	
Travel Time (s)		8.3			8.9			24.4			7.9	
Confl. Peds. (#/hr)			3	3			2		4	4		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6			2			4			8		
Detector Phase	1	6		5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0	26.0		15.0	25.0		15.0	25.5		20.0	27.5	
Total Split (s)	21.0	56.0		21.0	56.0		20.5	60.5		20.5	60.5	
Total Split (%)	13.3%	35.4%		13.3%	35.4%		13.0%	38.3%		13.0%	38.3%	
Yellow Time (s)	3.5	5.0		3.5	5.0		3.5	4.5		3.5	4.5	
All-Red Time (s)	2.5	1.0		2.5	1.0		2.0	1.0		2.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Min		None	Min	

Intersection Summary	
Area Type:	Other
Cycle Length: 158	
Actuated Cycle Length: 144.8	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 9: Slater Ave NE & NE 120th St



HCM 6th Signalized Intersection Summary
9: Slater Ave NE & NE 120th St

10/28/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	157	29	146	326	323	51	611	64	123	444	56
Future Volume (veh/h)	59	157	29	146	326	323	51	611	64	123	444	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1788	1788	1788	2185	2185	2185	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	171	32	159	354	351	55	664	70	134	483	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	2	2	2	2	2	2	2
Cap, veh/h	117	476	89	511	354	351	256	644	68	158	667	84
Arrive On Green	0.04	0.33	0.33	0.07	0.35	0.35	0.04	0.39	0.39	0.06	0.41	0.41
Sat Flow, veh/h	1703	1463	274	2081	1004	996	1781	1662	175	1781	1627	205
Grp Volume(v), veh/h	64	0	203	159	0	705	55	0	734	134	0	544
Grp Sat Flow(s),veh/h/ln	1703	0	1737	2081	0	2000	1781	0	1838	1781	0	1832
Q Serve(g_s), s	3.5	0.0	12.7	7.2	0.0	50.0	2.6	0.0	55.0	6.5	0.0	35.4
Cycle Q Clear(g_c), s	3.5	0.0	12.7	7.2	0.0	50.0	2.6	0.0	55.0	6.5	0.0	35.4
Prop In Lane	1.00		0.16	1.00		0.50	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	117	0	566	511	0	704	256	0	711	158	0	751
V/C Ratio(X)	0.55	0.00	0.36	0.31	0.00	1.00	0.21	0.00	1.03	0.85	0.00	0.72
Avail Cap(c_a), veh/h	230	0	611	596	0	704	377	0	711	239	0	751
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	36.6	29.2	0.0	46.0	28.2	0.0	43.5	34.9	0.0	35.2
Incr Delay (d2), s/veh	1.5	0.0	0.1	0.1	0.0	34.3	0.2	0.0	42.1	10.7	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	5.4	3.6	0.0	31.1	1.1	0.0	32.8	3.2	0.0	16.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.8	0.0	36.7	29.3	0.0	80.3	28.3	0.0	85.7	45.6	0.0	38.2
LnGrp LOS	D	A	D	C	A	F	C	A	F	D	A	D
Approach Vol, veh/h		267			864			789			678	
Approach Delay, s/veh		37.2			70.9			81.7			39.7	
Approach LOS		D			E			F			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	56.0	14.0	60.5	15.3	52.3	10.8	63.7
Change Period (Y+Rc), s	6.0	6.0	5.5	5.5	6.0	6.0	5.5	5.5
Max Green Setting (Gmax), s	15.0	50.0	15.0	55.0	15.0	50.0	15.0	55.0
Max Q Clear Time (g_c+I1), s	5.5	52.0	8.5	57.0	9.2	14.7	4.6	37.4
Green Ext Time (p_c), s	0.0	0.0	0.1	0.0	0.1	0.3	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	62.6
HCM 6th LOS	E

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	631	0	266	1289	559	312
Future Volume (vph)	631	0	266	1289	559	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%			4%	-5%	
Storage Length (ft)		0	300		0	300
Storage Lanes		0	2		2	1
Taper Length (ft)			25		25	
Right Turn on Red		Yes				Yes
Link Speed (mph)	30			30	30	
Link Distance (ft)	542			772	220	
Travel Time (s)	12.3			17.5	5.0	
Confl. Peds. (#/hr)					3	2
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Shared Lane Traffic (%)						
Turn Type	NA		Prot	NA	Prot	Free
Protected Phases	8		7	4	1	
Permitted Phases						Free
Detector Phase	8		7	4	1	
Switch Phase						
Minimum Initial (s)	10.0		5.0	7.0	5.0	
Minimum Split (s)	26.6		10.1	24.5	14.6	
Total Split (s)	50.0		30.0	80.0	50.0	
Total Split (%)	38.5%		23.1%	61.5%	38.5%	
Yellow Time (s)	3.6		3.6	4.0	3.6	
All-Red Time (s)	4.0		1.5	1.5	6.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	7.6		5.1	5.5	9.6	
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Recall Mode	C-Min		None	C-Min	None	

Intersection Summary

Area Type: Other

Cycle Length: 130

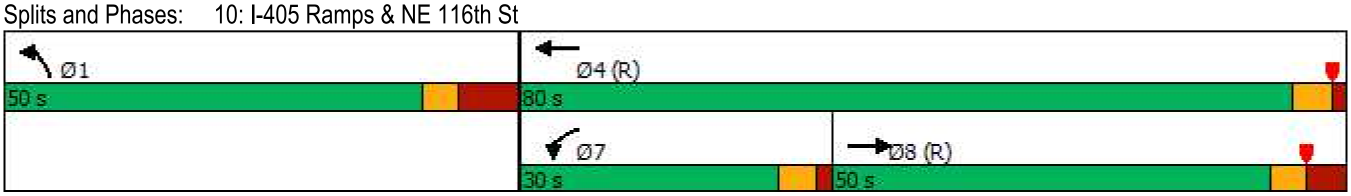
Actuated Cycle Length: 130

Offset: 60 (46%), Referenced to phase 4:WBT and 8:EBT, Start of Red

Natural Cycle: 80

Control Type: Actuated-Coordinated

Splits and Phases: 10: I-405 Ramps & NE 116th St



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	631	0	266	1289	559	312
Future Volume (veh/h)	631	0	266	1289	559	312
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2042	0	1791	1791	2082	2082
Adj Flow Rate, veh/h	693	0	292	1416	614	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	1	0	1	1	1	1
Cap, veh/h	1093	0	352	2317	718	
Arrive On Green	0.71	0.00	0.11	0.68	0.19	0.00
Sat Flow, veh/h	2042	0	3309	3492	3846	1764
Grp Volume(v), veh/h	693	0	292	1416	614	0
Grp Sat Flow(s),veh/h/ln	2042	0	1654	1701	1923	1764
Q Serve(g_s), s	23.2	0.0	11.2	29.6	20.1	0.0
Cycle Q Clear(g_c), s	23.2	0.0	11.2	29.6	20.1	0.0
Prop In Lane		0.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1093	0	352	2317	718	
V/C Ratio(X)	0.63	0.00	0.83	0.61	0.85	
Avail Cap(c_a), veh/h	1093	0	634	2317	1195	
HCM Platoon Ratio	1.33	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.99	0.00	0.42	0.42	1.00	0.00
Uniform Delay (d), s/veh	12.0	0.0	56.9	11.3	51.1	0.0
Incr Delay (d2), s/veh	2.8	0.0	1.6	0.5	3.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	0.0	4.8	10.6	10.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.8	0.0	58.5	11.8	54.5	0.0
LnGrp LOS	B	A	E	B	D	
Approach Vol, veh/h	693			1708	614	A
Approach Delay, s/veh	14.8			19.8	54.5	
Approach LOS	B			B	D	

Timer - Assigned Phs				4		6	7	8
Phs Duration (G+Y+Rc), s				96.1		33.9	18.9	77.2
Change Period (Y+Rc), s				* 7.6		9.6	5.1	7.6
Max Green Setting (Gmax), s				* 75		40.4	24.9	42.4
Max Q Clear Time (g_c+I1), s				31.6		22.1	13.2	25.2
Green Ext Time (p_c), s				18.8		2.2	0.6	5.4

Intersection Summary	
HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	439	224	131	640	28	748	820	383	69	317	252
Future Volume (vph)	243	439	224	131	640	28	748	820	383	69	317	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	12	11	11	11	12	11	15	11	11	11
Grade (%)		4%			0%			0%			3%	
Storage Length (ft)	200		0	275		0	250		200	150		0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		772			359			568			1305	
Travel Time (s)		15.0			7.0			11.1			25.4	
Confl. Peds. (#/hr)	3		11	11		3	16		7	7		16
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	D.P+P	NA	pm+ov	D.P+P	NA		Prot	NA		D.P+P	NA	
Protected Phases	1	6	7	5	2		7	4		3	8	
Permitted Phases	2		6	6						4		
Detector Phase	1	6	7	5	2		7	4		3	8	
Switch Phase												
Minimum Initial (s)	6.0	10.0	6.0	6.0	10.0		6.0	10.0		6.0	10.0	
Minimum Split (s)	11.5	34.0	12.0	11.5	32.0		12.0	34.0		11.5	35.0	
Total Split (s)	25.5	50.5	50.5	25.5	50.5		50.5	65.5		25.5	65.5	
Total Split (%)	13.3%	26.3%	26.3%	13.3%	26.3%		26.3%	34.1%		13.3%	34.1%	
Yellow Time (s)	3.5	4.0	3.5	3.5	4.0		3.5	4.0		3.5	4.0	
All-Red Time (s)	2.0	1.5	2.0	2.0	1.5		2.0	1.5		2.0	1.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	5.5	5.5	5.5	5.5	5.5		5.5	5.5		5.5	5.5	
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None		None	Min		None	Min	

Intersection Summary

Area Type: Other

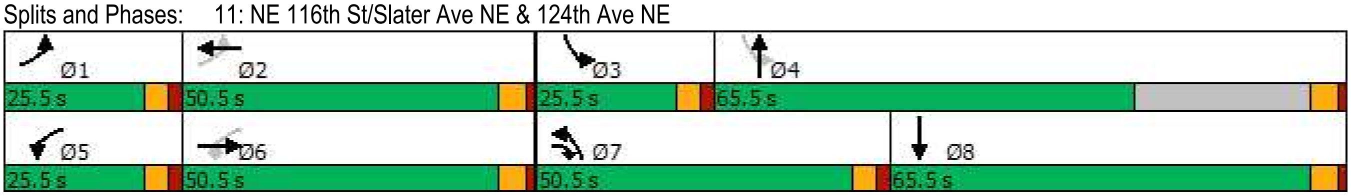
Cycle Length: 192

Actuated Cycle Length: 154.2

Natural Cycle: 115

Control Type: Actuated-Uncoordinated

Splits and Phases: 11: NE 116th St/Slater Ave NE & 124th Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	439	224	131	640	28	748	820	383	69	317	252
Future Volume (veh/h)	243	439	224	131	640	28	748	820	383	69	317	252
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1761	1761	1761	1870	1870	1870	1885	1885	1961	1817	1817	1817
Adj Flow Rate, veh/h	261	472	151	141	688	30	804	882	412	74	341	271
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	3	3	3	2	2	2	1	1	1	2	2	2
Cap, veh/h	303	499	792	202	760	33	872	1000	463	166	398	309
Arrive On Green	0.14	0.28	0.28	0.07	0.22	0.22	0.25	0.42	0.42	0.04	0.22	0.22
Sat Flow, veh/h	1677	1761	1475	1781	3466	151	3483	2362	1093	1731	1828	1422
Grp Volume(v), veh/h	261	472	151	141	352	366	804	667	627	74	322	290
Grp Sat Flow(s),veh/h/ln	1677	1761	1475	1781	1777	1840	1742	1791	1664	1731	1726	1524
Q Serve(g_s), s	14.8	32.6	6.6	6.9	24.0	24.1	28.0	42.5	43.4	3.0	22.3	22.9
Cycle Q Clear(g_c), s	14.8	32.6	6.6	6.9	24.0	24.1	28.0	42.5	43.4	3.0	22.3	22.9
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.66	1.00		0.93
Lane Grp Cap(c), veh/h	303	499	792	202	389	403	872	759	705	166	376	332
V/C Ratio(X)	0.86	0.95	0.19	0.70	0.91	0.91	0.92	0.88	0.89	0.45	0.86	0.88
Avail Cap(c_a), veh/h	345	638	908	361	643	666	1261	864	803	367	833	735
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	43.6	15.1	32.9	47.3	47.3	45.4	32.9	33.2	27.6	46.8	47.0
Incr Delay (d2), s/veh	16.0	18.7	0.0	1.6	6.4	6.3	6.8	8.6	10.2	0.7	2.2	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	16.6	2.2	3.0	11.2	11.6	12.7	19.6	18.9	1.2	9.7	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.5	62.3	15.1	34.5	53.7	53.6	52.2	41.5	43.4	28.3	49.0	49.9
LnGrp LOS	D	E	B	C	D	D	D	D	D	C	D	D
Approach Vol, veh/h		884			859			2098			686	
Approach Delay, s/veh		50.5			50.5			46.2			47.1	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.4	32.7	11.0	58.2	14.4	40.7	36.6	32.6
Change Period (Y+Rc), s	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Max Green Setting (Gmax), s	20.0	45.0	20.0	60.0	20.0	45.0	45.0	60.0
Max Q Clear Time (g_c+I1), s	16.8	26.1	5.0	45.4	8.9	34.6	30.0	24.9
Green Ext Time (p_c), s	0.1	0.7	0.0	1.5	0.1	0.6	1.2	0.7

Intersection Summary	
HCM 6th Ctrl Delay	48.0
HCM 6th LOS	D

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	134	96	696	115	34	676
Future Volume (vph)	134	96	696	115	34	676
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-4%		0%			-2%
Storage Length (ft)	100	0		0	50	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Link Speed (mph)	25		25			25
Link Distance (ft)	255		359			173
Travel Time (s)	7.0		9.8			4.7
Confl. Peds. (#/hr)				8	8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%
Shared Lane Traffic (%)						
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	134	96	696	115	34	676
Future Vol, veh/h	134	96	696	115	34	676
Conflicting Peds, #/hr	0	0	0	8	8	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Yield	-	None	-	None
Storage Length	100	0	-	-	50	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	-4	-	0	-	-	-2
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	143	102	740	122	36	719

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1241	809	0	0	870	0
Stage 1	809	-	-	-	-	-
Stage 2	432	-	-	-	-	-
Critical Hdwy	5.8	5.8	-	-	4.115	-
Critical Hdwy Stg 1	4.6	-	-	-	-	-
Critical Hdwy Stg 2	5	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2095	-
Pot Cap-1 Maneuver	240	420	-	-	778	-
Stage 1	528	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	227	417	-	-	772	-
Mov Cap-2 Maneuver	227	-	-	-	-	-
Stage 1	524	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	32.7	0	0.5
HCM LOS	D		

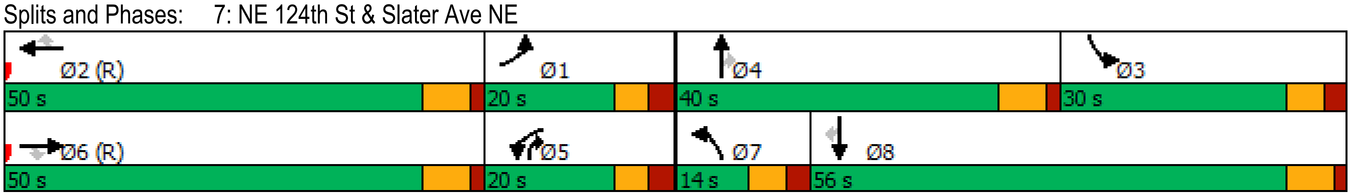
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	227	417	772	-
HCM Lane V/C Ratio	-	-	0.628	0.245	0.047	-
HCM Control Delay (s)	-	-	44.3	16.4	9.9	-
HCM Lane LOS	-	-	E	C	A	-
HCM 95th %tile Q(veh)	-	-	3.7	0.9	0.1	-

2025 With-Project and Mitigation at Slater Ave NE / NE 124th Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	954	41	251	966	210	31	206	289	466	680	254
Future Volume (vph)	140	954	41	251	966	210	31	206	289	466	680	254
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	11	11	11	11	11	11	11
Grade (%)		-2%			-3%			-6%			2%	
Storage Length (ft)	250		80	440		200	150		0	350		0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		421			1236			330			611	
Travel Time (s)		8.2			24.1			6.4			11.9	
Confl. Peds. (#/hr)	10		3	3		10			3	3		
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	4%	4%	4%	3%	3%	3%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	6.0	10.0	6.0	6.0	10.0	10.0
Minimum Split (s)	12.5	36.5	36.5	12.5	39.5	39.5	12.5	39.5	12.5	12.5	36.5	36.5
Total Split (s)	20.0	50.0	50.0	20.0	50.0	50.0	14.0	40.0	20.0	30.0	56.0	56.0
Total Split (%)	14.3%	35.7%	35.7%	14.3%	35.7%	35.7%	10.0%	28.6%	14.3%	21.4%	40.0%	40.0%
Yellow Time (s)	3.5	5.0	5.0	3.5	5.0	5.0	4.0	5.0	3.5	4.0	5.0	5.0
All-Red Time (s)	3.0	1.5	1.5	3.0	1.5	1.5	2.5	1.5	3.0	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lag	Lead	Lead	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 18 (13%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: NE 124th St & Slater Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	954	41	251	966	210	31	206	289	466	680	254
Future Volume (veh/h)	140	954	41	251	966	210	31	206	289	466	680	254
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1919	1919	1919	1973	1973	1973	2061	2061	2061	1817	1817	1817
Adj Flow Rate, veh/h	141	964	0	254	976	0	31	208	233	471	687	115
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	4	4	4	3	3	3	5	5	5	4	4	4
Cap, veh/h	219	1133		225	1165		59	269	436	438	642	543
Arrive On Green	0.12	0.31	0.00	0.12	0.31	0.00	0.03	0.13	0.13	0.25	0.35	0.35
Sat Flow, veh/h	1827	3645	1626	1879	3749	1672	1963	2061	1735	1731	1817	1536
Grp Volume(v), veh/h	141	964	0	254	976	0	31	208	233	471	687	115
Grp Sat Flow(s),veh/h/ln	1827	1823	1626	1879	1874	1672	1963	2061	1735	1731	1817	1536
Q Serve(g_s), s	10.3	34.7	0.0	16.8	34.0	0.0	2.2	13.7	0.0	35.4	49.5	4.9
Cycle Q Clear(g_c), s	10.3	34.7	0.0	16.8	34.0	0.0	2.2	13.7	0.0	35.4	49.5	4.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	219	1133		225	1165		59	269	436	438	642	543
V/C Ratio(X)	0.64	0.85		1.13	0.84		0.53	0.77	0.53	1.08	1.07	0.21
Avail Cap(c_a), veh/h	219	1133		225	1165		105	493	625	438	642	543
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.7	45.2	0.0	61.6	45.0	0.0	66.9	58.9	45.4	52.3	45.2	14.2
Incr Delay (d2), s/veh	7.2	8.1	0.0	95.9	6.7	0.0	2.7	1.8	0.4	64.6	55.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	16.8	0.0	14.0	16.7	0.0	1.1	7.2	7.0	23.1	31.8	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.9	53.3	0.0	157.5	51.7	0.0	69.6	60.7	45.8	116.9	100.7	14.3
LnGrp LOS	E	D		F	D		E	E	D	F	F	B
Approach Vol, veh/h		1105	A		1230	A		472			1273	
Approach Delay, s/veh		54.9			73.5			53.9			98.9	
Approach LOS		D			E			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.3	50.0	41.9	24.8	23.3	50.0	10.7	56.0
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	13.5	43.5	23.5	33.5	13.5	43.5	7.5	49.5
Max Q Clear Time (g_c+I1), s	12.3	36.0	37.4	15.7	18.8	36.7	4.2	51.5
Green Ext Time (p_c), s	0.1	1.6	0.0	0.7	0.0	2.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	74.1
HCM 6th LOS	E

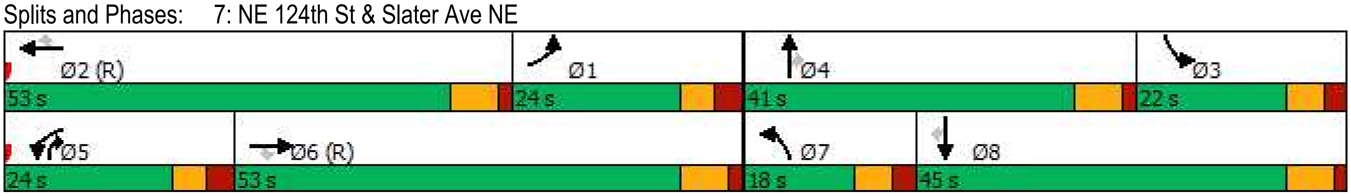
Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	317	1114	53	283	1134	408	36	428	369	280	292	259
Future Volume (vph)	317	1114	53	283	1134	408	36	428	369	280	292	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	11	11	11	11	11	11	11
Grade (%)		-2%			-3%			-6%			2%	
Storage Length (ft)	250		80	440		200	150		0	350		0
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		421			1236			330			683	
Travel Time (s)		8.2			24.1			6.4			13.3	
Confl. Peds. (#/hr)	5		4	4		5	3		5	5		3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	3%	3%	3%	2%	2%	2%
Shared Lane Traffic (%)												
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	6.0	15.0	15.0	6.0	15.0	15.0	6.0	10.0	6.0	6.0	10.0	10.0
Minimum Split (s)	12.5	36.5	36.5	12.5	39.5	39.5	12.5	39.5	12.5	12.5	36.5	36.5
Total Split (s)	24.0	53.0	53.0	24.0	53.0	53.0	18.0	41.0	24.0	22.0	45.0	45.0
Total Split (%)	17.1%	37.9%	37.9%	17.1%	37.9%	37.9%	12.9%	29.3%	17.1%	15.7%	32.1%	32.1%
Yellow Time (s)	3.5	5.0	5.0	3.5	5.0	5.0	4.0	5.0	3.5	4.0	5.0	5.0
All-Red Time (s)	3.0	1.5	1.5	3.0	1.5	1.5	2.5	1.5	3.0	2.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 5 (4%), Referenced to phase 2:WBT and 6:EBT, Start of 1st Green	
Natural Cycle: 145	
Control Type: Actuated-Coordinated	

Splits and Phases: 7: NE 124th St & Slater Ave NE



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	317	1114	53	283	1134	408	36	428	369	280	292	259
Future Volume (veh/h)	317	1114	53	283	1134	408	36	428	369	280	292	259
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1919	1919	1919	1988	1988	1988	2091	2091	2091	1847	1847	1847
Adj Flow Rate, veh/h	334	1173	0	298	1194	0	38	451	303	295	307	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	2	2	2	3	3	3	2	2	2
Cap, veh/h	257	1267		237	1255		66	483	628	195	570	483
Arrive On Green	0.14	0.35	0.00	0.17	0.44	0.00	0.03	0.23	0.23	0.11	0.31	0.00
Sat Flow, veh/h	1827	3645	1626	1893	3777	1685	1991	2091	1760	1759	1847	1565
Grp Volume(v), veh/h	334	1173	0	298	1194	0	38	451	303	295	307	0
Grp Sat Flow(s),veh/h/ln	1827	1823	1626	1893	1889	1685	1991	2091	1760	1759	1847	1565
Q Serve(g_s), s	19.7	43.3	0.0	17.5	42.6	0.0	2.6	29.6	11.5	15.5	19.3	0.0
Cycle Q Clear(g_c), s	19.7	43.3	0.0	17.5	42.6	0.0	2.6	29.6	11.5	15.5	19.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	257	1267		237	1255		66	483	628	195	570	483
V/C Ratio(X)	1.30	0.93		1.26	0.95		0.58	0.93	0.48	1.51	0.54	0.00
Avail Cap(c_a), veh/h	257	1267		237	1255		164	515	655	195	570	483
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.83	0.83	0.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	60.2	43.9	0.0	58.4	38.0	0.0	66.7	52.8	15.2	62.3	40.1	0.0
Incr Delay (d2), s/veh	161.1	12.8	0.0	141.8	14.2	0.0	2.9	22.9	0.2	256.3	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	21.5	0.0	17.3	20.6	0.0	1.4	18.5	4.5	20.8	8.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	221.3	56.7	0.0	200.2	52.2	0.0	69.7	75.7	15.4	318.5	40.7	0.0
LnGrp LOS	F	E		F	D		E	E	B	F	D	A
Approach Vol, veh/h		1507	A		1492	A		792			602	
Approach Delay, s/veh		93.2			81.8			52.3			176.8	
Approach LOS		F			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.2	53.0	22.0	38.8	24.0	55.2	11.1	49.7
Change Period (Y+Rc), s	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Max Green Setting (Gmax), s	17.5	46.5	15.5	34.5	17.5	46.5	11.5	38.5
Max Q Clear Time (g_c+I1), s	21.7	44.6	17.5	31.6	19.5	45.3	4.6	21.3
Green Ext Time (p_c), s	0.0	0.8	0.0	0.6	0.0	0.7	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	93.4
HCM 6th LOS	F

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Appendix C

Collision History

OFFICER REPORTED CRASHES THAT OCCURRED *at* OR *in the vicinity of* MULTIPLE INTERSECTIONS AND ROAD SEGMENTS IN THE CITY OF KIRKLAND

01/01/2017 - 12/31/2019 *See 2nd tab below for road information & interchange drawings for reference*

Under 23 U.S. Code § 148 and 23 U.S. Code § 409, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	PRIMARY TRAFFICWAY	BLOCK NUMBER	INTERSECTING TRAFFICWAY	DIST FROM REF POINT	MI or FT	COMP DIR FROM REF POINT	REFERENCE POINT NAME	MILEPOST	A/B	REPORT NUMBER	DATE	MOST SEVERE INJURY TYPE	# INJ	# FAT	# VEH	# PEDES	# BIKES	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION
City Street	120TH AVE NE	0	TOTEM LAKE BLVD NE							E792259	04/23/2018	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Starting in Traffic Lane	Stopped for Traffic
City Street	124TH AVE NE	0	NE 116TH ST							E661133	04/12/2017	Suspected Minor Injury	2	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	124TH AVE NE	0	NE 116TH ST							E706549	08/30/2017	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	124TH AVE NE	0	NE 116TH ST							E707047	08/22/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	124TH AVE NE	0	NE 116TH ST							E755181	01/03/2018	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	124TH AVE NE	0	NE 116TH ST							E790843	04/21/2018	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	124TH AVE NE	0	NE 116TH ST							E847884	10/05/2018	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	124TH AVE NE	0	NE 116TH ST							E871950	12/12/2018	Suspected Minor Injury	4	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	124TH AVE NE	0	NE 116TH ST							E914584	04/25/2019	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Left Turn	Stopped at Signal or Stop Sign
City Street	124TH AVE NE	0	NE 116TH ST							E949066	08/09/2019	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	124TH AVE NE	0	NE 116TH ST							E951051	08/16/2019	Possible Injury	1	0	1	1	0	Vehicle turning right hits pedestrian	Making Right Turn	
City Street	124TH AVE NE	0	NE 116TH ST							E972596	10/17/2019	No Apparent Injury	0	0	2	0	0	Same direction -- both turning left -- both moving -- sideswipe	Making Left Turn	Making Left Turn
City Street	132ND AVE NE	0	NE 124TH ST							E886961	01/20/2019	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	132ND AVE NE	0	NE 124TH ST							E915076	04/26/2019	No Apparent Injury	0	0	2	0	0	From same direction - one right turn - one straight	Going Straight Ahead	Stopped for Traffic
City Street	NE 116TH ST	0	124TH AVE NE							E636533	01/27/2017	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	NE 116TH ST	0	124TH AVE NE							E649554	03/08/2017	Possible Injury	1	0	1	1	0	Vehicle turning right hits pedestrian	Making Right Turn	
City Street	NE 116TH ST	0	124TH AVE NE							E672338	05/15/2017	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Other*	Going Straight Ahead
City Street	NE 116TH ST	11600	124TH AVE NE							E705695	08/28/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 116TH ST	11600	124TH AVE NE							E719447	10/02/2017	Possible Injury	2	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 116TH ST	0	124TH AVE NE							E763415	01/28/2018	No Apparent Injury	0	0	2	0	0	From same direction - all others	Backing	Stopped at Signal or Stop Sign
City Street	NE 116TH ST	0	124TH AVE NE							E794240	05/01/2018	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 116TH ST	0	124TH AVE NE							E875379	12/21/2018	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 116TH ST	0	124TH AVE NE							E946073	07/31/2019	Suspected Minor Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Going Straight Ahead	Making Left Turn
City Street	NE 116TH ST	0	124TH AVE NE							E982382	11/13/2019	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 116TH ST	0	124TH AVE NE							E994757	12/16/2019	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 116TH ST	0	SLATER AVE NE							E996157	12/21/2019	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Left Turn	Going Straight Ahead
City Street	NE 120TH ST	0	SLATER AVE NE							E658308	04/04/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 120TH ST	0	SLATER AVE NE							E700137	08/07/2017	Possible Injury	2	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
City Street	NE 120TH ST	0	SLATER AVE NE							E702330	08/15/2017	Possible Injury	1	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
City Street	NE 120TH ST	0	SLATER AVE NE							E896442	02/23/2019	Suspected Minor Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 120TH ST	0	SLATER AVE NE							E915116	04/27/2019	Suspected Minor Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Going Straight Ahead	Making Left Turn
City Street	NE 123RD ST	0	SLATER AVE NE							E851215	10/16/2018	No Apparent Injury	0	0	2	0	0	From same direction - all others	Backing	Stopped at Signal or Stop Sign
City Street	NE 124TH ST	0	SLATER AVE NE							E646943	02/28/2017	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	NE 124TH ST	0	SLATER AVE NE							E695552	07/25/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
City Street	NE 124TH ST	0	SLATER AVE NE							E780032	03/16/2018	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Making Left Turn
City Street	NE 124TH ST	12400	SLATER AVE NE							E798629	05/16/2018	No Apparent Injury	0	0	2	0	0	Same direction -- both turning right -- both moving -- rear end	Making Right Turn	Making Right Turn
City Street	NE 124TH ST	0	SLATER AVE NE							E920931	05/13/2019	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Slowing	Stopped at Signal or Stop Sign
City Street	NE 124TH ST	0	TOTEM LAKE BLVD NE							E780035	03/18/2018	Possible Injury	1	0	3	0	0	Entering at angle	Going Straight Ahead	Making Left Turn
City Street	SLATER AVE NE	0	NE 120TH ST							E644677	02/21/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Making Left Turn
City Street	SLATER AVE NE	0	NE 120TH ST							E666017	04/28/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
City Street	SLATER AVE NE	0	NE 120TH ST							E675179	05/26/2017	Suspected Minor Injury	2	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	SLATER AVE NE	0	NE 120TH ST							E688263	07/05/2017	Possible Injury	1	0	2	0	0	From same direction - one right turn - one straight	Starting in Traffic Lane	Making Right Turn
City Street	SLATER AVE NE	0	NE 120TH ST							E755179	01/04/2018	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	SLATER AVE NE	0	NE 120TH ST							E774679	02/14/2018	Possible Injury	2	0	2	0	0	From opposite direction - one left turn - one straight	Going Straight Ahead	Making Left Turn
City Street	SLATER AVE NE	0	NE 120TH ST							E950519	08/04/2019	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
City Street	SLATER AVE NE		NE 120TH ST							E963375	09/18/2019	Possible Injury	2	0	2	0	0	From same direction - one right turn - one straight	Going Straight Ahead	Stopped for Traffic
City Street	SLATER AVE NE	0	NE 120TH ST							EA16687	02/20/2020	Possible Injury	1	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
City Street	SLATER AVE NE	0	NE 120TH ST							EA33989	04/29/2020	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	SLATER AVE NE	0	NE 123RD ST							E804362	06/01/2018	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Left Turn	Going Straight Ahead
City Street	SLATER AVE NE	0	NE 123RD ST							E818192	07/10/2018	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Wrong Way on Divided Hwy	Making Left Turn
City Street	SLATER AVE NE		NE 124TH ST							E397196	01/30/2015	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	SLATER AVE NE		NE 124TH ST							E403298	02/25/2015	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	SLATER AVE NE		NE 124TH ST							E408764	03/12/2015	No Apparent Injury	0	0	2	0	0	Same direction -- both turning right -- one stopped -- rear end	Making Right Turn	Stopped for Traffic
City Street	SLATER AVE NE		NE 124TH ST							E422717	05/04/2015	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - both moving - sideswipe	Making Right Turn	Making Left Turn
City Street	SLATER AVE NE		NE 124TH ST							E466414	09/28/2015	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	SLATER AVE NE		NE 124TH ST							E471871	10/10/2015	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - both moving - sideswipe	Going Straight Ahead	Going Straight Ahead
City Street	SLATER AVE NE		NE 124TH ST							E477063	10/31/2015	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped in Roadway
City Street	SLATER AVE NE		NE 124TH ST							E589940	09/26/2016	No Apparent Injury	0	0	3	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic
City Street	SLATER AVE NE		NE 124TH ST							E606410	11/07/2016	No Apparent Injury	0	0	2	0	0	Same direction -- both turning right -- both moving -- rear end	Making Right Turn	Making Right Turn
City Street	SLATER AVE NE	0	NE 124TH ST							E707721	08/30/2017	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - both moving - sideswipe	Going Straight Ahead	Going Straight Ahead
City Street	SLATER AVE NE	0	NE 124TH ST							E725654	10/21/2017	Suspected Minor Injury	1	0	1	0	0	Vehicle overturned	Making Left Turn	
City Street	SLATER AVE NE	0	NE 124TH ST							E864351	11/24/2018	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Slowing	Stopped at Signal or Stop Sign
City Street	TOTEM LAKE BLVD NE	12400	120TH AVE NE							E646875	02/27/2017	Possible Injury	2	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	TOTEM LAKE BLVD NE	0	120TH AVE NE							E922319	05/14/2019	Possible Injury	2	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	TOTEM LAKE BLVD NE	0	NE 124TH ST							E645875	02/23/2017	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic
City Street	TOTEM LAKE BLVD NE	0	NE 124TH ST							E673083	05/20/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	TOTEM LAKE BLVD NE	0	NE 128TH ST							E715054	09/24/2017	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	**405LX01983**							**0.05**		**E919924**	**05/08/2019**	**No Apparent Injury**	**0**	**0**	**2**	**0**	**0**	**From same direction - both going straight - one stopped - rear-end**	**Going Straight Ahead**	**Stopped at Signal or Stop Sign**
State Route	**405LX01983**							**0.08**		**E845264**	**09/10/2018**	**Possible Injury**	**1**	**0**	**2**	**0**	**0**	**From same direction - both going straight - one stopped - rear-end**	**Slowing**	**Stopped at Signal or Stop Sign**
State Route	**405LX01983**							**0.11**		**E633714**	**01/11/2017**	**Possible Injury**	**1**	**0**	**2**	**0**	**0**	**From same direction - both going straight - both moving - rear-end**	**Going Straight Ahead**	**Going Straight Ahead**
State Route	405LX02065							0.11		E956053	08/28/2019	Suspected Minor Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic
State Route	405LX02065							0.13		E630681	01/10/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E639067	02/05/2017	Suspected Minor Injury	3	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E650589	03/10/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E651210	02/09/2017	No Apparent Injury	0	0	2	0	0	From same direction - all others	Backing	Stopped for Traffic
State Route	405LX02065							0.13		E655934	03/28/2017	Suspected Minor Injury	1	0	3	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E661754	04/14/2017	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
State Route	405LX02065							0.13		E664846	04/25/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E668512	05/07/2017	Possible Injury	1	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405LX02065							0.13		E690986	07/12/2017	Possible Injury	1	0	2	0	0	From same direction - one right turn - one straight	Going Straight Ahead	Making Right Turn
State Route	405LX02065							0.13		E703192	08/06/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E715905	09/26/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405LX02065							0.13		E733239	11/08/2017	Possible Injury	1	0	1	1	0	Vehicle turning right hits pedestrian	Making Right Turn	
State Route	405LX02065							0.13		E734450	11/09/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E738856	11/05/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405LX02065							0.13		E740243	11/20/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E742511	12/01/2017	Possible Injury	2	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E742513	12/01/2017	No Apparent Injury	0	0	2	0	0	From same direction - all others	Making U-Turn	Stopped for Traffic
State Route	405LX02065							0.13		E752358	12/13/2017	Possible Injury	2	0	3	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
State Route	405LX02065							0.13		E794551	05/02/2018	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405LX02065							0.13		E810047	06/13/2018	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
State Route	405LX02065							0.13		E869365	12/07/2018	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405LX02065							0.13		E876838	12/26/2018	Possible Injury	1	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405LX02065							0.13		E984844	11/06/2019	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
State Route	405LX02065							0.13		E985428	11/17/2019	Possible Injury	1	0	3	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405LX02065							0.13		E988207	11/22/2019	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405LX02065							0.14		E759754	12/08/2017	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Starting in Traffic Lane	Stopped at Signal or Stop Sign
State Route	**405P101951**							**0.33**		**E732695**	**11/02/2017**	**No Apparent Injury**	**0**	**0**	**2**	**0**	**0**	**From same direction - both going straight - one stopped - rear-end**	**Going Straight Ahead**	**Stopped at Signal or Stop Sign**
State Route	405P201988							0.21		E633127	01/05/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405P201988							0.21		E674592	05/19/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Going Straight Ahead
State Route	405P201988							0.21		E743045	12/04/2017	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Slowing	Stopped at Signal or Stop Sign
State Route	405P201988							0.21		E755876	12/10/2017	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic
State Route	405P201988							0.21		E762330	01/12/2018	Possible Injury	3	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405P201988							0.21		E800286	05/02/2018	No Apparent Injury	0	0	2	0	0	Same direction -- both turning left -- one stopped -- rear end	Making Left Turn	Stopped for Traffic
State Route	405P201988							0.21		E862104	11/17/2018	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405Q202076							0.01		E840254	09/05/2018	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	120TH PL NE	0	NE 124TH ST							E797456	05/12/2018	No Apparent Injury	0	0	1	0	0	Signal Pole	Backing	
City Street	120TH PL NE	0	NE 124TH ST							E864467	10/04/2018	Possible Injury	1	0	1	1	0	Vehicle turning right hits pedestrian	Making Right Turn	
City Street	NE 124TH ST	0	120TH PL NE							E640813	02/03/2017	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	NE 124TH ST	0	120TH PL NE							E808046	06/04/2018	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
City Street	NE 124TH ST	0	120TH PL NE							E837425	09/12/2018	Possible Injury	1	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
City Street	NE 124TH ST	0	120TH PL NE							E878340	12/27/2018	No Apparent Injury	0	0	2	0	0	From same direction - all others	Backing	Stopped for Traffic
City Street	NE 124TH ST	0	120TH PL NE							E960228	09/13/2019	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
State Route	405LX02031							0.07		E657340	03/31/2017	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
State Route	405LX02031							0.08		E697763	08/02/2017	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
State Route	405LX02031							0.08		E839735	09/17/2018	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Right Turn	Going Straight Ahead
State Route	405LX02031							0.08		E883185	01/16/2019	Possible Injury	1	0	2	0	0	Entering at angle	Making Right Turn	Going Straight Ahead
State Route	405LX02031							0.08		E898745	02/28/2019	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Left Turn	Going Straight Ahead
State Route	405LX02031							0.08		E899311	02/27/2019	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - both moving - sideswipe	Changing Lanes	Starting in Traffic Lane
State Route	405LX02031							0.33		E639646	01/23/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Making Left Turn
State Route	405LX02031							0.33		E642493	02/15/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Right Turn	Going Straight Ahead
State Route	405LX02031							0.33		E655935	03/27/2017	Suspected Minor Injury	1	0	3	0	0	Entering at angle	Making Left Turn	Going Straight Ahead
State Route	405LX02031							0.33		E664818	04/24/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Making Left Turn
State Route	405LX02031							0.33		E694240	07/18/2017	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Making Left Turn
State Route	405LX02031							0.33		E907881	04/01/2019	No Apparent Injury	0	0	2	0	0	Entering at angle	Making Right Turn	Going Straight Ahead
State Route	405LX02031							0.33		E982370	11/07/2019	No Apparent Injury	0	0	2	0	0	Entering at angle	Going Straight Ahead	Making Left Turn
State Route	405LX02031							0.45		E655330	03/24/2017	No Apparent Injury	0	0	2	0	0	From opposite direction - one left turn - one straight	Making Left Turn	Going Straight Ahead
State Route	405P101988							0.35		E670739	05/14/2017	Possible Injury	1	0	2	0	0	Same direction -- both turning right -- one stopped -- rear end	Making Right Turn	Stopped for Traffic
State Route	405P101988							0.35		E776450	03/03/2018	No Apparent Injury	0	0	2	0	0	Same direction -- both turning right -- one stopped -- rear end	Making Right Turn	Stopped for Traffic
State Route	405P101988							0.35		E840488	09/21/2018	No Apparent Injury	0	0	2	0	0	Same direction -- both turning right -- one stopped -- rear end	Making Right Turn	Stopped for Traffic
State Route	405P101988							0.36		E686074	06/28/2017	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped for Traffic
State Route	405P101988							0.36		E703127	08/19/2017	No Apparent Injury	0	0	2	0	0	Same direction -- both turning right -- one stopped -- rear end	Making Right Turn	Stopped for Traffic
State Route	405P101988							0.36		E836102	09/08/2018	No Apparent Injury	0	0	2	0	0	Same direction -- both turning right -- both moving -- rear end	Making Right Turn	Making Right Turn
State Route	405R102065							0.27		E668373	05/04/2017	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Slowing	Stopped at Signal or Stop Sign
State Route	405R102065							0.27		E708240	08/29/2017	Possible Injury	1	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign
State Route	405R102065							0.27		E838544	09/15/2018	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - both moving - rear-end	Going Straight Ahead	Slowing
State Route	405R102065							0.27		E847900	10/03/2018	No Apparent Injury	0	0	2	0	0	From same direction - both going straight - one stopped - rear-end	Going Straight Ahead	Stopped at Signal or Stop Sign

Appendix D

Trip Generation Calculations

Slater Mixed-Use
Weekday Daily Trip Generation

Land Use	Area	Units[1]	LUC[2]	Trip Rate or Equation[2]	Directional Distribution In	Directional Distribution Out	Vehicle Trip Generation In	Vehicle Trip Generation Out	Vehicle Trip Generation Total
PROPOSED USES:									
Multifamily Housing (Mid-Rise)	486	DU	221	T = 5.45(X)-1.75	50%	50%	1,323	1,324	2,647
Internal Trips[3]							*-111*	*-91*	*-202*
						Subtotal (less internal) =	**1,212**	**1,233**	**2,445**
Commercial (Retail)	20,050	GLA	820	Ln(T) = 0.68Ln(X)+5.57	50%	50%	1,008	1,008	2,016
Internal Trips[3]							*-91*	*-111*	*-202*
Passby Trips[4]	*35%*						*-317*	*-318*	*-635*
						Subtotal (less internal and passby) =	**600**	**579**	**1,179**
EXISTING USES:									
Warehousing	3,420	GFA	150	T = 1.58(X)+45.54	50%	50%	25	26	51
General Light Industrial	12,490	GFA	110	T = 3.79(X)+57.96	50%	50%	53	52	105
						Subtotal =	**78**	**78**	**156**
						Gross Proposed Weekday Daily Trips =	**2,331**	**2,332**	**4,663**
						Less Total Internal Trips =	-202	-202	-404
						Less Total Passby Trips =	-317	-318	-635
						Less Existing Trips =	-78	-78	-156
						Net New Weekday Daily Trips =	**1,734**	**1,734**	**3,468**

Notes:

[1] GFA is Gross Floor Area, GLA is Gross Leasable Area, DU is Dwelling Unit.

[2] Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017 Land Use Codes.

[3] Internal trip reductions based on methodology documented in the ITE Trip Generation Handbook, 2nd Edition.

[4] Passby trips determined based on City of Kirkland Transportation Impact Fee Rate Study, October 2015.

Analyst TENW
Date 8/20/2020

Multi-Use Development Trip Generation and Internal Capture Summary

Project Name Slater Mixed-Use
Time Period Daily

LAND USE A Retail

ITE LU Code 820
Size 20,050

	Total	Internal	External
Enter	1,008	91	917
Exit	1,008	111	897
Total	2,016	202	1,814
%	100%	10%	90%

Enter from External: 917
Exit to External: 897

From	To	Daily
Retail	Retail	30%
Retail	Residential	11%
Residential	Retail	38%

To	From	Daily
Retail	Retail	28%
Retail	Residential	9%
Residential	Retail	33%

11% 111 Demand
9% 91 Demand
30% 302 Demand
28% 282 Demand

111 Balanced
91 Balanced
0 Balanced
0 Balanced

33% 437 Demand
38% 503 Demand
28% 0 Demand
30% 0 Demand

LAND USE B Residential

ITE LU Code 221
Size 486

	Total	Internal	External
Enter	1,323	111	1,212
Exit	1,324	91	1,233
Total	2,647	202	2,445
%	100%	8%	92%

Enter from External: 1,212
Exit to External: 1,233

Demand: 33% 437
Balanced: **0**
Demand: 11% 0

38% 503 Demand
0 Balanced
9% 0 Demand

LAND USE C Restaurant

ITE LU Code
Size

	Total	Internal	External
Enter		0	0
Exit		0	0
Total	0	0	0
%	100%	#DIV/0!	#DIV/0!

Enter from External: 0
Exit to External: 0

Net External Trips for Multi-Use Development

	LAND USE A	LAND USE B	LAND USE C	TOTAL
Enter	917	1,212	0	2,129
Exit	897	1,233	0	2,130
Total	1,814	2,445	0	4,259
Single-Use Trip Gen. Est.	2,016	2,647	0	4,663

INTERNAL CAPTURE
9%

Slater Mixed-Use
AM Peak Hour Trip Generation

Land Use	Area	Units [1]	LUC [2]	Trip Rate or Equation[2]	Directional Distribution In	Directional Distribution Out	Vehicle Trip Generation In	Vehicle Trip Generation Out	Vehicle Trip Generation Total
PROPOSED USES:									
Multifamily Housing (Mid-Rise)	486	DU	221	Ln(T) = 0.98Ln(X)-0.98	26%	74%	42	119	161
Internal Trips [3]							*-1*	*-1*	-2
					Subtotal (less internal) =		**41**	**118**	**159**
Commercial (Retail)	20,050	GLA	820	T = 0.50(X)+151.78	62%	38%	100	62	162
Internal Trips [3]							*-1*	*-1*	-2
Passby Trips [4]	*35%*						*-35*	*-21*	-56
				Subtotal (less internal and passby) =			**64**	**40**	**104**
EXISTING USES:									
Warehousing	3,420	GFA	150	T = 0.12(X)+25.32	77%	23%	20	6	26
General Light Industrial	12,490	GFA	110	Ln(T) = 0.74Ln(X)+0.39	88%	12%	8	1	9
						Subtotal =	**28**	**7**	**35**
				Gross Proposed AM Peak Hour Trips =			**142**	**181**	**323**
				Less Total Internal Trips =			-2	-2	-4
				Subtotal Proposed (Driveway Trips) =			140	179	319
				Less Total Passby Trips =			-35	-21	-56
				Net Proposed AM Peak Hour Trips =			105	158	263
				Less Existing Trips =			-28	-7	-35
				Net New AM Peak Hour Trips =			**77**	**151**	**228**

Notes:

[1] GFA is Gross Floor Area, GLA is Gross Leasable Area, DU is Dwelling Unit.

[2] Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017 Land Use Codes.

[3] Internal trip reductions based on methodology documented in the ITE Trip Generation Handbook, 3rd Edition, 2017.

[4] Passby trips determined based on City of Kirkland Transportation Impact Fee Rate Study, October 2015.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Slater Mixed-Use	**Organization:**	
Project Location:		**Performed By:**	TENW
Scenario Description:		**Date:**	8/20/2020
Analysis Year:	Future With Project	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	20,050	SF	162	100	62
Restaurant				0		
Cinema/Entertainment				0		
Residential	221	486	DU's	161	42	119
Hotel				0		
All Other Land Uses[2]				0		
Total				323	142	181

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	1	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	323	142	181
Internal Capture Percentage	1%	1%	1%
External Vehicle-Trips[3]	319	140	179
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	1%	2%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	2%	1%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.
[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator
[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
[4]Person-Trips
*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Slater Mixed-Use
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips				Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*		Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0		1.00	0	0
Retail	1.00	100	100		1.00	62	62
Restaurant	1.00	0	0		1.00	0	0
Cinema/Entertainment	1.00	0	0		1.00	0	0
Residential	1.00	42	42		1.00	119	119
Hotel	1.00	0	0		1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	18		8	0	9	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	1	24	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		32	0	0	0	0
Retail	0		0	0	1	0
Restaurant	0	8		0	2	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	17	0	0		0
Hotel	0	4	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates				External Trips by Mode*		
	Internal	External	Total		Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0		0	0	0
Retail	1	99	100		99	0	0
Restaurant	0	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0	0
Residential	1	41	42		41	0	0
Hotel	0	0	0		0	0	0
All Other Land Uses[3]	0	0	0		0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates				External Trips by Mode*		
	Internal	External	Total		Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0		0	0	0
Retail	1	61	62		61	0	0
Restaurant	0	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0	0
Residential	1	118	119		118	0	0
Hotel	0	0	0		0	0	0
All Other Land Uses[3]	0	0	0		0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Slater Mixed-Use
PM Peak Hour Trip Generation

Land Use	Area	Units [1]	LUC [2]	Trip Rate or Equation[2]	Directional Distribution In	Directional Distribution Out	Vehicle Trip Generation In	Vehicle Trip Generation Out	Vehicle Trip Generation Total
PROPOSED USES:									
Multifamily Housing (Mid-Rise)	486	DU	221	Ln(T) = 0.96Ln(X)-0.63	61%	39%	123	79	202
Internal Trips [3]							*-22*	*-8*	*-30*
					Subtotal (less internal) =		**101**	**71**	**172**
Commercial (Retail)	20,050	GLA	820	Ln(T) = 0.74Ln(X)+2.89	48%	52%	79	86	165
Internal Trips [3]							*-8*	*-22*	*-30*
Passby Trips [4]	*34%*						*-22*	*-24*	*-46*
					Subtotal (less internal and passby) =		**49**	**40**	**89**
EXISTING USES:									
Warehousing	3,420	GFA	150	T = 0.12(X)+27.82	27%	73%	8	20	28
General Light Industrial	12,490	GFA	110	Ln(T) = 0.69Ln(X)+0.43	13%	87%	1	8	9
						Subtotal =	**9**	**28**	**37**
					Gross Proposed PM Peak Hour Trips =		**202**	**165**	**367**
					Less Total Internal Trips =		-30	-30	-60
					Subtotal Proposed (Driveway Trips) =		172	135	307
					Less Total Passby Trips =		-22	-24	-46
					Net Proposed PM Peak Hour Trips =		150	111	261
					Less Existing Trips =		-9	-28	-37
					Net New PM Peak Hour Trips =		**141**	**83**	**224**

Notes:

[1] GFA is Gross Floor Area, GLA is Gross Leasable Area, DU is Dwelling Unit.

[2] Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017 Land Use Codes.

[3] Internal trip reductions based on methodology documented in the ITE Trip Generation Handbook, 3rd Edition, 2017.

[4] Passby percent based on studies documented in the ITE Trip Generation Handbook, 3rd Edition, 2017.

NCHRP 8-51 Internal Trip Capture Estimation Tool			
Project Name:	Slater Mixed-Use	**Organization:**	
Project Location:		**Performed By:**	TENW
Scenario Description:		**Date:**	8/20/2020
Analysis Year:	Future With Project	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail	820	20,050	SF	165	79	86
Restaurant				0		
Cinema/Entertainment				0		
Residential	221	486	DU's	202	123	79
Hotel				0		
All Other Land Uses[2]				0		
Total				367	202	165

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	22	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	8	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	367	202	165
Internal Capture Percentage	16%	15%	18%
External Vehicle-Trips[3]	307	172	135
External Transit-Trips[4]	0	0	0
External Non-Motorized Trips[4]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	10%	26%
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	18%	10%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Informational Report*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

[3]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[4]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas Transportation Institute

Project Name:	Slater Mixed-Use
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips				Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*		Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0		1.00	0	0
Retail	1.00	79	79		1.00	86	86
Restaurant	1.00	0	0		1.00	0	0
Cinema/Entertainment	1.00	0	0		1.00	0	0
Residential	1.00	123	123		1.00	79	79
Hotel	1.00	0	0		1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	2		25	3	22	4
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	3	33	17	0		2
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		6	0	0	5	0
Retail	0		0	0	57	0
Restaurant	0	40		0	20	0
Cinema/Entertainment	0	3	0		5	0
Residential	0	8	0	0		0
Hotel	0	2	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates				External Trips by Mode*		
	Internal	External	Total		Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0		0	0	0
Retail	8	71	79		71	0	0
Restaurant	0	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0	0
Residential	22	101	123		101	0	0
Hotel	0	0	0		0	0	0
All Other Land Uses[3]	0	0	0		0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates				External Trips by Mode*		
	Internal	External	Total		Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0		0	0	0
Retail	22	64	86		64	0	0
Restaurant	0	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0	0
Residential	8	71	79		71	0	0
Hotel	0	0	0		0	0	0
All Other Land Uses[3]	0	0	0		0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

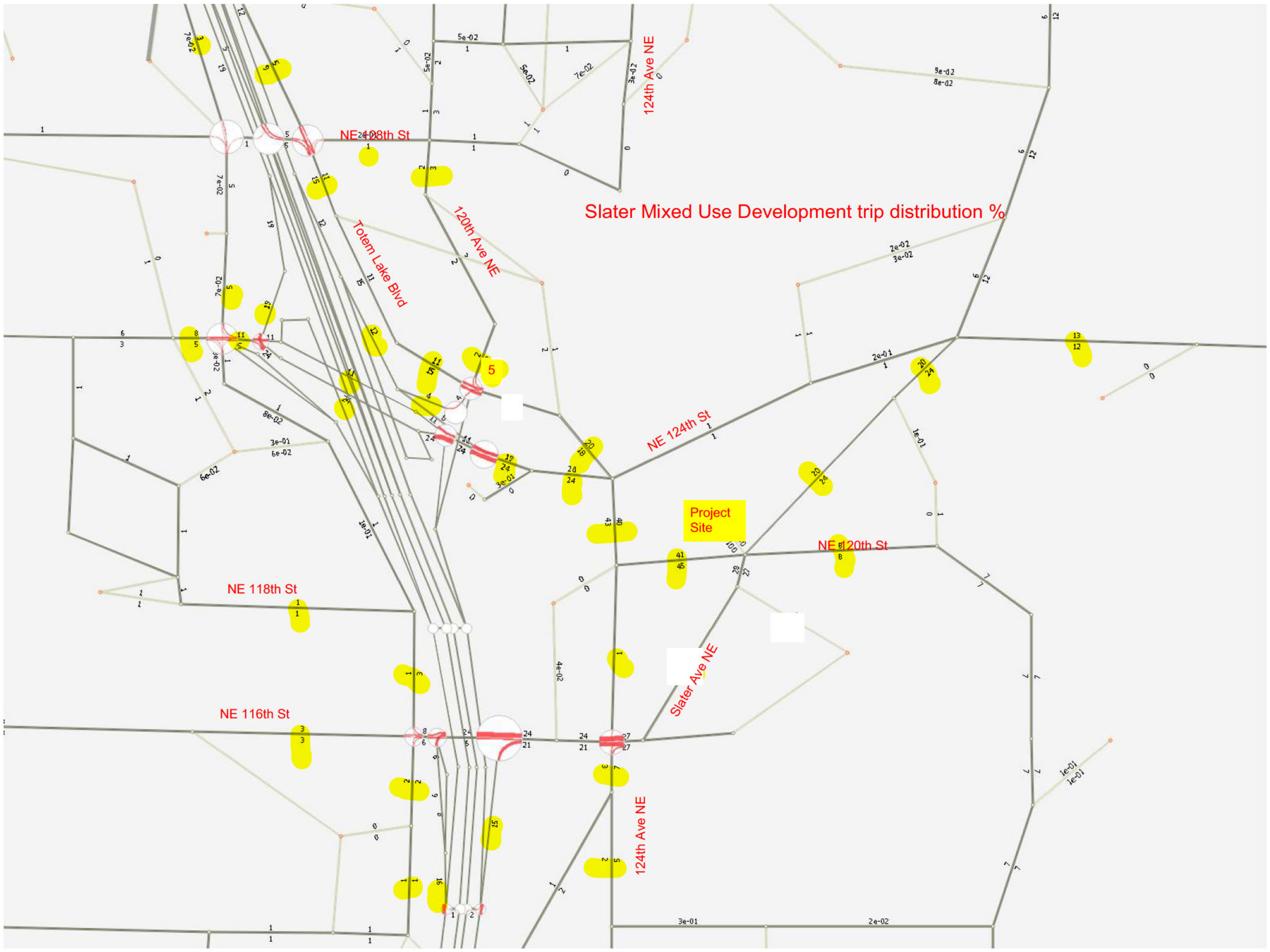
[2]Person-Trips

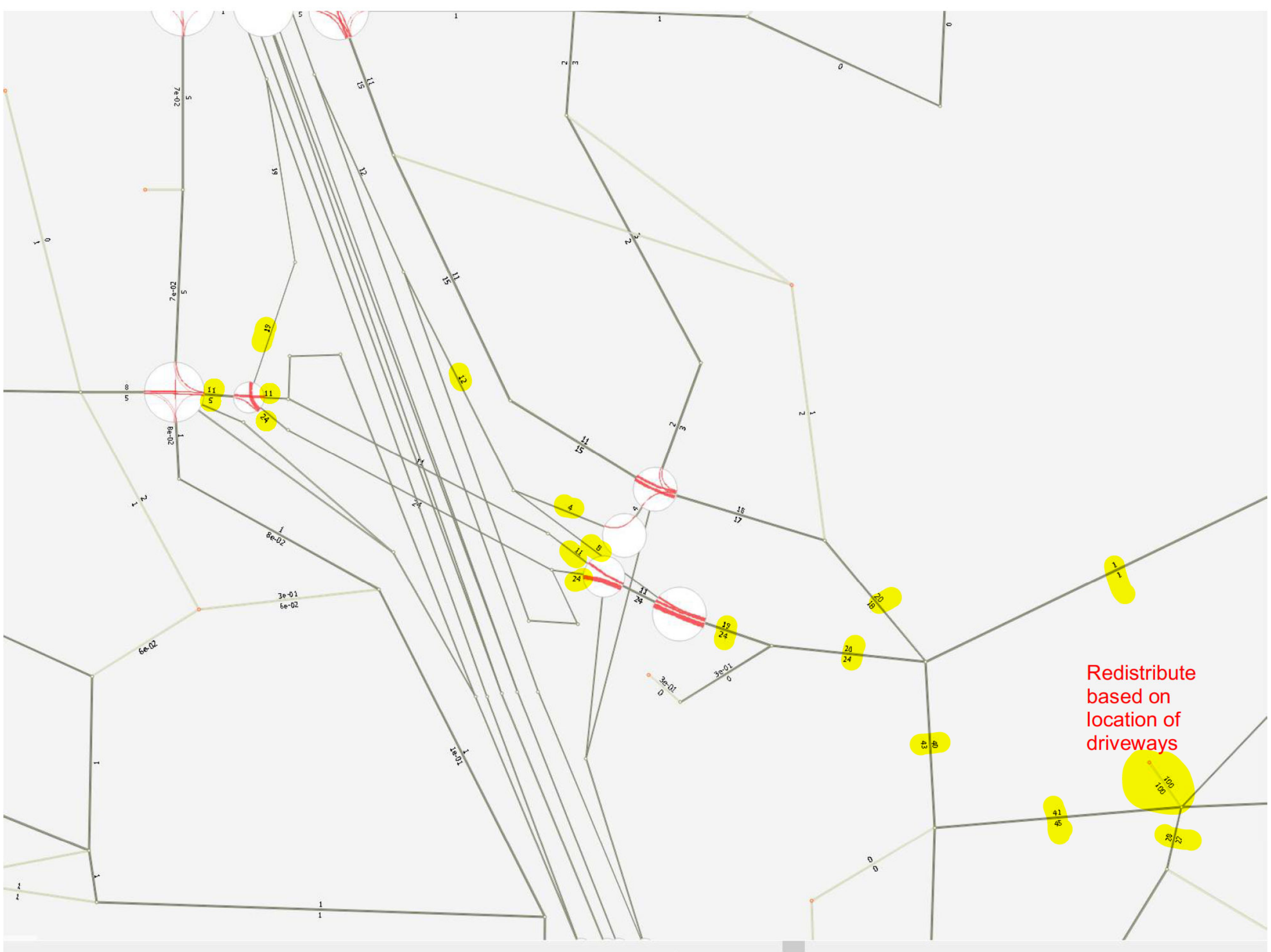
[3]Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

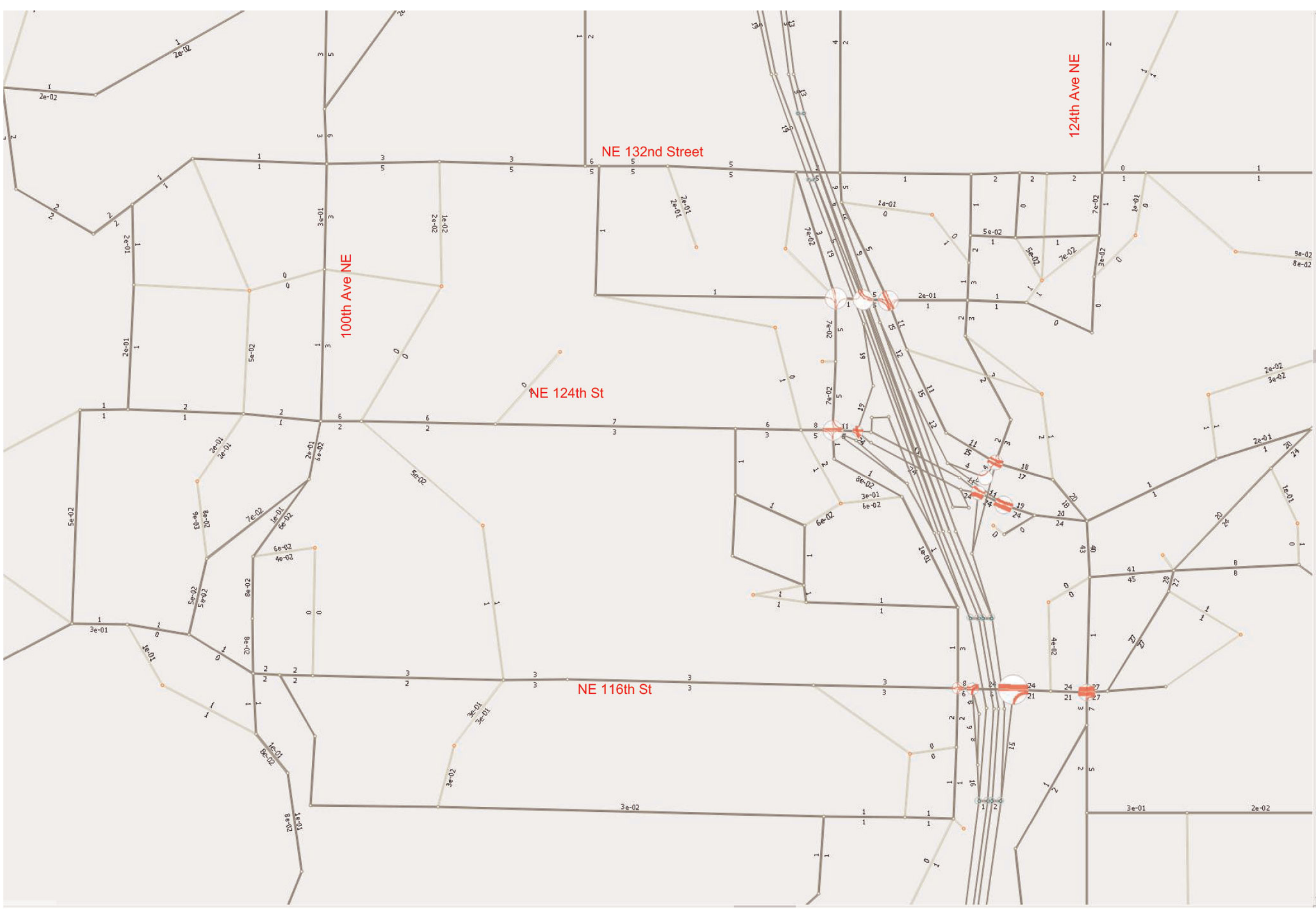
Appendix E

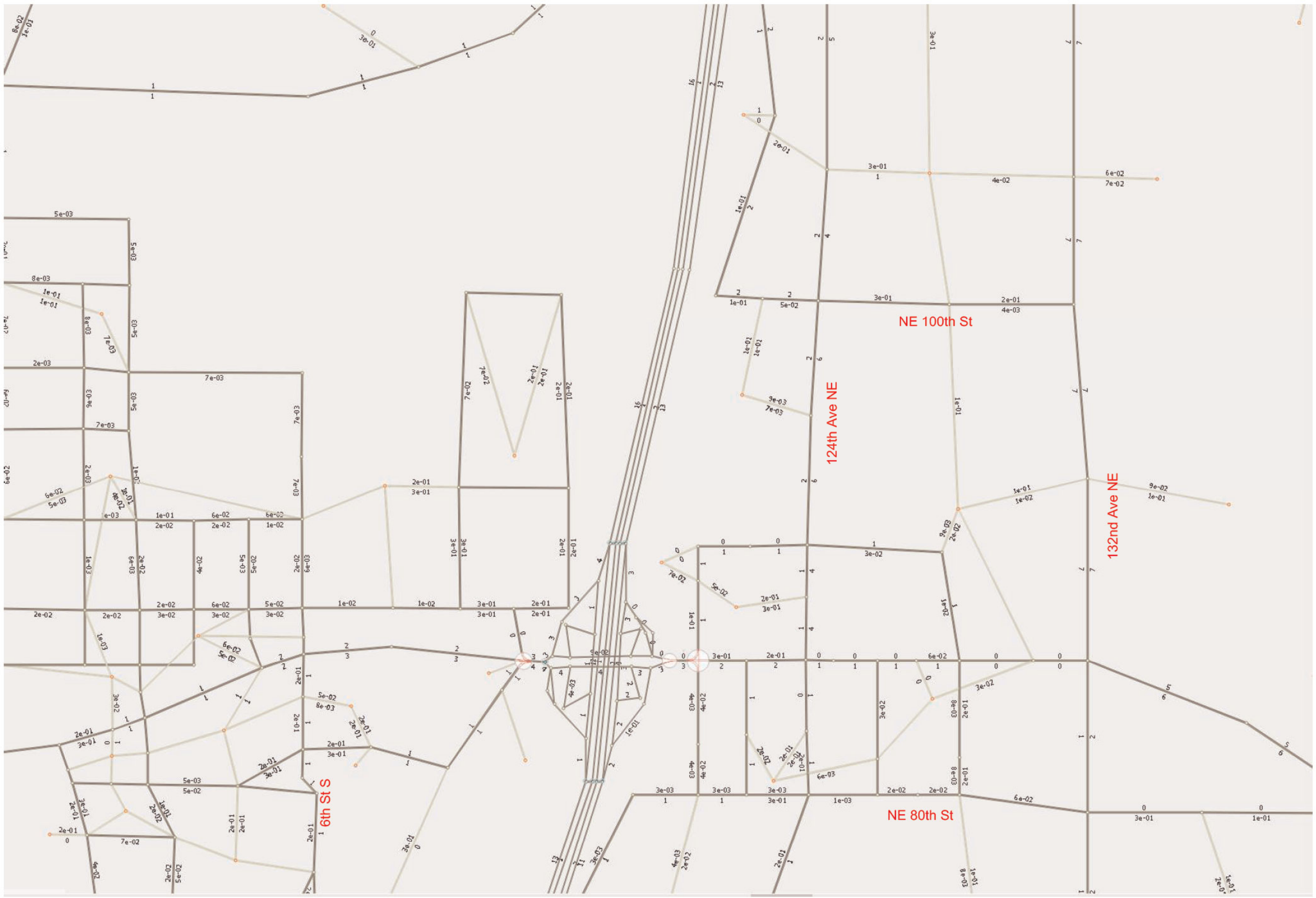
Concurrency Model Trip Distribution


Slater Mixed Use Development trip distribution %
NE 128th St
124th Ave NE
120th Ave NE
Totem Lake Blvd
NE 124th St
Project Site
NE 120th St
NE 118th St
NE 116th St
Slater Ave NE
124th Ave NE


Redistribute based on location of driveways


NE 132nd Street
NE 124th St


NE 132nd Street
124th Ave NE
100th Ave NE
NE 124th St
NE 116th St


NE 100th St
124th Ave NE
132nd Ave NE
6th St S
NE 80th St

Appendix F

Daily Trip Assignment Tables and Figures

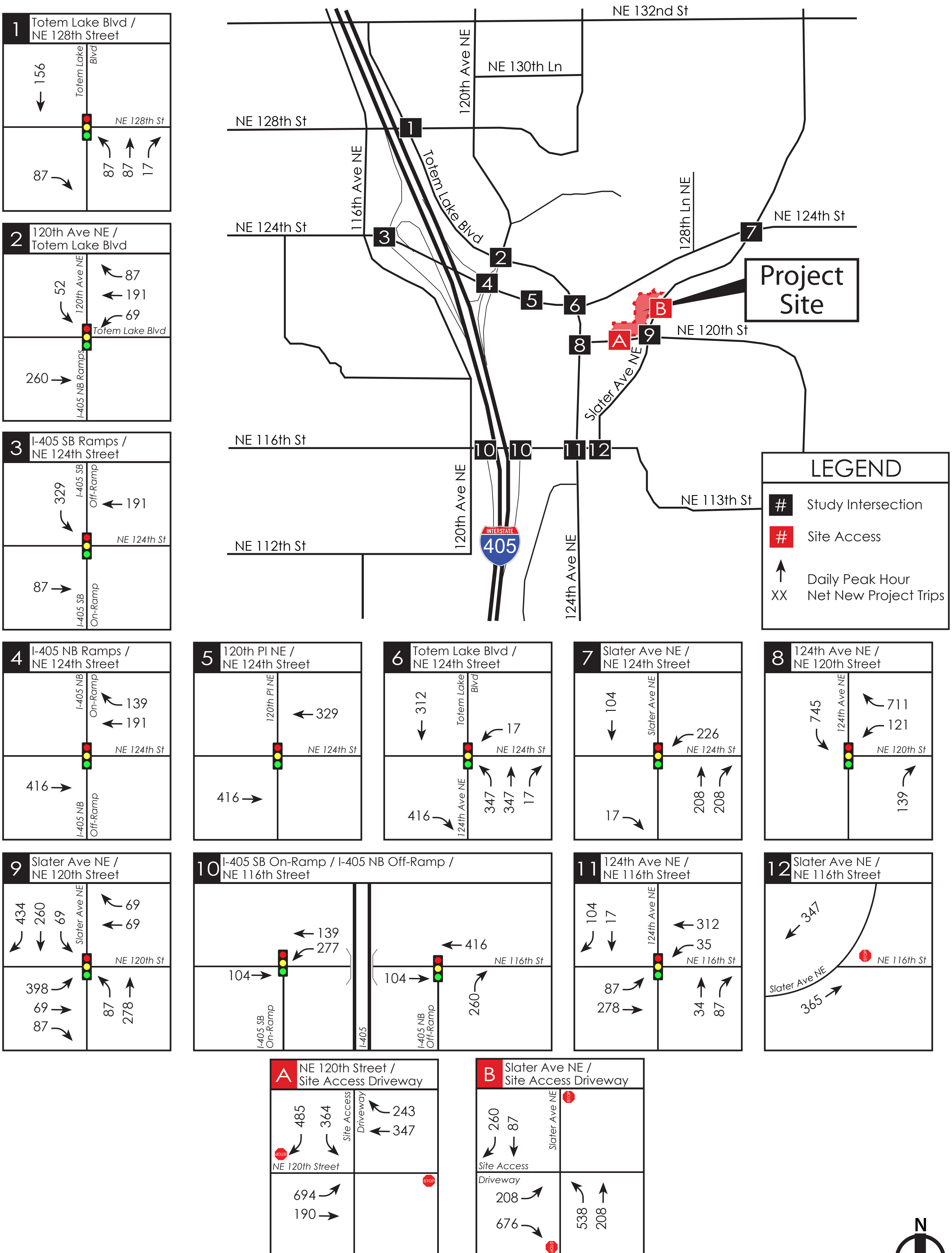
Slater Mixed-Use
PM and Daily Trip Assignment

	PM Peak Hour Trip Generation		Daily Trip Generation	
Residential	101 IN	71 OUT	1,212 IN	1,233 OUT
Retail (NET NEW)	40 IN	12 OUT	522 IN	501 OUT
Retail (NET)				
TOTAL	141 IN	83 OUT	1,734 IN	1,734 OUT

			Turning Volumes											
			Eastbound			Westbound			Northbound			Southbound		
Code	Study Int #	Intersection	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
314	9	*Slater Ave NE / NE 120th Street*	minor						major					
		PM Peak Hour Trips =	25	3	4		6	5	7	23		3	13	24
		Estimated Daily Trips =	398	69	87		69	69	87	278		69	260	434
323	12	*Slater Ave NE / NE 116th Street*	major						minor					
		PM Peak Hour Trips =	30											17
		Estimated Daily Trips =	365											347
311	11	*NE 116th St / 124th Ave NE*	minor						major					
		PM Peak Hour Trips =	8	23		2	15			3	7		1	5
		Estimated Daily Trips =	87	278		35	312			34	87		17	104
320	10	*I-405 NB off-ramp / NE 116th St*	major						minor					
		PM Peak Hour Trips =		9			20				22			
		Estimated Daily Trips =		104			416				260			
319	-	*I-405 SB on-ramp / NE 116th St*	major						minor					
		PM Peak Hour Trips =		9		13	7							
		Estimated Daily Trips =		104		277	139							
310	-	*120th Ave NE / NE 116th St*	major						minor					
		PM Peak Hour Trips =		4		1	2	2			3	1		
		Estimated Daily Trips =		52		35	52	52			34	17		
1000	8	*124th Ave NE / NE 120th St*	minor						major					
		PM Peak Hour Trips =				6		34			11	61		
		Estimated Daily Trips =				121		711			139	745		
315	6	*NE 124th Street / Totem Lake Blvd*	major						minor					
		PM Peak Hour Trips =			34	2			16	17	1		25	
		Estimated Daily Trips =			416	17			347	347	17		312	
325	-	*NE 124th St / 128th Ln NE*	major						minor					
		PM Peak Hour Trips =	1									1		1
		Estimated Daily Trips =	17									17		17
306	7	*NE 124th Street / Slater Ave NE*	major						minor					
		PM Peak Hour Trips =			1	18				10	10		9	
		Estimated Daily Trips =			17	226				208	208		104	
307	2	*Totem Lk Blvd / 120th Ave NE*	major						minor					
		PM Peak Hour Trips =		21		3	9	5				4		
		Estimated Daily Trips =		260		69	191	87				52		
2000	1	*Totem Lk Blvd / NE 128th St*	major						minor					
		PM Peak Hour Trips =		0	7				4	4	1		14	
		Estimated Daily Trips =		0	87				87	87	17		156	
303	-	*120th Ave NE / NE 128th St*	minor						major					
		PM Peak Hour Trips =	1			1				1	1		1	
		Estimated Daily Trips =	17			17				35	17		17	
309	-	*NE 118th St / 120th Ave NE*	minor						major					
		PM Peak Hour Trips =			1				1	1				
		Estimated Daily Trips =			17				17	35				
404	-	*124th Ave NE / NE 100th St*	minor						major					
		PM Peak Hour Trips =								8			1	
		Estimated Daily Trips =								104			35	
417	-	*132nd Ave NE / NE 100th St*	minor						major					
		PM Peak Hour Trips =								10			6	
		Estimated Daily Trips =								122			121	
A		*NE 120th Street / Site Access*	major						minor					
		PM Peak Hour Trips =	56	15			16	12				18		23
		Estimated Daily Trips =	694	190			347	243				364		485
B		*Slater Ave NE / Site Access*	minor						major					
		PM Peak Hour Trips =	10		33				43	10			7	21
		Estimated Daily Trips =	208		676				538	208			87	260
308	5	*NE 124th St / 120th Pl NE*	major						minor					
		PM Peak Hour Trips =		34			16							
		Estimated Daily Trips =		416			329							
312		*NE 124th St / 116th Ave NE*	major						minor					
		PM Peak Hour Trips =		7			6	3		1				
		Estimated Daily Trips =		87			121	69		17				
317	3	*NE 124th St / I-405 SB Off-Ramp*	major						minor					
		PM Peak Hour Trips =		7			9					27		
		Estimated Daily Trips =		87			191					329		
318	4	*NE 124th St / I-405 NB Off-Ramp*	major						minor					
		PM Peak Hour Trips =		34			9	7						
		Estimated Daily Trips =		416			191	139						

Slater Mixed-Use
Distribution Based on COK Model Plots

Code	Intersection		Trip Distribution											
			Eastbound			Westbound			Northbound			Southbound		
			LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
314	*Slater Ave NE / NE 120th Street*		minor						major					
		Residential	23%	4%	5%		4%	4%	5%	16%		4%	15%	25%
		Retail	23%	4%	5%		4%	4%	5%	16%		4%	15%	25%
323	*Slater Ave NE / NE 116th Street*		major						minor					
		Residential	21%											20%
		Retail	21%											20%
311	*NE 116th St / 124th Ave NE*		minor						major					
		Residential	5%	16%		2%	18%			2%	5%		1%	6%
		Retail	5%	16%		2%	18%			2%	5%		1%	6%
320	*I-405 NB off-ramp / NE 116th St*		major						minor					
		Residential		6%			24%				15%			
		Retail		6%			24%				15%			
319	*I-405 SB on-ramp / NE 116th St*		major						minor					
		Residential		6%		16%	8%							
		Retail		6%		16%	8%							
310	*120th Ave NE / NE 116th St*		major						minor					
		Residential		3%		2%	3%	3%			2%	1%		
		Retail		3%		2%	3%	3%			2%	1%		
1000	*124th Ave NE / NE 120th St*		minor						major					
		Residential				7%		41%			8%	43%		
		Retail				7%		41%			8%	43%		
315	*NE 124th Street / Totem Lake Blvd*		major						minor					
		Residential			24%	1%			20%	20%	1%		18%	
		Retail			24%	1%			20%	20%	1%		18%	
325	*NE 124th St / 128th Ln NE*		major						minor					
		Residential	1%									1%		1%
		Retail	1%									1%		1%
306	*NE 124th Street / Slater Ave NE*		major						minor					
		Residential			1%	13%				12%	12%		6%	
		Retail			1%	13%				12%	12%		6%	
307	*Totem Lk Blvd / 120th Ave NE*		major						minor					
		Residential		15%		4%	11%	5%				3%		
		Retail		15%		4%	11%	5%				3%		
2000	*Totem Lk Blvd / NE 128th St*		major						minor					
		Residential		0%	5%				5%	5%	1%		9%	
		Retail		0%	5%				5%	5%	1%		9%	
303	*120th Ave NE / NE 128th St*		minor						major					
		Residential	1%			1%				2%	1%		1%	
		Retail	1%			1%				2%	1%		1%	
309	*NE 118th St / 120th Ave NE*		minor						major					
		Residential			1%				1%	2%				
		Retail			1%				1%	2%				
404	*124th Ave NE / NE 100th St*		minor						major					
		Residential								6%			2%	
		Retail								6%			2%	
417	*132nd Ave NE / NE 100th St*		minor						major					
		Residential								7%			7%	
		Retail								7%			7%	
A	*NE 120th Street / Site Access*		major						minor					
		Residential	40%	11%			20%	14%				21%		28%
		Retail	40%	11%			20%	14%				21%		28%
B	*Slater Ave NE / Site Access*		minor						major					
		Residential	12%		39%				31%	12%			5%	15%
		Retail	12%		39%				31%	12%			5%	15%
308	*NE 124th St / 120th Pl NE*		major						minor					
		Residential		24%			19%							
		Retail		24%			19%							
312	NE 124th St / 116th Ave NE		major						minor					
		Residential		5%			7%	4%		1%				
		Retail		5%			7%	4%		1%				
317	NE 124th St / I-405 SB Off-Ramp		major						minor					
		Residential		5%			11%					19%		
		Retail		5%			11%					19%		
318	NE 124th St / I-405 NB Off-Ramp		major						minor					
		Residential		24%			11%	8%						
		Retail		24%			11%	8%						



Appendix F: Weekday Daily Project Trip Assignment

Appendix G

Level of Service (LOS) and Queue Worksheets at Site Access

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	492	3	5	190	31	2	0	0	40	0	48
Future Volume (vph)	51	492	3	5	190	31	2	0	0	40	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			0%			0%			0%	
Storage Length (ft)	50		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		509			365			78			100	
Travel Time (s)		9.9			7.1			2.1			2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	3%	3%	3%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	492	3	5	190	31	2	0	0	40	0	48
Future Vol, veh/h	51	492	3	5	190	31	2	0	0	40	0	48
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	2	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	3	3	3
Mvmt Flow	55	535	3	5	207	34	2	0	0	43	0	52

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	241	0	0	538	0	0	907	898	537	881	882	224
Stage 1	-	-	-	-	-	-	647	647	-	234	234	-
Stage 2	-	-	-	-	-	-	260	251	-	647	648	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.1	6.5	6.2	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.5	4	3.3	3.527	4.027	3.327
Pot Cap-1 Maneuver	1320	-	-	1025	-	-	259	281	548	266	284	813
Stage 1	-	-	-	-	-	-	463	470	-	767	709	-
Stage 2	-	-	-	-	-	-	749	703	-	458	464	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1320	-	-	1025	-	-	234	268	548	257	271	813
Mov Cap-2 Maneuver	-	-	-	-	-	-	340	357	-	352	358	-
Stage 1	-	-	-	-	-	-	444	450	-	735	705	-
Stage 2	-	-	-	-	-	-	698	699	-	439	445	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.7	0.2	15.7	13.7
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	340	1320	-	-	1025	-	-	510
HCM Lane V/C Ratio	0.006	0.042	-	-	0.005	-	-	0.188
HCM Control Delay (s)	15.7	7.8	-	-	8.5	-	-	13.7
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	0	69	5	0	5	32	481	1	1	935	26
Future Volume (vph)	22	0	69	5	0	5	32	481	1	1	935	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		86			98			343			1271	
Travel Time (s)		2.3			2.7			6.7			24.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	22	0	69	5	0	5	32	481	1	1	935	26
Future Vol, veh/h	22	0	69	5	0	5	32	481	1	1	935	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	0	0	0	3	3	3	3	3	3
Mvmt Flow	24	0	75	5	0	5	35	523	1	1	1016	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1628	1626	1030	1664	1640	524	1044	0	0	524	0	0
Stage 1	1032	1032	-	594	594	-	-	-	-	-	-	-
Stage 2	596	594	-	1070	1046	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.1	6.5	6.2	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.5	4	3.3	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	81	102	282	78	101	557	662	-	-	1038	-	-
Stage 1	280	309	-	495	496	-	-	-	-	-	-	-
Stage 2	488	491	-	270	308	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	77	96	282	55	96	557	662	-	-	1038	-	-
Mov Cap-2 Maneuver	185	211	-	128	197	-	-	-	-	-	-	-
Stage 1	265	309	-	469	470	-	-	-	-	-	-	-
Stage 2	458	465	-	198	308	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	28.5	23.3	0.7	0
HCM LOS	D	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	662	-	-	250	208	1038	-	-
HCM Lane V/C Ratio	0.053	-	-	0.396	0.052	0.001	-	-
HCM Control Delay (s)	10.7	-	-	28.5	23.3	8.5	-	-
HCM Lane LOS	B	-	-	D	C	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.8	0.2	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	209	4	1	402	30	6	0	2	34	0	40
Future Volume (vph)	63	209	4	1	402	30	6	0	2	34	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			0%			0%			0%	
Storage Length (ft)	50		0	50		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		35			35			30			30	
Link Distance (ft)		448			425			88			68	
Travel Time (s)		8.7			8.3			2.0			1.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	3%	3%	3%
Shared Lane Traffic (%)												
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	209	4	1	402	30	6	0	2	34	0	40
Future Vol, veh/h	63	209	4	1	402	30	6	0	2	34	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	50	-	-	50	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	3	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	3	3	3
Mvmt Flow	68	227	4	1	437	33	7	0	2	37	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	470	0	0	231	0	0	842	837	229	822	823	454
Stage 1	-	-	-	-	-	-	365	365	-	456	456	-
Stage 2	-	-	-	-	-	-	477	472	-	366	367	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.1	6.5	6.2	7.13	6.53	6.23
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.5	4	3.3	3.527	4.027	3.327
Pot Cap-1 Maneuver	1086	-	-	1331	-	-	286	305	815	292	307	604
Stage 1	-	-	-	-	-	-	658	627	-	582	566	-
Stage 2	-	-	-	-	-	-	573	562	-	651	620	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1086	-	-	1331	-	-	253	285	815	277	287	604
Mov Cap-2 Maneuver	-	-	-	-	-	-	352	373	-	388	392	-
Stage 1	-	-	-	-	-	-	617	587	-	545	565	-
Stage 2	-	-	-	-	-	-	531	561	-	609	581	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.9	0	14	14
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	410	1086	-	-	1331	-	-	481
HCM Lane V/C Ratio	0.021	0.063	-	-	0.001	-	-	0.167
HCM Control Delay (s)	14	8.5	-	-	7.7	-	-	14
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	0.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	0	41	7	0	2	52	936	5	2	575	27
Future Volume (vph)	20	0	41	7	0	2	52	936	5	2	575	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	50		0
Storage Lanes	0		0	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		111			114			403			1274	
Travel Time (s)		2.5			2.6			9.2			24.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	3%	3%	3%	3%	3%	3%
Shared Lane Traffic (%)												
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	0	41	7	0	2	52	936	5	2	575	27
Future Vol, veh/h	20	0	41	7	0	2	52	936	5	2	575	27
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	0	0	0	3	3	3	3	3	3
Mvmt Flow	22	0	45	8	0	2	57	1017	5	2	625	29

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1779	1780	640	1800	1792	1020	654	0	0	1022	0	0
Stage 1	644	644	-	1134	1134	-	-	-	-	-	-	-
Stage 2	1135	1136	-	666	658	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.1	6.5	6.2	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.5	4	3.3	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	64	82	474	63	82	290	928	-	-	675	-	-
Stage 1	460	466	-	249	280	-	-	-	-	-	-	-
Stage 2	245	276	-	452	464	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	60	77	474	54	77	290	928	-	-	675	-	-
Mov Cap-2 Maneuver	160	183	-	152	179	-	-	-	-	-	-	-
Stage 1	432	465	-	234	263	-	-	-	-	-	-	-
Stage 2	228	259	-	408	463	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.2	27.5	0.5	0
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	928	-	-	288	170	675	-	-
HCM Lane V/C Ratio	0.061	-	-	0.23	0.058	0.003	-	-
HCM Control Delay (s)	9.1	-	-	21.2	27.5	10.4	-	-
HCM Lane LOS	A	-	-	C	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	0.2	0	-	-

Appendix H

Queue Calculation Worksheets at Study Intersections

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	31	232	398	502	723
v/c Ratio	0.26	0.50	0.16	0.57	0.24
Control Delay	63.8	8.5	6.6	5.8	2.1
Queue Delay	0.0	0.0	0.0	0.3	0.3
Total Delay	63.8	8.5	6.6	6.0	2.4
Queue Length 50th (ft)	28	0	42	67	46
Queue Length 95th (ft)	56	59	107	134	94
Internal Link Dist (ft)	429		1225		386
Turn Bay Length (ft)	250			150	
Base Capacity (vph)	262	506	2500	1037	3043
Starvation Cap Reductn	0	0	0	133	1625
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.12	0.46	0.16	0.56	0.51

Intersection Summary

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	518	74	280	32	582	502	549
v/c Ratio	0.14	1.23	0.50	0.57	0.09	1.01	1.22	0.58
Control Delay	38.9	172.9	50.1	53.9	18.9	90.5	160.5	30.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.9	172.9	50.1	53.9	18.9	90.5	160.5	30.3
Queue Length 50th (ft)	27	~699	56	250	14	~637	~597	406
Queue Length 95th (ft)	56	#973	98	360	33	#938	#871	571
Internal Link Dist (ft)		285		378		1164		263
Turn Bay Length (ft)	250		150		125		150	
Base Capacity (vph)	335	422	234	500	401	577	411	943
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	1.23	0.32	0.56	0.08	1.01	1.22	0.58

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	59	505	1005	252	619
v/c Ratio	0.44	0.95	0.44	0.40	0.20
Control Delay	69.7	65.6	13.3	8.0	1.8
Queue Delay	0.0	0.5	0.0	0.0	0.1
Total Delay	69.7	66.2	13.3	8.0	1.9
Queue Length 50th (ft)	53	328	234	33	20
Queue Length 95th (ft)	93	#481	306	m105	86
Internal Link Dist (ft)	368		1225		386
Turn Bay Length (ft)	250			150	
Base Capacity (vph)	287	529	2296	625	3161
Starvation Cap Reductn	0	0	0	0	1463
Spillback Cap Reductn	0	2	66	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.21	0.96	0.45	0.40	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	203	159	705	55	734	134	544
v/c Ratio	0.45	0.40	0.37	1.10	0.22	1.12	0.75	0.72
Control Delay	36.5	42.9	29.3	107.3	22.9	115.6	56.6	43.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.5	42.9	29.3	107.3	22.9	115.6	56.6	43.1
Queue Length 50th (ft)	36	149	94	~752	27	~820	79	443
Queue Length 95th (ft)	69	236	152	#1066	55	#1143	156	629
Internal Link Dist (ft)		345		378		1175		323
Turn Bay Length (ft)	250		150		125		150	
Base Capacity (vph)	225	589	446	642	331	653	223	753
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.34	0.36	1.10	0.17	1.12	0.60	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

CITY OF KIRKLAND

Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Tony Leavitt, Senior Planner

From: Thang Nguyen, Transportation Engineer

Date: July 12, 2021

Subject: Slater Mixed-Use Development, SEP20-00633

This memorandum summarizes staff's review of the transportation impact analysis (TIA) report for the proposed Slater Mixed-Use development.

Staff Findings

The proposed project will create significant SEPA traffic impacts that warrant off-site transportation mitigation. The off-site SEPA transportation mitigation measures listed in the Staff Recommendations section are required to mitigate the project transportation impacts and ensure that development driveway will not impact the traffic flow on Slater Avenue NE and NE 120th Street.

Staff Recommendations and SEPA mitigation

The project's transportation impacts will trigger significant SEPA impact that will require specific off-site transportation mitigations. Staff recommends approval of the proposed development with the condition that the applicant satisfies the following requirements:

1. The applicant shall modify the curb lane of the northbound leg of the intersection of Slater Avenue NE/NE 124th Street from a shared through-right lane channelization to an exclusive right-turn lane. In addition to modifying the lane assignment, the applicant shall make improvements and modifications to the traffic signal and other right-of-way improvements as required by the City to accommodate the new lane assignment. The details of the improvement shall be determined with the building permit.
2. The applicant shall improve the east leg of the intersection of Slater Ave NE/NE 120th Street which includes:
    a. Widen the east leg of the intersection to provide a westbound 200-foot left-turn lane (11 feet wide), 200-foot shared through and right turn lane (11 feet wide), and five-foot bike lane.
    b. From the 200-foot left-turn lane, provide a 120-foot taper to transition the lane to the existing lane width to the east.
    c. Provide a 5-foot bike lane on both sides of the street from the intersection to connect to the existing bike lanes further to the east.
    d. Construct a vertical curb to meet the City of Kirkland standard on the north side along the entire road widening improvement.

e. Provide lane markings in accordance to the City of Kirkland standards.
f. Relocate utilities as necessary to complete the improvements.
g. Construction plans must be submitted to public works staff for review and approval prior to construction.

The details of the improvement shall be determined with the building permit.

The applicant shall provide the plans for all off-site improvements as part of the building permit review for staff review and approval. The improvements must be completed prior to the approval of the final occupancy permit.

3. The applicant shall post a bond at final building permit issuance for two driveway/queuing operational studies, the construction of c-curb and signages to preclude left-turns at the driveway off Slater Avenue NE. The applicant shall submit a driveway queuing and safety analysis as described in the Project Driveway Level of Service section of this memorandum. If the c-curb is required as determined by the city transportation engineer, then the building owner shall install c-curb as defined by the city transportation engineer within 10 weeks of the city transportation engineer's decision.

Public Works Conditions

As part of subsequent development permits, the following conditions of approval are required for the proposed development to comply with Public Works standards and requirements:

- Pay transportation impact fee.
- All driveways into the parking lots must be 24 feet wide.
- Submit a sight distance analysis for the driveways to public works for review and approval with the building permit.

These conditions are required to meet the City's code requirements and regulations.

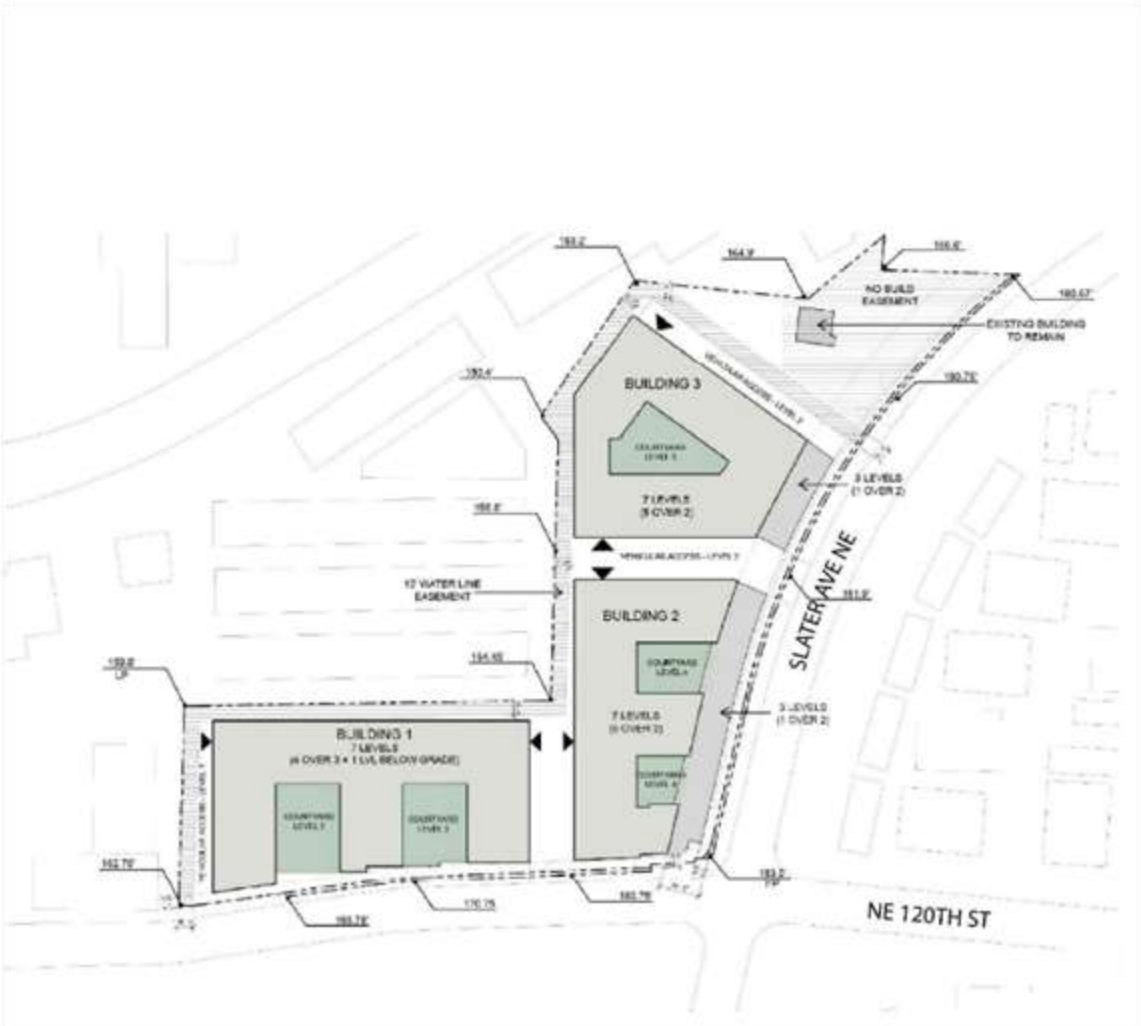
Project Description

The development is located on parcel 282605-9181 located at the northwest corner of the intersection of NE 120th Street/Slater Avenue NE. Access to the site will be from one driveway off NE 120th Street and one driveway off Slater Avenue NE. A second driveway of NE 120th Street will provide emergency access that will not be accessible by the general public. The applicant is proposing to redevelop an industrial site (consist of a 3,420 square foot warehouse and a 12,490 square foot general light industrial use) with 486 apartment units and 20,050 square feet of commercial retail space on the first floor. Figure 1 illustrates the preliminary site plan for the development.

Trip Generation

Based on the ITE Trip Generation Manual 10th Edition, the proposed project will generate a net new of 3,468 daily vehicle trips, 228 AM peak hour vehicle trips, 224 PM peak hour vehicle trips and 342 PM peak hour person trips. A more detailed trip generation calculation can be found in Appendix D of the April 2021 transportation impact analysis report prepared by TENW.

Figure 1. Preliminary Site Plan



TRAFFIC IMPACT ANALYSIS

The scope of analysis was approved by the City Transportation Engineer and the traffic report was completed in accordance with the City of Kirkland Traffic Impact Analysis Guidelines (TIAG). The traffic impact analysis report met the City of Kirkland Public Works general transportation scope of analysis.

The citywide trip distribution was determined by using the Bellevue-Kirkland-Redmond (BKR) traffic model.

The City's TIAG requires a level of service (LOS) analysis using the Highway Capacity Manual Operational Method for off-site intersections that have a proportionate share equal or greater than 1% and intersections that are adjacent to the project site. Based on the proportionate share calculations for the full build-out of the proposed project, twelve intersections will be impacted by more than 1%. Table 1 lists the intersections impacted by more than 1% of proportional impact.

Table 1. Impacted Intersection Analyzed

Study Intersection
Signalized:
1) Totem Lake Blvd / NE 128th Street
2) 120th Ave NE / Totem Lake Blvd
3) I-405 SB Off-Ramp / NE 124th Street
4) I-405 NB Off-Ramp / NE 124th Street
5) 120th Pl NE / NE 124th Street
6) Totem Lake Blvd / NE 124th Street
7) Slater Ave NE / NE 124th Street
8) 124th Ave NE / NE 120th Street
9) Slater Ave NE / NE 120th Street
10) I-405 NB Off-Ramp / I-405 SB On-Ramp / NE 116th St
11) 124th Ave NE / NE 116th Street
Two-Way Stop-Controlled:
12) Slater Ave NE / NE 116th Street

SEPA LOS Traffic Mitigation Threshold

The City requires developers to mitigate traffic impacts when one of the following two warranted conditions is met:

1. An intersection level of service is at E and the project has a proportional share of 15% impact or more at the intersection.
2. An intersection level of service is at F and the project has a proportional share of 5% impact or more at the intersection.

Off-site intersection LOS Analysis
Of the twelve intersections analyzed, five of them are calculated to operate at LOS E and F either in the AM peak hour, PM peak hour or both hours; Table 2 lists those intersections.

Table 2. Intersection with LOS E and F

Study Intersection	2025 With-Project LOS	Project Proportional Share	Improvements Required under SEPA?
AM PEAK HOUR			
7) Slater Ave NE / NE 124th Street	F	5.61%	YES
9) Slater Ave NE / NE 120th Street	F	9.18%	YES
PM PEAK HOUR			
3) I-405 SB Off-Ramp / NE 124th Street	E	3.75%	NO
6) Totem Lake Blvd / NE 124th Street	E	10.95%	NO
7) Slater Ave NE / NE 124th Street	F	5.61%	YES
9) Slater Ave NE / NE 120th Street	E	9.18%	NO
12) Slater Ave NE / NE 116th Street	E	4.20%	NO

Three of the five intersections in Table 2 are impacted by more than 5% proportional share; however, only two of them met the mitigation thresholds that trigger mitigation. Those two intersections are:

7) Slater Ave NE/NE 124th Street
9) Slater Ave NE/NE 120th Street

The intersection of Slater Avenue NE/NE 124th Street is forecasted to operate at LOS-F in the AM peak hour with 86 seconds of vehicle delay and LOS-F in the PM peak hour with 96.3 seconds of vehicle delay in 2025 without the proposed development. With the development, the intersection will continue to operate at LOS-F with increase vehicle delay (90.6 and 100.7 seconds of delay for the AM and PM peak hours, respectively). The intersection of Slater Avenue NE/NE 124th Street is fully built-out with limited right of way for widening. There is no physical widening improvement that can be done to the intersection to improve the intersection level of service to LOS-E that is feasible or would meet the City's transportation multi-modal goals and policies and without significant impacts to properties adjacent to the intersection. However, the applicant has identified and agree to improve the operation of the intersection and reduce the intersection vehicle delay by modifying the northbound curb lane from a shared through-right lane channelization to an exclusive right-turn lane. In addition to modifying the lane assignment, the applicant will make improvements and modifications to the traffic signal and other right-of-way improvements as required by the City to accommodate the new lane assignment.

Although the improvement will not improve the intersection level of service to the LOS-E, it mitigates the impact of the project trip at the intersection and reduces the vehicle delay to pre-2025 level. Therefore, staff believes that the proposed mitigation satisfies the intent of SEPA and provides the appropriate mitigation (nexus) between mitigating measures and vehicle delay at the intersection. Table 3 summarizes the improvement results.

Table 3. Slater Avenue NE/NE 124th Street LOS and Vehicle Delay Summary

Analysis Periods	Without Project	With Project	With Project with Mitigation
AM Peak	LOS-F (86 seconds)	LOS-F (90.6 seconds)	LOS-F (74.1 seconds)
PM Peak	LOS-F (96.3 seconds)	LOS-F (100.7 seconds)	LOS-F (93.4 seconds)

Slater Ave NE/NE 120th Street will operate at LOS F. The westbound leg of the intersection has limited queuing capacity. Because the short westbound left-turn lane does not provide adequate capacity, vehicles turning left often blocks the shared through and right turn lane and impacts the efficiency of the intersection. There are no planned capacity improvements for this intersection in the 6-year CIP. Staff has determined that if the length of the westbound left-turn and shared through and right turn lanes were to increase by 200 feet, it would relieve the bottle neck and provide more capacity for vehicle to flow through the intersection. The applicant has agreed to improve the east leg of the intersection of Slater Ave NE/NE 120th Street. The improvements would include:

1) Widen the east leg of the intersection to provide a westbound 200-foot left-turn lane (11 feet wide), 200-foot shared through and right turn lane (11 feet wide), and five-foot bike lane.
2) From the 200-foot left-turn lane, provide a 120-foot taper to transition the lane to the existing lane width to the east.
3) Provide a 5-foot bike lane on both sides of the street from the intersection to connect to the existing bike lanes further to the east.
4) Construct a vertical curb on the north side along the entire road widening improvement in accordance to the City of Kirkland standard.

Project Driveway Level of Service

The project driveways are forecasted to operate at LOS-D or better for both AM and PM peak hours, both levels of service are acceptable based on the City's LOS standards. This level of service does not reflect the impact of the southbound queue at the intersection of Slater Avenue NE/NE 120th Street to the operation of the driveway. Based on the traffic volumes on Slater Avenue NE, the southbound queue at the intersection of Slater Avenue NE/NE 120th Street will block the project driveway on Slater Avenue NE during the peak hours; when this occurs, vehicle wanting to turn left into the site from Slater Avenue NE will have to queue in the northbound travel lane and wait for a gap in the southbound traffic flow in order to make the left turn. If the driver has to wait significantly for a gap, they will create a queue in the northbound traffic flow that will back up into the Slater Avenue NE/NE 120th Street intersection. If this condition occurs, it will significantly impact the operation at the Slater Avenue NE/NE 120th Street intersection. To eliminate the impact, c-curb will need to be installed to eliminate left-turns into the driveway from Slater Avenue NE. Additional analysis is needed after the project site has been fully occupied and the traffic flow in the vicinity has normalized to determine if c-curb will need to be installed to preclude left-turns into the site.

Therefore, the development shall post a bond at final building permit issuance for two driveway/queuing operational studies and for the installation of c-curb and required signage to preclude left-turns at the driveway off Slater Avenue NE. All costs for the studies and the installation of c-curb and signage shall be the responsibilities of the development. If the City transportation engineer determines that the driveway is unsafe or that left-turns at the driveway creates backup that impacts the Slater Avenue NE/NE 120th Street intersection, then the applicant shall install c-curb and required signages to eliminate left-turns in and/or out of the driveway at Slater Avenue NE.

Once the development is at least 85% occupied, the building owner shall complete a driveway analysis during the AM and PM peak hour for the weekday when overall traffic is highest to determine if left turns at the driveway is impacting the Slater Avenue NE/NE 120th Street or creating a safety impact. The analysis shall include observing the queues and reviewing crash data at the driveway intersection. Since three years of crash data will not be available at the time of the initial analysis, and the traffic flow may not have completely normalized, a second analysis shall be completed three years from the initial analysis. Queuing and traffic volume data shall be collected for the AM and PM peak hour on Tuesday, Wednesday, Thursday and Friday. The scope of analysis and date of the data collection shall be approved by the city transportation engineer prior to data collection. The analysis shall be documented in a formal report to be submitted to the city transportation engineer for review within four weeks from the date of the data collection. The city transportation engineer shall create a Trans case to review the report. The city transportation engineer shall decide whether c-curb is required within six weeks of receiving the analysis report and review fee. If the c-curb is required, the building owner shall install c-curb as defined by the city transportation engineer within 10 weeks of the city transportation engineer's decision.

Site Access Operation

The applicant is working with public works staff on the frontage improvements and building design to provide adequate sight distances at the project's garage driveways. Furthermore, because the final grade of the driveway differs from the existing grade, it is not possible to measure the vertical sight distance for the project driveway until the driveway is constructed. Therefore, the safe sight distance measurements shall be completed and submitted to the City's transportation engineer for review and approval prior to the final approval of the building permit. If corrections are required to meet the City's preferred sight distance requirement, then it shall be completed prior to the building occupancy approval.

Traffic Safety
Two of the intersections analyzed for level of service have accident rates higher than normal or have accident patterns in the past three years that warrant further review. The two intersections are Totem Lake Blvd/NE 128th Street and 124th Ave NE/NE 116th Street.

Further review of the crash data for the intersection of Totem Lake Blvd/NE 128th Street reveals that the majority of the accidents are left-turn accidents. However, the number of accidents has decreased from 20 in 2017 to four in 2019. It appears that the issue with left-turn accidents have been mitigated. Further review of the crash data for the intersection of 124th Ave NE/NE 116th Street reveals that the majority of the accidents are left-turn accidents. This is due to the left-turn permissive signal phase that is currently operating at the intersection. The 124th Ave NE widening project (CIP Project# STC 0591300) will upgrade the traffic signal to replace the left-turn permissive phases with protected left-turn phases. It is anticipated that the improvement will eliminate or greatly reduce the left-turn accidents.

Transportation Impact Fee
Per City's Ordinance 3685, Transportation Impact Fee is required for all developments and are calculated based on the Transportation Impact Fee (TIF) Schedule, January 1, 2021 or the current TIF schedule at the time of the final building permit issuance. Transportation impact fees are used to construct transportation capacity improvements throughout the City to help the City maintain transportation concurrency. The final Transportation impact fee will be determined at final building permit issuance.

cc: John Burkhalter, Development Manager
Ryan Schauble, Senior Development Engineer

CITY OF KIRKLAND
Department of Public Works
123 Fifth Avenue, Kirkland, WA 98033 425.587.3800
www.kirklandwa.gov

MEMORANDUM

To: Tony Leavitt, Senior Planner

From: Thang Nguyen, Transportation Engineer

Date: September 28, 2020

Subject: Slater Mixed-Use Traffic Concurrency Test Notice, Tran20-00529

The purpose of this memo is to inform you that the proposed Slater mixed-use development has passed traffic concurrency.

Project Description

The development is located on parcel 282605-9181 located at the northwest corner of the intersection of NE 120th Street/Slater Avenue NE. Access to the site will be from one driveway off NE 120th Street and one driveway off Slater Avenue NE.

Trip Generation

Based on the ITE Trip Generation Manual 10th Edition, the proposed project will generate a net new of 3,466 daily vehicle trips, 228 AM peak hour vehicle trips, 224 PM peak hour vehicle trips and 342 PM peak hour person trips.

This memo will serve as the concurrency test notice for the proposed project. Per *Section 25.10.020 Procedures* of the KMC (Kirkland Municipal Code), this Concurrency Test Notice will expire in one year (September 28, 2021) unless a development permit and certificate of concurrency are issued, or an extension is granted.

EXPIRATION

The concurrency test notice shall expire and a new concurrency test application is required unless:

1. **A complete SEPA checklist, traffic impact analysis (TIA) and all required documentation are submitted to the City within 90 calendar days of the concurrency test notice (December 27, 2020).**

2. A Certificate of Concurrency is issued or an extension is requested and granted by the Public Works Department within one year of issuance of the concurrency test notice. (A Certificate of Concurrency is issued at the same time a development permit or building permit is issued if the applicant holds a valid concurrency test notice.)

3. A Certificate of Concurrency shall expire six years from the date of issuance of the concurrency test notice unless all building permits are issued for buildings approved under the concurrency test notice.

APPEALS

The concurrency test notice may be appealed by the public or agency with jurisdiction. The concurrency test notice is subject to an appeal until the SEPA review process is complete and the appeal deadline has passed. Concurrency appeals are heard before the Hearing Examiner along with any applicable SEPA appeal. For more information, refer to the Kirkland Municipal Code, Title 25. If you have any questions, please call me at x3869.

cc: Energov Tran20-00529
Amy Wasserman, TENW
Shon Finch, ALCO Totem Lake LLC

FRH REALTY LLC
Telephone (858) 457-2123
Facsimile (858) 457-3982

July 14, 2021

Mr. Tony Leavitt
Senior Planner
City of Kirkland
Department of Public Works
123 Fifth Avenue
Kirkland, WA 98033

RE: Traffic Impact Analysis Memorandum
Slater Mixed-Use Development, SEP20-00633

Dear Mr. Leavitt,
Fairfield is in receipt of the July 12, 2021 Traffic Impact Analysis Memorandum associated with the Slater Avenue Mixed-Use development. Staff recommendations and SEPA findings within the memorandum have been reviewed and are acceptable to Fairfield.

Please contact me if you have any questions or require additional information.

Sincerely,

Shon E. Finch
Development Manager
FRH Realty LLC

5355 Mira Sorrento Place, Suite 100 San Diego, California 92121

APPENDIX B

REMEDIAL EXCAVATION LABORATORY ANALYTICAL REPORTS

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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August 27, 2021

Corey League, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr League:

Included are the results from the testing of material submitted on August 25, 2021 from the SOU_1410-002_ 20210825, F&BI 108403 project. There are 31 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Levi Fernandes
SOU0827R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 25, 2021 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_1410-002_ 20210825, F&BI 108403 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
108403 -01	TP03-NSW01-07
108403 -02	TP03-NSW02-07
108403 -03	TP03-NSW03-07
108403 -04	TP03-WSW01-07
108403 -05	TP03-WSW02-07
108403 -06	TP03-ESW01-07
108403 -07	TP03-ESW02-07

The 8270E matrix spike and matrix spike duplicate exceeded the relative percent difference for several analytes. The analytes were not detected in the samples therefore the data were acceptable.

All other quality control requirements were acceptable.

Date of Report: 08/27/21
Date Received: 08/25/21
Project: SOU_1410-002_ 20210825, F&BI 108403
Date Extracted: 08/26/21
Date Analyzed: 08/26/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
TP03-NSW01-07 108403-01	<0.02	<0.02	<0.02	<0.06	<5	80
TP03-NSW02-07 108403-02	<0.02	<0.02	<0.02	<0.06	<5	80
TP03-NSW03-07 108403-03	<0.02	<0.02	<0.02	<0.06	<5	80
TP03-WSW01-07 108403-04	<0.02	<0.02	<0.02	<0.06	<5	79
TP03-WSW02-07 108403-05	<0.02	<0.02	<0.02	<0.06	<5	81
TP03-ESW01-07 108403-06	<0.02	<0.02	<0.02	<0.06	<5	85
TP03-ESW02-07 108403-07	<0.02	<0.02	<0.02	<0.06	<5	84
Method Blank 01-1911 MB	<0.02	<0.02	<0.02	<0.06	<5	80

Date of Report: 08/27/21
Date Received: 08/25/21
Project: SOU_1410-002_ 20210825, F&BI 108403
Date Extracted: 08/25/21
Date Analyzed: 08/25/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 56-165)
TP03-NSW01-07 108403-01	<50	<250	84
TP03-NSW02-07 108403-02	<50	<250	88
TP03-NSW03-07 108403-03	<50	<250	83
TP03-WSW01-07 108403-04	<50	<250	82
TP03-WSW02-07 108403-05	<50	<250	78
TP03-ESW01-07 108403-06	<50	<250	79
TP03-ESW02-07 108403-07	<50	<250	88
Method Blank 01-1984 MB	<50	<250	84

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-NSW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-01
Date Analyzed:	08/26/21	Data File:	108403-01.058
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.24
Barium	140
Cadmium	<1
Lead	5.44
Mercury	<1
Selenium	<1
Silver	<1

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-NSW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-01 x5
Date Analyzed:	08/26/21	Data File:	108403-01 x5.072
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	20.9

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-NSW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-02
Date Analyzed:	08/26/21	Data File:	108403-02.059
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.27
Barium	198
Cadmium	<1
Lead	5.68
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-NSW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-02 x5
Date Analyzed:	08/26/21	Data File:	108403-02 x5.073
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	20.0

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-NSW03-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-03
Date Analyzed:	08/26/21	Data File:	108403-03.060
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.52
Barium	141
Cadmium	<1
Lead	5.23
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-NSW03-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-03 x5
Date Analyzed:	08/26/21	Data File:	108403-03 x5.074
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	19.3

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-WSW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-04
Date Analyzed:	08/26/21	Data File:	108403-04.066
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	5.63
Barium	113
Cadmium	<1
Lead	5.28
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-WSW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-04 x5
Date Analyzed:	08/26/21	Data File:	108403-04 x5.075
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	32.6

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-WSW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-05
Date Analyzed:	08/26/21	Data File:	108403-05.067
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	3.80
Barium	71.1
Cadmium	<1
Lead	4.80
Mercury	<1
Selenium	<1
Silver	<1

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ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-WSW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-05 x5
Date Analyzed:	08/26/21	Data File:	108403-05 x5.076
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	44.4

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-ESW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-06
Date Analyzed:	08/26/21	Data File:	108403-06.068
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	6.11
Barium	118
Cadmium	<1
Lead	3.62
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-ESW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-06 x5
Date Analyzed:	08/26/21	Data File:	108403-06 x5.077
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	18.3

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-ESW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-07
Date Analyzed:	08/26/21	Data File:	108403-07.069
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	4.23
Barium	114
Cadmium	<1
Lead	4.58
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Total Metals By EPA Method 6020B

Client ID:	TP03-ESW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	108403-07 x5
Date Analyzed:	08/26/21	Data File:	108403-07 x5.078
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Chromium	27.0

Analysis For Total Metals By EPA Method 6020B

Client ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	NA	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/26/21	Lab ID:	I1-529 mb2
Date Analyzed:	08/26/21	Data File:	I1-529 mb2.057
Matrix:	Soil	Instrument:	ICPMS2
Units:	mg/kg (ppm) Dry Weight	Operator:	SP

Analyte:	Concentration mg/kg (ppm)
Arsenic	<1
Barium	<1
Cadmium	<1
Chromium	<1
Lead	<1
Mercury	<1
Selenium	<1
Silver	<1

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TP03-NSW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/25/21	Lab ID:	108403-01 1/5
Date Analyzed:	08/26/21	Data File:	082606.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	71	39	103
Phenol-d6	79	48	109
Nitrobenzene-d5	75	23	138
2-Fluorobiphenyl	76	50	150
2,4,6-Tribromophenol	78	40	127
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TP03-NSW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/25/21	Lab ID:	108403-02 1/5
Date Analyzed:	08/26/21	Data File:	082607.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	67	39	103
Phenol-d6	73	48	109
Nitrobenzene-d5	72	23	138
2-Fluorobiphenyl	75	50	150
2,4,6-Tribromophenol	77	40	127
Terphenyl-d14	82	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TP03-NSW03-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/25/21	Lab ID:	108403-03 1/5
Date Analyzed:	08/26/21	Data File:	082608.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	70	39	103
Phenol-d6	77	48	109
Nitrobenzene-d5	73	23	138
2-Fluorobiphenyl	76	50	150
2,4,6-Tribromophenol	82	40	127
Terphenyl-d14	81	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TP03-WSW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/25/21	Lab ID:	108403-04 1/5
Date Analyzed:	08/26/21	Data File:	082609.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	69	39	103
Phenol-d6	76	48	109
Nitrobenzene-d5	73	23	138
2-Fluorobiphenyl	79	50	150
2,4,6-Tribromophenol	80	40	127
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

FRIEDMAN & BRUYA, INC.

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Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TP03-WSW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/25/21	Lab ID:	108403-05 1/5
Date Analyzed:	08/26/21	Data File:	082610.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	65	39	103
Phenol-d6	72	48	109
Nitrobenzene-d5	69	23	138
2-Fluorobiphenyl	72	50	150
2,4,6-Tribromophenol	80	40	127
Terphenyl-d14	80	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TP03-ESW01-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/25/21	Lab ID:	108403-06 1/5
Date Analyzed:	08/26/21	Data File:	082611.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	68	39	103
Phenol-d6	75	48	109
Nitrobenzene-d5	69	23	138
2-Fluorobiphenyl	73	50	150
2,4,6-Tribromophenol	80	40	127
Terphenyl-d14	79	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	TP03-ESW02-07	Client:	SoundEarth Strategies
Date Received:	08/25/21	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/25/21	Lab ID:	108403-07 1/5
Date Analyzed:	08/26/21	Data File:	082612.D
Matrix:	Soil	Instrument:	GCMS12
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	65	39	103
Phenol-d6	72	48	109
Nitrobenzene-d5	67	23	138
2-Fluorobiphenyl	66	50	150
2,4,6-Tribromophenol	76	40	127
Terphenyl-d14	74	50	150

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

Analysis For Semivolatile Compounds By EPA Method 8270E

Client Sample ID:	Method Blank	Client:	SoundEarth Strategies
Date Received:	Not Applicable	Project:	SOU_1410-002_ 20210825
Date Extracted:	08/25/21	Lab ID:	01-1986 mb 1/5
Date Analyzed:	08/25/21	Data File:	082513.D
Matrix:	Soil	Instrument:	GCMS9
Units:	mg/kg (ppm) Dry Weight	Operator:	YA

Surrogates:	% Recovery:	Lower Limit:	Upper Limit:
2-Fluorophenol	86	24	111
Phenol-d6	90	37	116
Nitrobenzene-d5	89	38	117
2-Fluorobiphenyl	82	45	117
2,4,6-Tribromophenol	95	11	158
Terphenyl-d14	92	50	124

Compounds:	Concentration mg/kg (ppm)
Benz(a)anthracene	<0.01
Chrysene	<0.01
Benzo(a)pyrene	<0.01
Benzo(b)fluoranthene	<0.01
Benzo(k)fluoranthene	<0.01
Indeno(1,2,3-cd)pyrene	<0.01
Dibenz(a,h)anthracene	<0.01

Date of Report: 08/27/21
Date Received: 08/25/21
Project: SOU_1410-002_ 20210825, F&BI 108403

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 108403-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	91	66-121
Toluene	mg/kg (ppm)	0.5	93	72-128
Ethylbenzene	mg/kg (ppm)	0.5	94	69-132
Xylenes	mg/kg (ppm)	1.5	92	69-131
Gasoline	mg/kg (ppm)	20	100	61-153

Date of Report: 08/27/21
Date Received: 08/25/21
Project: SOU_1410-002_ 20210825, F&BI 108403

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 108385-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	99	98	63-146	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	102	79-144

Date of Report: 08/27/21
Date Received: 08/25/21
Project: SOU_1410-002_ 20210825, F&BI 108403

QUALITY ASSURANCE RESULTS
FOR THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL METALS USING EPA METHOD 6020B

Laboratory Code: 108380-01 x5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Arsenic	mg/kg (ppm)	10	<5	89	92	75-125	3
Barium	mg/kg (ppm)	50	30.1	96	97	75-125	1
Cadmium	mg/kg (ppm)	10	<5	95	96	75-125	1
Chromium	mg/kg (ppm)	50	14.7	93	92	75-125	1
Lead	mg/kg (ppm)	50	<5	95	96	75-125	1
Mercury	mg/kg (ppm	5	<5	97	97	75-125	0
Selenium	mg/kg (ppm)	5	<5	88	86	75-125	2
Silver	mg/kg (ppm)	10	<5	93	95	75-125	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Arsenic	mg/kg (ppm)	10	91	80-120
Barium	mg/kg (ppm)	50	96	80-120
Cadmium	mg/kg (ppm)	10	99	80-120
Chromium	mg/kg (ppm)	50	103	80-120
Lead	mg/kg (ppm)	50	97	80-120
Mercury	mg/kg (ppm)	5	102	80-120
Selenium	mg/kg (ppm)	5	98	80-120
Silver	mg/kg (ppm)	10	99	80-120

Date of Report: 08/27/21
Date Received: 08/25/21
Project: SOU_1410-002_ 20210825, F&BI 108403

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR SEMIVOLATILES BY EPA METHOD 8270E

Laboratory Code: 108357-02 1/5 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benz(a)anthracene	mg/kg (ppm)	0.83	0.064	87	111	50-150	24 vo
Chrysene	mg/kg (ppm)	0.83	0.063	86	109	50-150	24 vo
Benzo(a)pyrene	mg/kg (ppm)	0.83	0.081	88	113	50-150	25 vo
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	0.077	84	111	50-150	28 vo
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	0.032	89	98	50-150	10
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	0.053	89	93	41-134	4
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	0.011	89	87	44-130	2

Laboratory Code: Laboratory Control Sample 1/5

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benz(a)anthracene	mg/kg (ppm)	0.83	91	70-130
Chrysene	mg/kg (ppm)	0.83	90	70-130
Benzo(a)pyrene	mg/kg (ppm)	0.83	90	68-120
Benzo(b)fluoranthene	mg/kg (ppm)	0.83	89	69-125
Benzo(k)fluoranthene	mg/kg (ppm)	0.83	91	70-130
Indeno(1,2,3-cd)pyrene	mg/kg (ppm)	0.83	90	67-129
Dibenz(a,h)anthracene	mg/kg (ppm)	0.83	89	67-128

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

108403

SAMPLE CHAIN OF CUSTODY

ME 08/25/21 VS4/ BI2

Page # 1 of 1

Send Report to Corey League, Levi Fernandes

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature)	
PROJECT NAME/NO.	PO #
Slater Avenue Property	1410-002
REMARKS	
* If Dx detections contact PM and re-analyze with silica gel. Report both results.	

TURNAROUND TIME
Standard (2 Weeks)
RUSH 24-hour
Rush charges authorized by:

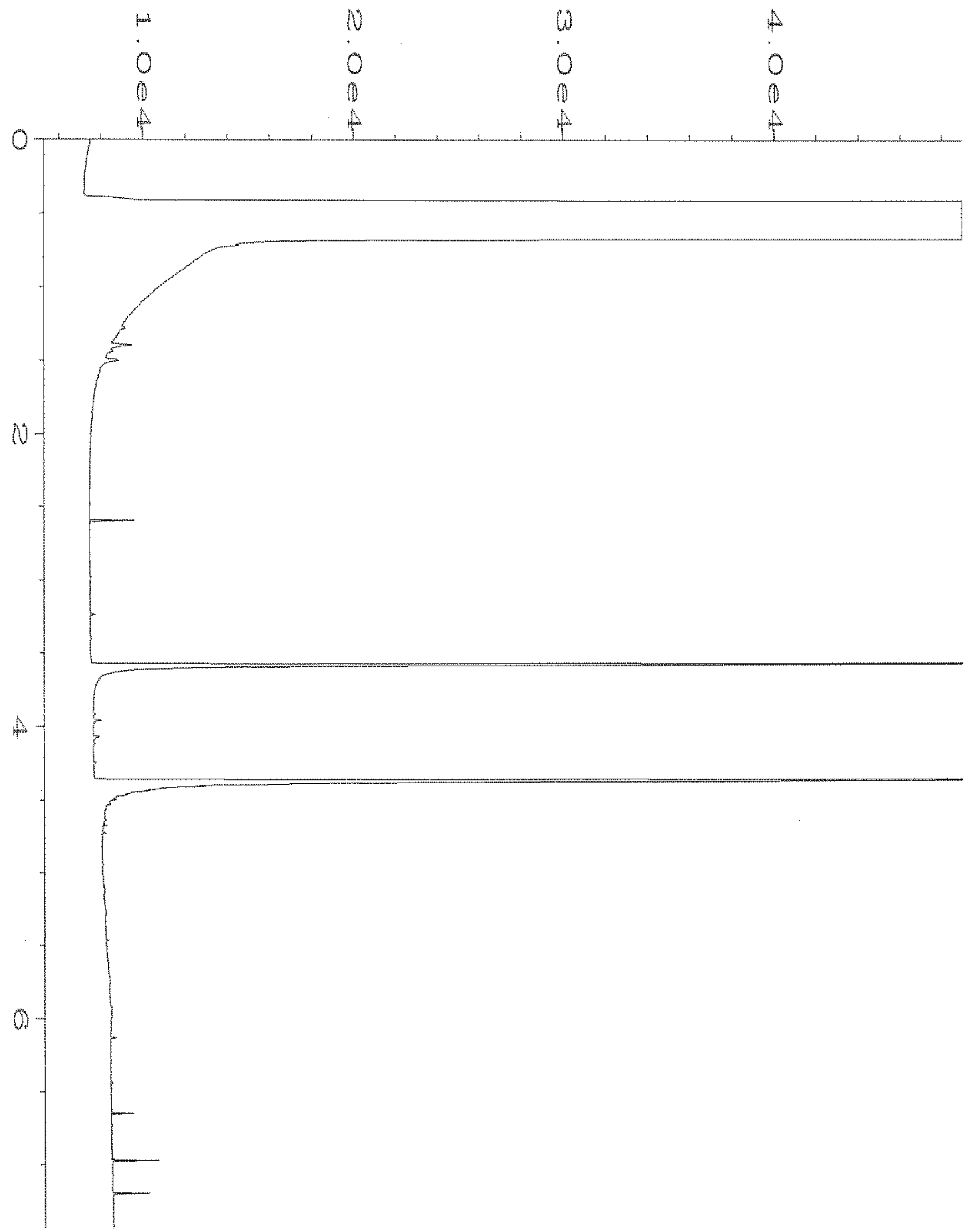
SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Dx with Silica Gel *	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	cPAHs ~~SVOCs~~ by 8270	RCRA 8 metals	Notes
TP03-NSW01-07	TP03	7	01 A-E	8/25/21	1310	Soil	5	X		X	X		X	X	
TP03-NSW02-07	TP03	7	02	8/25/21	1315			X		X	X		X	X	
TP03-NSW03-07	TP03	7	03	8/25/21	1325			X		X	X		X	X	
TP03-WSW01-07	TP03	7	04	8/25/21	1330			X		X	X		X	X	
TP03-WSW02-07	TP03	7	05	8/25/21	1335			X		X	X		X	X	
TP03-ESW01-07	TP03	7	06	8/25/21	1340			X		X	X		X	X	
TP03-ESW02-07	TP03	7	07	8/25/21	1345			X		X	X		X	X	
						CJT	8/25/21								Samples received at 5 °C

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Clare Tochilin	SoundEarth	8/25/21	1456
Received by:	Will Radford	F&BI	8/25/21	14:56
Relinquished by:				
Received by:				

FORMS\COC\COC.DOC



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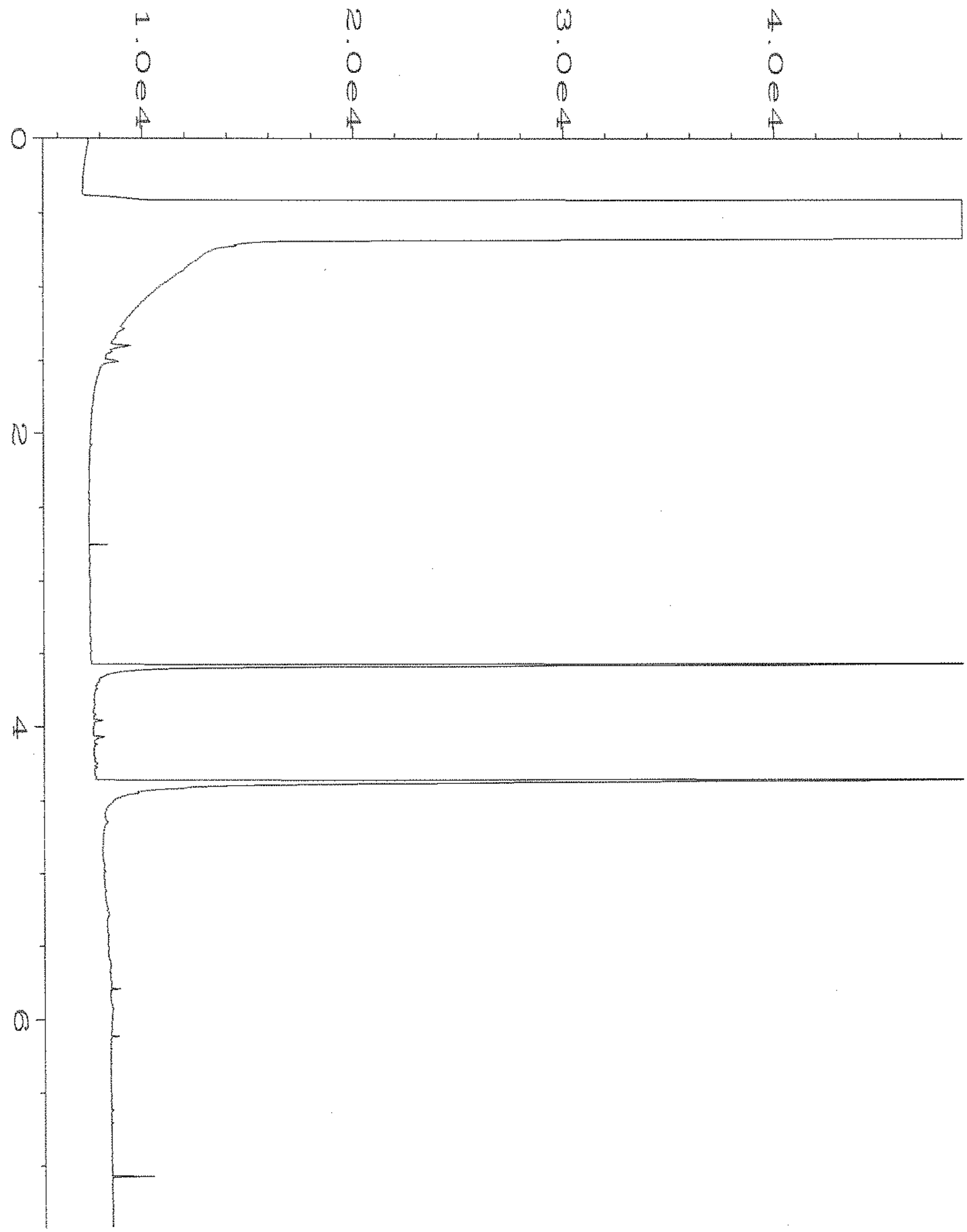
Operator : TL
Instrument : GC1
Sample Name : 108403-01
Run Time Bar Code:
Acquired on : 25 Aug 21 04:39 PM
Report Created on: 26 Aug 21 03:13 PM

Page Number : 1
Vial Number : 26
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX.MTH



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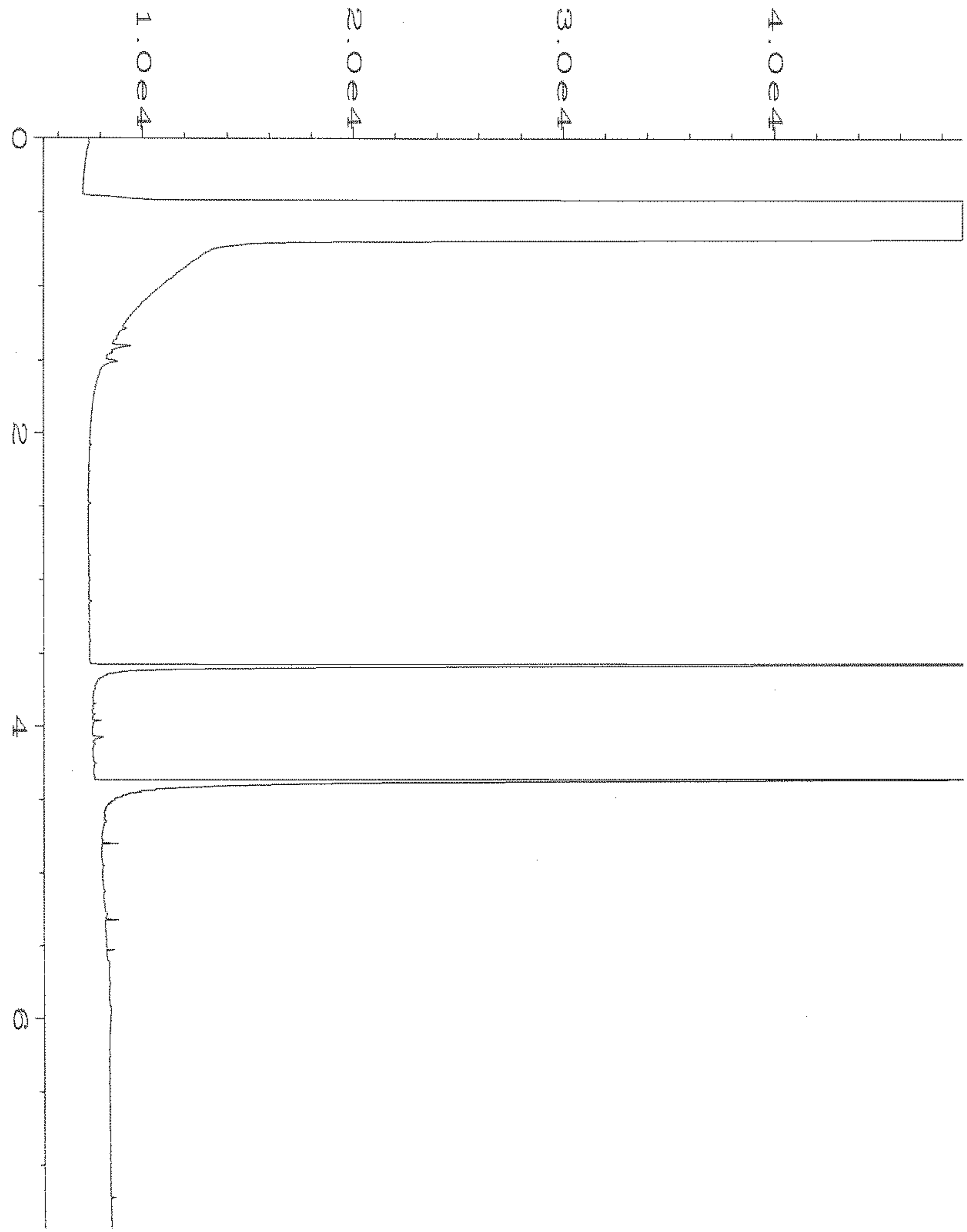
Operator : TL
Instrument : GC1
Sample Name : 108403-02
Run Time Bar Code:
Acquired on : 25 Aug 21 04:51 PM
Report Created on: 26 Aug 21 03:13 PM

Page Number : 1
Vial Number : 27
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX.MTH



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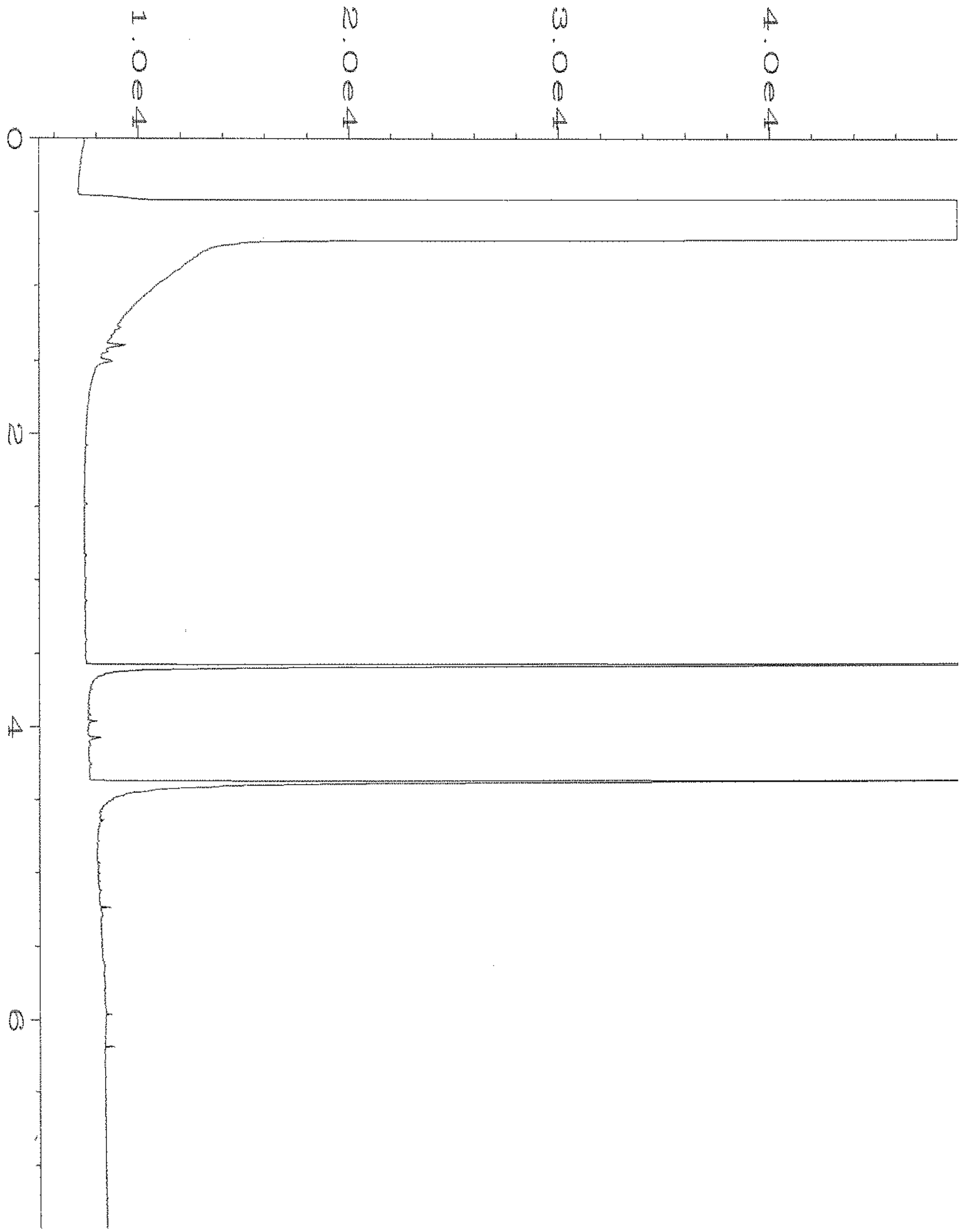
Operator : TL
Instrument : GC1
Sample Name : 108403-03
Run Time Bar Code:
Acquired on : 25 Aug 21 05:03 PM
Report Created on: 26 Aug 21 03:13 PM

Page Number : 1
Vial Number : 28
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX.MTH



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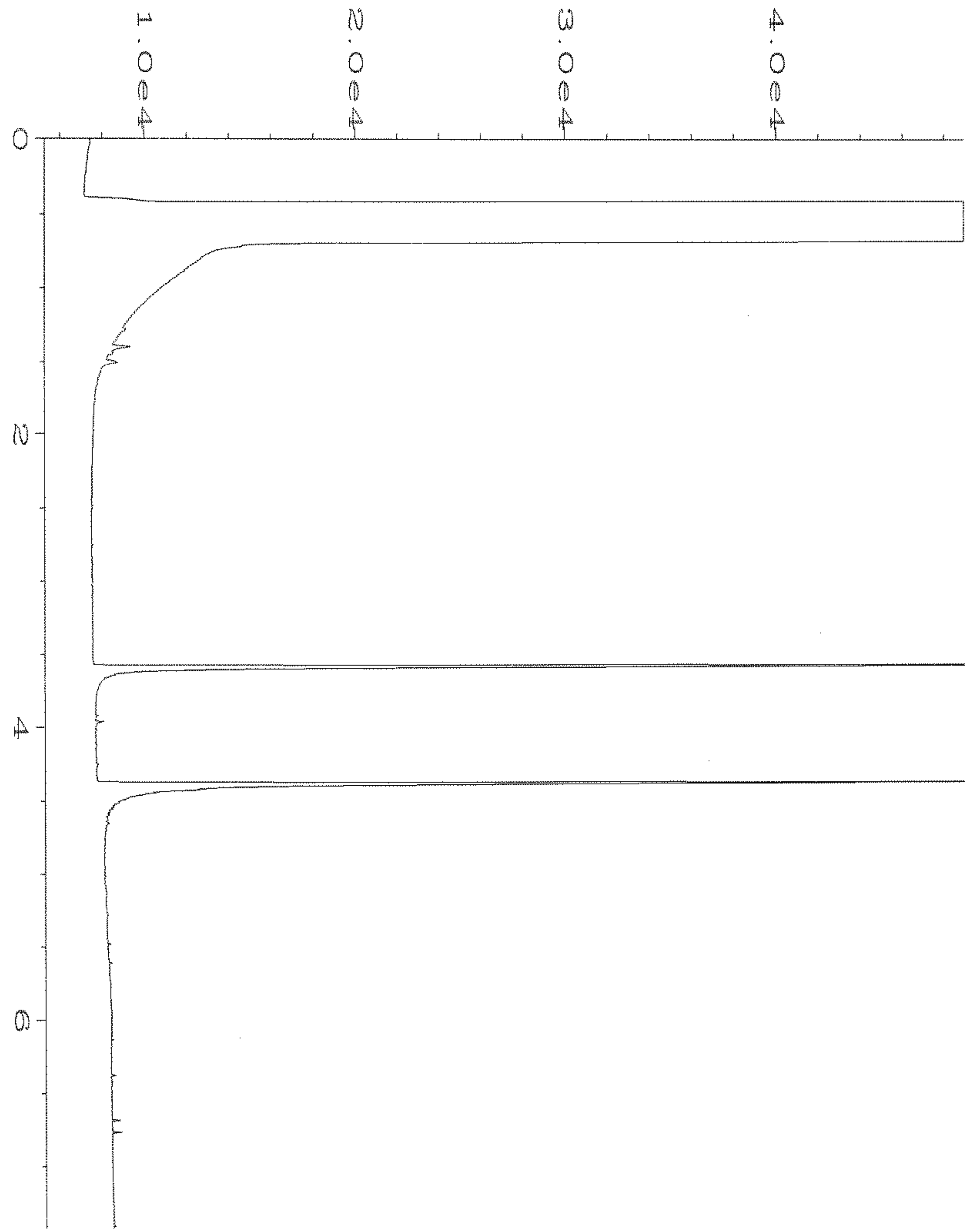
Operator : TL
Instrument : GC1
Sample Name : 108403-04
Run Time Bar Code:
Acquired on : 25 Aug 21 05:14 PM
Report Created on: 26 Aug 21 03:13 PM

Page Number : 1
Vial Number : 29
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX.MTH



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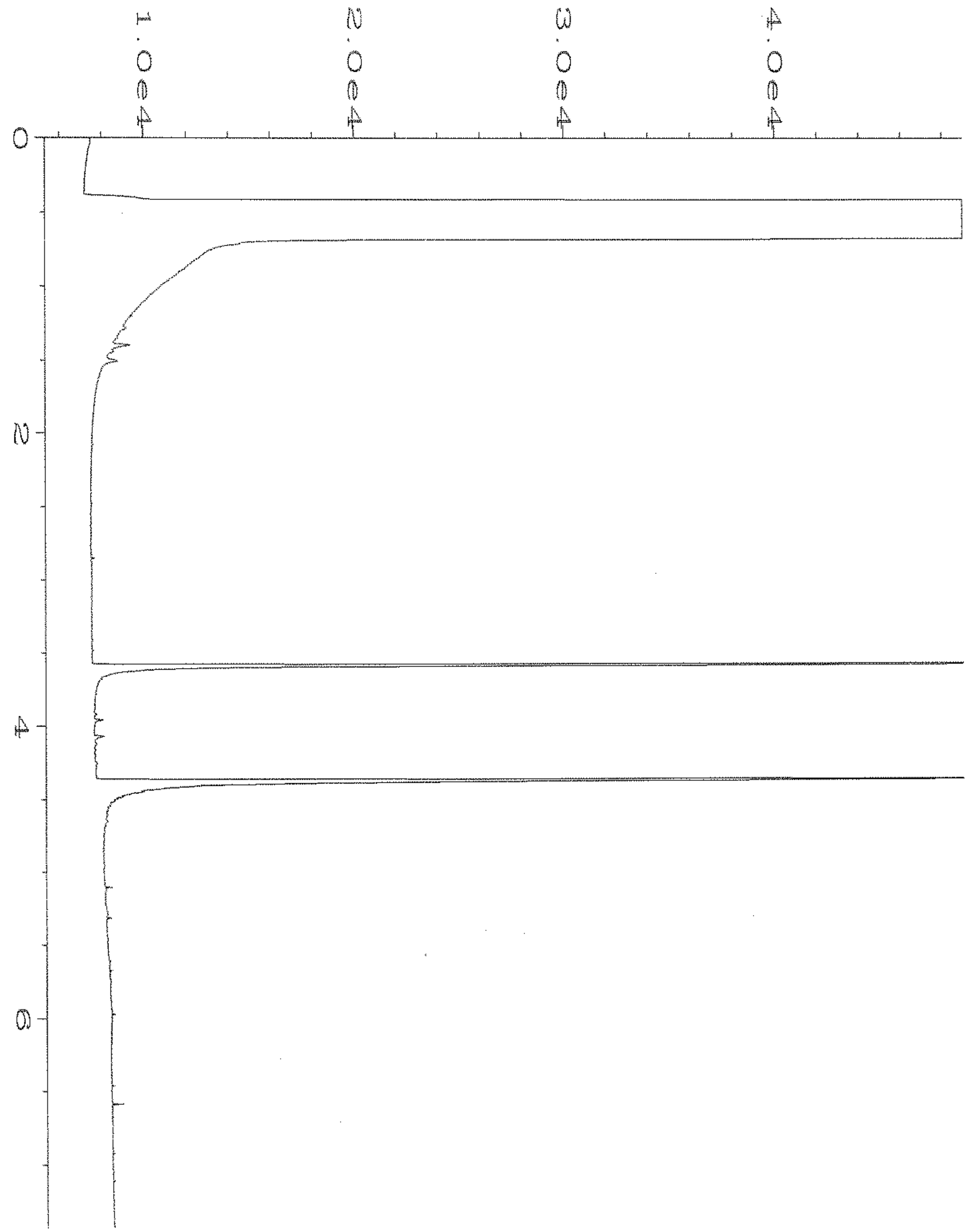
Operator : TL
Instrument : GC1
Sample Name : 108403-05
Run Time Bar Code:
Acquired on : 25 Aug 21 05:26 PM
Report Created on: 26 Aug 21 03:13 PM

Page Number : 1
Vial Number : 30
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX.MTH



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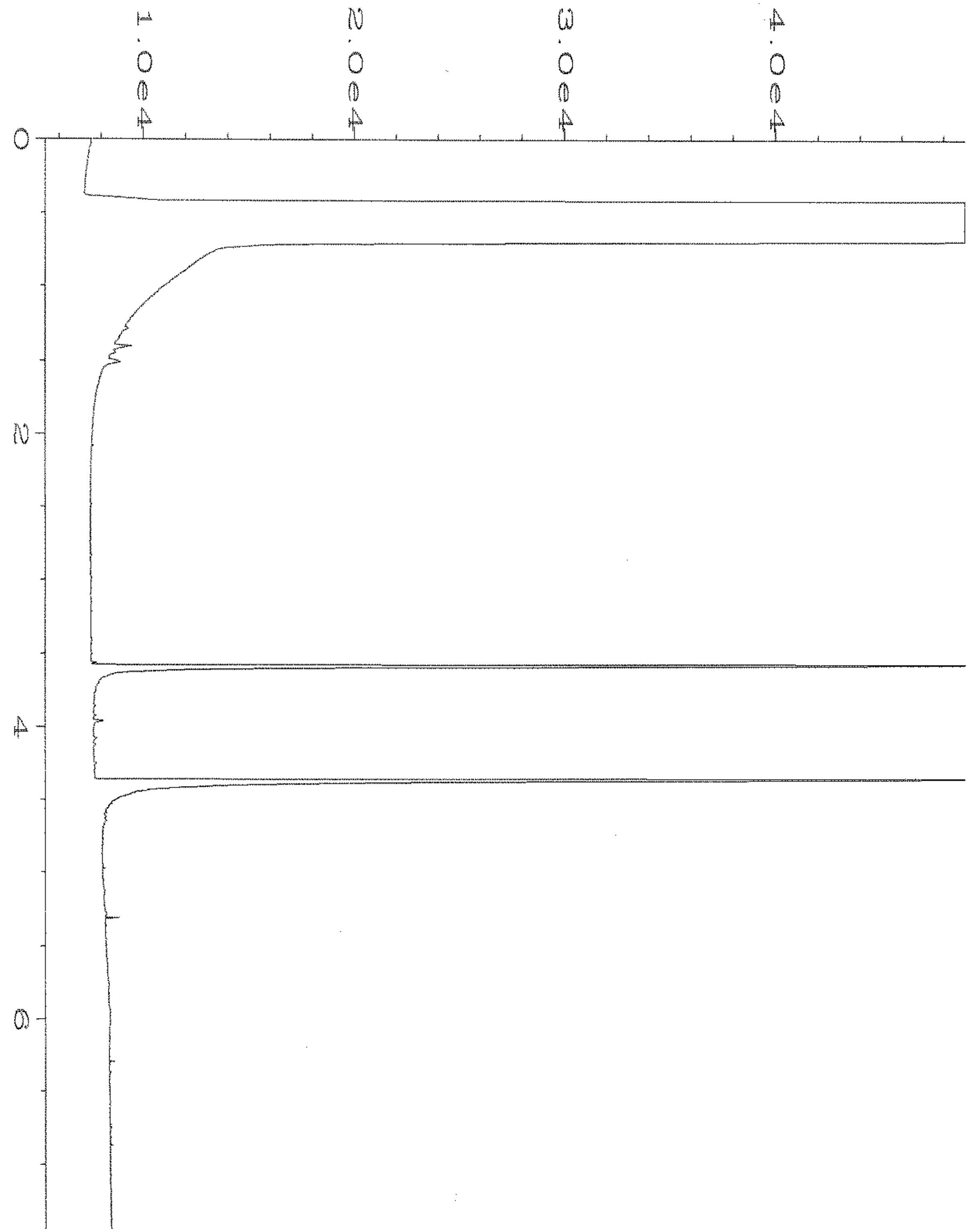
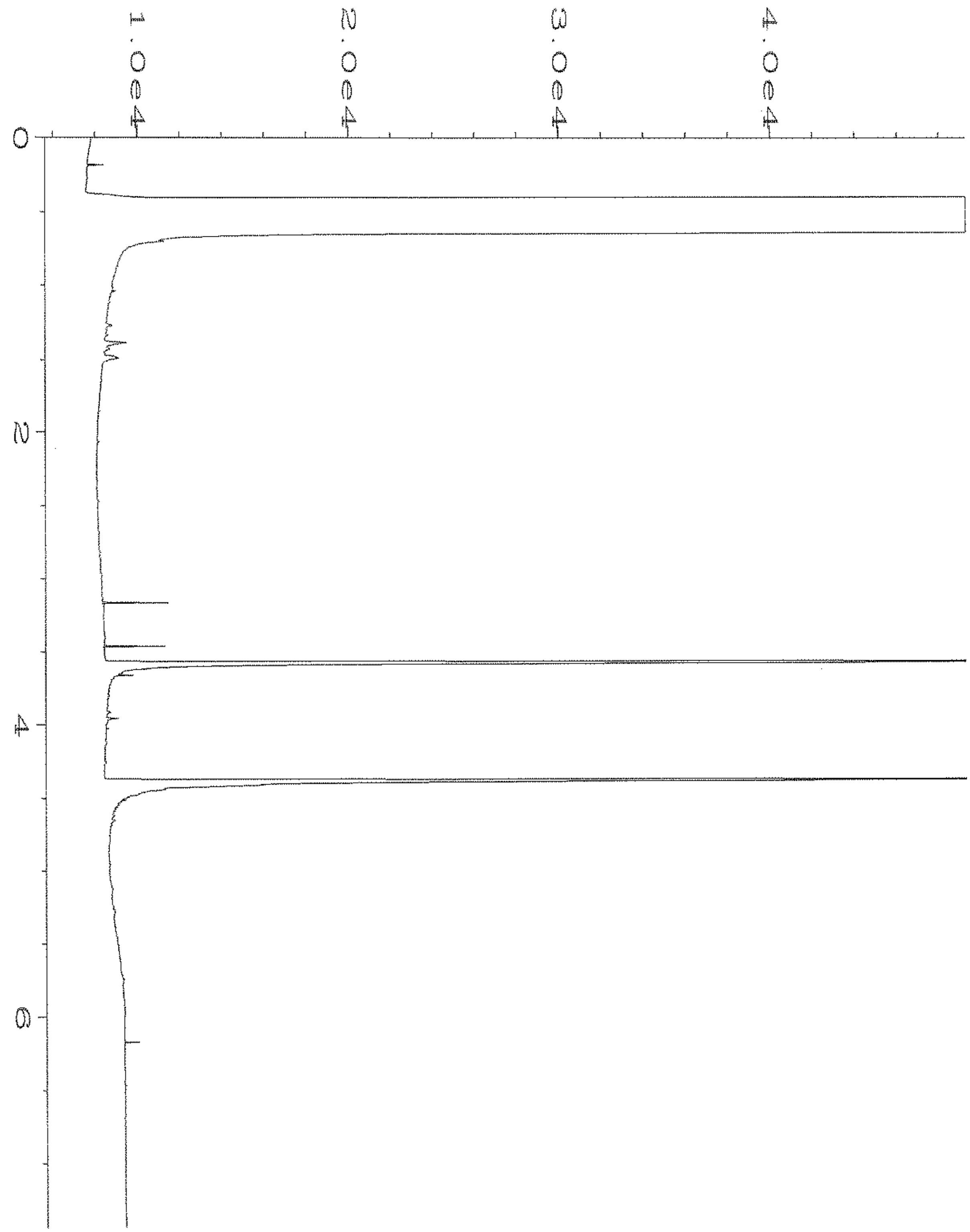
Operator : TL
Instrument : GC1
Sample Name : 108403-06
Run Time Bar Code:
Acquired on : 25 Aug 21 05:38 PM
Report Created on: 26 Aug 21 03:13 PM

Page Number : 1
Vial Number : 31
Injection Number : 1
Sequence Line : 9
Instrument Method: DX.MTH
Analysis Method : DX.MTH



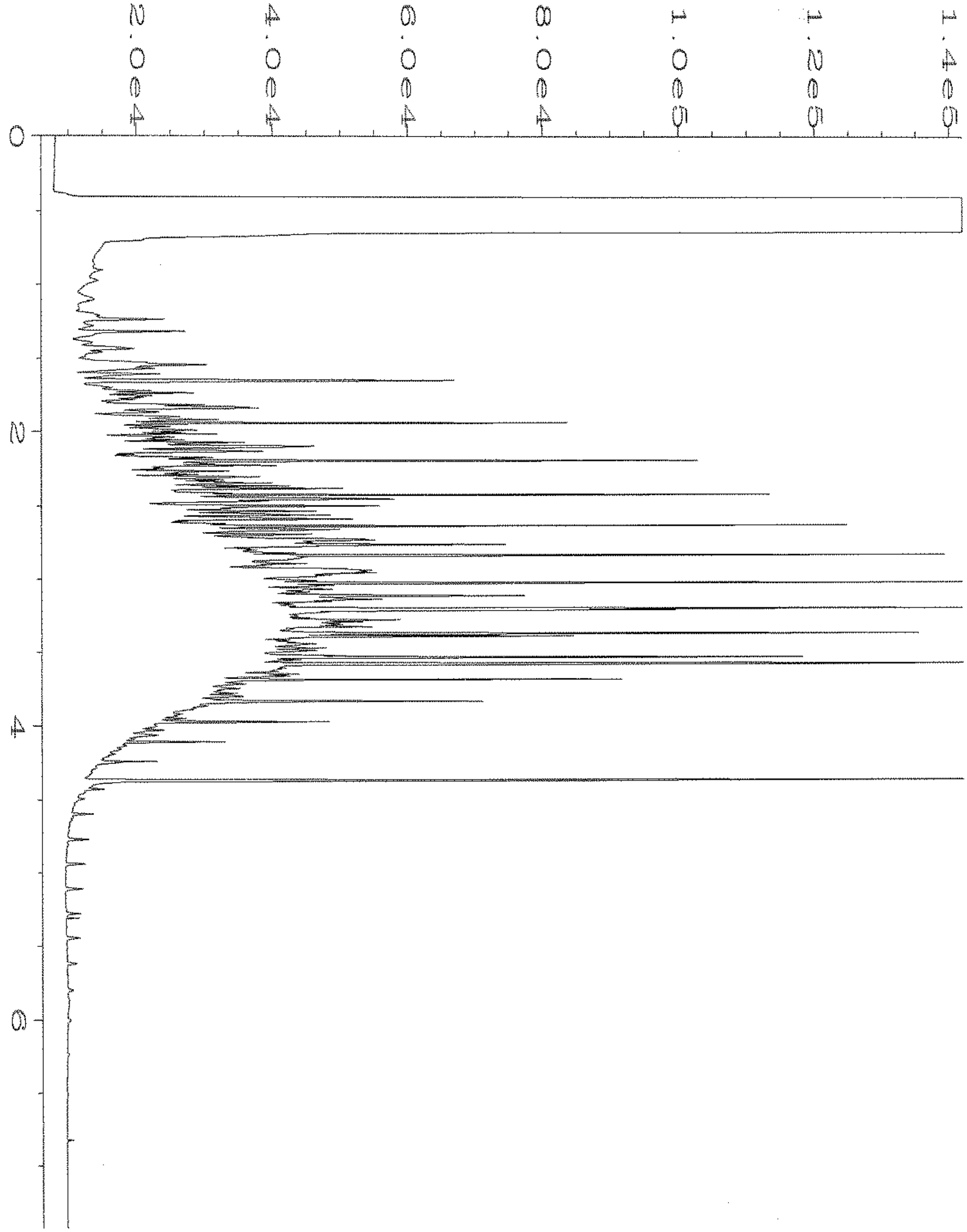
Data File Name   : C:\HPCHEM\1\DATA\08-25-21\032F0901.D
Operator   : TL
Instrument   : GC1
Sample Name   : 108403-07
Run Time Bar Code:
Acquired on   : 25 Aug 21   05:50 PM
Report Created on: 26 Aug 21   03:13 PM

Page Number   : 1
Vial Number   : 32
Injection Number : 1
Sequence Line   : 9
Instrument Method: DX.MTH
Analysis Method   : DX.MTH



Data File Name   : C:\HPCHEM\1\DATA\08-25-21\006F0301.D
Operator   : TL
Instrument   : GC1
Sample Name   : 01-1984 mb
Run Time Bar Code:
Acquired on   : 25 Aug 21   10:34 AM
Report Created on: 26 Aug 21   03:14 PM

Page Number   : 1
Vial Number   : 6
Injection Number : 1
Sequence Line   : 3
Instrument Method: DX.MTH
Analysis Method   : DX.MTH



Data File Name : C:\HPCHEM\1\DATA\08-25-21\003F0201.D
Operator : TL
Instrument : GC1
Sample Name : 500 Dx 63-79C
Run Time Bar Code:
Acquired on : 25 Aug 21 05:42 AM
Report Created on: 26 Aug 21 03:12 PM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DX.MTH

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 2, 2021

Corey League, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr League:

Included are the results from the testing of material submitted on August 30, 2021 from the SOU_1410-002_ 20210830, F&BI 108492 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Levi Fernandes
SOU0902R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 30, 2020 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_1410-002_ 20210830, F&BI 108492 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
108492 -01	Ex01-SSW02-05
108492 -02	Ex01-SSW02-02
108492 -03	Ex01-SSW03-05
108492 -04	Ex01-BTM02-09
108492 -05	Ex01-BTM03-09
108492 -06	Ex01-SSW01-05
108492 -07	Ex01-BTM01-10
108492 -08	Ex01-WSW01-05

All quality control requirements were acceptable.

Date of Report: 09/02/21
Date Received: 08/30/21
Project: SOU_1410-002_ 20210830, F&BI 108492
Date Extracted: 08/31/21
Date Analyzed: 08/31/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
Ex01-SSW02-05 108492-01	<0.02	<0.02	<0.02	<0.06	<5	95
Ex01-SSW02-02 108492-02	<0.02	<0.02	<0.02	<0.06	<5	81
Ex01-SSW03-05 108492-03	<0.02	<0.02	<0.02	<0.06	<5	92
Ex01-BTM02-09 108492-04	<0.02	<0.02	<0.02	<0.06	<5	94
Ex01-BTM03-09 108492-05	<0.02	<0.02	<0.02	<0.06	<5	92
Ex01-SSW01-05 108492-06	<0.02	<0.02	<0.02	<0.06	<5	79
Ex01-BTM01-10 108492-07	<0.02	<0.02	<0.02	<0.06	<5	91
Ex01-WSW01-05 108492-08	<0.02	<0.02	<0.02	<0.06	<5	94
Method Blank 01-1918 MB	<0.02	<0.02	<0.02	<0.06	<5	94

Date of Report: 09/02/21
Date Received: 08/30/21
Project: SOU_1410-002_ 20210830, F&BI 108492
Date Extracted: 08/31/21
Date Analyzed: 08/31/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
Ex01-SSW02-05 108492-01	<50	<250	90
Ex01-SSW02-02 108492-02	<50	<250	89
Ex01-SSW03-05 108492-03	<50	<250	91
Ex01-BTM02-09 108492-04	<50	<250	91
Ex01-BTM03-09 108492-05	<50	<250	98
Ex01-SSW01-05 108492-06	<50	<250	98
Ex01-BTM01-10 108492-07	<50	<250	95
Ex01-WSW01-05 108492-08	<50	<250	90
Method Blank 01-2045 MB	<50	<250	90

Date of Report: 09/02/21
Date Received: 08/30/21
Project: SOU_1410-002_ 20210830, F&BI 108492

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 108492-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	108	69-120
Toluene	mg/kg (ppm)	0.5	110	70-117
Ethylbenzene	mg/kg (ppm)	0.5	110	65-123
Xylenes	mg/kg (ppm)	1.5	113	66-120
Gasoline	mg/kg (ppm)	20	120	71-131

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 09/02/21
Date Received: 08/30/21
Project: SOU_1410-002_ 20210830, F&BI 108492

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 108492-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	97	99	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	102	58-147

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

108492

SAMPLE CHAIN OF COUSTODY

ME 08/30/21 D03/VS2

Send Report to Corey League, Levi Fernandes
Company SoundEarth Strategies, Inc.
Address 2811 Fairview Avenue E, Suite 2000
City, State, ZIP Seattle, Washington 98102
Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) Haley Mills

Page # 1 of 1

PROJECT NAME/NO.	PO #
Slater Avenue Property	1410-002

REMARKS
* If Dx detections contact PM and re-analyze with silica gel. Report both results.

TURNAROUND TIME
Standard (2 Weeks)
RUSH 24 hr
Rush charges authorized by:

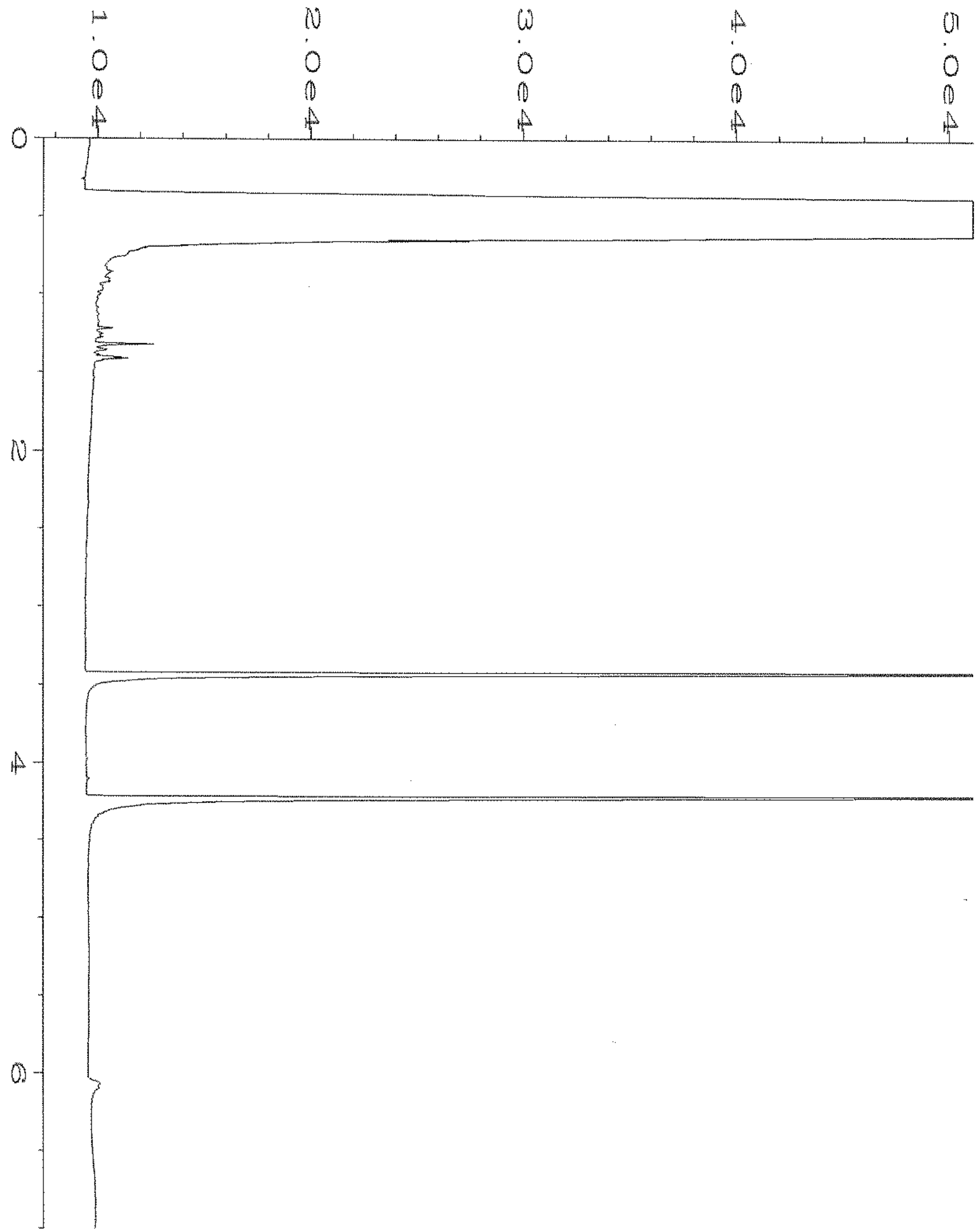
SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Dx with Silica Gel *	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270		Notes
EX01-SSW02-05	SW02	5 FT	01A-E	8/30/21	1500	soil	5	X		X	X				
EX01-SSW02-02	SSW02	2 FT	02		1505										
EX01-SSW03-05	SSW03	5 FT	03		1510										
EX01-BTM02-09	BTM02	9 FT	04		1520										
EX01-BTM03-09	BTM03	9 FT	05		1525										
EX01-SSW01-05	SSW01	5 FT	06		1530										
EX01-BTM01-10	BTM01	10 FT	07		1535										
EX01-WSW01-05	WSW01	5 FT	08		1540										
					HEM 8/30/21										

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: Haley Mills	Haley Mills	SES	8/30/21	1705
Received by: BT	Bisrat Tadesse	FBI	8/30/21	1705
Relinquished by:				
Received by:		Samples received at 4 °C		

FORMS\COC\COC.DOC

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Data File Name    : C:\HPCHEM\6\DATA\08-31-21\010F0301.D
Operator          : TL                                  Page Number      : 1
Instrument        : GC6                                 Vial Number      : 10
Sample Name       : 108492-01                           Injection Number : 1
Run Time Bar Code:                                      Sequence Line    : 3
Acquired on       : 31 Aug 21  08:59 AM                 Instrument Method: DX.MTH
Report Created on: 31 Aug 21  02:24 PM                  Analysis Method  : DEFAULT.MTH
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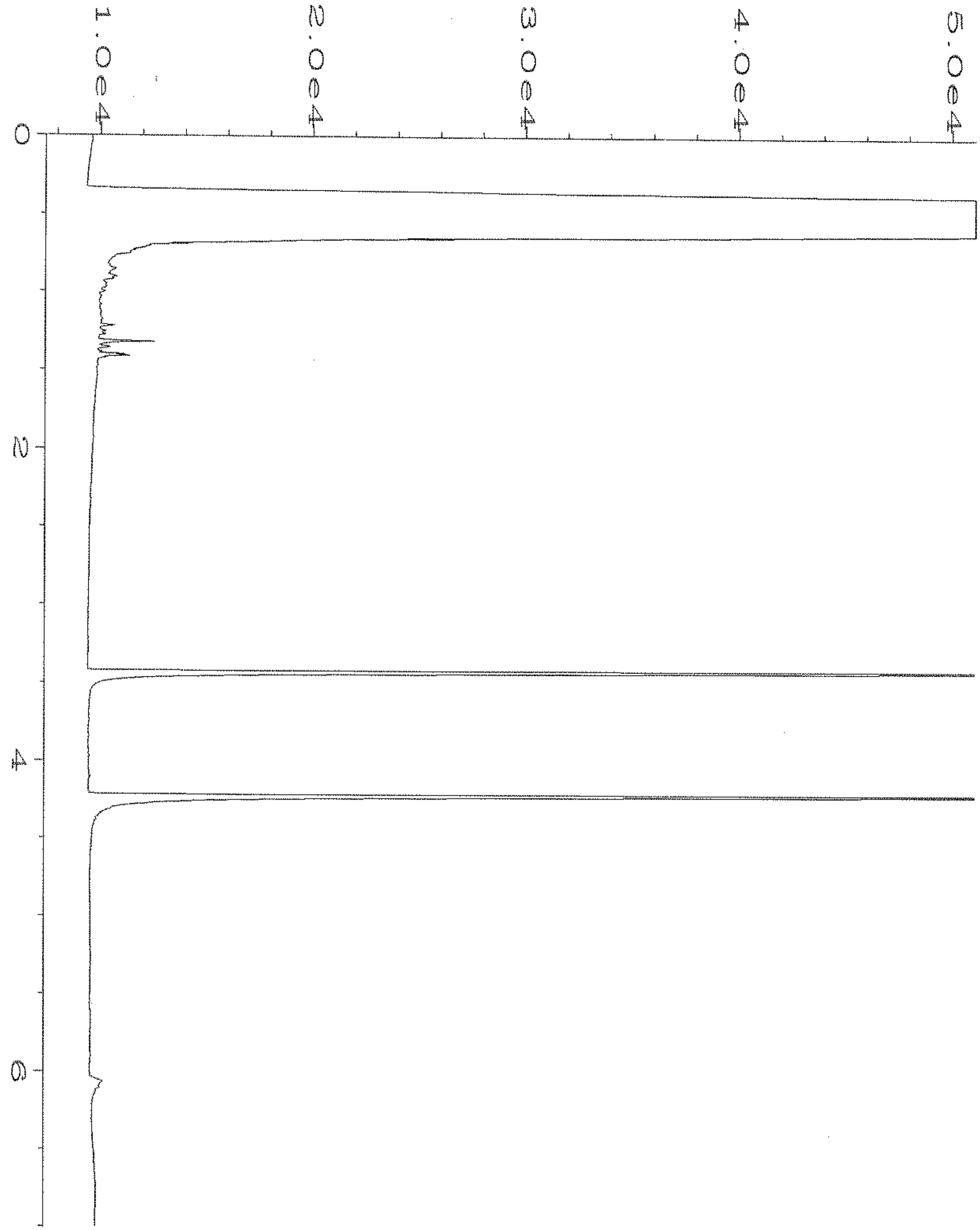
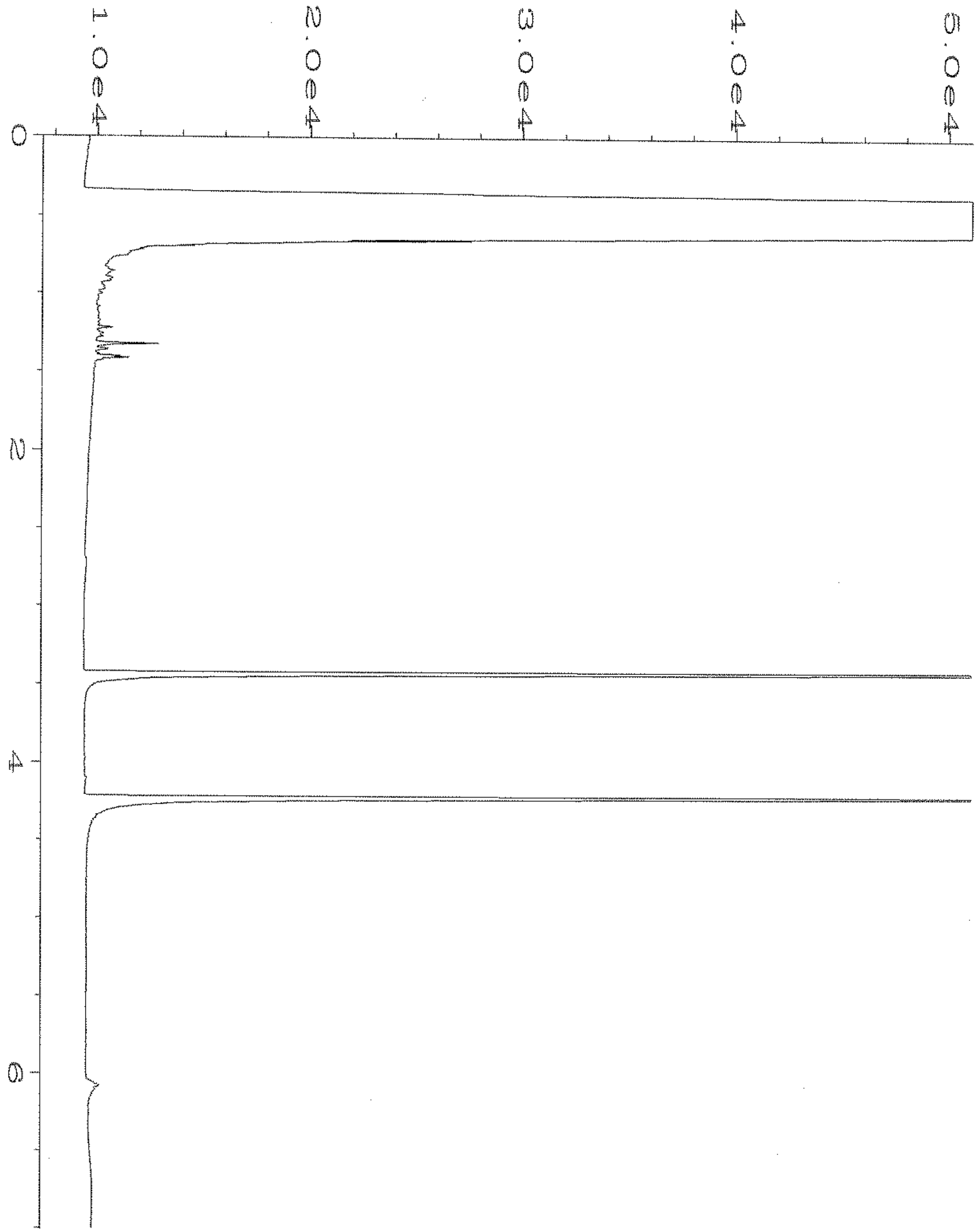
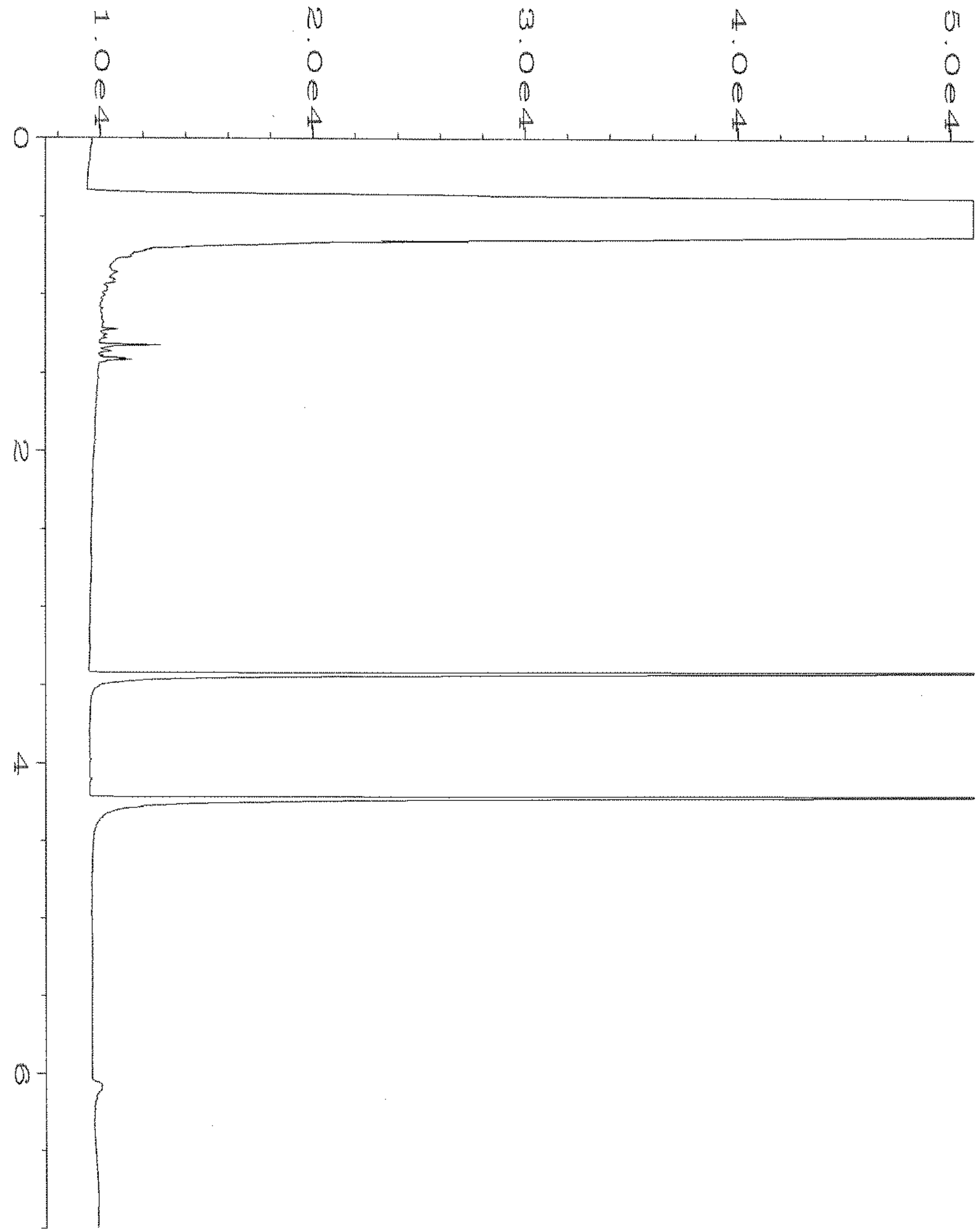


Data File Name : C:\HPCHEM\6\DATA\08-31-21\011F0301.D
Operator : TL
Instrument : GC6
Sample Name : 108492-02
Run Time Bar Code:
Acquired on : 31 Aug 21 09:10 AM
Report Created on: 31 Aug 21 02:24 PM

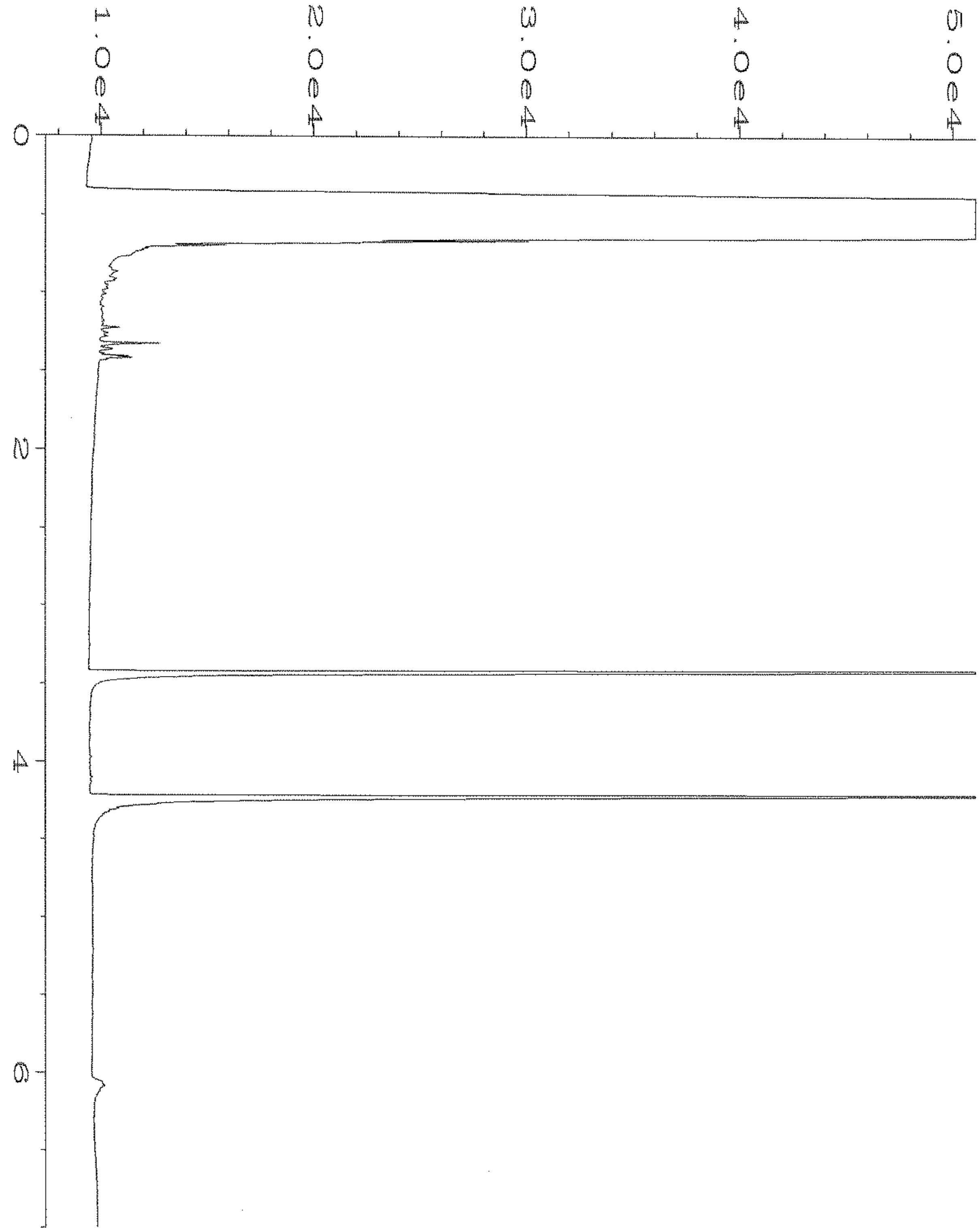
Page Number : 1
Vial Number : 11
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\6\DATA\08-31-21\012F0301.D			
Operator	: TL	Page Number	:	1
Instrument	: GC6	Vial Number	:	12
Sample Name	: 108492-03	Injection Number	:	1
Run Time Bar Code:		Sequence Line	:	3
Acquired on	: 31 Aug 21 09:21 AM	Instrument Method:		DX.MTH
Report Created on:	31 Aug 21 02:24 PM	Analysis Method	:	DEFAULT.MTH



Data File Name	: C:\HPCHEM\6\DATA\08-31-21\013F0301.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 13
Sample Name	: 108492-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 31 Aug 21 09:32 AM	Instrument Method:	DX.MTH
Report Created on:	31 Aug 21 02:25 PM	Analysis Method	: DEFAULT.MTH

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Operator          : TL                            Page Number       : 1
Instrument        : GC6                           Vial Number       : 14
Sample Name       : 108492-05                     Injection Number  : 1
Run Time Bar Code:                                Sequence Line     : 3
Acquired on       : 31 Aug 21   09:43 AM          Instrument Method: DX.MTH
Report Created on: 31 Aug 21   02:25 PM           Analysis Method   : DEFAULT.MTH
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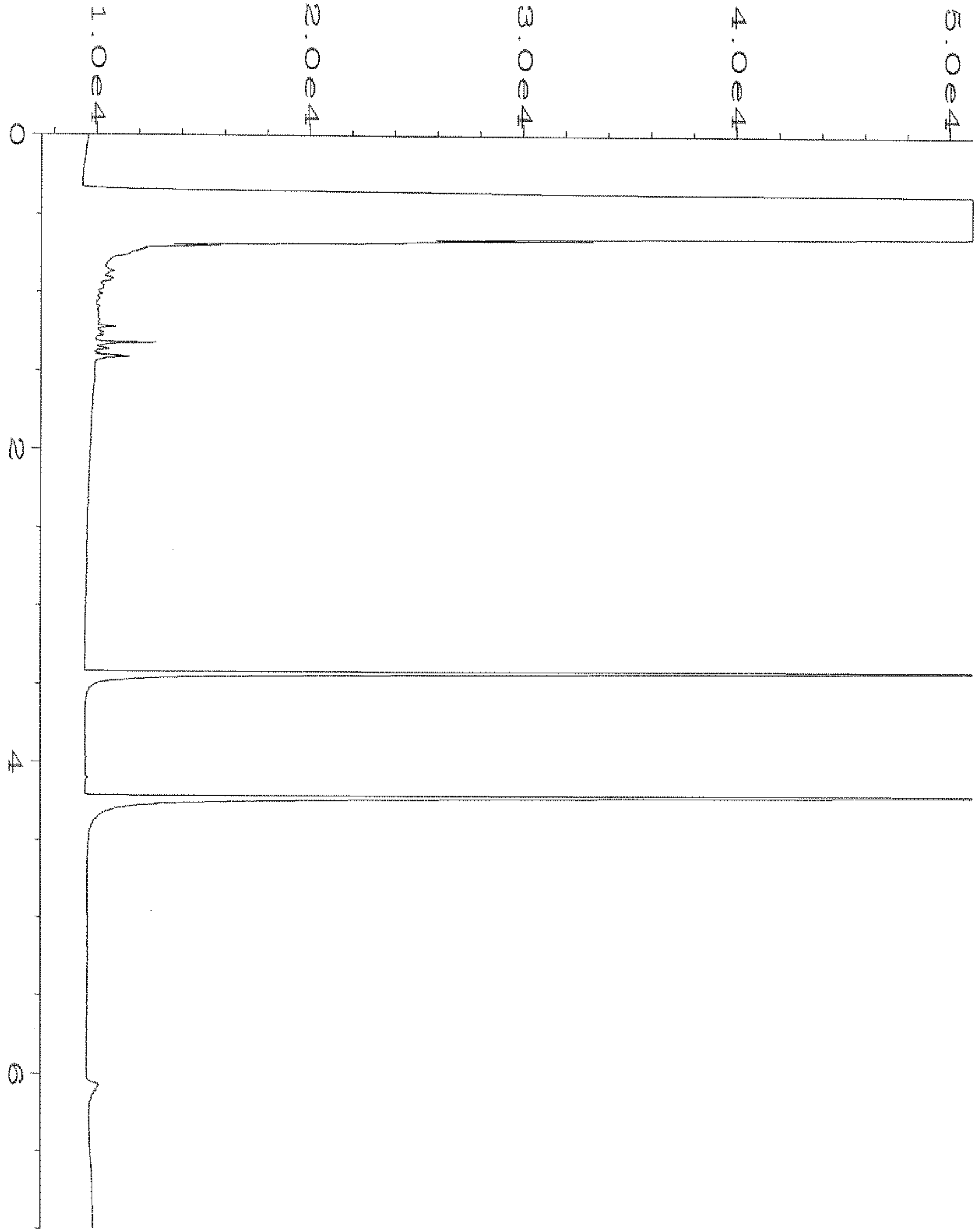
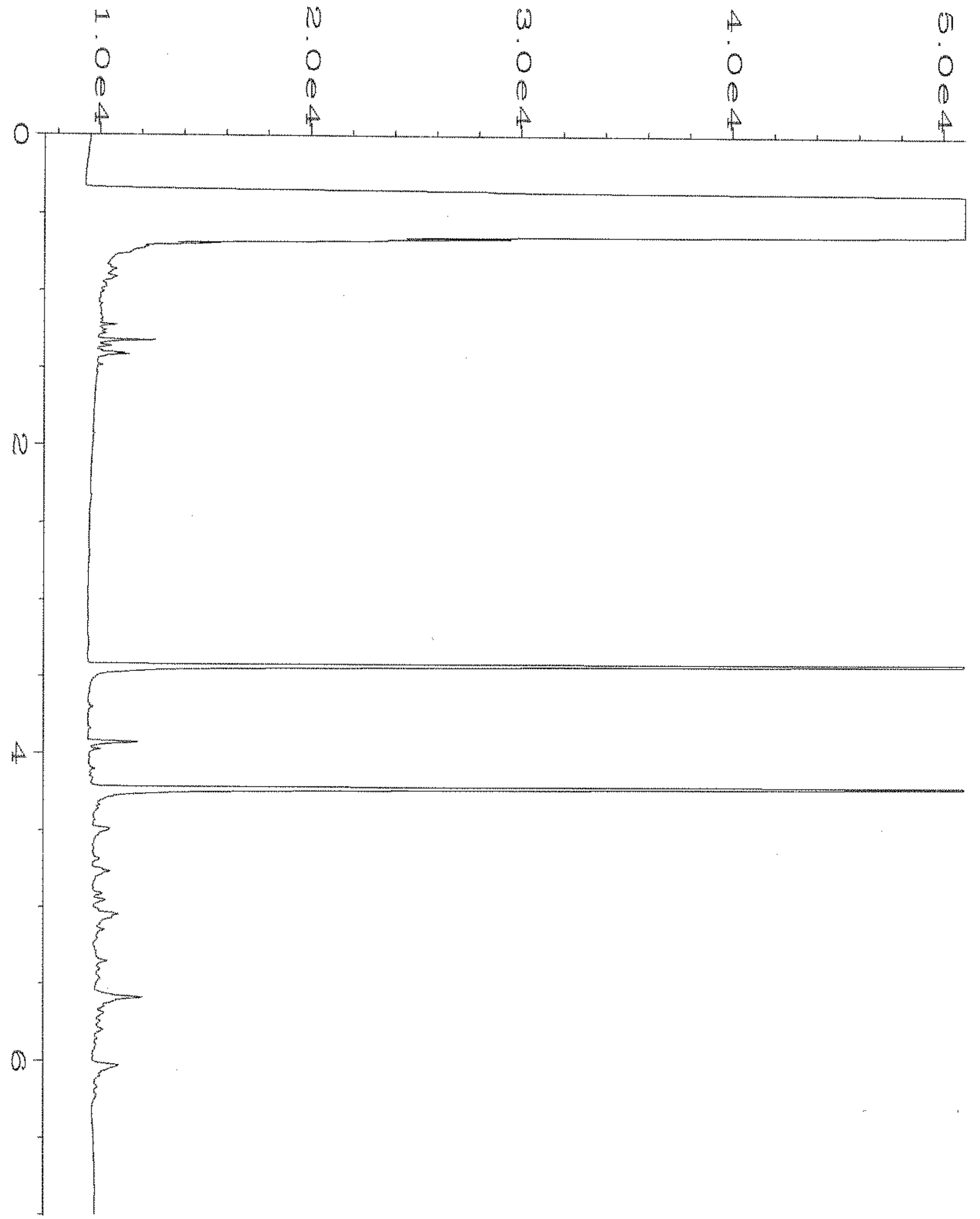
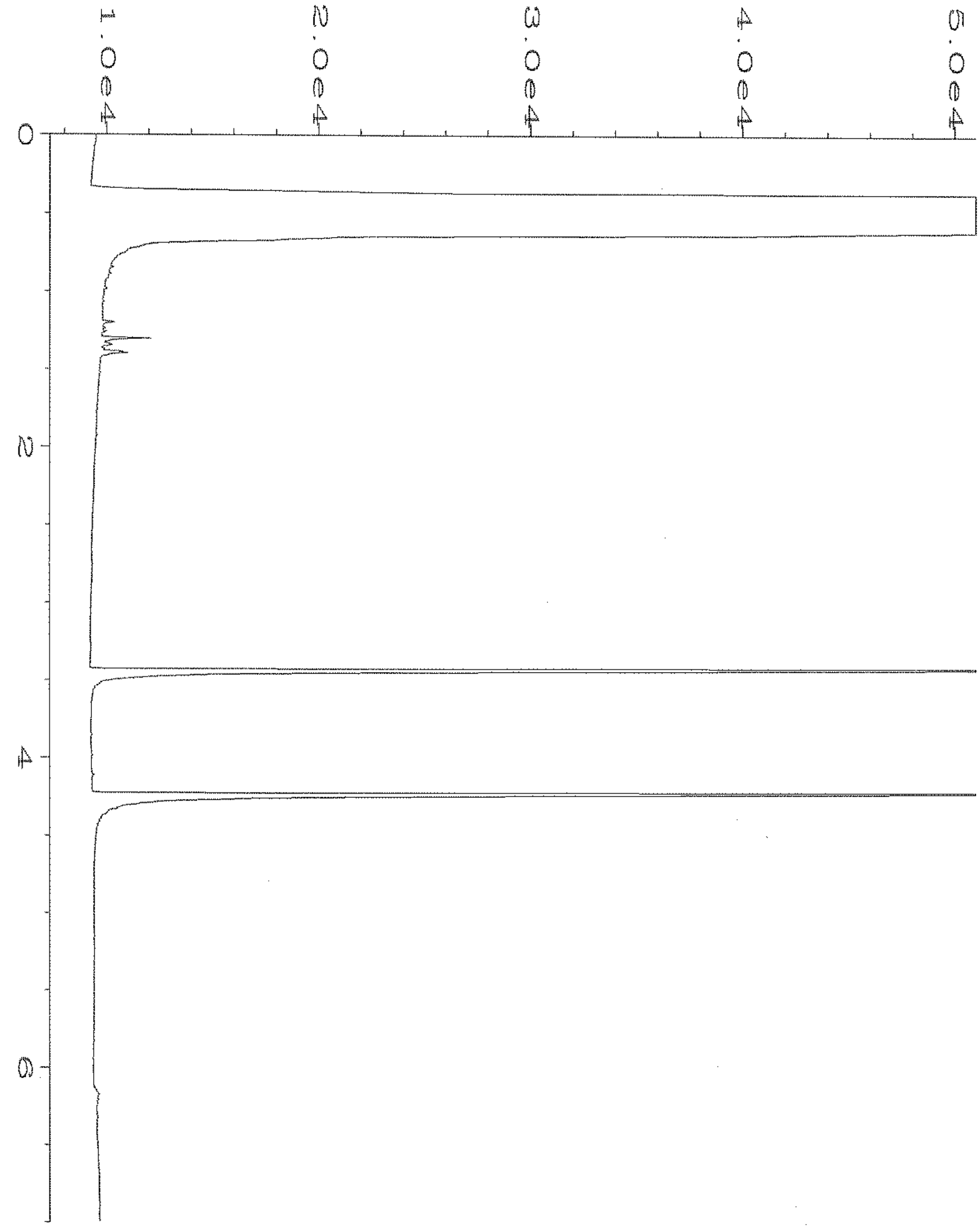


Data File Name	: C:\HPCHEM\6\DATA\08-31-21\015F0301.D			
Operator	: TL	Page Number	:	1
Instrument	: GC6	Vial Number	:	15
Sample Name	: 108492-06	Injection Number	:	1
Run Time Bar Code:		Sequence Line	:	3
Acquired on	: 31 Aug 21 09:53 AM	Instrument Method:		DX.MTH
Report Created on:	31 Aug 21 02:25 PM	Analysis Method	:	DEFAULT.MTH



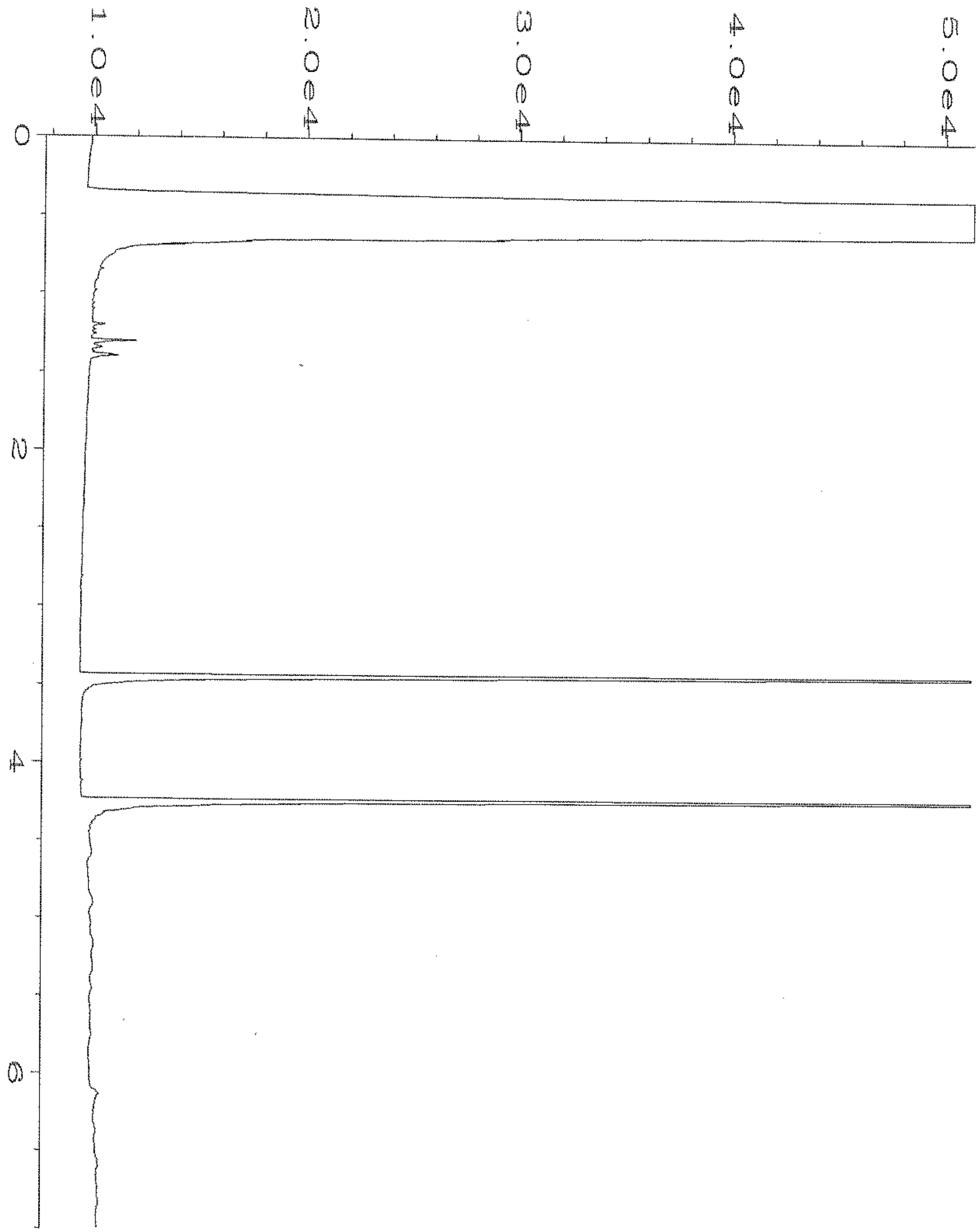
Data File Name : C:\HPCHEM\6\DATA\08-31-21\016F0301.D
Operator : TL
Instrument : GC6
Sample Name : 108492-07
Run Time Bar Code:
Acquired on : 31 Aug 21 10:04 AM
Report Created on: 31 Aug 21 02:25 PM

Page Number : 1
Vial Number : 16
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

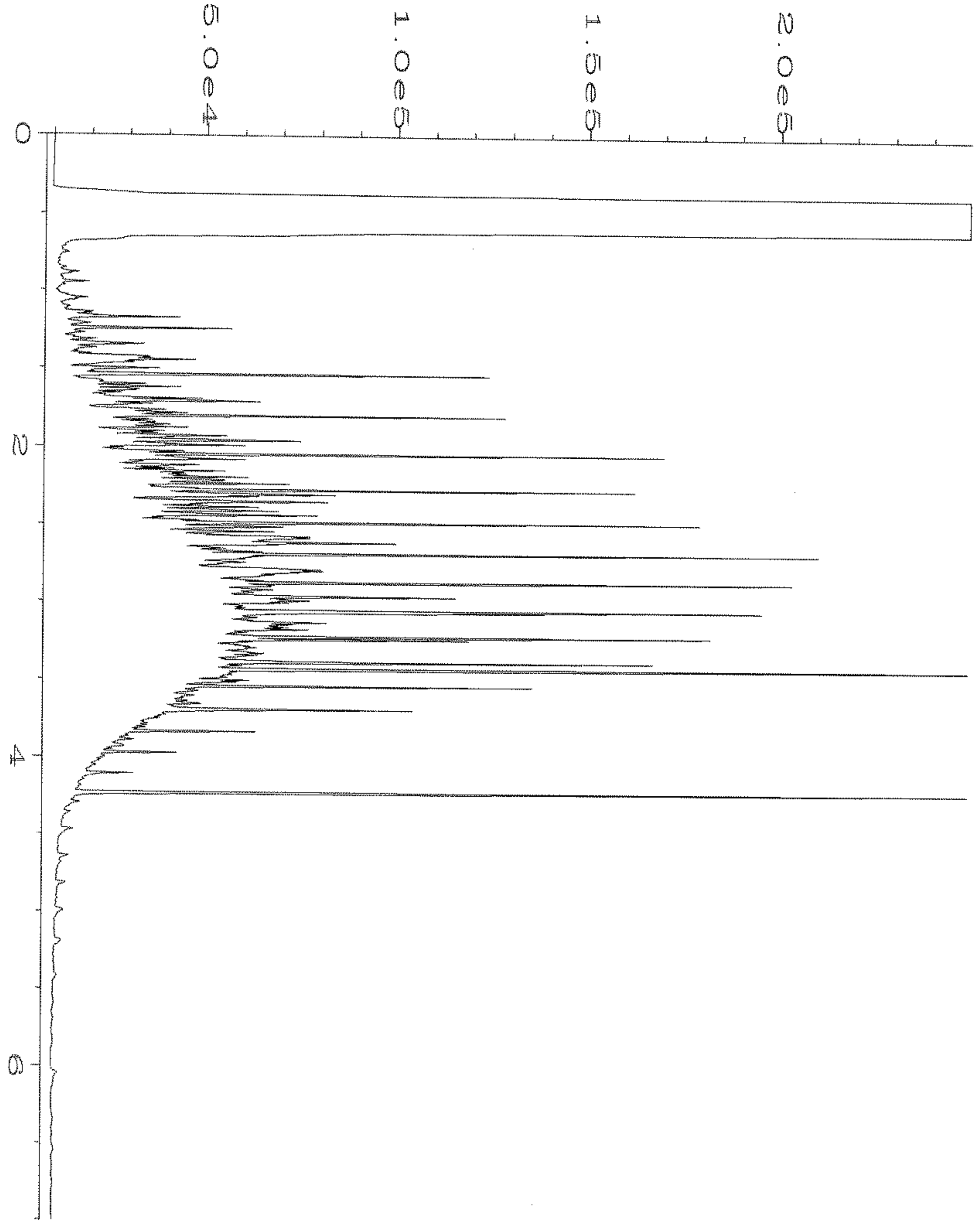


Data File Name : C:\HPCHEM\6\DATA\08-31-21\017F0301.D
Operator : TL
Instrument : GC6
Sample Name : 108492-08
Run Time Bar Code:
Acquired on : 31 Aug 21 10:15 AM
Report Created on: 31 Aug 21 02:25 PM

Page Number : 1
Vial Number : 17
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\6\DATA\08-31-21\006F0301.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 6
Sample Name	: 01-2045 mb	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 31 Aug 21 08:18 AM	Instrument Method:	DX.MTH
Report Created on:	31 Aug 21 02:26 PM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\08-31-21\003F0201.D
Operator : TL
Instrument : GC6
Sample Name : 500 Dx 63-79C
Run Time Bar Code:
Acquired on : 31 Aug 21 06:18 AM
Report Created on: 31 Aug 21 02:26 PM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 2, 2021

Corey League, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr League:

Included are the results from the testing of material submitted on August 31, 2021 from the SOU_1410-002_ 20210831, F&BI 108493 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Levi Fernandes
SOU0902R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 31, 2020 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_1410-002_ 20210831, F&BI 108493 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
108493 -01	SP01-01
108493 -02	SP01-02
108493 -03	SP01-03
108493 -04	SP01-04
108493 -05	SP01-05

All quality control requirements were acceptable.

Date of Report: 09/02/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108493
Date Extracted: 08/31/21
Date Analyzed: 08/31/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING METHODS 8021B AND NWTPH-Gx
Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-150)
SP01-01 108493-01	<0.02	<0.02	<0.02	<0.06	<5	91
SP01-02 108493-02	<0.02	<0.02	<0.02	<0.06	<5	77
SP01-03 108493-03	<0.02	<0.02	<0.02	<0.06	<5	90
SP01-04 108493-04	<0.02	<0.02	<0.02	<0.06	<5	92
SP01-05 108493-05	<0.02	<0.02	<0.02	<0.06	<5	90
Method Blank 01-1918 MB	<0.02	<0.02	<0.02	<0.06	<5	94

Date of Report: 09/02/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108493
Date Extracted: 08/31/21
Date Analyzed: 08/31/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
SP01-01 108493-01	<50	<250	90
SP01-02 108493-02	<50	<250	97
SP01-03 108493-03	<50	<250	95
SP01-04 108493-04	<50	<250	90
SP01-05 108493-05	<50	<250	89
Method Blank 01-2045 MB	<50	<250	90

Date of Report: 09/02/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108493

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 108492-01 (Duplicate)

Analyte	Reporting Units	Sample Result (Wet Wt)	Duplicate Result (Wet Wt)	RPD (Limit 20)
Benzene	mg/kg (ppm)	<0.02	<0.02	nm
Toluene	mg/kg (ppm)	<0.02	<0.02	nm
Ethylbenzene	mg/kg (ppm)	<0.02	<0.02	nm
Xylenes	mg/kg (ppm)	<0.06	<0.06	nm
Gasoline	mg/kg (ppm)	<5	<5	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	mg/kg (ppm)	0.5	108	69-120
Toluene	mg/kg (ppm)	0.5	110	70-117
Ethylbenzene	mg/kg (ppm)	0.5	110	65-123
Xylenes	mg/kg (ppm)	1.5	113	66-120
Gasoline	mg/kg (ppm)	20	120	71-131

Date of Report: 09/02/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108493

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 108492-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	97	99	64-133	2

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	102	58-147

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

108493

[redacted]

SAMPLE CHAIN OF CUSTODY

ME 08/31/21 [redacted] VS2/D02

Page # 1 of 1

Send Report to Corey League, Levi Fernandes

Company SoundEarth Strategies, Inc.

Address 2811 Fairview Avenue E, Suite 2000

City, State, ZIP Seattle, Washington 98102

Phone # 206-306-1900 Fax # 206-306-1907

SAMPLERS (signature) [illegible]	
PROJECT NAME/NO. Slater Avenue Property	PO # 1410-002
REMARKS Same Day TAT * If Dx detections contact PM and re-analyze with silica gel. Report both results.	

TURNAROUND TIME
Standard (2 Weeks)
~~RUSH~~ Same Day
Rush charges authorized by:

SAMPLE DISPOSAL
Dispose after 30 days
Return samples
Will call with instructions

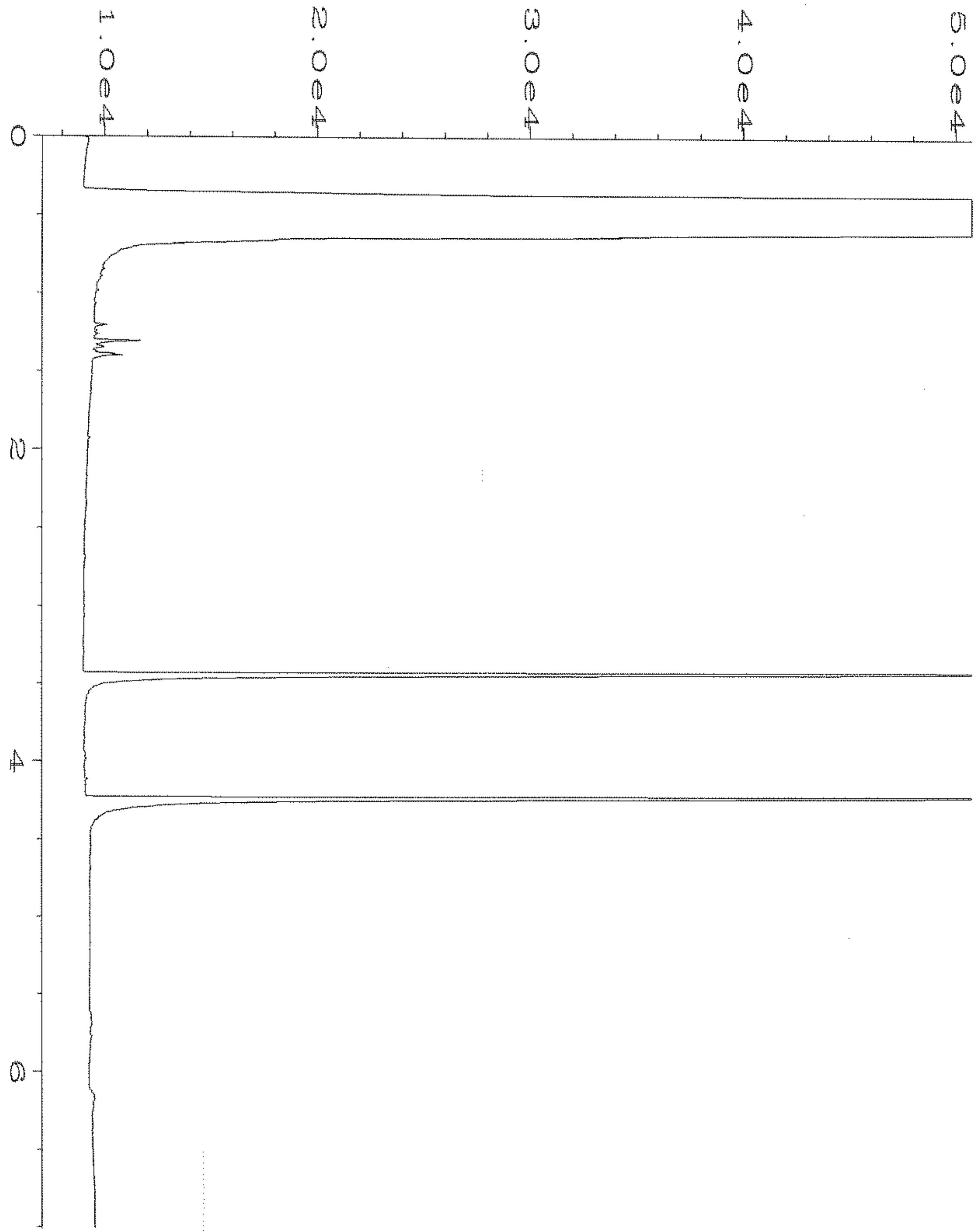
Sample ID	Sample Location	Sample Depth	Lab ID	Date Sampled	Time Sampled	Matrix	# of Jars	NWTPH-Dx	NWTPH-Dx with Silica Gel *	NWTPH-Gx	BTEX by 8021B	VOCs by 8260	SVOCs by 8270		Notes
SP01-01	SP01	-	01 A-E	08/31/21	0845	Soil	5	X		X	X				
SP01-02	↓	-	02	↓	0850	↓	↓	X		X	X				
SP01-03	↓	-	03	↓	0855	↓	↓	X		X	X				
SP01-04	↓	-	04	↓	0900	↓	↓	X		X	X				
SP01-05	↓	-	05	↓	0905	↓	↓	X		X	X				

KB 08/31/21

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

FORMS\COC\COC.DOC

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by: [illegible]	Kyle Lowery	SES	08/31/21	9:45
Received by: [illegible]	VINH	FBI	8/31/21	9:45
Relinquished by:				
Received by:		Samples received at 4 °C		



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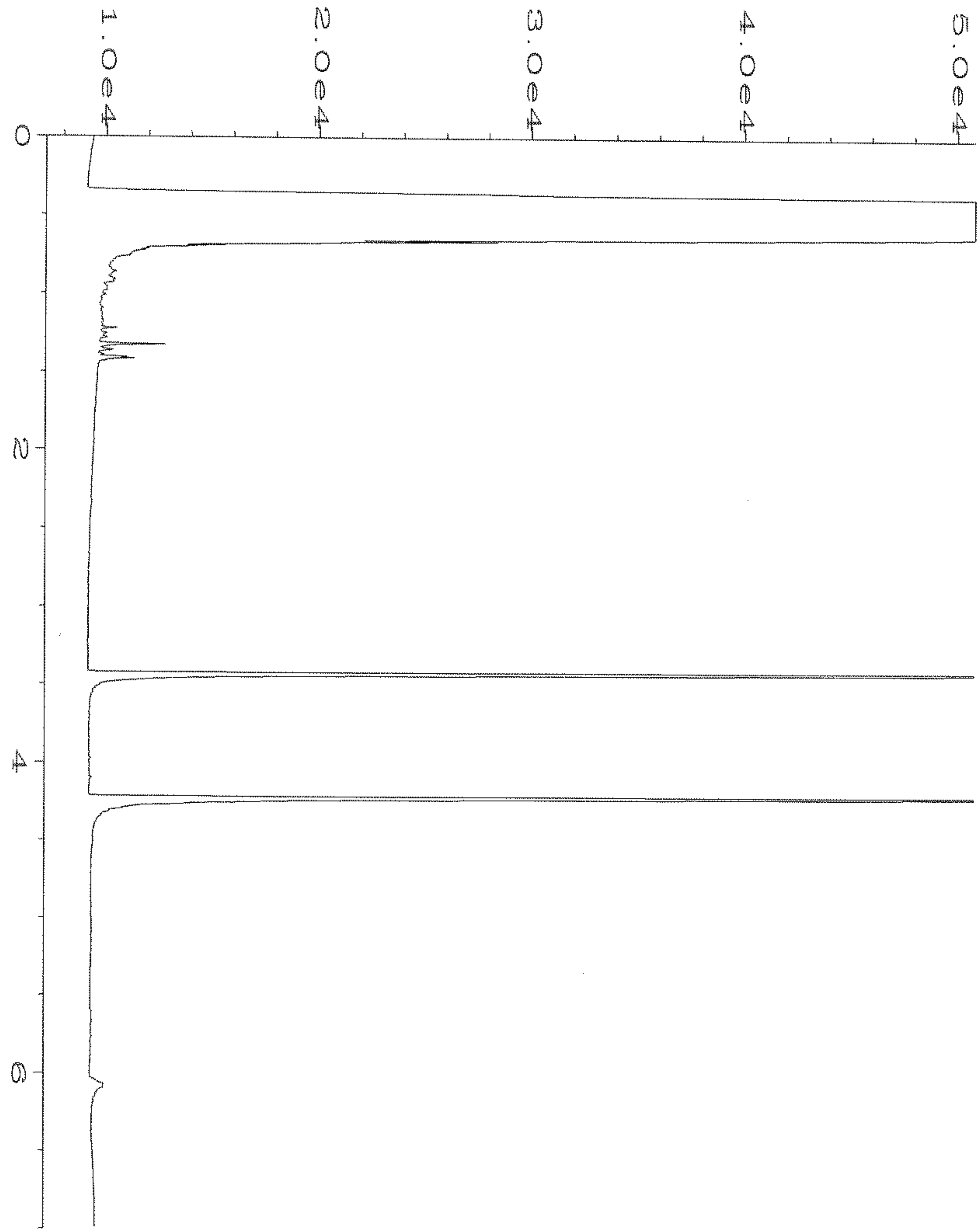
Operator   : TL   Page Number   : 1
Instrument   : GC6   Vial Number   : 18
Sample Name   : 108493-01   Injection Number : 1
Run Time Bar Code: Sequence Line   : 3
Acquired on   : 31 Aug 21   11:00 AM   Instrument Method: DX.MTH
Report Created on: 31 Aug 21   02:27 PM   Analysis Method : DEFAULT.MTH



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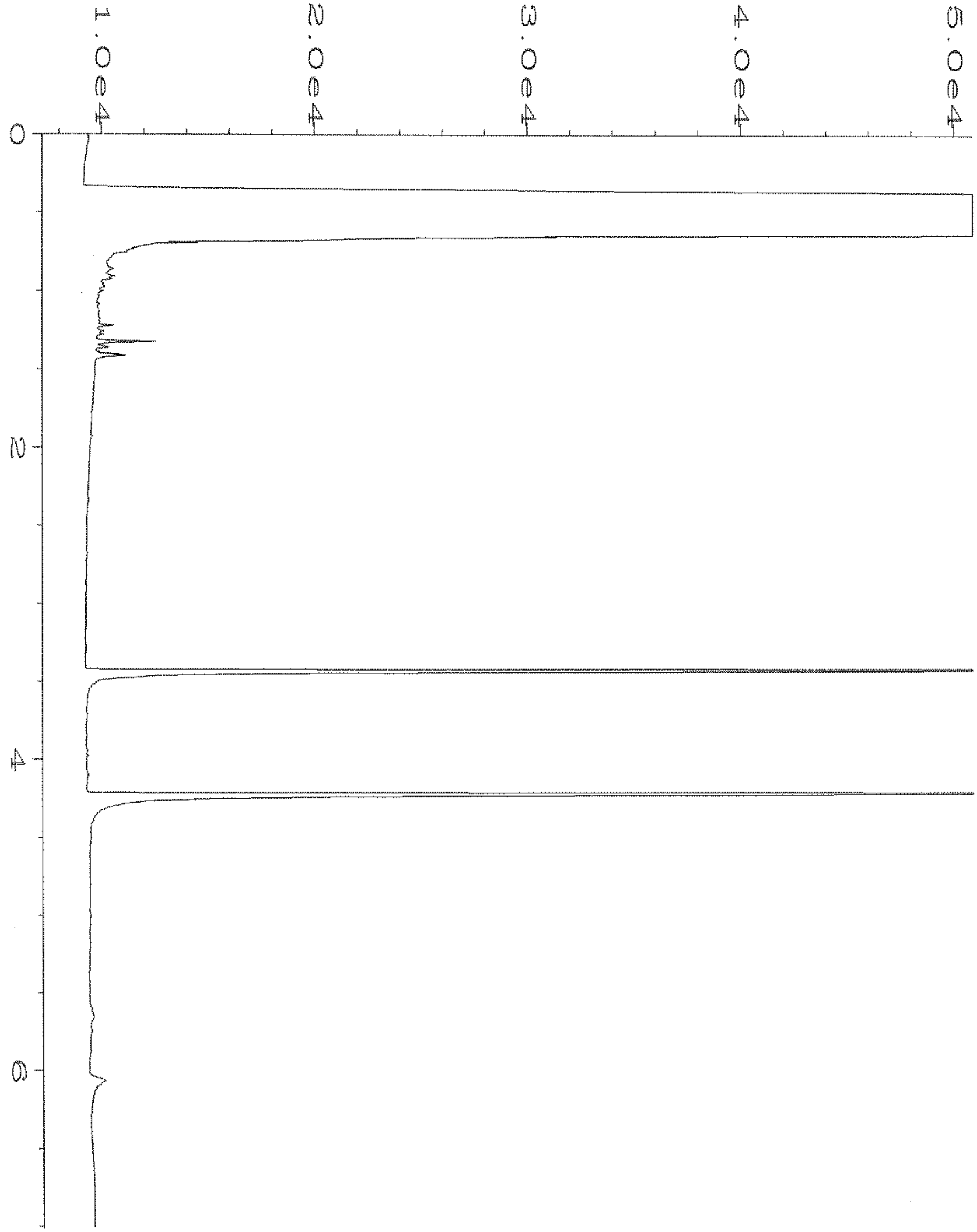
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 19
Sample Name	: 108493-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 31 Aug 21 11:09 AM	Instrument Method:	DX.MTH
Report Created on:	31 Aug 21 02:27 PM	Analysis Method	: DEFAULT.MTH



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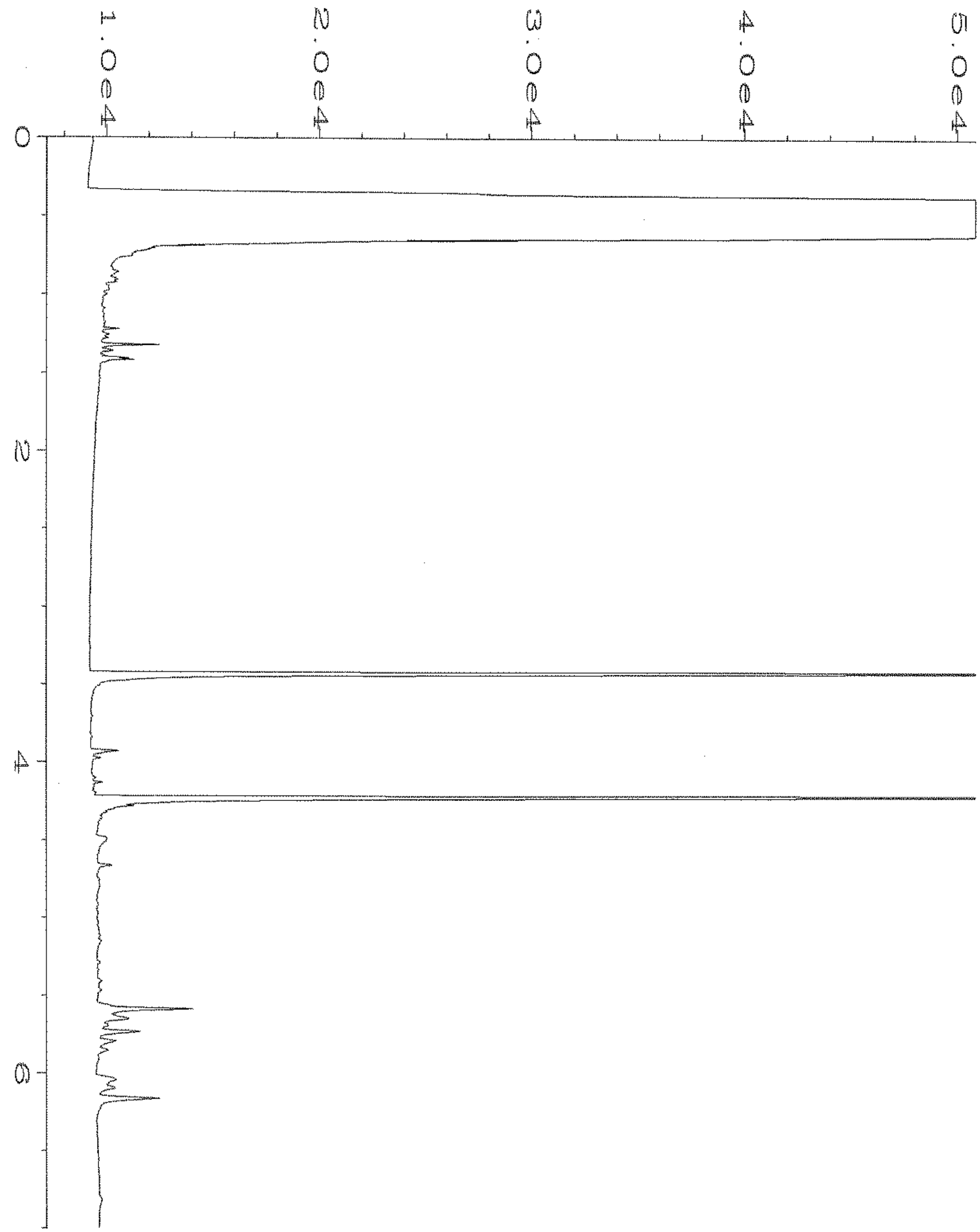
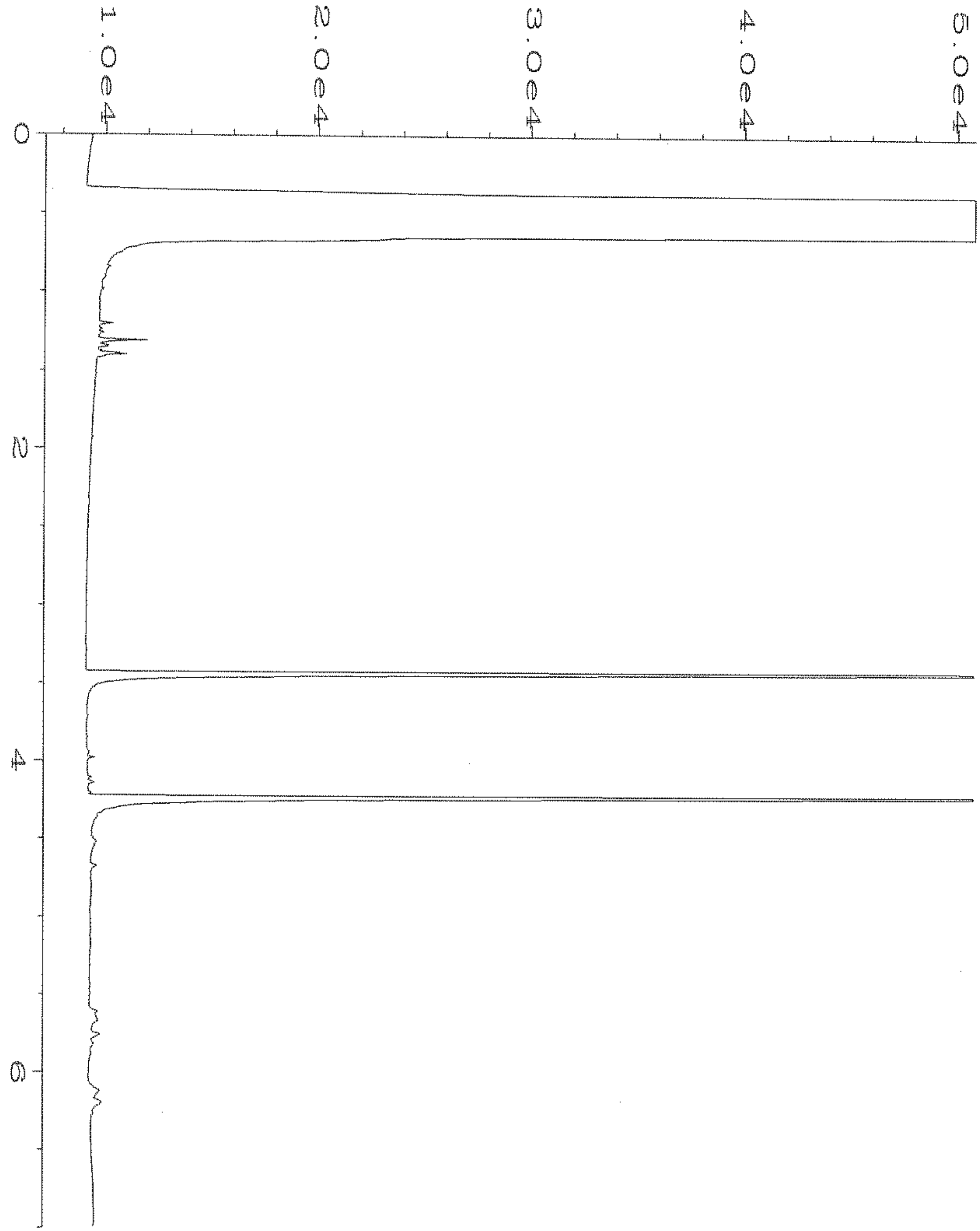
Operator : TL
Instrument : GC6
Sample Name : 108493-03
Run Time Bar Code:
Acquired on : 31 Aug 21 11:20 AM
Report Created on: 31 Aug 21 02:27 PM

Page Number : 1
Vial Number : 20
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

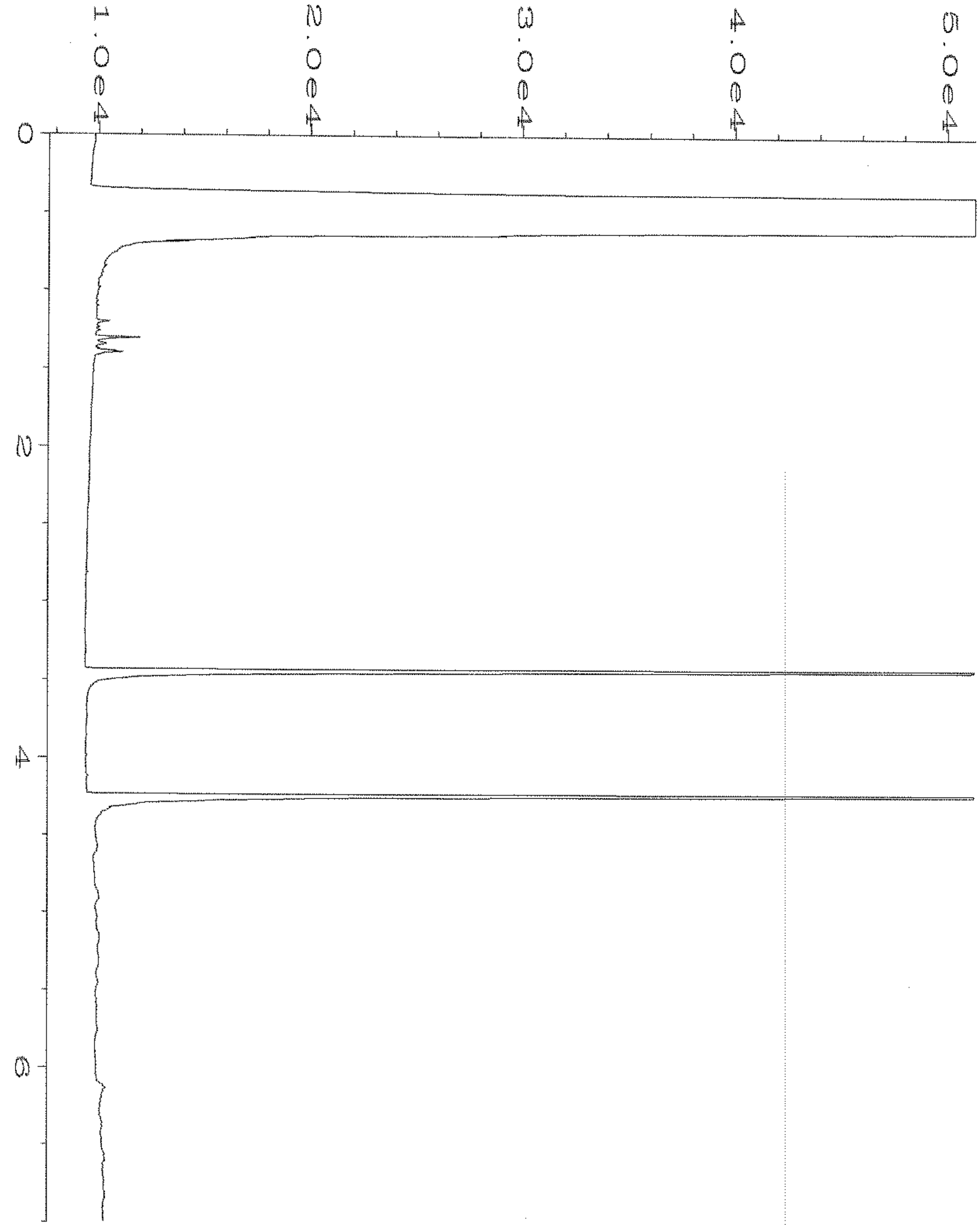


Data File Name : C:\HPCHEM\6\DATA\08-31-21\021F0301.D

Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 21
Sample Name	: 108493-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 31 Aug 21 11:31 AM	Instrument Method:	DX.MTH
Report Created on:	31 Aug 21 02:30 PM	Analysis Method	: DEFAULT.MTH

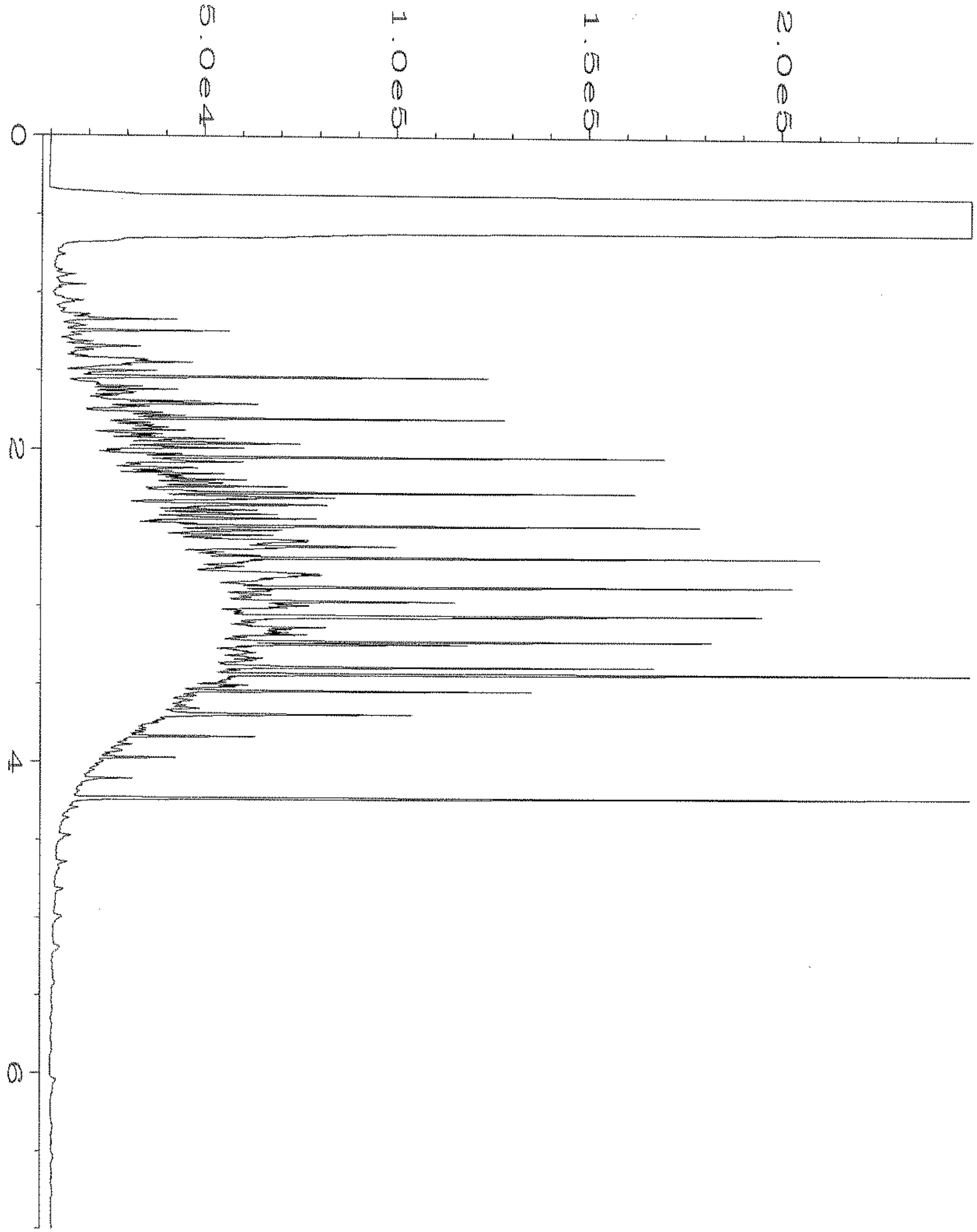


Data File Name	: C:\HPCHEM\6\DATA\08-31-21\022F0301.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 22
Sample Name	: 108493-05	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 3
Acquired on	: 31 Aug 21 11:41 AM	Instrument Method	: DX.MTH
Report Created on	: 31 Aug 21 02:30 PM	Analysis Method	: DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\08-31-21\006F0301.D
Operator : TL
Instrument : GC6
Sample Name : 01-2045 mb
Run Time Bar Code:
Acquired on : 31 Aug 21 08:18 AM
Report Created on: 31 Aug 21 02:26 PM

Page Number : 1
Vial Number : 6
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\6\DATA\08-31-21\003F0201.D
Operator : TL
Instrument : GC6
Sample Name : 500 Dx 63-79C
Run Time Bar Code:
Acquired on : 31 Aug 21 06:18 AM
Report Created on: 31 Aug 21 02:26 PM

Page Number : 1
Vial Number : 3
Injection Number : 1
Sequence Line : 2
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 3, 2021

Corey League, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr League:

Included are the results from the testing of material submitted on August 31, 2021 from the SOU_1410-002_ 20210831, F&BI 108509 project. There are 8 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Kyle Lowery, Levi Fernandes
SOU0903R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

CASE NARRATIVE

This case narrative encompasses samples received on August 31, 2021 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_1410-002_ 20210831, F&BI 108509 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
108509 -01	EX01-ESW01-05
108509 -02	EX01-ESW02-05
108509 -03	EX01-BTM04-09
108509 -04	EX01-ESW03-05
108509 -05	EX01-BTM05-09
108509 -06	EX01-NSW01-05
108509 -07	SP03-01
108509 -08	SP03-02
108509 -09	SP03-03
108509 -10	EX01-NSW02-05
108509 -11	EX01-NSW03-05
108509 -12	EX01-BTM06-09
108509 -13	EX01-BTM07-09
108509 -14	EX01-WSW02-05
108509 -15	EX01-IWSW01-04
108509 -16	EX01-IWSW01-08
108509 -17	EX01-ISSW01-04
108509 -18	EX01-ISSW01-08
108509 -19	EX01-INSW01-04
108509 -20	EX01-INSW01-08

All quality control requirements were acceptable.

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108509
Date Extracted: 09/01/21
Date Analyzed: 09/01/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
EX01-ESW01-05 108509-01	<0.02	<0.02	<0.02	<0.06	<5	95
EX01-ESW02-05 108509-02	<0.02	<0.02	<0.02	<0.06	<5	95
EX01-BTM04-09 108509-03	<0.02	<0.02	<0.02	<0.06	<5	93
EX01-ESW03-05 108509-04	<0.02	<0.02	<0.02	<0.06	<5	92
EX01-BTM05-09 108509-05	<0.02	<0.02	<0.02	<0.06	<5	76
EX01-NSW01-05 108509-06	<0.02	<0.02	<0.02	<0.06	<5	94
SP03-01 108509-07	<0.02	<0.02	<0.02	<0.06	<5	91
SP03-02 108509-08	<0.02	<0.02	<0.02	<0.06	<5	92
SP03-03 108509-09	<0.02	<0.02	<0.02	<0.06	<5	84
EX01-NSW02-05 108509-10	<0.02	<0.02	<0.02	<0.06	<5	91

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108509
Date Extracted: 09/01/21
Date Analyzed: 09/01/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 50-132)
EX01-NSW03-05 108509-11	<0.02	<0.02	<0.02	<0.06	<5	90
EX01-BTM06-09 108509-12	<0.02	<0.02	<0.02	<0.06	<5	91
EX01-BTM07-09 108509-13	<0.02	<0.02	<0.02	<0.06	<5	77
EX01-WSW02-05 108509-14	<0.02	<0.02	<0.02	<0.06	<5	91
EX01-IWSW01-04 108509-15	<0.02	<0.02	<0.02	<0.06	<5	93
EX01-IWSW01-08 108509-16	<0.02	<0.02	<0.02	<0.06	<5	91
EX01-ISSW01-04 108509-17	<0.02	<0.02	<0.02	<0.06	<5	83
EX01-ISSW01-08 108509-18	<0.02	<0.02	<0.02	<0.06	<5	80
EX01-INSW01-04 108509-19	<0.02	<0.02	<0.02	<0.06	<5	84
EX01-INSW01-08 108509-20	<0.02	<0.02	<0.02	<0.06	<5	83
Method Blank 01-1921 MB	<0.02	<0.02	<0.02	<0.06	<5	79

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108509
Date Extracted: 08/31/21
Date Analyzed: 08/31/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
EX01-ESW01-05 108509-01	<50	<250	98
EX01-ESW02-05 108509-02	<50	<250	87
EX01-BTM04-09 108509-03	<50	<250	96
EX01-ESW03-05 108509-04	<50	<250	93
EX01-BTM05-09 108509-05	<50	<250	88
EX01-NSW01-05 108509-06	<50	<250	90
SP03-01 108509-07	<50	<250	87
SP03-02 108509-08	<50	<250	93
SP03-03 108509-09	<50	<250	93
EX01-NSW02-05 108509-10	<50	<250	86

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108509
Date Extracted: 08/31/21
Date Analyzed: 08/31/21

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported on a Dry Weight Basis
Results Reported as mg/kg (ppm)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 53-144)
EX01-NSW03-05 108509-11	<50	<250	93
EX01-BTM06-09 108509-12	<50	<250	86
EX01-BTM07-09 108509-13	<50	<250	86
EX01-WSW02-05 108509-14	<50	<250	89
EX01-IWSW01-04 108509-15	<50	<250	92
EX01-IWSW01-08 108509-16	88 x	510 x	91
EX01-ISSW01-04 108509-17	<50	<250	97
EX01-ISSW01-08 108509-18	<50	<250	94
EX01-INSW01-04 108509-19	<50	<250	89
EX01-INSW01-08 108509-20	<50	<250	99
Method Blank 01-2049 MB	<50	<250	89

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108509

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Benzene	mg/kg (ppm)	0.5	80	86	66-121	7
Toluene	mg/kg (ppm)	0.5	86	93	72-128	8
Ethylbenzene	mg/kg (ppm)	0.5	88	96	69-132	9
Xylenes	mg/kg (ppm)	1.5	86	93	69-131	8
Gasoline	mg/kg (ppm)	20	95	90	61-153	5

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108509

QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: 108509-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result (Wet Wt)	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	mg/kg (ppm)	5,000	<50	92	99	64-133	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	mg/kg (ppm)	5,000	100	58-147

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

108509

SAMPLE CHAIN OF CUSTODY

ME 08-31-21

Page # 1 of 2 VSS

Report To Corey Lanyon, Kyle Lowery

Company Sound Earth Strategies

Address 2811 Fairview Ave E

City, State, ZIP Seattle, WA 98102

Phone — Email

SAMPLERS (signature) Kyle Lowery	
PROJECT NAME	PO #
Sister Ave Property	1410-002
REMARKS	INVOICE TO
Project specific RLs? - Yes / No	

TURNAROUND TIME
- ☐ Standard turnaround DOY
- ☑ RUSH 24 hr TAT
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

ANALYSES REQUESTED

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082					Notes
EX01-ESW01-05	01 A-E	08/13/21	1000	Soil	5	X	X	X									
EX01-ESW02-05	02		1005			X	X	X									
EX01-BTM04-09	03		1010			X	X	X									
EX01-ESW03-05	04		1045			X	X	X									
EX01-BTM05-09	05		1050			X	X	X									
EX01-NSW01-05	06		1055			X	X	X									
SP03-01	07		1130			X	X	X									
SP03-02	08		1135			X	X	X									
SP03-03	09		1140			X	X	X									Samples received at 4 °C
EX01-NSW02-05	10		1205			X	X	X									

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kyle Lowery	Kyle Lowery	SES	08/13/21	1520
Received by:	Mac Goldman	Mac Goldman	FBI	08/13/21	15:20
Relinquished by:					
Received by:					

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

108509

SAMPLE CHAIN OF CUSTODY

ME 08-31-21 [redacted]

Page # 2 of 3 VSS

Report To: Corey Lanzione, Kylie Cawvery
Company: Sound Earth Strategies
Address: 2811 Fairview Ave E
City, State, ZIP: Seattle, WA 98102
Phone: — Email: —

SAMPLERS (signature): [signature]

PROJECT NAME:

PO #: 1410-002

REMARKS:

INVOICE TO:

Project specific RLs? - Yes / No

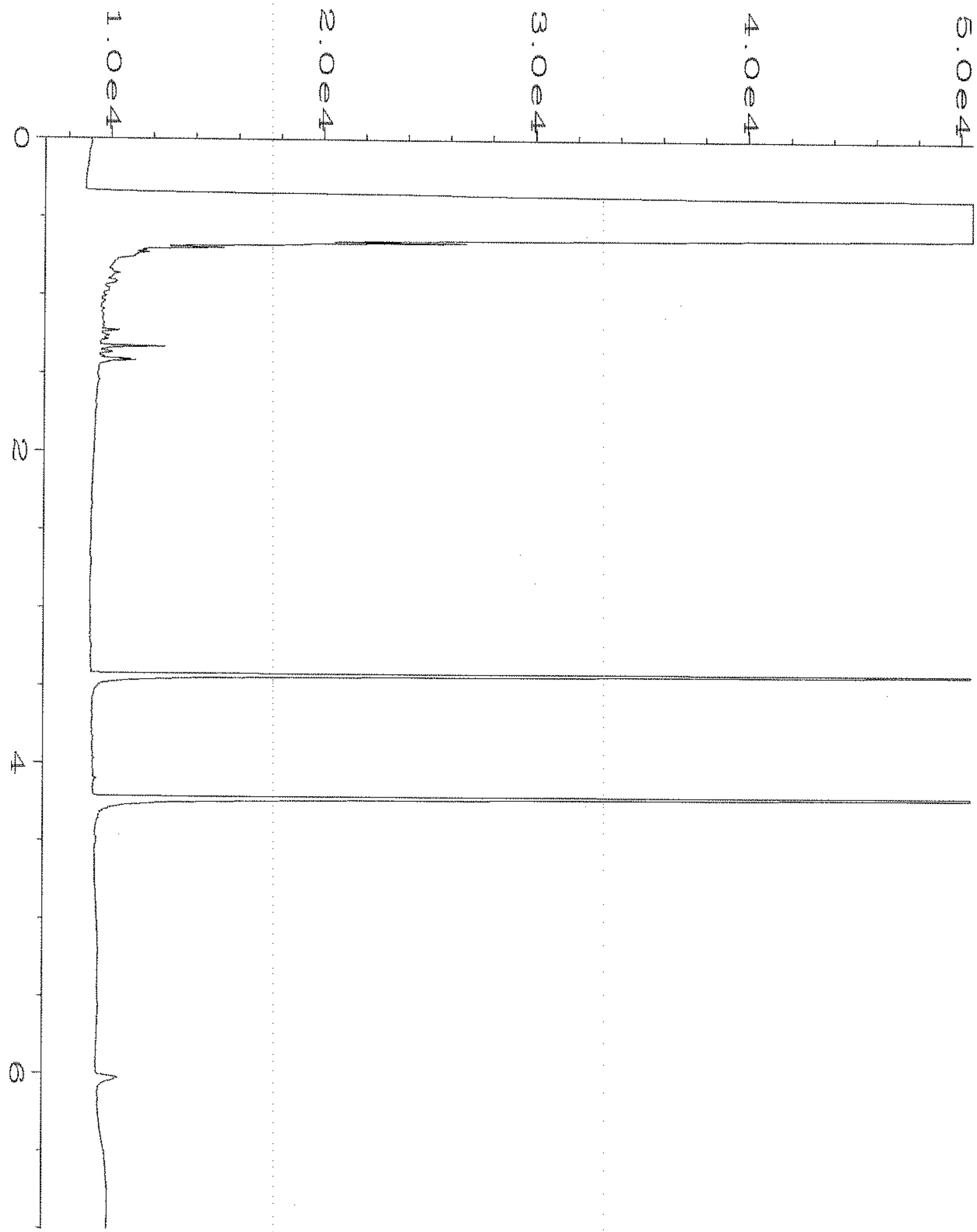
TURNAROUND TIME
- ☐ Standard turnaround
- ☐ ~~RUSH~~ 24 HR TAT DOY
- Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
- Default: Dispose after 30 days

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082					Notes
EX01-NSW03-05	11 A-E	08/31/21	1210	Soil	5	X	X	X									
EX01-BTM06-09	12		1215			X	X	X									
EX01-BTM07-09	13		1225			X	X	X									
EX01-WSW02-05	14		1230			X	X	X									
EX01-IWSW01-04	15		1325			X	X	X									
EX01-IWSW01-08	16		1330			X	X	X									
EX01-ISSW01-04	17		1335			X	X	X									
EX01-ISSW01-08	18		1340			X	X	X									
EX01-INSW01-04	19		1345			X	X	X									
EX01-INSW01-08	20		1350			X	X	X									

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	[signature]	Kylie Cawvery	SES	08/31/21	1520
Received by:	[signature]	Max Goldman	FBI	08/31/21	1520
Relinquished by:					
Received by:			Samples received at 4 °C		

Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282



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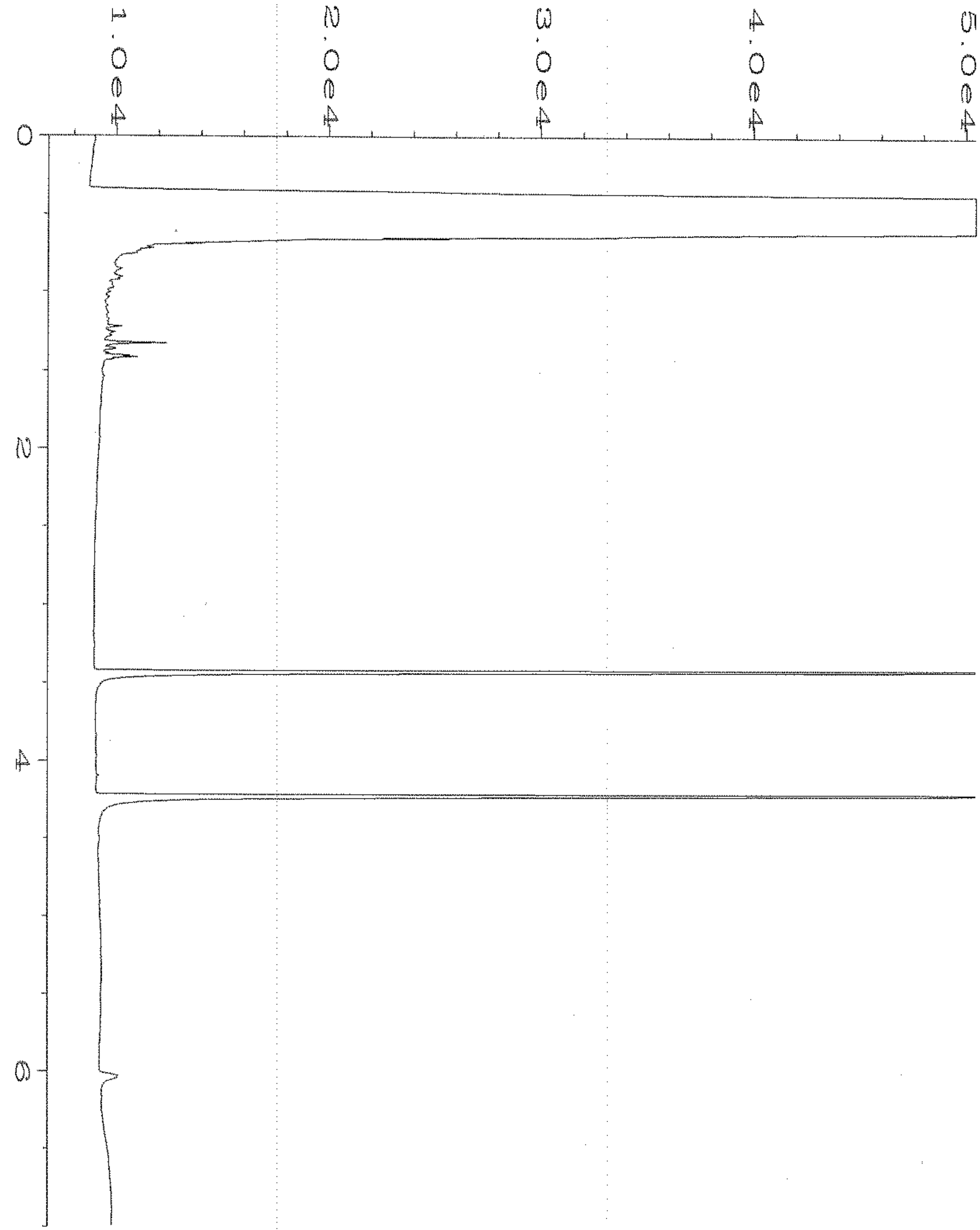
Operator : TL
Instrument : GC6
Sample Name : 108509-01
Run Time Bar Code:
Acquired on : 31 Aug 21 07:42 PM
Report Created on: 01 Sep 21 09:30 AM

Page Number : 1
Vial Number : 50
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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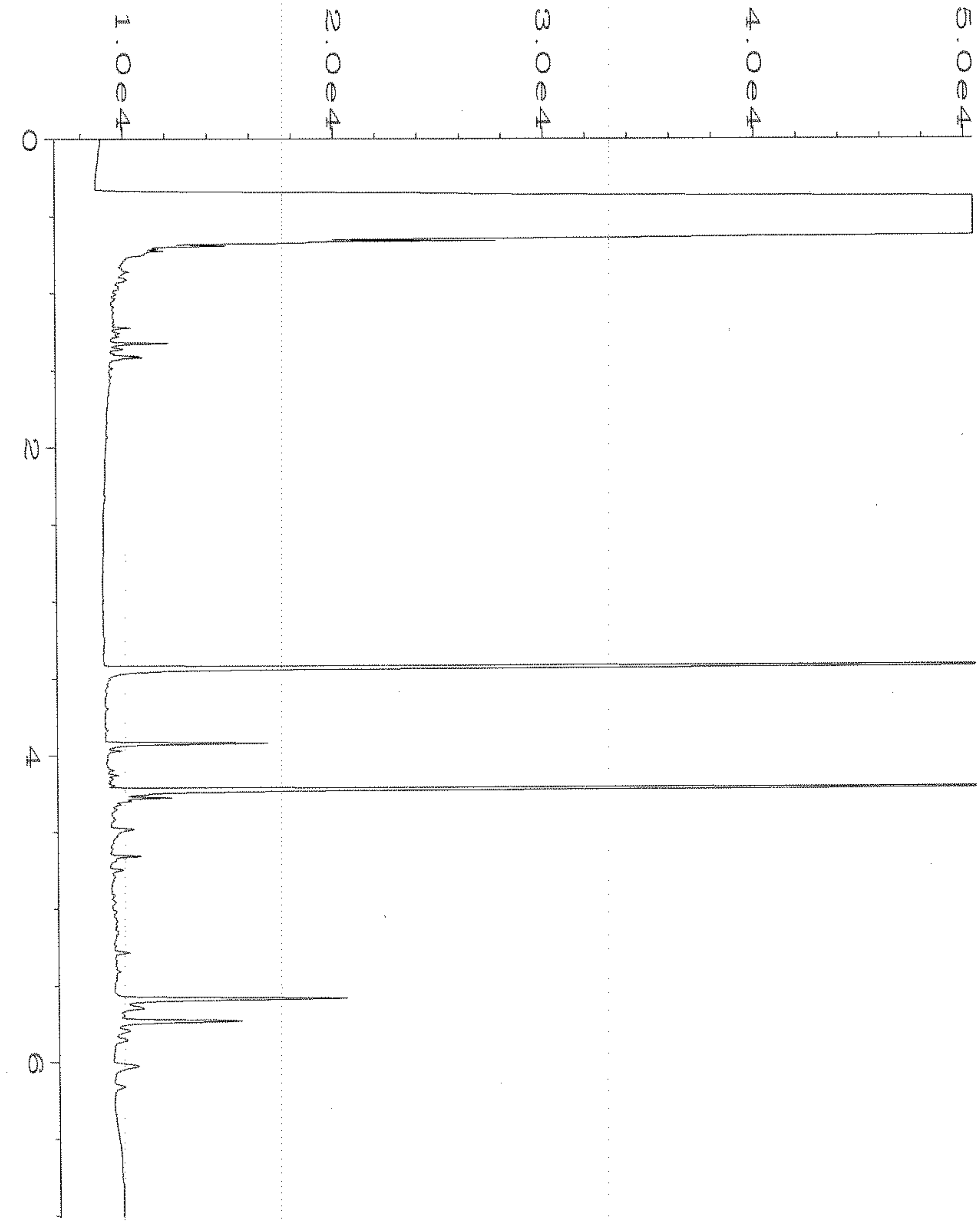
Operator : TL
Instrument : GC6
Sample Name : 108509-02
Run Time Bar Code:
Acquired on : 31 Aug 21 07:53 PM
Report Created on: 01 Sep 21 09:30 AM

Page Number : 1
Vial Number : 51
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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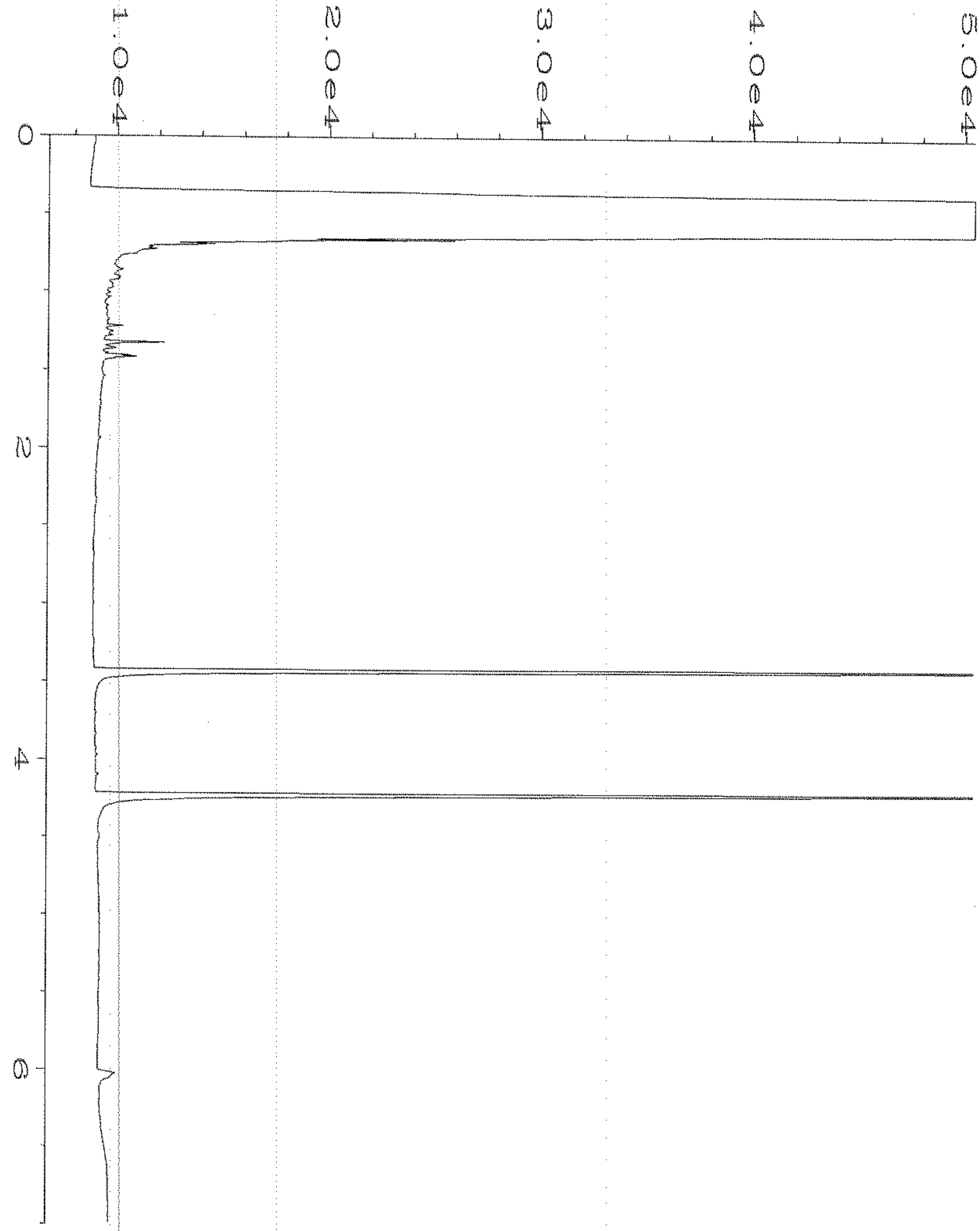
Operator : TL
Instrument : GC6
Sample Name : 108509-03
Run Time Bar Code:
Acquired on : 31 Aug 21 08:04 PM
Report Created on: 01 Sep 21 09:30 AM

Page Number : 1
Vial Number : 52
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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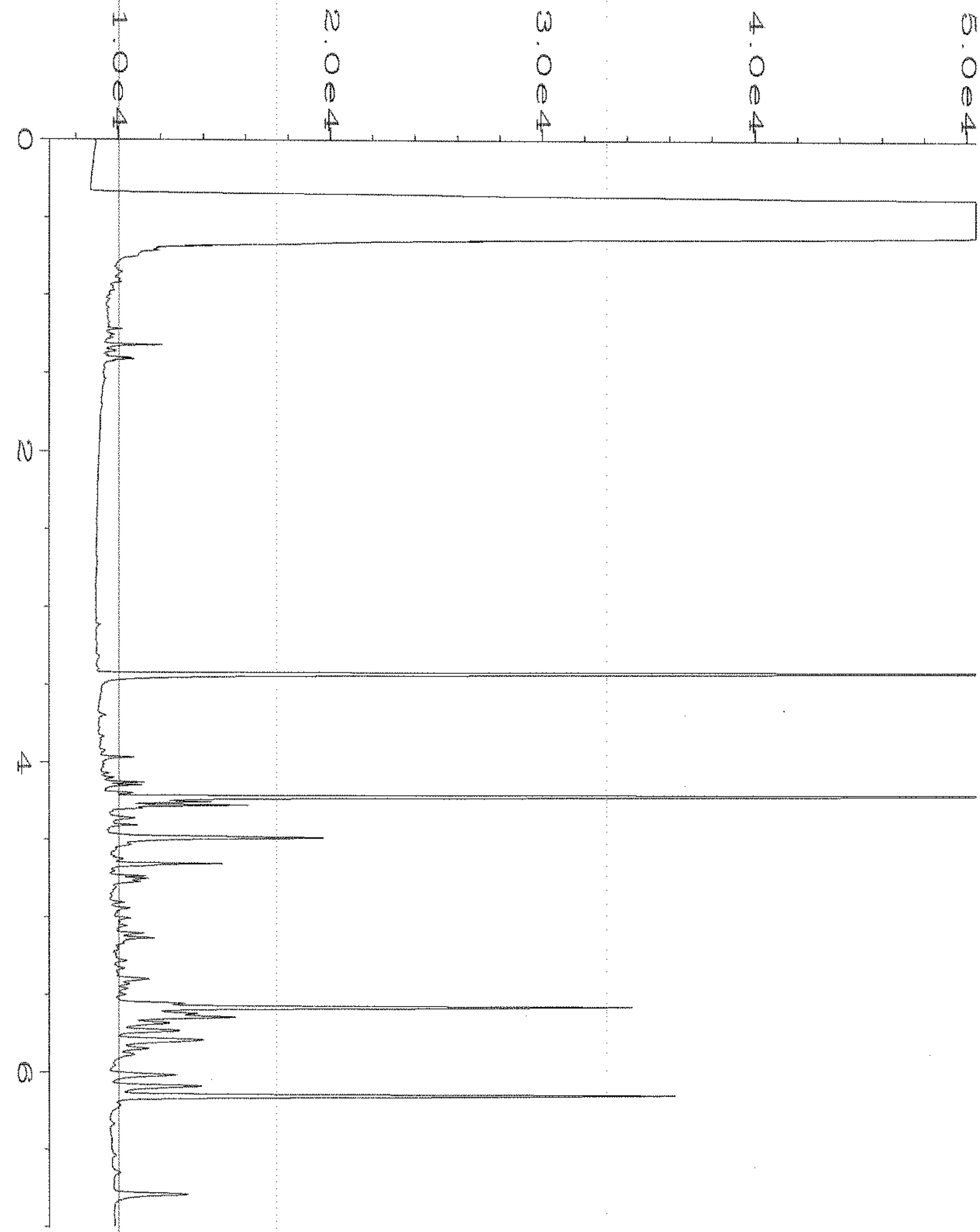
Operator : TL
Instrument : GC6
Sample Name : 108509-04
Run Time Bar Code:
Acquired on : 31 Aug 21 08:15 PM
Report Created on: 01 Sep 21 09:31 AM

Page Number : 1
Vial Number : 53
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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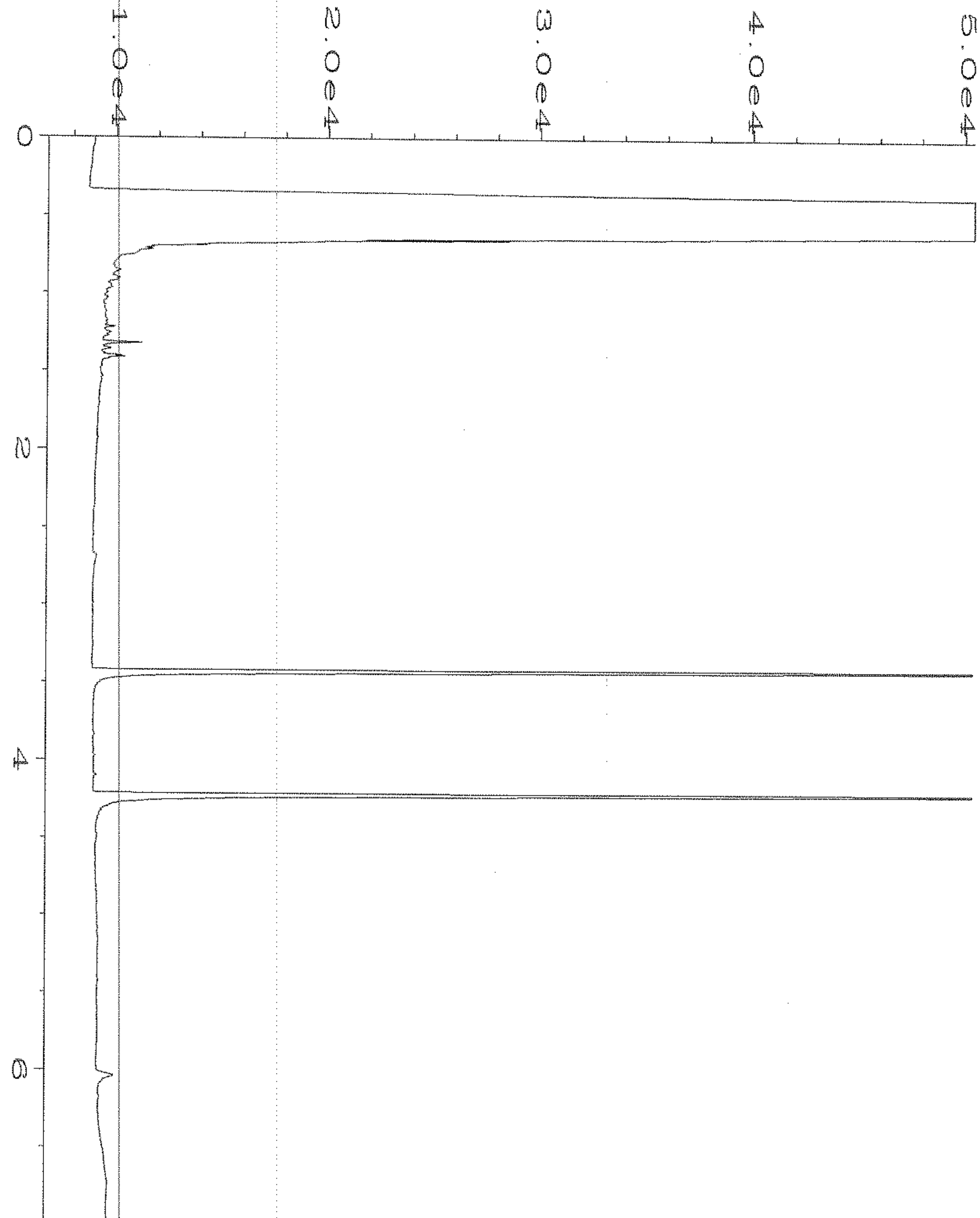
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 54
Sample Name	: 108509-05	Injection Number	: 1
Run Time Bar Code	:	Sequence Line	: 12
Acquired on	: 31 Aug 21 08:26 PM	Instrument Method	: DX.MTH
Report Created on	: 01 Sep 21 09:31 AM	Analysis Method	: DEFAULT.MTH



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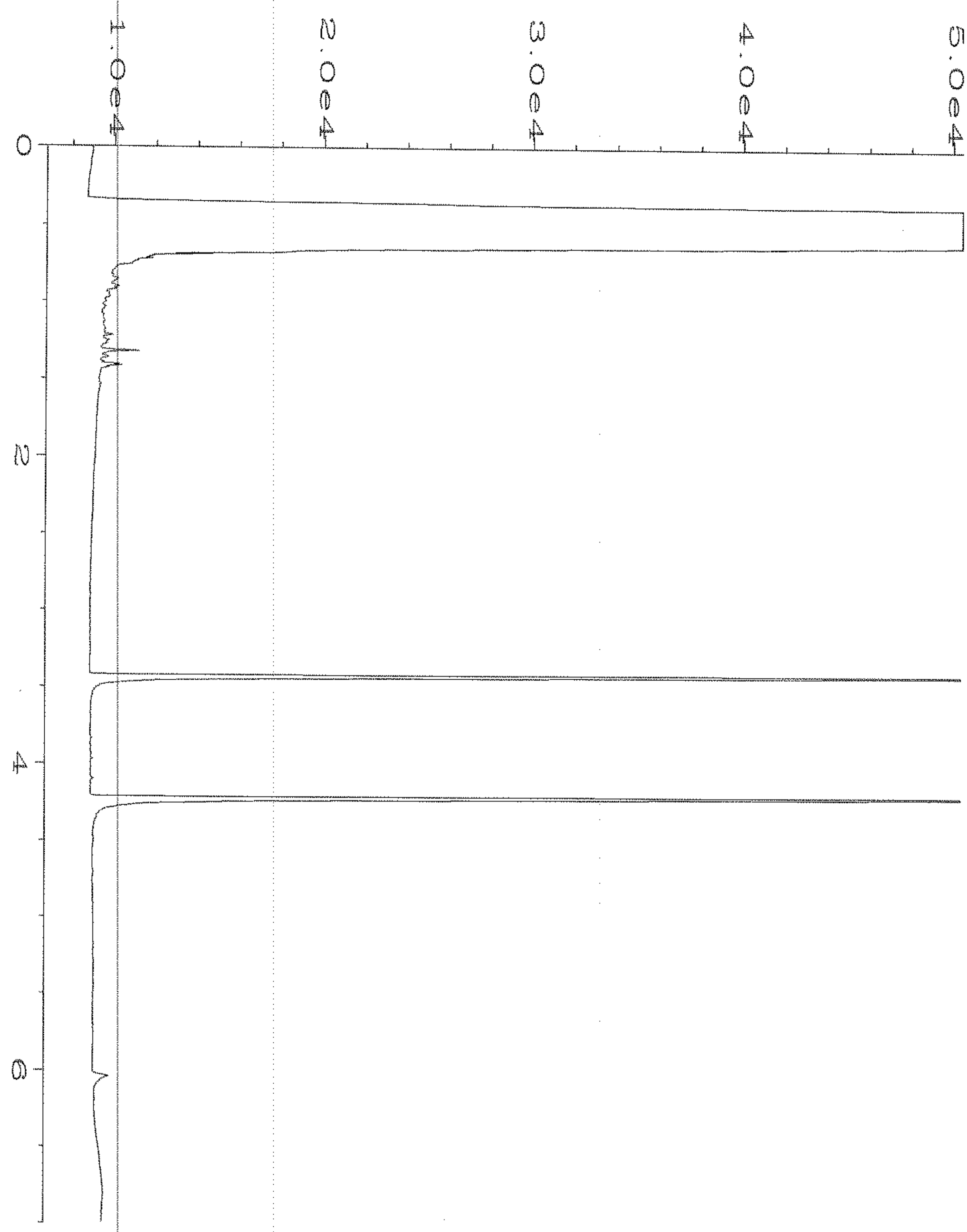
Operator : TL
Instrument : GC6
Sample Name : 108509-06
Run Time Bar Code:
Acquired on : 31 Aug 21 08:37 PM
Report Created on: 01 Sep 21 09:31 AM

Page Number : 1
Vial Number : 55
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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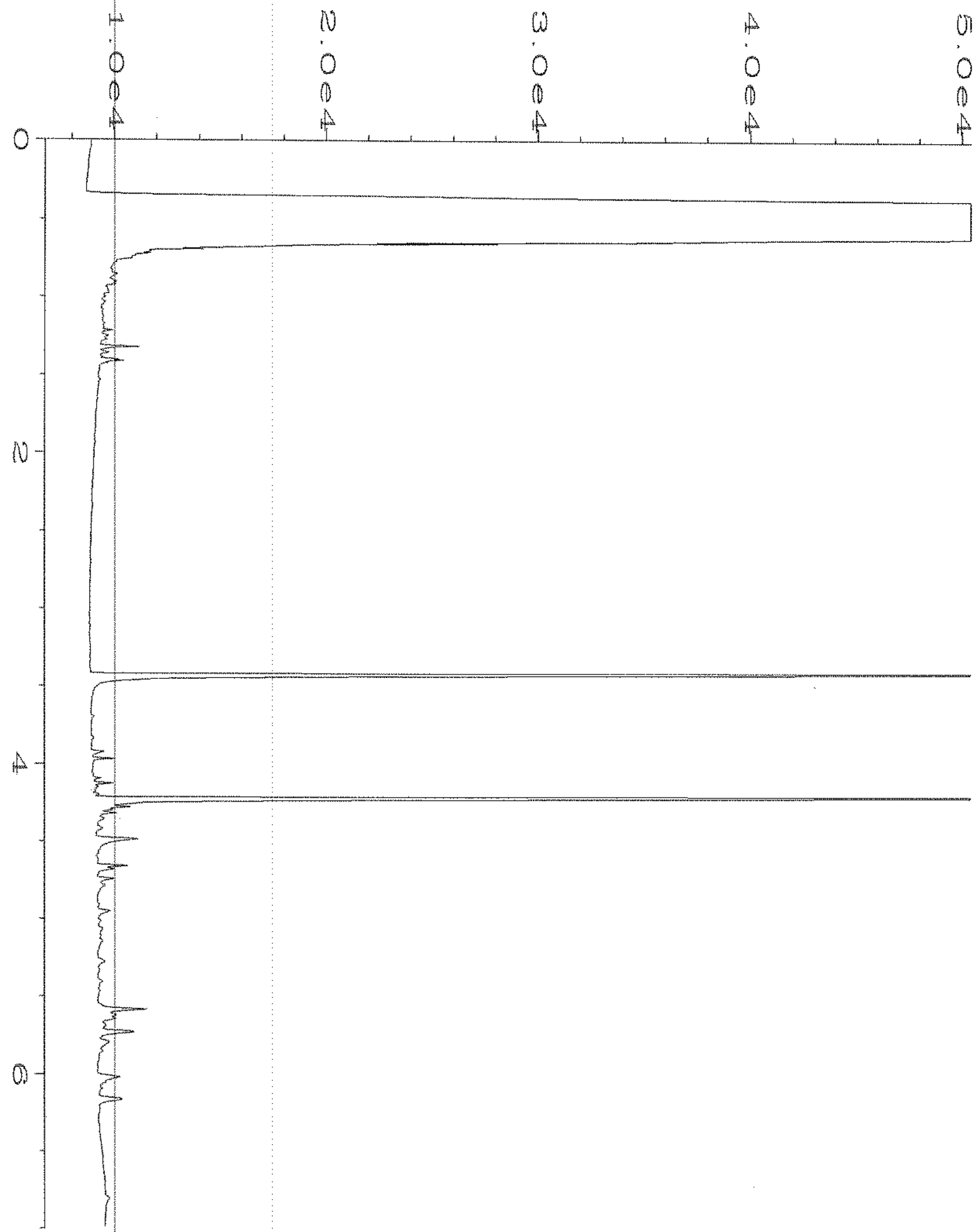
Operator : TL
Instrument : GC6
Sample Name : 108509-07
Run Time Bar Code:
Acquired on : 31 Aug 21 08:48 PM
Report Created on: 01 Sep 21 09:31 AM

Page Number : 1
Vial Number : 56
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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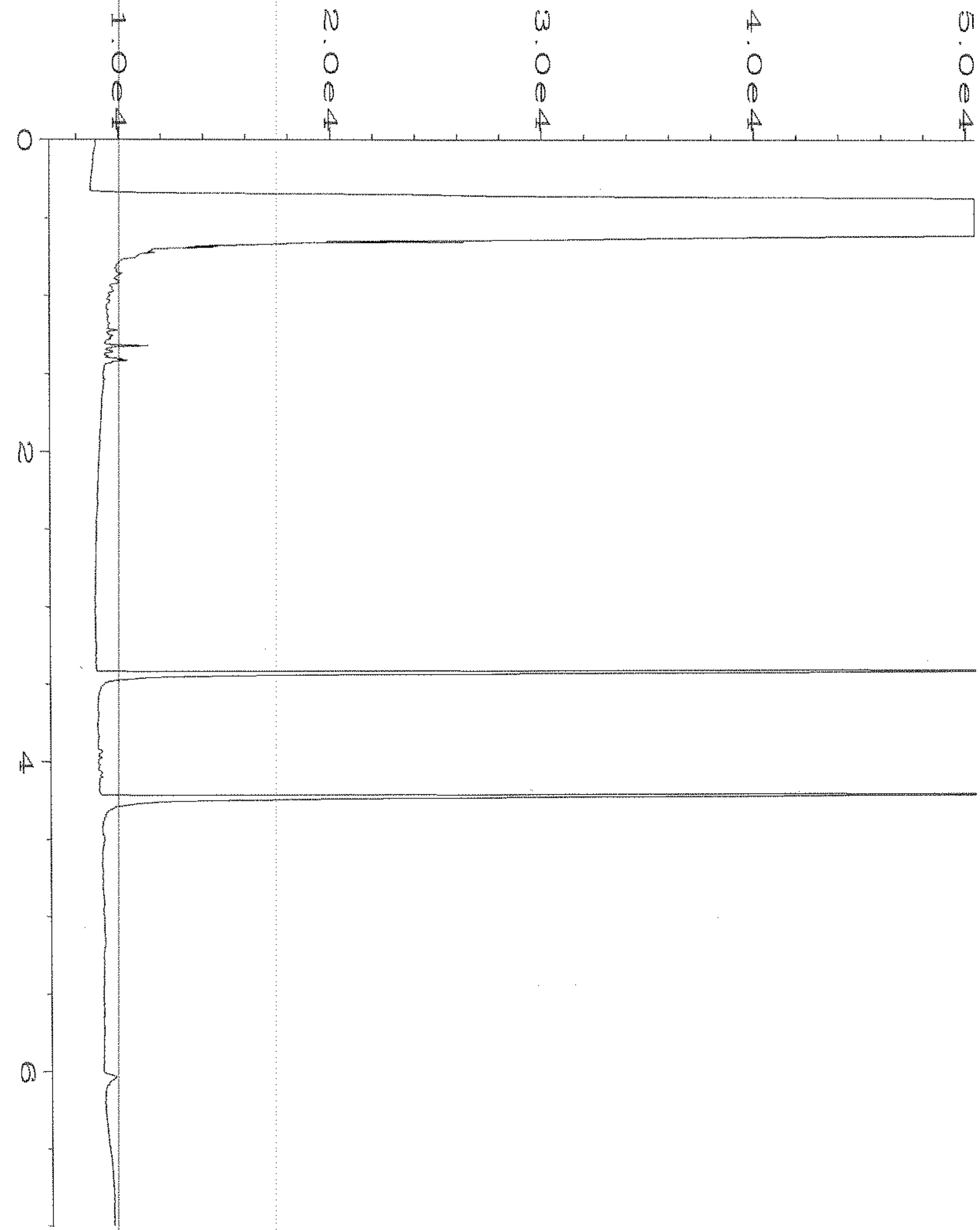
Operator : TL
Instrument : GC6
Sample Name : 108509-08
Run Time Bar Code:
Acquired on : 31 Aug 21 08:59 PM
Report Created on: 01 Sep 21 09:31 AM

Page Number : 1
Vial Number : 57
Injection Number : 1
Sequence Line : 12
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



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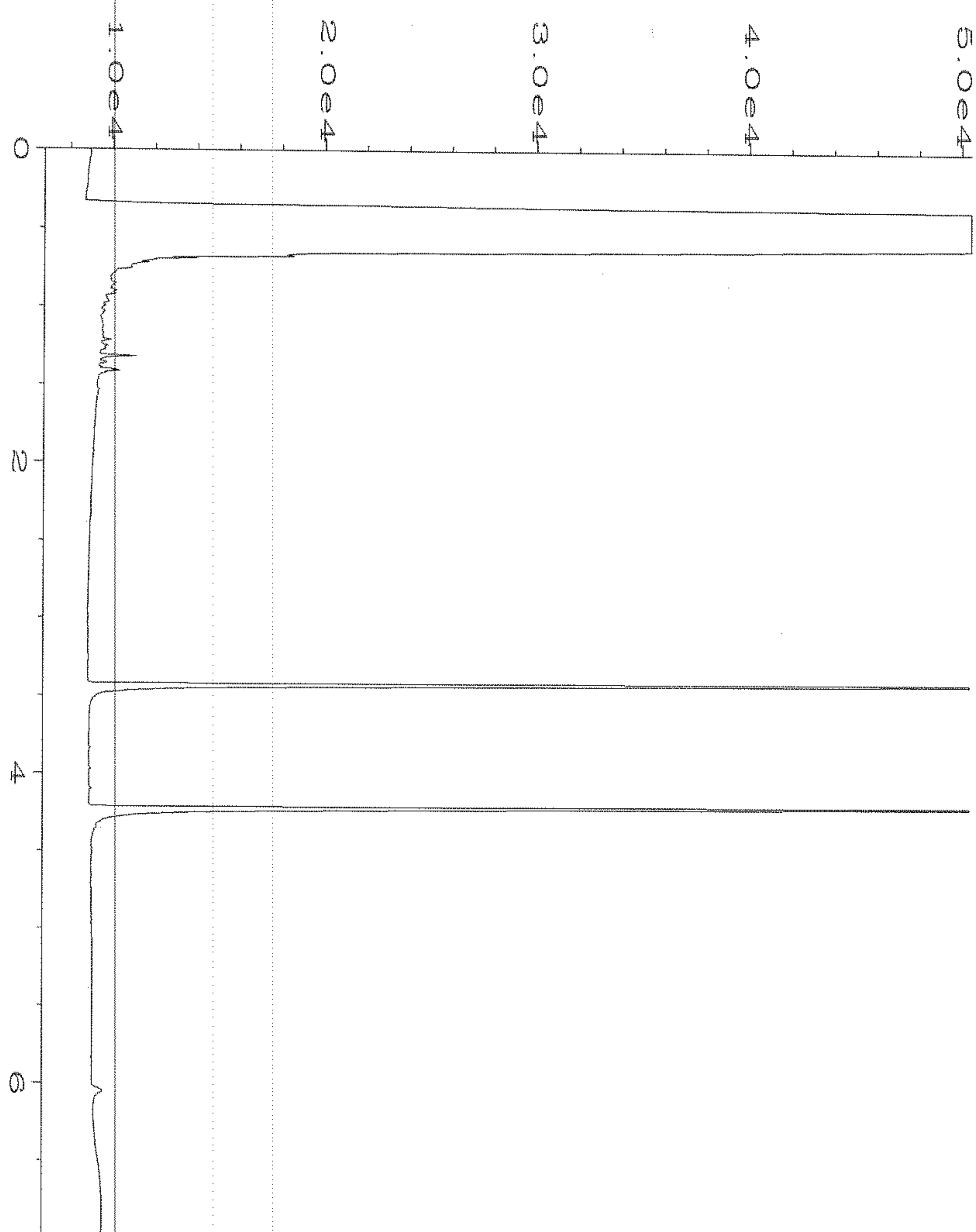
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 58
Sample Name	: 108509-09	Injection Number	: 1
Run Time Bar Code	:	Sequence Line	: 14
Acquired on	: 31 Aug 21 09:32 PM	Instrument Method	: DX.MTH
Report Created on	: 01 Sep 21 09:31 AM	Analysis Method	: DEFAULT.MTH



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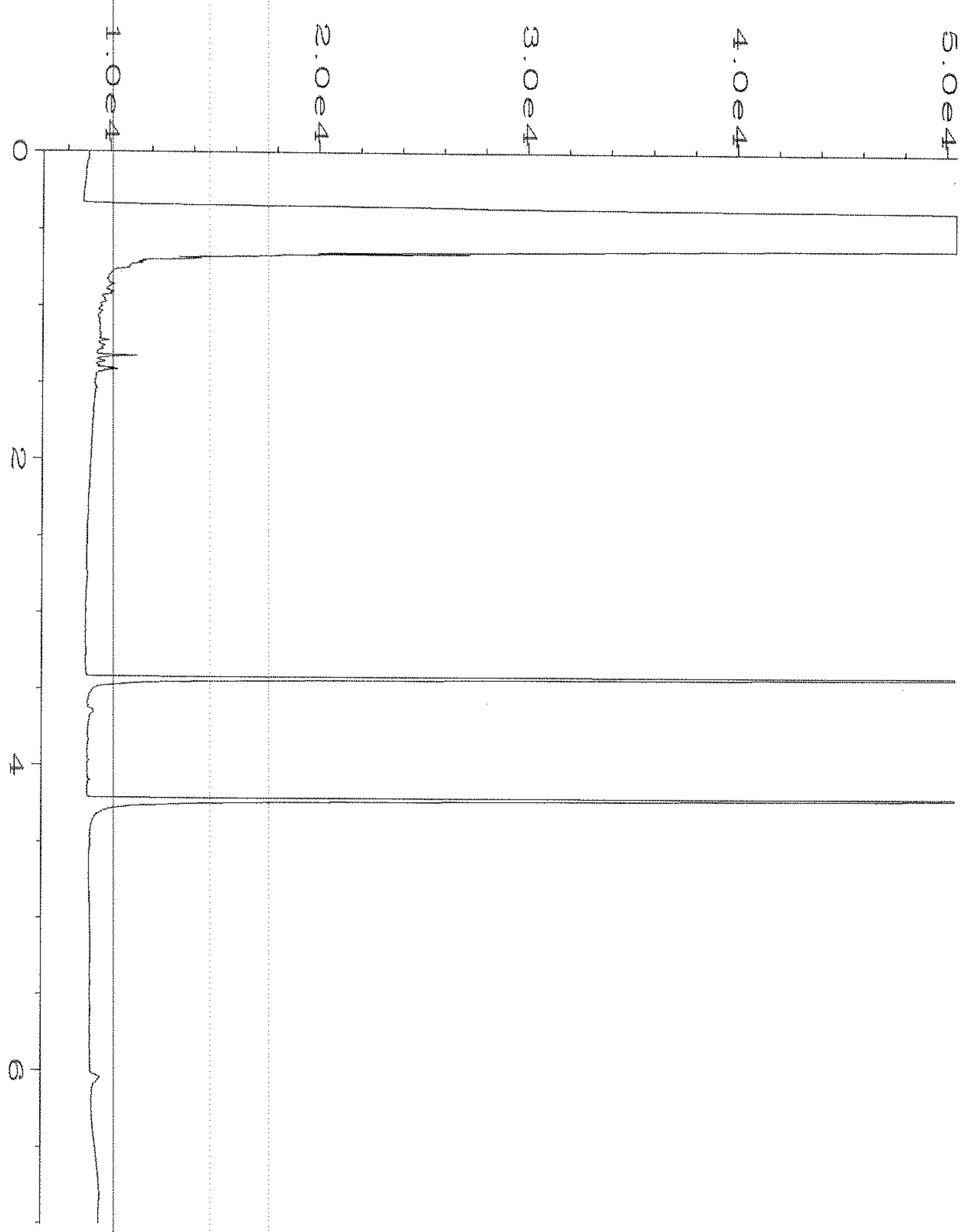
Operator	: TL	Page Number	:	1
Instrument	: GC6	Vial Number	:	59
Sample Name	: 108509-10	Injection Number	:	1
Run Time Bar Code	:	Sequence Line	:	14
Acquired on	: 31 Aug 21 09:43 PM	Instrument Method	:	DX.MTH
Report Created on	: 01 Sep 21 09:31 AM	Analysis Method	:	DEFAULT.MTH



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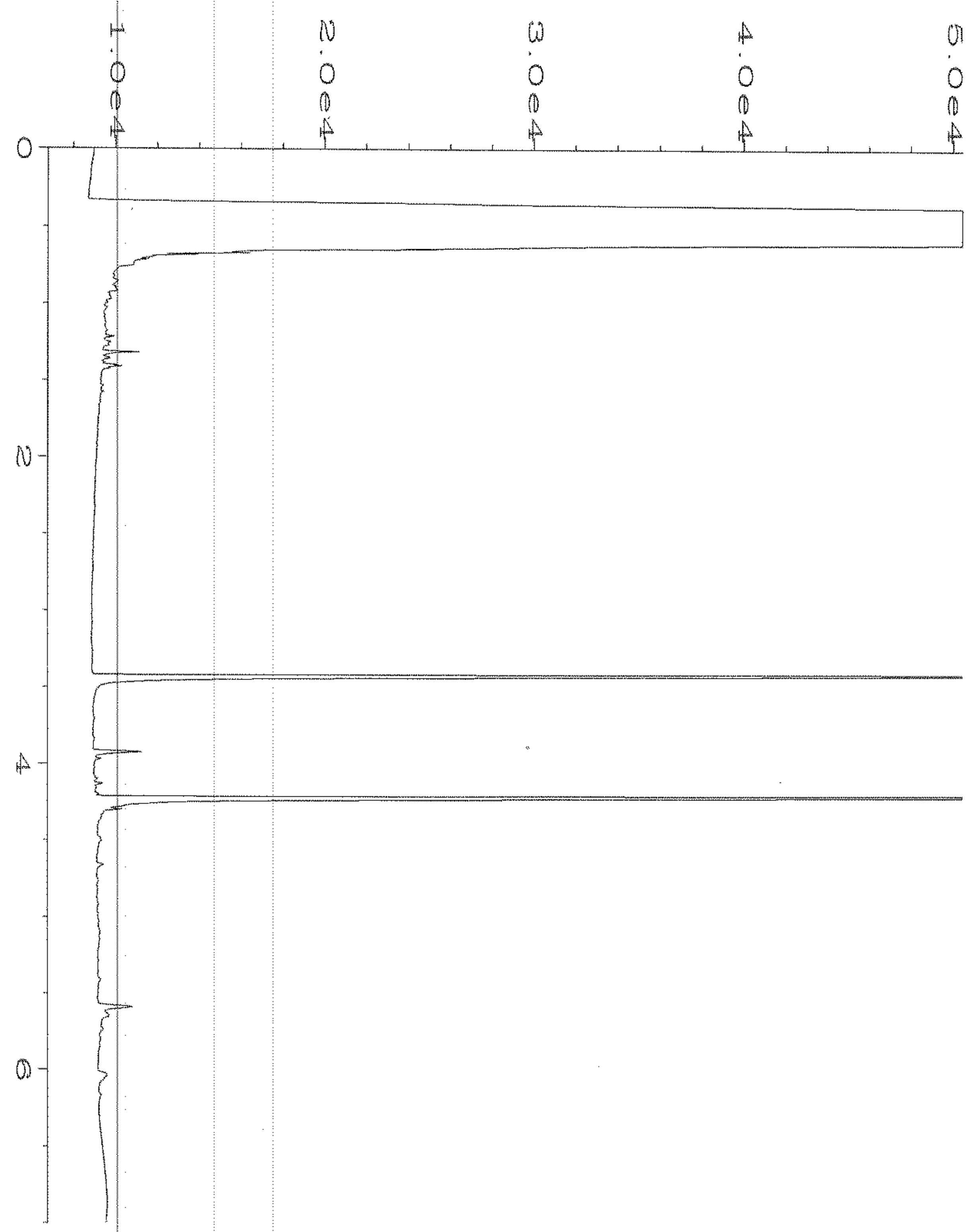
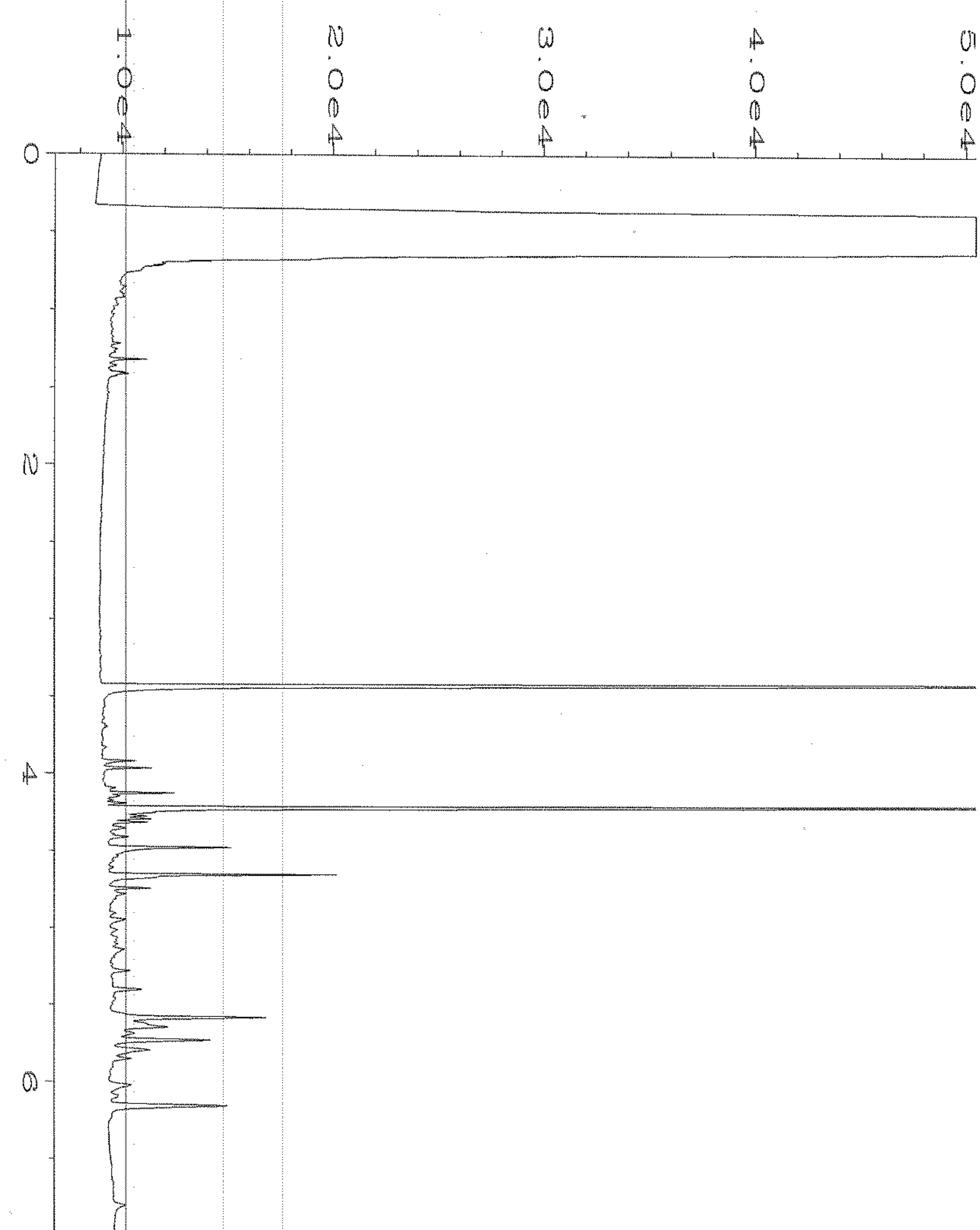
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 60
Sample Name	: 108509-11	Injection Number	: 1
Run Time Bar Code	:	Sequence Line	: 14
Acquired on	: 31 Aug 21 09:54 PM	Instrument Method	: DX.MTH
Report Created on	: 01 Sep 21 09:32 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\6\DATA\08-31-21\061F1401.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 61
Sample Name	: 108509-12	Injection Number	: 1
Run Time Bar Code	:	Sequence Line	: 14
Acquired on	: 31 Aug 21 10:05 PM	Instrument Method	: DX.MTH
Report Created on	: 01 Sep 21 09:32 AM	Analysis Method	: DEFAULT.MTH



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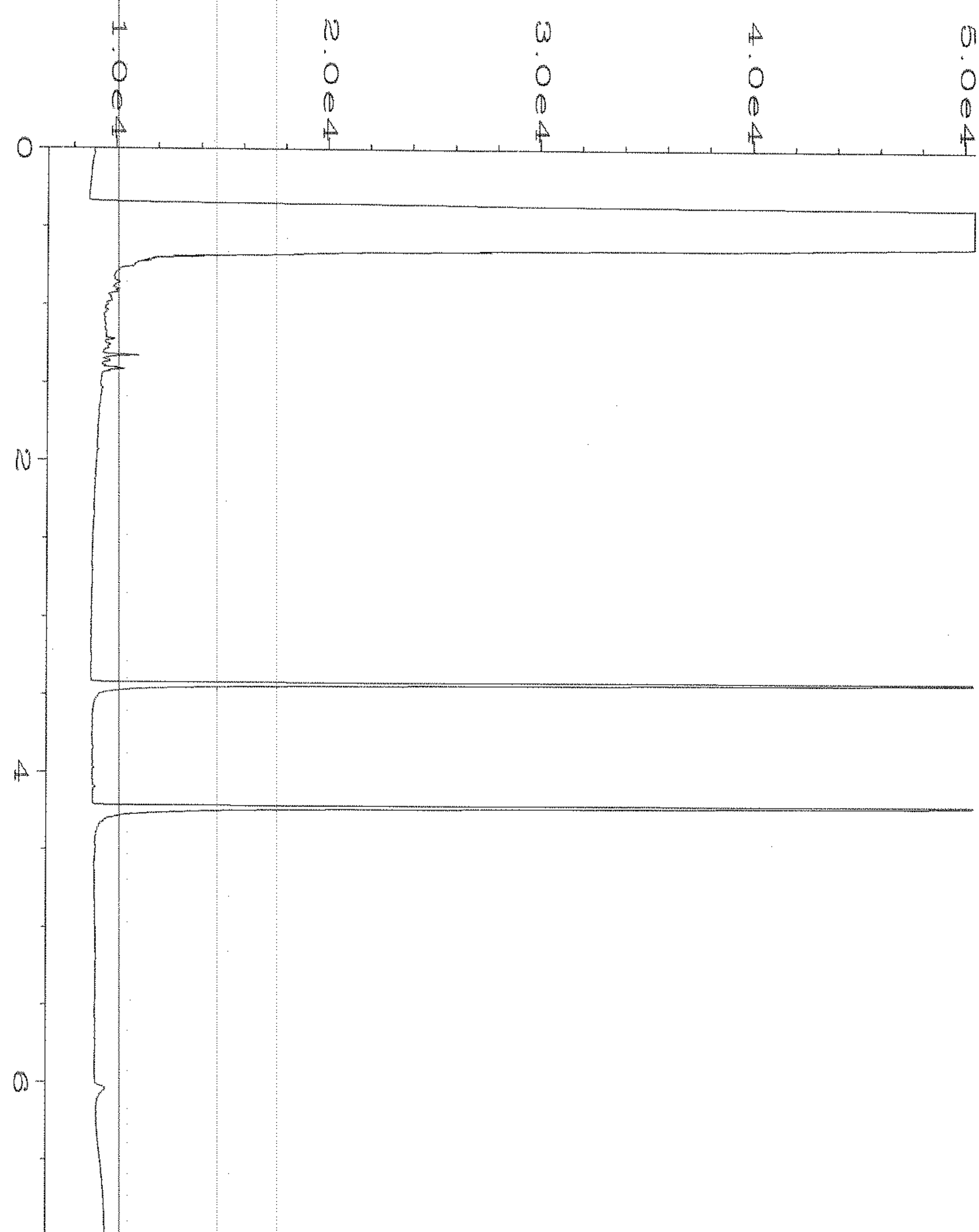
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 62
Sample Name	: 108509-13	Injection Number	: 1
Run Time Bar Code	:	Sequence Line	: 14
Acquired on	: 31 Aug 21 10:16 PM	Instrument Method	: DX.MTH
Report Created on	: 01 Sep 21 09:32 AM	Analysis Method	: DEFAULT.MTH



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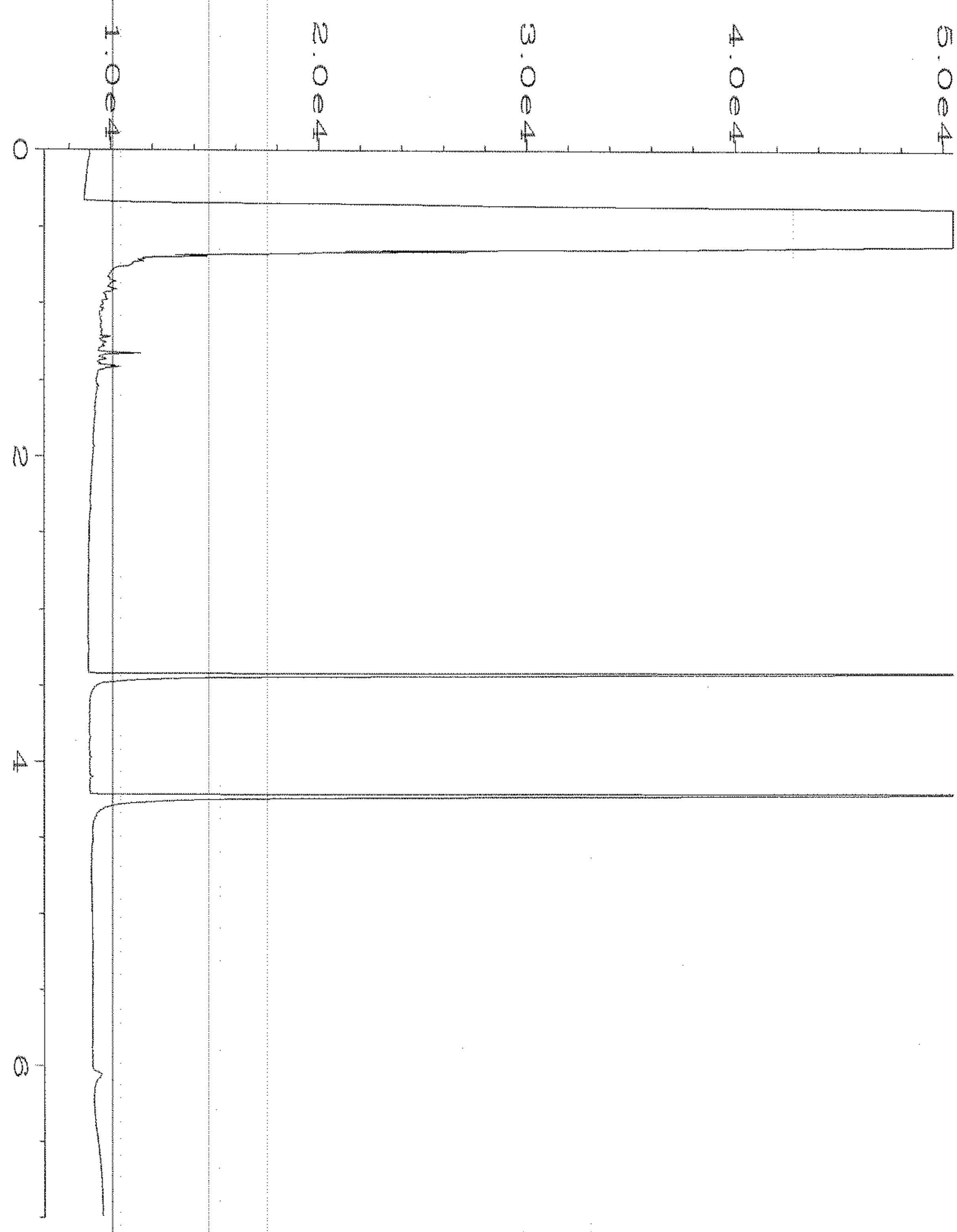
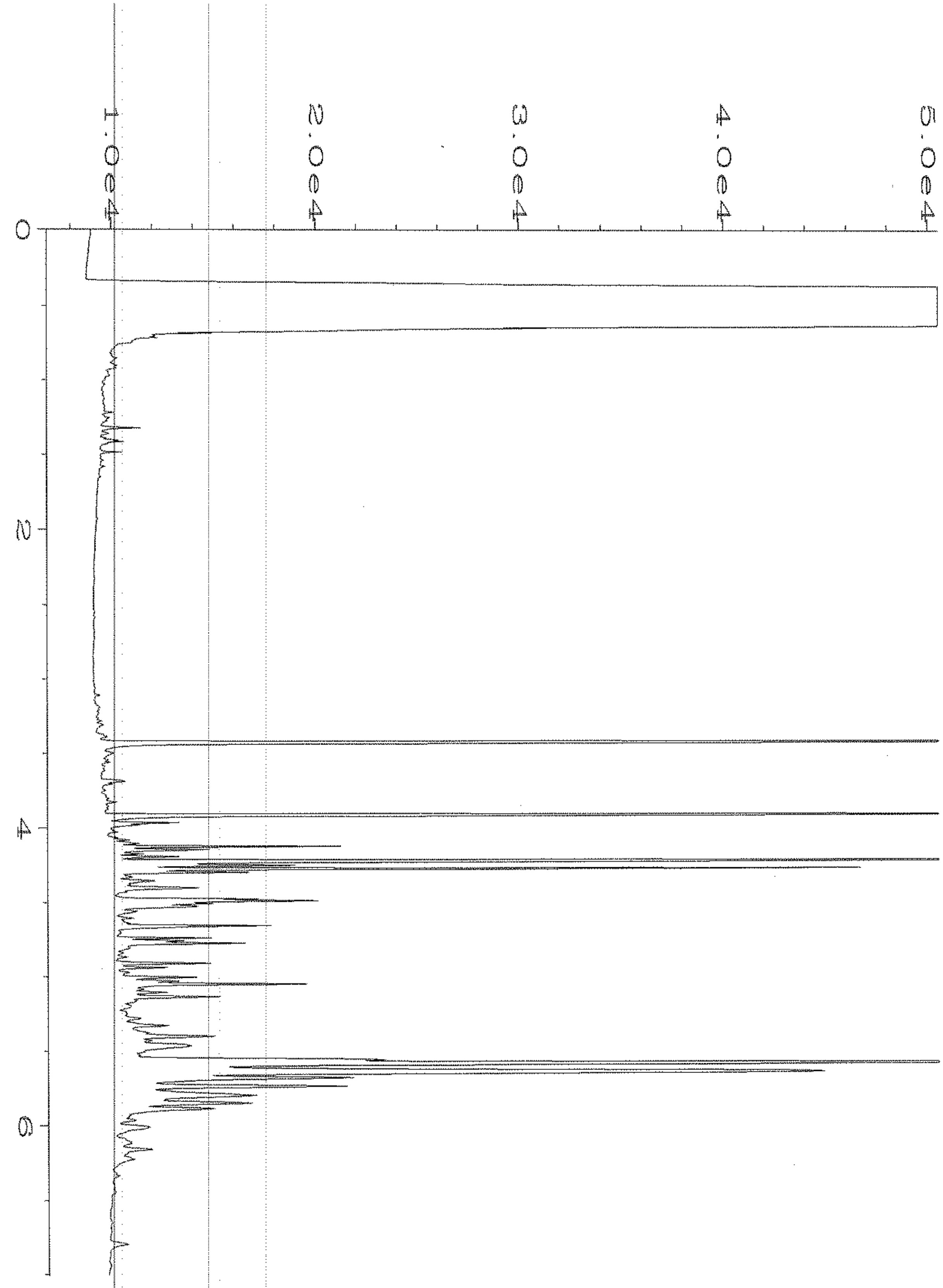
Operator	:	TL	Page Number	:	1
Instrument	:	GC6	Vial Number	:	63
Sample Name	:	108509-14	Injection Number	:	1
Run Time Bar Code	:		Sequence Line	:	14
Acquired on	:	31 Aug 21 10:27 PM	Instrument Method	:	DX.MTH
Report Created on	:	01 Sep 21 09:32 AM	Analysis Method	:	DEFAULT.MTH



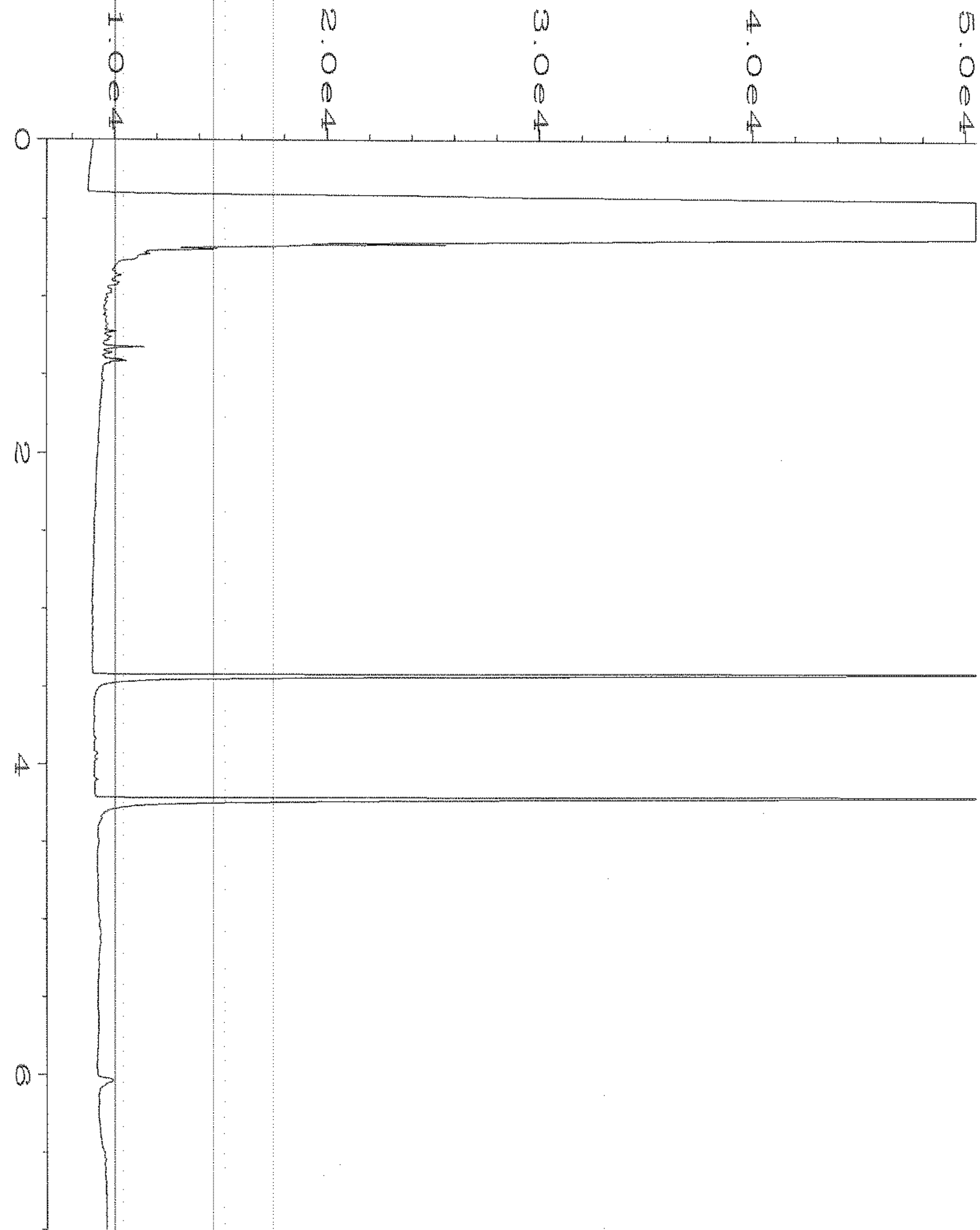
Data File Name : C:\HPCHEM\6\DATA\08-31-21\064F1401.D
Operator : TL
Instrument : GC6
Sample Name : 108509-15
Run Time Bar Code:
Acquired on : 31 Aug 21 10:39 PM
Report Created on: 01 Sep 21 09:32 AM

Page Number : 1
Vial Number : 64
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



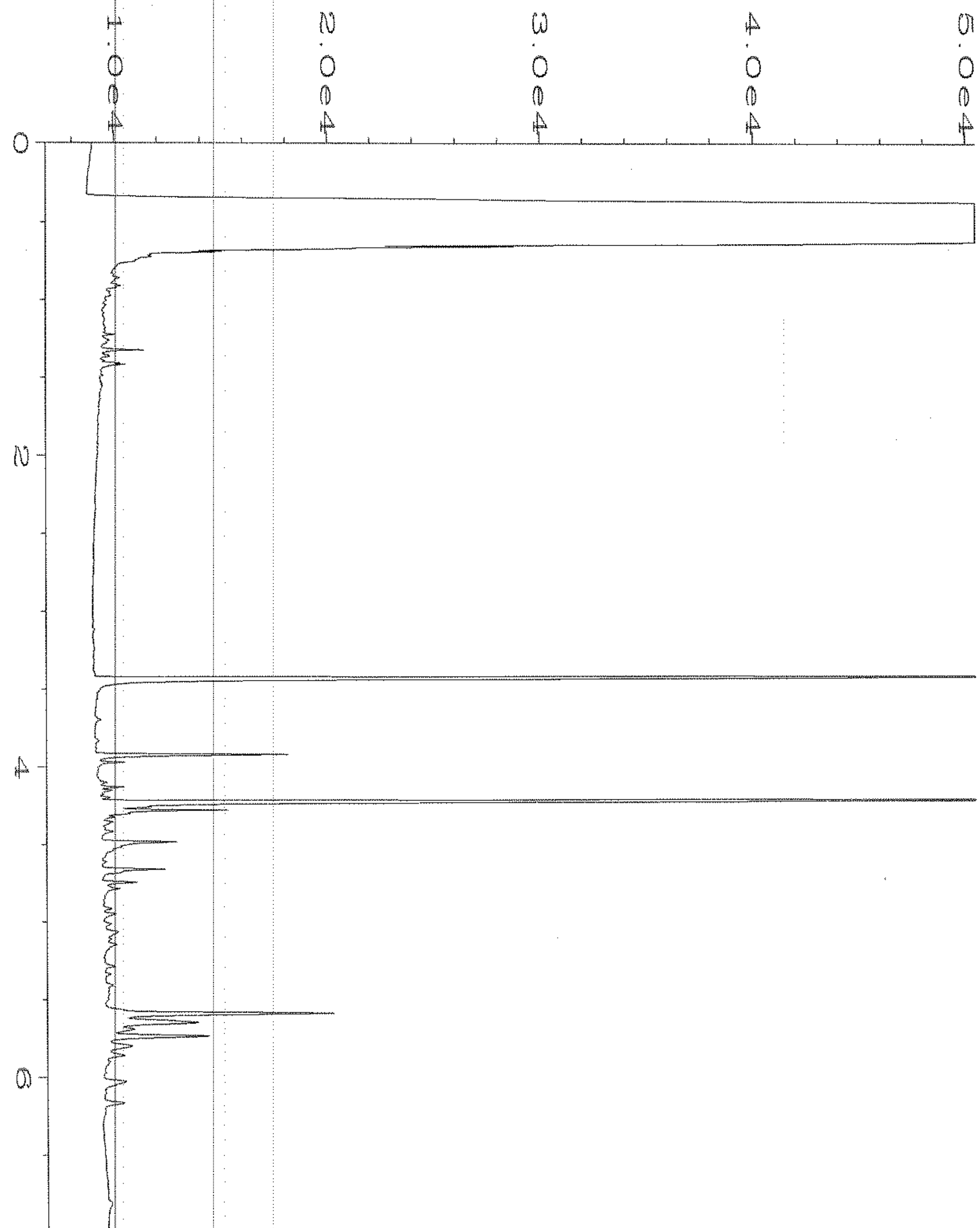
Data File Name : C:\HPCHEM\6\DATA\08-31-21\065F1401.D
Operator : TL
Instrument : GC6
Sample Name : 108509-16
Run Time Bar Code:
Acquired on : 31 Aug 21 10:50 PM
Report Created on: 01 Sep 21 09:32 AM

Page Number : 1
Vial Number : 65
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH

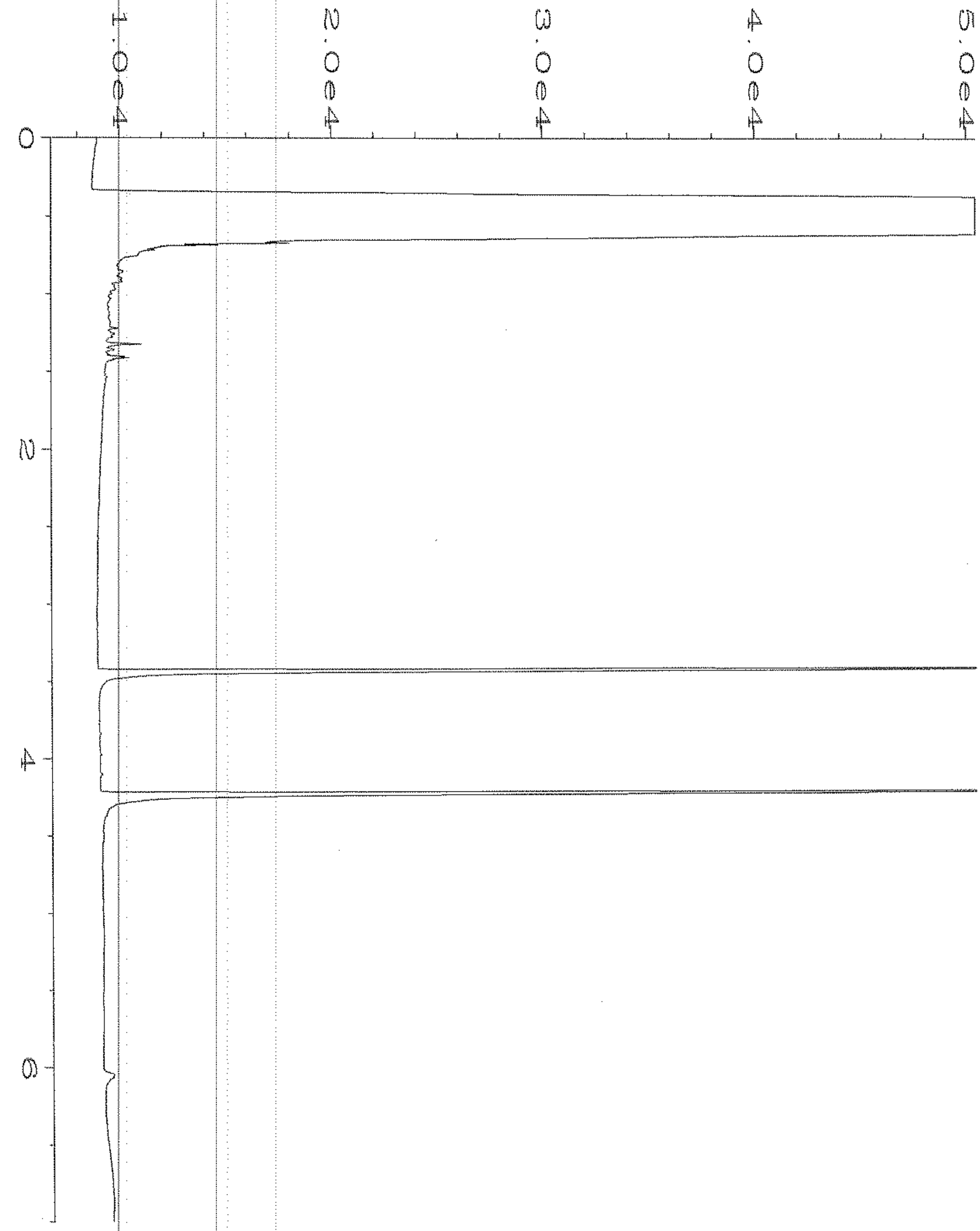


Data File Name : C:\HPCHEM\6\DATA\08-31-21\066F1401.D
Operator : TL
Instrument : GC6
Sample Name : 108509-17
Run Time Bar Code:
Acquired on : 31 Aug 21 11:01 PM
Report Created on: 01 Sep 21 09:33 AM

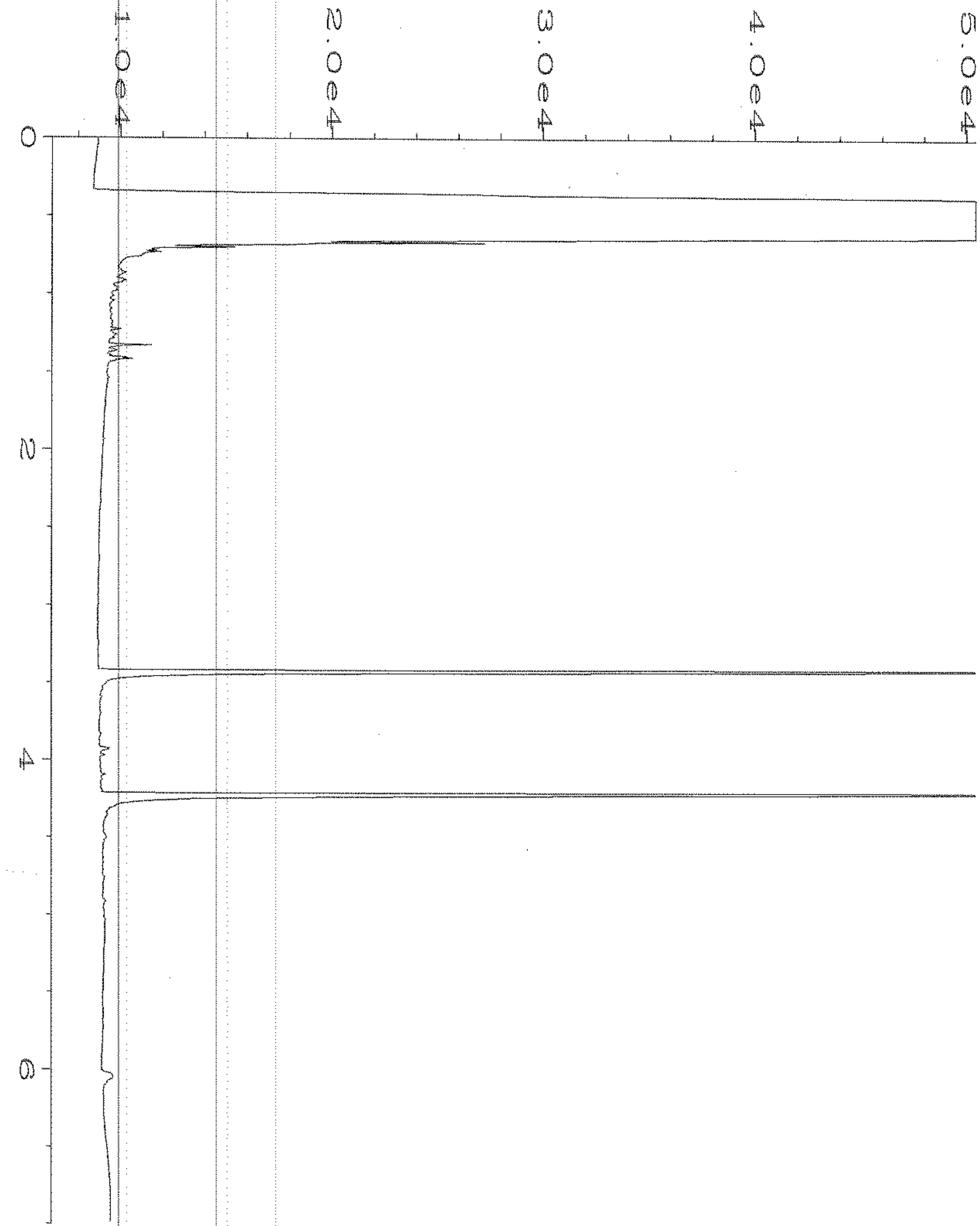
Page Number : 1
Vial Number : 66
Injection Number : 1
Sequence Line : 14
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



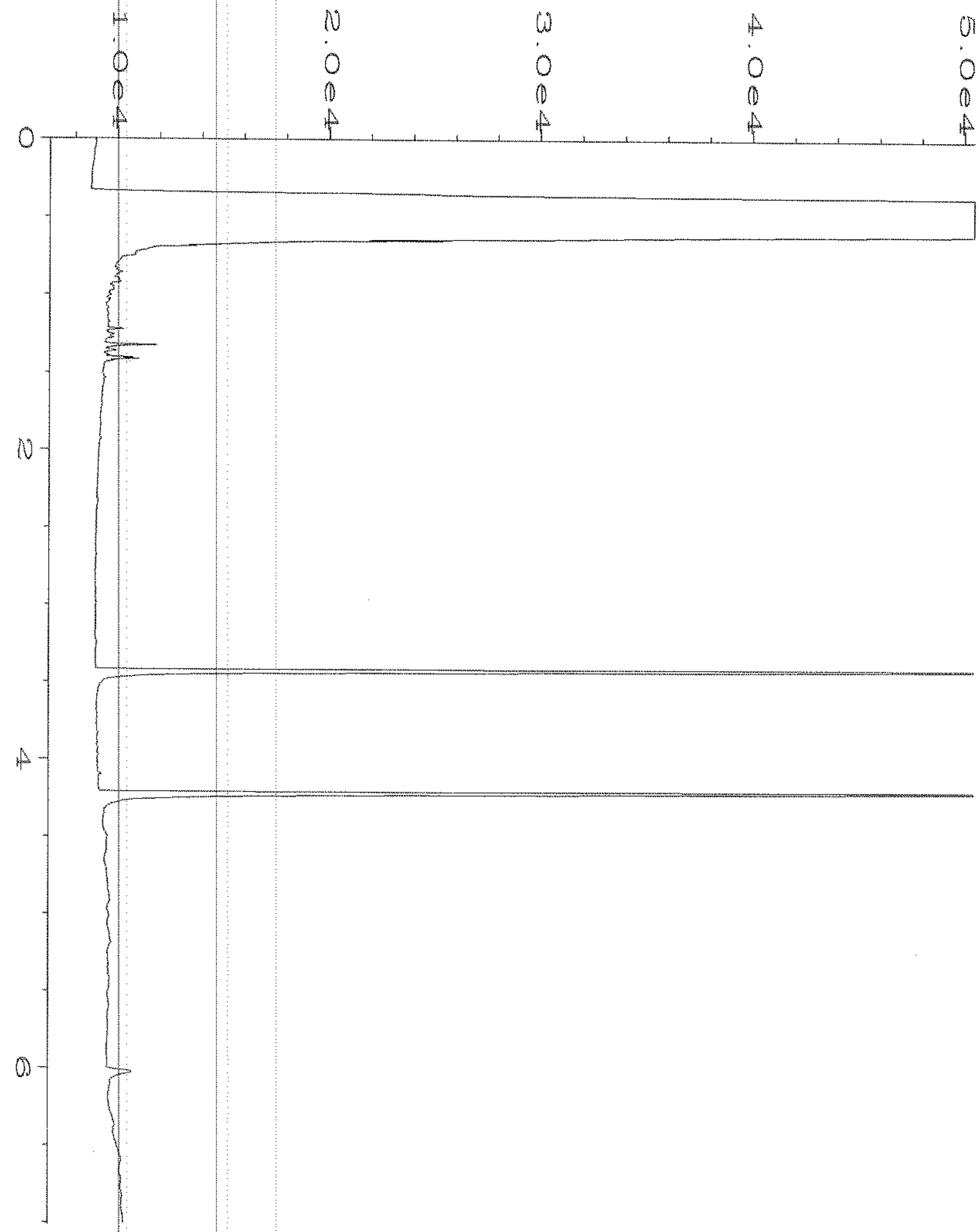
Data File Name	: C:\HPCHEM\6\DATA\08-31-21\067F1401.D			
Operator	: TL	Page Number	:	1
Instrument	: GC6	Vial Number	:	67
Sample Name	: 108509-18	Injection Number	:	1
Run Time Bar Code	:	Sequence Line	:	14
Acquired on	: 31 Aug 21 11:11 PM	Instrument Method	:	DX.MTH
Report Created on	: 01 Sep 21 09:33 AM	Analysis Method	:	DEFAULT.MTH



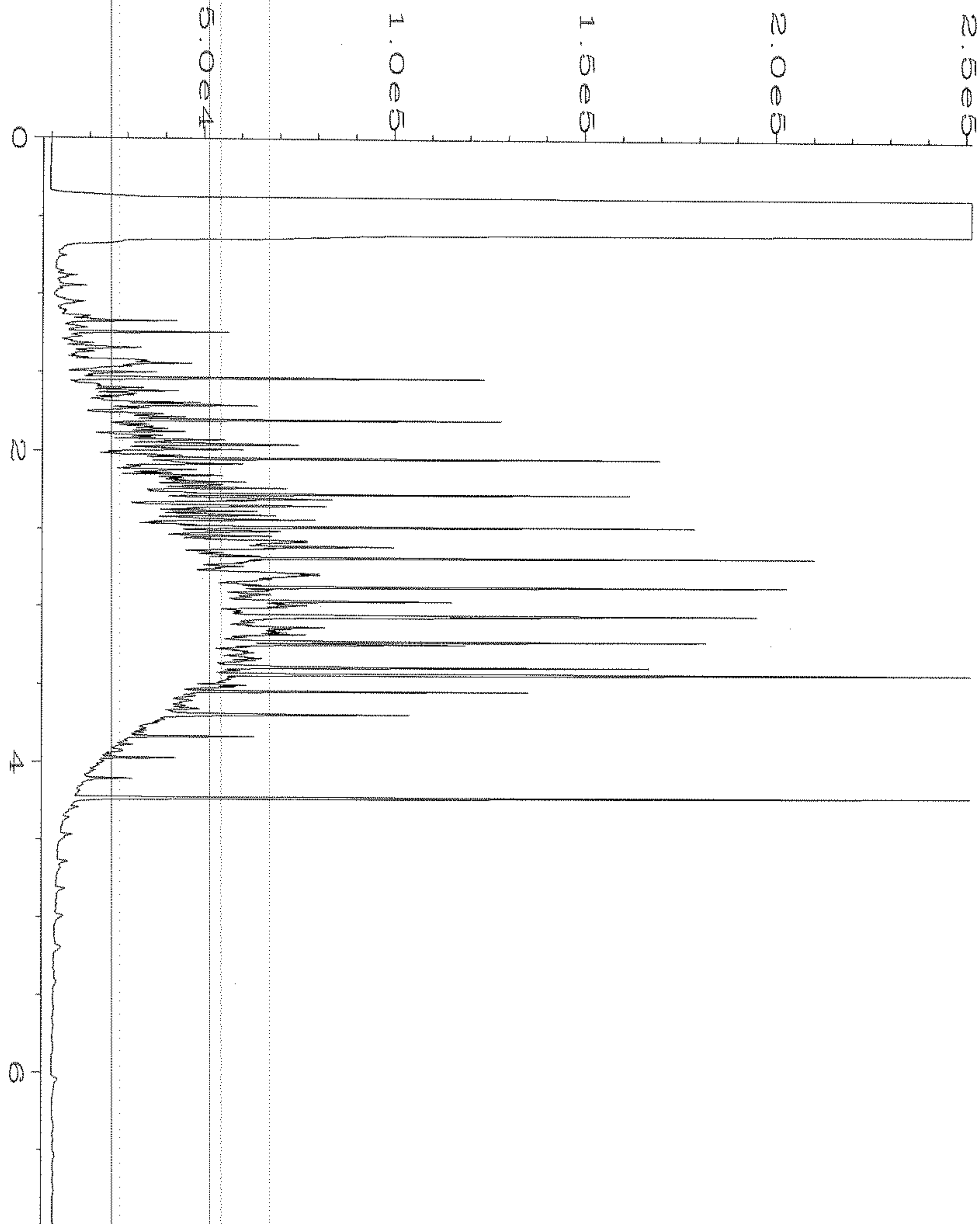
Data File Name	: C:\HPCHEM\6\DATA\08-31-21\068F1401.D				
Operator	: TL	Page Number	: 1		
Instrument	: GC6	Vial Number	: 68		
Sample Name	: 108509-19	Injection Number	: 1		
Run Time Bar Code	:	Sequence Line	: 14		
Acquired on	: 31 Aug 21 11:22 PM	Instrument Method	: DX.MTH		
Report Created on	: 01 Sep 21 09:33 AM	Analysis Method	: DEFAULT.MTH		



Data File Name	: C:\HPCHEM\6\DATA\08-31-21\069F1401.D			
Operator	: TL	Page Number	:	1
Instrument	: GC6	Vial Number	:	69
Sample Name	: 108509-20	Injection Number	:	1
Run Time Bar Code	:	Sequence Line	:	14
Acquired on	: 31 Aug 21 11:33 PM	Instrument Method	:	DX.MTH
Report Created on	: 01 Sep 21 09:33 AM	Analysis Method	:	DEFAULT.MTH



Data File Name	: C:\HPCHEM\6\DATA\08-31-21\046F1201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 46
Sample Name	: 01-2049 mb	Injection Number	: 1
Run Time Bar Code	:	Sequence Line	: 12
Acquired on	: 31 Aug 21 06:58 PM	Instrument Method	: DX.MTH
Report Created on	: 01 Sep 21 09:41 AM	Analysis Method	: DEFAULT.MTH



Data File Name	: C:\HPCHEM\6\DATA\08-31-21\003F0201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC6	Vial Number	: 3
Sample Name	: 500 Dx 63-79C	Injection Number	: 1
Run Time Bar Code	:	Sequence Line	: 2
Acquired on	: 31 Aug 21 06:18 AM	Instrument Method	: DX.MTH
Report Created on	: 01 Sep 21 09:41 AM	Analysis Method	: DEFAULT.MTH

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Yelena Aravkina, M.S.
Michael Erdahl, B.S.
Arina Podnozova, B.S.
Eric Young, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
(206) 285-8282
fbi@isomedia.com
www.friedmanandbruya.com

September 3, 2021

Corey League, Project Manager
SoundEarth Strategies
2811 Fairview Ave. East, Suite 2000
Seattle, WA 98102

Dear Mr League:

Included are the results from the testing of material submitted on August 31, 2021 from the SOU_1410-002_ 20210831, F&BI 108510 project. There are 6 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days, or as directed by the Chain of Custody document. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Michael Erdahl
Project Manager

Enclosures
c: Kyle Lowery, Levi Fernandes
SOU0903R.DOC

CASE NARRATIVE

This case narrative encompasses samples received on August 31, 2021 by Friedman & Bruya, Inc. from the SoundEarth Strategies SOU_1410-002_ 20210831, F&BI 108510 project. Samples were logged in under the laboratory ID's listed below.

Laboratory ID	SoundEarth Strategies
108510 -01	EX01-20210831

All quality control requirements were acceptable.

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108510
Date Extracted: 09/02/21
Date Analyzed: 09/02/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES AND TPH AS GASOLINE USING METHODS 8021B AND NWTPH-Gx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Gasoline Range	Surrogate (% Recovery) (Limit 52-124)
EX01-20210831 108510-01	<1	<1	<1	<3	<100	83
Method Blank 01-1923 MB	<1	<1	<1	<3	<100	82

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108510
Date Extracted: 09/02/21
Date Analyzed: 09/02/21

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL AND MOTOR OIL USING METHOD NWTPH-Dx

Results Reported as ug/L (ppb)

Sample ID Laboratory ID	Diesel Range (C_{10}-C_{25})	Motor Oil Range (C_{25}-C_{36})	Surrogate (% Recovery) (Limit 41-152)
EX01-20210831 108510-01	<50	<250	80
Method Blank 01-2050 MB2	<50	<250	82

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108510

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR BENZENE, TOLUENE, ETHYLBENZENE, XYLENES, AND TPH AS GASOLINE USING EPA METHOD 8021B AND NWTPH-Gx

Laboratory Code: 109002-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	RPD (Limit 20)
Benzene	ug/L (ppb)	<0.1	<1	nm
Toluene	ug/L (ppb)	<0.1	<1	nm
Ethylbenzene	ug/L (ppb)	<0.1	<1	nm
Xylenes	ug/L (ppb)	<0.3	<3	nm
Gasoline	ug/L (ppb)	<10	<100	nm

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	ug/L (ppb)	50	101	65-118
Toluene	ug/L (ppb)	50	103	72-122
Ethylbenzene	ug/L (ppb)	50	105	73-126
Xylenes	ug/L (ppb)	150	99	74-118
Gasoline	ug/L (ppb)	1,000	102	69-134

Date of Report: 09/03/21
Date Received: 08/31/21
Project: SOU_1410-002_ 20210831, F&BI 108510

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED USING METHOD NWTPH-Dx

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Percent Recovery LCSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	ug/L (ppb)	2,500	68	82	63-142	19

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for the analyte were outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte may be due to carryover from previous sample injections.

cf - The sample was centrifuged prior to analysis.

d - The sample was diluted. Detection limits were raised and surrogate recoveries may not be meaningful.

dv - Insufficient sample volume was available to achieve normal reporting limits.

f - The sample was laboratory filtered prior to analysis.

fb - The analyte was detected in the method blank.

fc - The analyte is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. Variability is attributed to sample inhomogeneity.

hs - Headspace was present in the container used for analysis.

ht – The analysis was performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of control limits due to sample matrix effects.

j - The analyte concentration is reported below the lowest calibration standard. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The laboratory control sample(s) percent recovery and/or RPD were out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the analyte is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc - The sample was received with incorrect preservation or in a container not approved by the method. The value reported should be considered an estimate.

ve - The analyte response exceeded the valid instrument calibration range. The value reported is an estimate.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

108510
[redacted]

SAMPLE CHAIN OF CUSTODY

ME 08-31-21 [redacted]

Page # 1 of 1 VW1

Report To Corey Leugue / Kyle Lowery

Company Sound Earth Strategies

Address 2811 Fairview Ave E

City, State, ZIP Seattle, WA, 98102

Phone — Email —

SAMPLERS (*signature*)	
PROJECT NAME	PO # 1410-002
REMARKS Project specific RLs? - Yes / No	INVOICE TO

TURNAROUND TIME E03
- ☐ Standard turnaround
- ☐ RUSH 24 hr TAT

Rush charges authorized by:

SAMPLE DISPOSAL
- ☐ Archive samples
- ☐ Other
Default: Dispose after 30 days

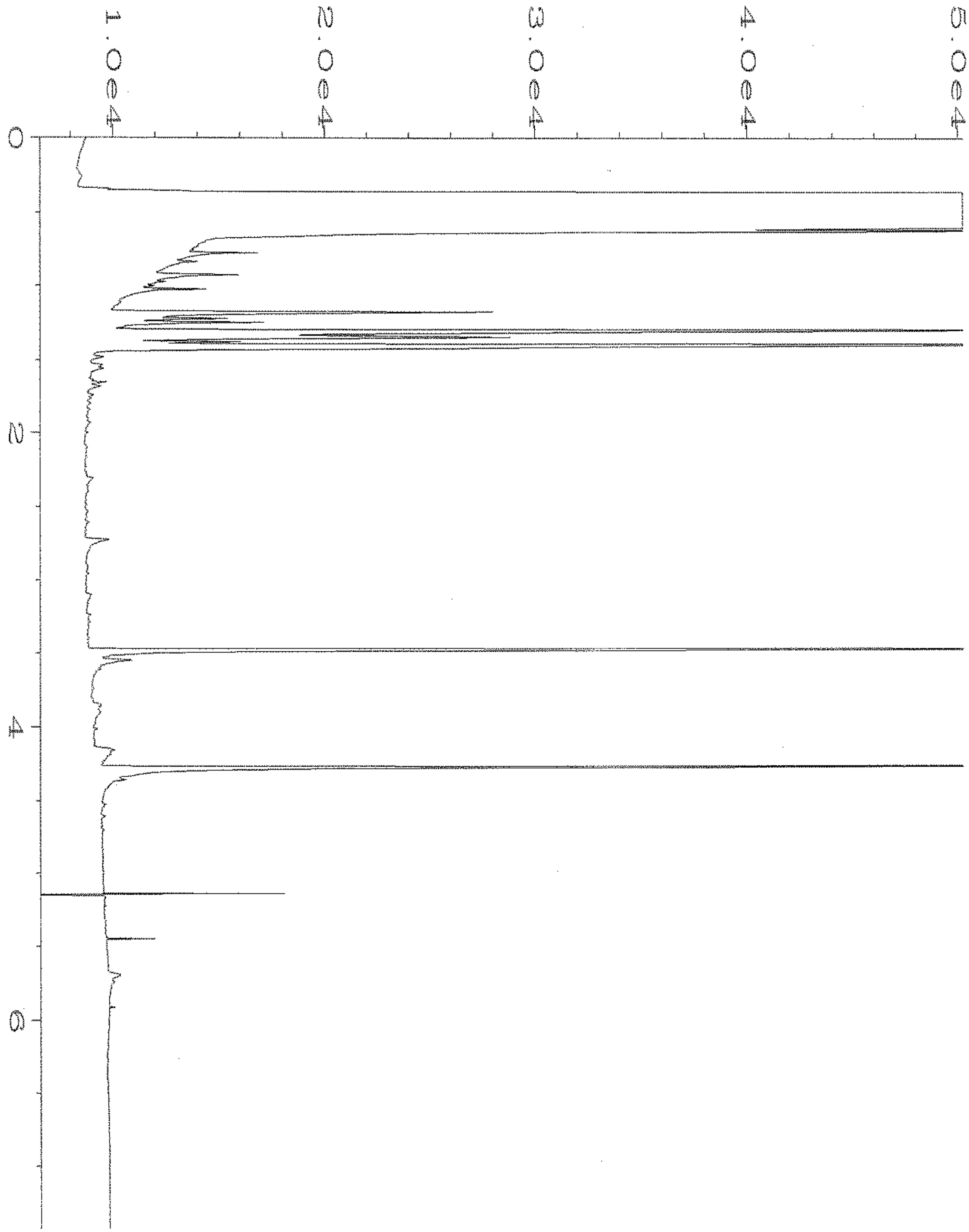
Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of Jars	NWTPH-Dx	NWTPH-Gx	BTEX EPA 8021	NWTPH-HCID	VOCs EPA 8260	PAHs EPA 8270	PCBs EPA 8082					Notes
EX01-20210831	01 A-D	08/31/21	1310	H_2O	4	X	X	X									~~Hold per LF 8/31/21 ME~~ Analyze per CL 9/1/21 ME

MG 8/31/21

Samples received at 4 °C

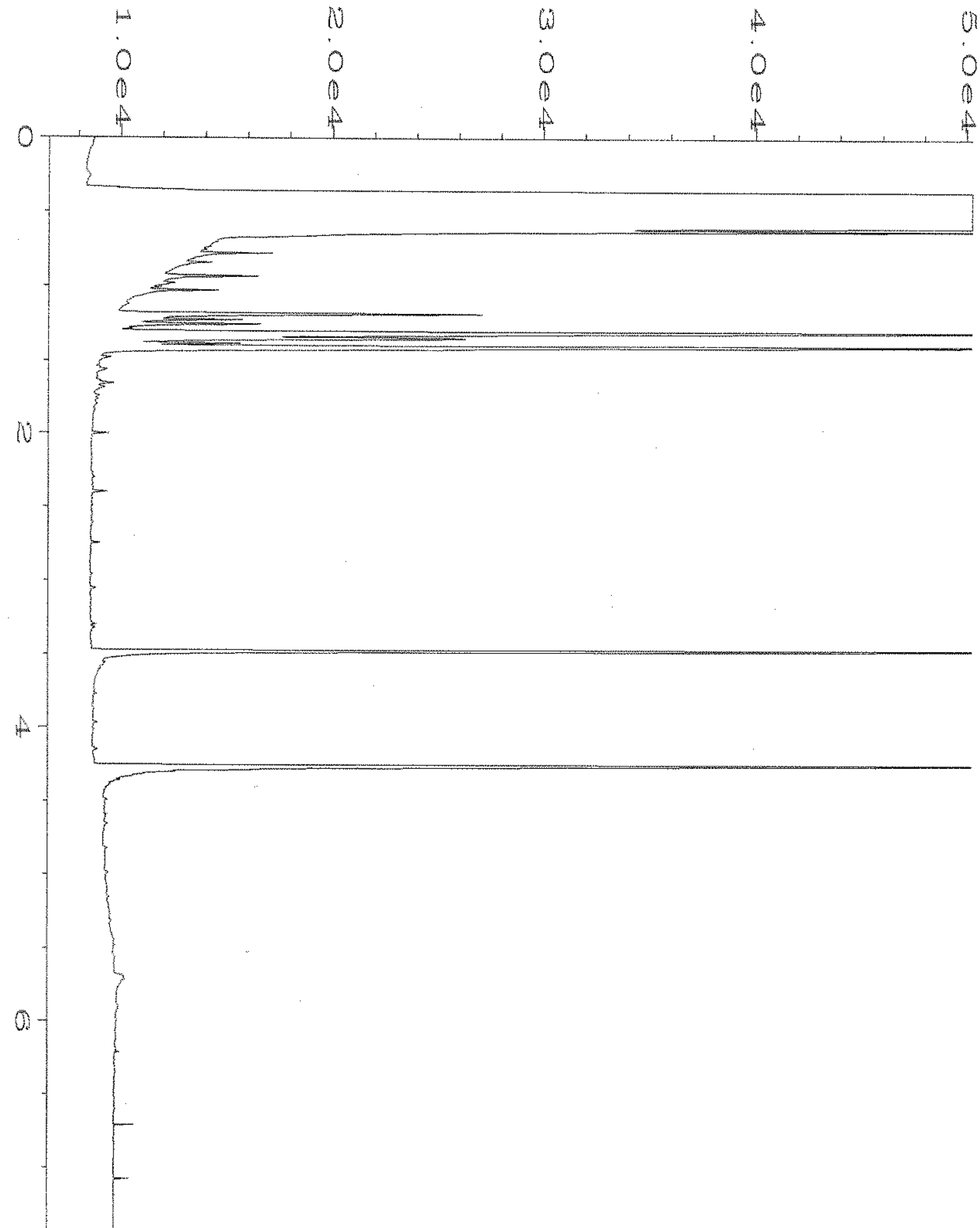
Friedman & Bruya, Inc.
3012 16th Avenue West
Seattle, WA 98119-2029
Ph. (206) 285-8282

SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:	Kyle Lowery	SES	08/31/21	1520
Received by:	Max Goldman	FBI	08/31/21	1520
Relinquished by:				
Received by:				



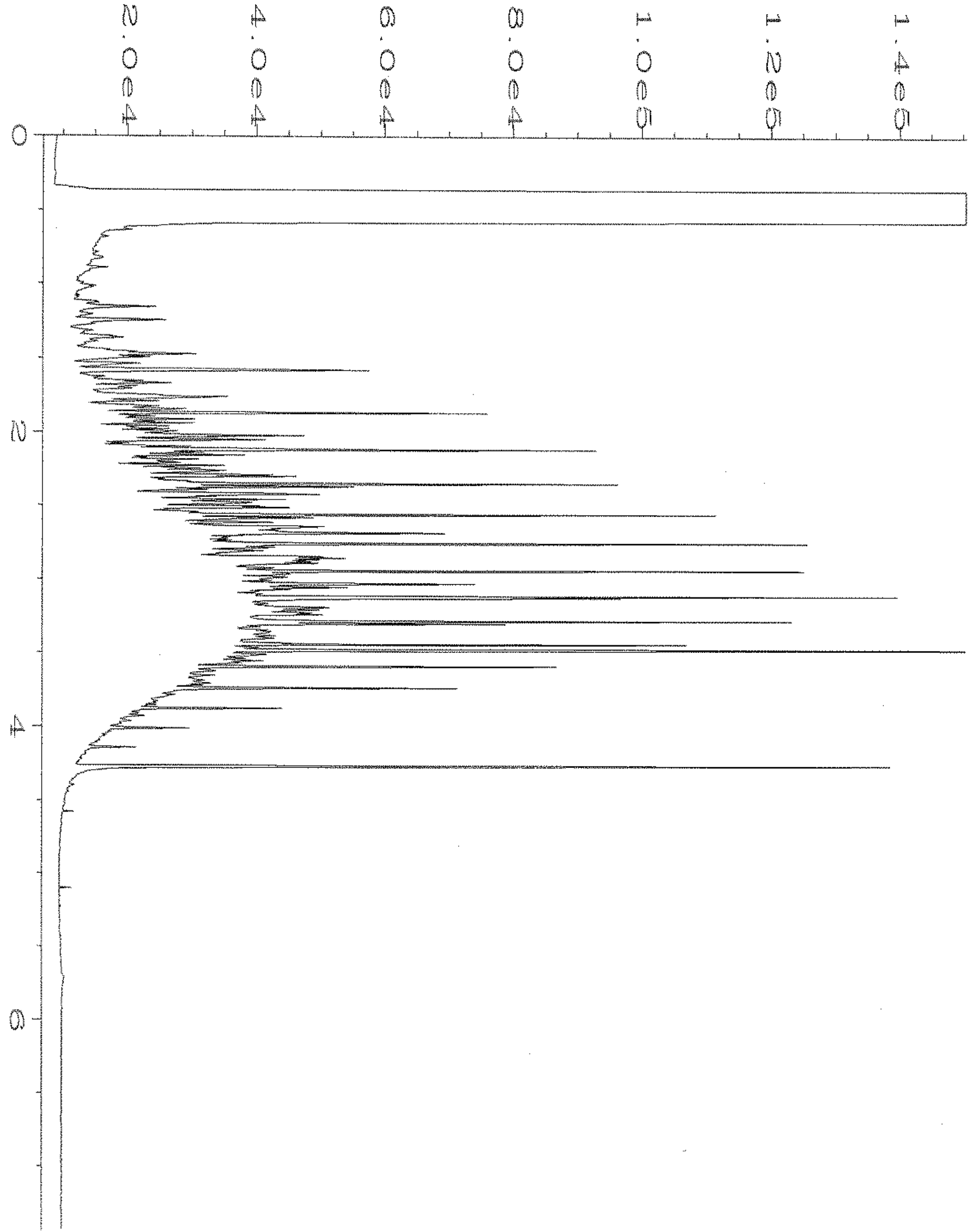
Data File Name : C:\HPCHEM\1\DATA\09-02-21\011F0301.D
Operator : TL
Instrument : GC1
Sample Name : 108510-01
Run Time Bar Code:
Acquired on : 02 Sep 21 12:02 PM
Report Created on: 02 Sep 21 03:33 PM

Page Number : 1
Vial Number : 11
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name : C:\HPCHEM\1\DATA\09-02-21\010F0301.D
Operator : TL
Instrument : GC1
Sample Name : 01-2050 mb2
Run Time Bar Code:
Acquired on : 02 Sep 21 11:50 AM
Report Created on: 02 Sep 21 03:33 PM

Page Number : 1
Vial Number : 10
Injection Number : 1
Sequence Line : 3
Instrument Method: DX.MTH
Analysis Method : DEFAULT.MTH



Data File Name	: C:\HPCHEM\1\DATA\09-02-21\003F0201.D		
Operator	: TL	Page Number	: 1
Instrument	: GC1	Vial Number	: 3
Sample Name	: 500 Dx 63-79C	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 2
Acquired on	: 02 Sep 21 05:38 AM	Instrument Method:	DX.MTH
Report Created on:	02 Sep 21 03:34 PM	Analysis Method	: DEFAULT.MTH

APPENDIX C

PCS DISPOSAL RECORDS

W24515323
33.57

CADMAN
HEIDELBERGCEMENT Group

Petroleum Contaminated Soil
Transport and Receiving Manifest
CUSTOMER: ***WSB EXCAVATION***
JOB NAME: ***SLATER***

*****CLASS 3 ONLY- *******

Generator/Property Owner	**Transporter**
Name: ***ALCO TOTEM LAKE LLC***	
Address: ***5355 MIRA SORRENTO PL. STE 100***	Address: ***CADMAN / VARIOUS***
City: ***SAN DIEGO*** ST: ***CA*** ZIP:	City: ST ZIP:
Telephone:	Telephone:
Contact:	Contact:

Job Site Information	**Receiving Facility**
Address ***12055 SLATER AVE NE***	***DELTA REMEDIATION***
City: ***KIRKLAND*** ST: ***WA*** ZIP: ***98034***	***17 EAST MARINE VIEW DRIVE, EVERETT 98203***
Telephone: ***206.423.4513***	Phone: ***425.210.8429***
Onsite Contact: ***SAM BUNO***	Contact: ***Larry W. Baker***

Material Description	**Class**	**Off-load Location**
Petroleum Contaminated Soil	***3***	***DELTA REMEDIATION***

Truck #: 954

Driver Signature: Scott Ramsey

Scale Attendant Signature: [signature] Date/Time In: 9/1/21

Owner/ Authorized Agent

This is to certify that the accompanying material is the same as represented by the previously submitted analytical and is solely from the site listed on the CADMAN Contaminated Soil Site Information Sheet.

Authorized Signature [signature] Date 9-1-21

***** Each incoming load must be accompanied by a completed manifest *****

CADMAN
HEIDELBERGCEMENT Group

112451532 5
34.14

Petroleum Contaminated Soil
Transport and Receiving Manifest
CUSTOMER: ***WSB EXCAVATION***
JOB NAME: ***SLATER***

*****CLASS 3 ONLY- *******

Generator/Property Owner	Transporter
Name: ***ALCO TOTEM LAKE LLC***	
Address: ***5355 MIRA SORRENTO PL. STE 100***	Address: ***CADMAN / VARIOUS***
City: ***SAN DIEGO*** ST: ***CA*** ZIP:	City: ST ZIP:
Telephone:	Telephone:
Contact:	Contact:

Job Site Information	Receiving Facility
Address ***12055 SLATER AVE NE***	***DELTA REMEDIATION***
City: ***KIRKLAND*** ST: ***WA*** ZIP: ***98034***	***17 EAST MARINE VIEW DRIVE, EVERETT 98203***
Telephone: ***206.423.4513***	Phone: ***425.210.8429***
Onsite Contact: ***SAM BUNO***	Contact: ***Larry W. Baker***

Material Description	Class	Off-load Location
Petroleum Contaminated Soil	***3***	***DELTA REMEDIATION***

Truck #: 963

Driver Signature: Craig M

Scale Attendant Signature: AC Date/Time In: 9/1/21

Owner/ Authorized Agent

This is to certify that the accompanying material is the same as represented by the previously submitted analytical and is solely from the site listed on the CADMAN Contaminated Soil Site Information Sheet.

Authorized Signature WIHSB Date 9-1-21

***** Each incoming load must be accompanied by a completed manifest *****

CADMAN
HEIDELBERGCEMENT Group

M2485326
30.80

Petroleum Contaminated Soil
Transport and Receiving Manifest
CUSTOMER: *WSB EXCAVATION*
JOB NAME: *SLATER*

*****CLASS 3 ONLY- *******

Generator/Property Owner	Transporter
Name: *ALCO TOTEM LAKE LLC*	
Address: *5355 MIRA SORRENTO PL. STE 100*	Address: *CADMAN / VARIOUS*
City: *SAN DIEGO* ST: *CA* ZIP:	City: ST ZIP:
Telephone:	Telephone:
Contact:	Contact:

Job Site Information	Receiving Facility
Address *12055 SLATER AVE NE*	*DELTA REMEDIATION*
City: *KIRKLAND* ST: *WA* ZIP: *98034*	*17 EAST MARINE VIEW DRIVE, EVERETT 98203*
Telephone: *206.423.4513*	Phone: *425.210.8429*
Onsite Contact: *SAM BUNO*	Contact: *Larry W. Baker*

Material Description	Class	Off-load Location
Petroleum Contaminated Soil	*3*	*DELTA REMEDIATION*

Truck #: 961

Driver Signature: Morgan Carter

Scale Attendant Signature: CR

Date/Time In: 09-01-21- 8:13am

Owner/ Authorized Agent

This is to certify that the accompanying material is the same as represented by the previously submitted analytical and is solely from the site listed on the CADMAN Contaminated Soil Site Information Sheet.

Authorized Signature [signature] Date 9-1-21

***** Each incoming load must be accompanied by a completed manifest *****

W2485327
33.24

CADMAN
HEIDELBERGCEMENTGroup

Petroleum Contaminated Soil
Transport and Receiving Manifest
CUSTOMER: ***WSB EXCAVATION***
JOB NAME: ***SLATER***

*****CLASS 3 ONLY- *******

Generator/Property Owner	Transporter
Name: ***ALCO TOTEM LAKE LLC***	
Address: ***5355 MIRA SORRENTO PL. STE 100***	Address: ***CADMAN / VARIOUS***
City: ***SAN DIEGO*** ST: ***CA*** ZIP:	City: ST ZIP:
Telephone:	Telephone:
Contact:	Contact:

Job Site Information	Receiving Facility
Address ***12055 SLATER AVE NE***	***DELTA REMEDIATION***
City: ***KIRKLAND*** ST: ***WA*** ZIP: ***98034***	***17 EAST MARINE VIEW DRIVE, EVERETT 98203***
Telephone: ***206.423.4513***	Phone: ***425.210.8429***
Onsite Contact: ***SAM BUNO***	Contact: ***Larry W. Baker***

Material Description	Class	Off-load Location
Petroleum Contaminated Soil	***3***	***DELTA REMEDIATION***

Truck #: 959

Driver Signature:

Scale Attendant Signature: AR

Date/Time In: 9/1/21

Owner/ Authorized Agent

This is to certify that the accompanying material is the same as represented by the previously submitted analytical and is solely from the site listed on the CADMAN Contaminated Soil Site Information Sheet.

Authorized Signature Will S. [signature] Date 9-1-21

***** Each incoming load must be accompanied by a completed manifest *****

CADMAN
HEIDELBERGCEMENT Group

U24515328
31.63

Petroleum Contaminated Soil
Transport and Receiving Manifest
CUSTOMER: ***WSB EXCAVATION***
JOB NAME: ***SLATER***

*****CLASS 3 ONLY- *******

Generator/Property Owner	Transporter
Name: ***ALCO TOTEM LAKE LLC***	
Address: ***5355 MIRA SORRENTO PL. STE 100***	Address: ***CADMAN / VARIOUS***
City: ***SAN DIEGO*** ST: ***CA*** ZIP:	City: ST ZIP:
Telephone:	Telephone:
Contact:	Contact:

Job Site Information	Receiving Facility
Address ***12055 SLATER AVE NE***	***DELTA REMEDIATION***
City: ***KIRKLAND*** ST: ***WA*** ZIP: ***98034***	***17 EAST MARINE VIEW DRIVE, EVERETT 98203***
Telephone: ***206.423.4513***	Phone: ***425.210.8429***
Onsite Contact: ***SAM BUNO***	Contact: ***Larry W. Baker***

Material Description	Class	Off-load Location
Petroleum Contaminated Soil	***3***	***DELTA REMEDIATION***

Truck #: 954

Driver Signature: Scott Ramsey

Scale Attendant Signature: [signature] Date/Time In: 9/1/21

Owner/ Authorized Agent

This is to certify that the accompanying material is the same as represented by the previously submitted analytical and is solely from the site listed on the CADMAN Contaminated Soil Site Information Sheet.

Authorized Signature [signature] Date 9-1-21

***** Each incoming load must be accompanied by a completed manifest *****

1245153 29
31.99

CADMAN
HEIDELBERGCEMENT Group

Petroleum Contaminated Soil
Transport and Receiving Manifest
CUSTOMER: ***WSB EXCAVATION***
JOB NAME: ***SLATER***

*****CLASS 3 ONLY- *******

Generator/Property Owner	Transporter
Name: ***ALCO TOTEM LAKE LLC***	
Address: ***5355 MIRA SORRENTO PL. STE 100***	Address: ***CADMAN / VARIOUS***
City: ***SAN DIEGO*** ST: ***CA*** ZIP:	City: ST ZIP:
Telephone:	Telephone:
Contact:	Contact:

Job Site Information	Receiving Facility
Address ***12055 SLATER AVE NE***	***DELTA REMEDIATION***
City: ***KIRKLAND*** ST: ***WA*** ZIP: ***98034***	***17 EAST MARINE VIEW DRIVE, EVERETT 98203***
Telephone: ***206.423.4513***	Phone: ***425.210.8429***
Onsite Contact: ***SAM BUNO***	Contact: ***Larry W. Baker***

Material Description	Class	Off-load Location
Petroleum Contaminated Soil	***3***	***DELTA REMEDIATION***

Truck #: 963

Driver Signature: Craig M

Scale Attendant Signature: QC Date/Time In: 9/1/21

Owner/ Authorized Agent

This is to certify that the accompanying material is the same as represented by the previously submitted analytical and is solely from the site listed on the CADMAN Contaminated Soil Site Information Sheet.

Authorized Signature WSB Date 9-1-21

***** Each incoming load must be accompanied by a completed manifest *****

1124515361
9.46

CADMAN
HEIDELBERGCEMENT Group

Petroleum Contaminated Soil
Transport and Receiving Manifest
CUSTOMER: ***WSB EXCAVATION***
JOB NAME: ***SLATER***

*****CLASS 3 ONLY- *******

Generator/Property Owner	Transporter
Name: ***ALCO TOTEM LAKE LLC***	
Address: ***5355 MIRA SORRENTO PL. STE 100***	Address: ***CADMAN / VARIOUS***
City: ***SAN DIEGO*** ST: ***CA*** ZIP:	City: ST ZIP:
Telephone:	Telephone:
Contact:	Contact:

Job Site Information	Receiving Facility
Address ***12055 SLATER AVE NE***	***DELTA REMEDIATION***
City: ***KIRKLAND*** ST: ***WA*** ZIP: ***98034***	***17 EAST MARINE VIEW DRIVE, EVERETT 98203***
Telephone: ***206.423.4513***	Phone: ***425.210.8429***
Onsite Contact: ***SAM BUNO***	Contact: ***Larry W. Baker***

Material Description	Class	Off-load Location
Petroleum Contaminated Soil	***3***	***DELTA REMEDIATION***

Truck #: 959

Driver Signature:

Scale Attendant Signature: OR

Date/Time In: 9/7/21

Owner/ Authorized Agent

This is to certify that the accompanying material is the same as represented by the previously submitted analytical and is solely from the site listed on the CADMAN Contaminated Soil Site Information Sheet.

Authorized Signature Will S. B Date 9-1-21

***** Each incoming load must be accompanied by a completed manifest *****

CADMAN
HEIDELBERGCEMENTGroup®

Petroleum Contaminated Soil Site Information Sheet

Applicant

Company Name: **WSB Excavation & Utiltities, LLC**

Contact: **Amy Harper** Phone: **425-492-0036**

Title: **Controller**

Project to be Billed/ Ticketed To:

Company Name: **WSB Excavation & Utilities, LLC**

Company Address: **PO Box 1558, Bothell, WA 98041**

P. O Number, Job Name/Number, **Slater Avenue**

Property Owner: **ALCO Totem Lake, LLC**

Owners Address: **5355 Mira Sorrento Pl, Ste 100, San Diego, CA 92121**

Site Information

Site Address: **12055 Slater Ave NE**
Kirkland, WA 98034

Current & Previous Use of Property (check all that apply):

☐ Fueling Stat	☐ Inorganic Chemicals	☐ Plastic & Rubber	☐ Paints or Solvents
☐ Agriculture Chemicals	☐ Residential	☐ Primary Metals	☐ Metal Plating
☐ Metal Forging, Stamping	☐ Electronic Equipment	☐ Lumber & Wood Products	☐ Retail
☐ Recycling	☐ Junk/ Salvage Yard	☐ Wrecking Yard	☐ Landfill
☐ Oil & Gas Mining	☐ Metals Mining	☐ Mining non-metallic matl's.	☐ Other Manufacturing

Source of Contamination: **petroleum products - former Verizon maintenance facility for their vehicles**

Estimated Amount: **3600** ☒ Tons ☐ Drums Actual

SOIL DATA

Attach test results showing:

☐ Total RCRA metals	☐ WTPH -D (WTPH-D EXTENDED)
☐ Moisture Content	☐ BTEX
☐ Percent Physical Contamination	☒ WTPH-G
☐ Sampling Plan & Procedures	☒ Other tests as required

PCB Analysis required for Heavy / Mineral Oil Contamination

CERTIFICATION

The above information is true and correct to the best of my knowledge, and is representative of the actual material to be delivered to Cadman:

Signed: **Amy Harper** Date: **05/12/2021**
Authorized Representative

Slater Ave Enabling Work

WSB Excavation & Utilities, LLC
PO Box 1558
Bothell, WA 98041

CLASS 3 EXPORT SUMMARY

Date	Description	Trucking Company	Tons	Dump Destination	Ticket #
09/01/21	Export Class 3	Cadman	33.61	Cadman Delta, Everett	1124515321
09/01/21	Export Class 3	Cadman	31.72	Cadman Delta, Everett	1124515322
09/01/21	Export Class 3	Cadman	33.57	Cadman Delta, Everett	1124515323
09/01/21	Export Class 3	Cadman	34.14	Cadman Delta, Everett	1124515325
09/01/21	Export Class 3	Cadman	30.80	Cadman Delta, Everett	1124515326
09/01/21	Export Class 3	Cadman	33.24	Cadman Delta, Everett	1124545327
09/01/21	Export Class 3	Cadman	31.63	Cadman Delta, Everett	1124515328
09/01/21	Export Class 3	Cadman	31.99	Cadman Delta, Everett	1124515329
09/01/21	Export Class 3	Cadman	9.46	Cadman Delta, Everett	1124515361
	TOTAL CLASS 3 EXPORTED TO CADMAN DELTA		**270.16**		

CADMAN
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TICKET NO.	1124515321	TICKET TIME	8:13:16AM	DATE	9/1/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL(	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Traile	961	C58022E	961B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190	MASON	33.61 /	1	33.61

WEIGHMASTER STATION
98846900
Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH #98139
KIRKLAND

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	33.61		

SCALE WEIGHT
Gross 105,680 LB
Tare 38,460 LB/P.T.*
Net 67,220 LB *

GROSS & TARE
[X] Scale 1 [ ] Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. [ ]
Received by Signature X
Print Name (Customer) X
Driver's Signature X
Customer's Initials X

Arrive Job		Start Unloading		Finish Unloading		Standby Time	

CADMAN
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TICKET NO.	1124515322	TICKET TIME	8:18:57AM	DATE	9/1/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL(	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Traile	959	B83601V	959B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190		65.33 /	2	65.33

WEIGHMASTER STATION
98846900
Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH #98139
KIRKLAND

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	31.72		

SCALE WEIGHT
Gross 101,680 LB
Tare 38,240 LB/P.T.*
Net 63,440 LB *

GROSS & TARE
[X] Scale 1 [ ] Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. [ ]
Received by Signature X
Print Name (Customer) X
Driver's Signature X
Customer's Initials X

Arrive Job		Start Unloading		Finish Unloading		Standby Time	

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WEIGHMASTER STATION
98846900
Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

TICKET NO.	1124515323	TICKET TIME	9:48:32AM	DATE	9/1/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL(	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Traile	954	C97832H	901B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190	SCOTT	98.90 /	3	98.90

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH #98139
KIRKLAND

CADMAN HEIDELBERGCEMENT www.cadman.com

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	33.57		

SCALE WEIGHT
Gross 105,700 LB
Tare 38,560 LB/P.T.*
Net 67,140 LB *

GROSS & TARE
☒ Scale 1 ☐ Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. ☐
Received by Signature X
Print Name (Customer) X
Driver's Signature X
Customer's Initials X

Arrive Job		Start Unloading		Finish Unloading		Standby Time	

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WEIGHMASTER STATION
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Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

TICKET NO.	1124515325	TICKET TIME	9:52:20AM	DATE	9/1/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL(	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Traile	963	C58024E	963B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190	CRAIG	133.04 /	4	133.04

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH #98139
KIRKLAND

CADMAN HEIDELBERGCEMENT www.cadman.com

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	34.14		

SCALE WEIGHT
Gross 106,140 LB *
Tare 37,860 LB/P.T.*
Net 68,280 LB *

GROSS & TARE
☒ Scale 1 ☐ Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. ☐
Received by Signature X
Print Name (Customer) X
Driver's Signature X
Customer's Initials X

Arrive Job		Start Unloading		Finish Unloading		Standby Time	

CADMAN
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TICKET NO.	TICKET TIME	DATE
1124515326	11:19:25AM	9/1/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL(	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Traile	1961	C58022E	961B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190	MASON	163.84 /	5	163.84

WEIGHMASTER STATION
98846900
Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH 98139
KIRKLAND

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	30.80		

SCALE WEIGHT	
Gross	100,060 LB
Tare	38,460 LB/P.T.*
Net	61,600 LB

GROSS & TARE
☒ Scale 1 ☐ Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. ☐	Received by Signature X	Print Name (Customer) X	Driver's Signature X

Arrive Job		Start Unloading		Finish Unloading		Standby Time		Customer's Initials X

CADMAN
HEIDELBERGCEMENTGroup®
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TICKET NO.	TICKET TIME	DATE
1124515327	11:21:34AM	9/1/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL(	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Traile	1959	B83601V	959B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190		197.08 /	6	197.08

WEIGHMASTER STATION
98846900
Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH 98139
KIRKLAND

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	33.24		

SCALE WEIGHT	
Gross	104,720 LB
Tare	38,240 LB/P.T.*
Net	66,480 LB *

GROSS & TARE
☒ Scale 1 ☐ Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. ☐	Received by Signature X	Print Name (Customer) X	Driver's Signature X

Arrive Job		Start Unloading		Finish Unloading		Standby Time		Customer's Initials X

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TICKET NO.	1124515328	TICKET TIME	12:46:19PM	DATE	9/1/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL(	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Trailer	1954	C97832H	901B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190	SCOTT	228.71 /	7	228.71

WEIGHMASTER STATION
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Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH 98139
KIRKLAND

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	31.63		

SCALE WEIGHT
Gross 101,820 LB
Tare 38,560 LB/P.T.*
Net 63,260 LB

GROSS & TARE
☒ Scale 1 ☐ Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. ☐
Received by Signature X
Print Name (Customer) X
Driver's Signature X
Customer's Initials X

Arrive Job		Start Unloading		Finish Unloading		Standby Time	

CADMAN
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TICKET NO.	1124515329	TICKET TIME	12:50:35PM	DATE	9/1/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL'	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Trailer	963	C58024E	963B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190	CRAIG	260.70 /	8	260.70

WEIGHMASTER STATION
98846900
Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH 98139
KIRKLAND

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	31.99		

SCALE WEIGHT
Gross 101,840 LB
Tare 37,860 LB/P.T.*
Net 63,980 LB

GROSS & TARE
☒ Scale 1 ☐ Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. ☐
Received by Signature X
Print Name (Customer) X
Driver's Signature X
Customer's Initials X

Arrive Job		Start Unloading		Finish Unloading		Standby Time	

CADMAN
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TICKET NO.	1124515361	TICKET TIME	7:27:55AM	DATE	9/7/2021

Customer No.	Payment Type	Customer Name	Order No.
9765843	Account	WSB EXCAVATION AND UTILITIES LL	74912

Customer Job. No.	Customer P.O.	Map Ref.	Disp. Ord. #
		/	

Truck Type	Truck No.	Vehicle or License Plate No.	Trailer or License Plate No.	Zone
Truck & Trailer	959	B83601V	959B	

Hauler/Carrier No.	Driver's Name	Delivered/Ordered	Load No.	Running Total
7858190		9.46 /	1	9.46

WEIGHMASTER STATION
98846900
Sno River Delta Soils
17 E. Marine View Dr.
Everett, WA 98213

DELTA/DF SLATER AVE
DELTA/DF 12055 SLATER AVE
HOURLY TRUCK RENTAL
DISPATCH # 98139
KIRKLAND

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www.cadman.com

Product	Description	Total	Unit Price	Amount
99005	CLASS 3 SOILS (TN)	9.46		

SCALE WEIGHT

Gross	57,160 LB
Tare	38,240 LB/P.T.*
Net	18,920 LB

GROSS & TARE
X Scale 1 ☐ Scale 2
X Angelique
Deputy Weighmaster

A STANDBY SURCHARGE WILL BE ASSESSED FOR LOADS THAT EXCEED 10 MINUTES UNLOADING TIME.

LIABILITY WAIVER
Cadman, (Inc.) will not assume Liability for any property damage or any equipment damage for any delivery beyond the curb line.

Fuel Surcharge	
Sales Tax	
Total	
Standby Time	
This Tickets Grand Total	

No one available to sign, customer waives receipt signature. ☐
Received by Signature X
Print Name (Customer) X
Driver's Signature X
Customer's Initials X

Arrive Job		Start Unloading		Finish Unloading		Standby Time	