CITY OF DUPONT
Department of Community Development
1700 Civic Drive, DuPont, WA 98327
Telephone: (253) 964-8121
www.dupontwa.gov

Notice of Application with Optional DNS
Northwest Logistics Center II Parking Expansion
City File Nos. PLNG2020-012, -013, -014, SEPA2020-001

The City of DuPont has received a permit application for the following project that may be of interest to you. You are invited to comment on this proposed project.

Date of Complete Application: August 11, 2020
Date of Notice of Application: August 17, 2020 | **Comment Due Date:** August 31, 2020
Date of re-issuance of ODNS: August 27, 2020
ODNS Extended Comment Due Date: Extended to September 10, 2020

Description of current proposal: A proposed modification to a previously approved and constructed development to modify building space, construct a new guard house, expand and reconfigure parking, and add the 5.3-acre lot adjacent to the north of the Northwest Logistics Center II site to the project. The changes require approval of a Type II Major Site Plan Amendment (PLNG2020-012), administrative variance (PLNG2020-013), a boundary line adjustment to eliminate a lot line (PLNG2020-014), and SEPA Environmental Review (SEPA2020-001). Only the changed aspects of the proposal are up for review. The lot line elimination would add 5.3 acres to the existing 32-acre site for a total of 37.3 acres. The parking reconfiguration and expansion of the north parking area will add 498 vehicle parking spaces and reduce trailer storage spaces by 47. In total, the proposal will provide 912 vehicle parking spaces and 77 trailer storage spaces. The proposal will also include clearing and grading, storm drainage facilities, and the addition of a 277 square foot guard shack to be located in the southeast corner of the site. Tenant improvements inside the building include adding a 118,150 square foot mezzanine for storing flammable and combustible liquid and aerosol products. The total floor area of the building after the addition will be 746,790 square feet. Roadway improvements will be provided along the frontage of International Place North.

Project Location: Northeast corner of International Place and Center Drive, Pierce County Assessor's Parcel Number 300039-0011 and 300039-0282. The project is located within a portion of the Southwest quarter of Section 24, Township 19 North, Range 1 East and the Northwest quarter of Section 25, Township 19 North, Range 1 East.

Project Applicant: Panattoni Development Company, Inc.
900 SW 16th Street, Suite 330
Renton, WA 98057

Applicant's Agent: Daniel K. Balmelli, Executive Vice President
Barghausen Consulting Engineers, Inc.
18215 72nd Ave South
Kent, WA 98032

Environmental Review: The City of DuPont has reviewed the proposed project for probable adverse environmental impacts and expects to issue a new or Modified Mitigated Determination of Non-significance (MDNS) for this project. The optional DNS process in WAC 197-11-355 is being used. **The optional DNS comment period has been extended to correct a procedural error in noticing to agencies. This may be your only opportunity to comment on the environmental impacts of the proposed project.**

Agencies, tribes, and the public are encouraged to review and comment on the proposed project and its probable environmental impacts. Comments must be submitted by the date noted above to:

Jeff Wilson, AICP
Community Development Director and City SEPA Official
City of DuPont
1700 Civic Drive | DuPont, WA 98327
(253) 912-5393 / jwilson@dupontwa.gov

City Permits and Approvals: Major Site Plan Amendment (PLNG 2020-012), Administrative Variance (PLNG 2020-013), Boundary Line Adjustment (PLNG 2020-014), SEPA Environmental Review (SEPA 2020-001), Building Permits, Fire Suppression/Fire Alarm Permits, Plumbing/Electrical/Mechanical Permits, Site Development Permit, Right-of-Way Use Permit, Water Service/Connection Permits and Determination of Transportation Concurrency.

Other Permits and Approvals: Sanitary Sewer Permits by Pierce County and NPDES Permit by Department of Ecology.

Required Studies: Amended Environmental Checklist, Stormwater Site Plan, Cultural Resources Study, Traffic Impact Analysis, Geotechnical Report, Non-Wetland and Fish and Wildlife Habitat Assessment, Civil Plans, Architectural Site Plan and Elevations, Lighting Plan, Tree Retention Plan and Landscaping Plans.

The following may require mitigation for the adverse environmental impacts of the proposal: Noise, light and glare, traffic, soil remediation, and cultural resources mitigation measures are anticipated. (Note: These conditions would be in addition to mitigation required by the development regulations.) The project will be evaluated for consistency with the City development regulations, including Title 12, Buildings & Construction; Title 14, Streets, Sidewalks, Curbs, Driveways and Parking Strips; Title 21, Water & Sewer Utilities; Title 22, Stormwater Utility; Title 23, Environment; Title 24 Subdivision Regulations; and Title 25 Land Use Code.

Public Comment: The public may comment on the proposal by submitting written comments to the City of DuPont by 5 p.m. August 31, 2020. SEPA comments on the environmental impacts of the proposal have been extended to September 10, 2020. The City intends to issue the SEPA Determination with a 14-day appeal period, followed by a final decision on the application by the Community Development Director.

Copies of all application plans and documents may be viewed on the city's website at: https://dupontwa.gov/551/Northwest-Logistics-Center-2-Site-Plan-A

PRELIMINARY OVERALL CIVIL SITE PLAN
FOR
NW LOGISTICS 2 - PARKING EXPANSION
PTN OF THE SE1/4 OF THE SW1/4 OF SEC. 24, TWP. 19 N., RGE 1 EAST, W. M.
CITY OF DUPONT, PEIRCE COUNTY, STATE OF WASHINGTON

N

0 30' 60' 120'
SCALE: 1"=60'

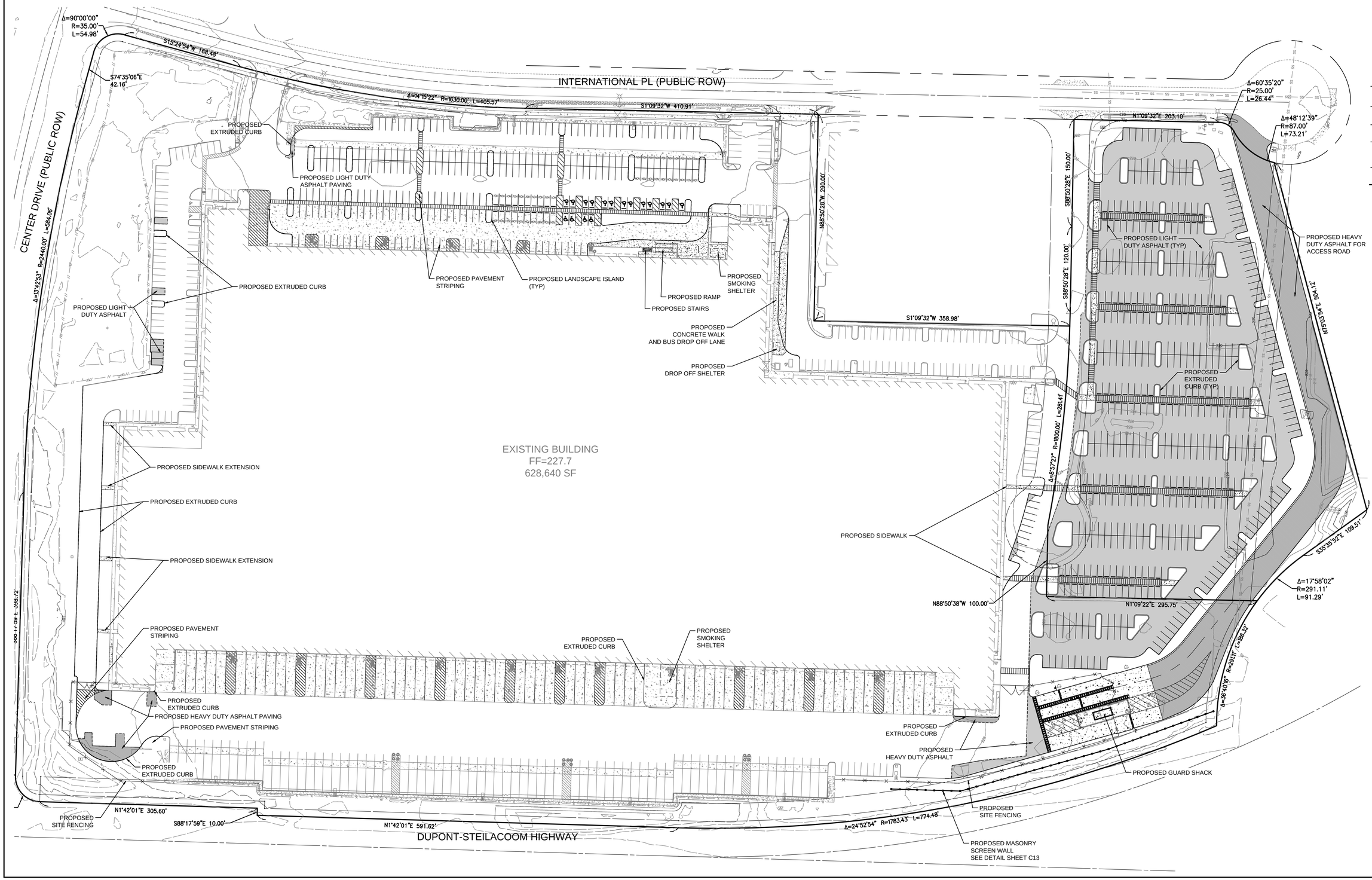
811 Know what's **below.** **Call** before you dig.

APPROVED FOR CONSTRUCTION

BY: _____
CITY OF DUPONT

DATE: _____

THESE DRAWINGS ARE APPROVED FOR CONSTRUCTION FOR A PERIOD OF 12 MONTHS FROM THE DATE SHOWN HEREON. THE CITY RESERVES THE RIGHT TO MAKE REVISIONS, ADDITIONS, DELETIONS OR MODIFICATIONS SHOULD CONSTRUCTION BE DELAYED BEYOND THIS TIME LIMITATION. THE CITY, BY APPROVING THESE DOCUMENTS, ASSUMES NO LIABILITY IN REGARDS TO THEIR ACCURACY OR OMISSIONS.



No.	Date	By	Ckd.	Appr.	Revision
1	8/5/20	WED	DKB	DKB	SITE PLAN AMENDMENT RESUBMITTAL

Title: PRELIMINARY OVERALL CIVIL SITE PLAN FOR NW LOGISTICS 2 - PARKING EXPANSION

For: PANATTONI DEVELOPMENT COMPANY
1821 DOCK ST. SUITE 100
TACOMA, WA 98402
CONTACT: BRIAN MATTSON

DANIEL K. BALMELLI
STATE OF WASHINGTON
25672
REGISTERED PROFESSIONAL ENGINEER
8/5/2020

Scale: Horizontal 1"=60' Vertical -

Designed WED
Drawn WED
Checked LD
Approved DKB
Date 8/5/20

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21227

Sheet C2 of 13

P:\21000s\21227\preliminary\21227-A-overall.dwg 8/5/2020 7:52 AM WDUNLAP

City of DuPont
SEPA Checklist

303 Barksdale Avenue
DuPont, WA 98327

phone 253-912-5393
fax 253-964-1455

City File Number: _____

STATE ENVIRONMENTAL POLICY ACT
ENVIRONMENTAL CHECKLIST

Purpose of Checklist:

The State Environmental Policy Act (SEPA), chapter 43.21 C, RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions to Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply." Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on difference 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.

A BACKGROUND

1. Name of proposed project, if applicable:

Northwest Logistics Center 2

2. Name of applicant:

Brian Mattson

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

Applicant:
Brian Mattson
Panattoni Development Company
1821 Dock Street, Suite 100
Tacoma, WA 98402
(206) 838-6182

Contact:
Daniel K. Balmelli
Barghausen Consulting Engineers
18215-72nd Avenue South
Kent, WA 98032
(425) 251-6222

4. Date checklist prepared:

March 20, 2013
Revised September 13, 2013
Revised February 28, 2018
Revised June 12, 2018
Revised August 20, 2018
Revised November 16, 2018
Revised July 2, 2020
Revised August 4, 2020
Revised August 25, 2020

5. Agency requesting checklist:

City of DuPont

6. Proposed timing or schedule (including phasing, if applicable):

Construction to start as soon as applicable permits are issued. **Construction for parking lot addition, guard house and tenant improvements would be anticipated to start summer of 2020.**

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

There are no future additions or expansions associated with this proposal **beyond the parking lot expansion *and tenant improvements to the building including mezzanine areas* that are proposed in this application.**

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

Environmental Checklist prepared by Barghausen Consulting Engineers, Inc., dated March 20, 2013, revised September 13, 2013, Revised February 28, 2018

Phase I Environmental Site Assessment prepared by Farallon Consulting, Dated July 26, 2012
Soils Sampling Results Letter prepared by Farallon Consulting, dated July 3, 2012
Geotechnical Engineering Report prepared by GeoResources, June 20, 2012
Stormwater Site Plan prepared by Barghausen Consulting Engineers, Inc., March 5, 2013
Environmental Mitigation Plan prepared by Barghausen Consulting Engineers, Inc., January 4, 2013
Geotech Report by Terra Associated dated April 2016
Tree Retention History Memo by EDA dated February 2018
Cultural Resource Report by Aqua Terra dated October 2015
Archaeological Excavation Permit dated November 2015
NFA Letter by Department of Ecology dated June 2016
Updated Trip Generation and Assignment by Heath & Associates dated November 2018
Updated Stormwater Site Plan by Barghausen Consulting Engineers dated November 2018
Stormwater Site Plan prepared by Barghausen Consulting Engineers dated June 30, 2020
Stormwater Pollution Prevention Plan prepared by Barghausen Consulting Engineers dated June 30, 2020
Cultural Resources Report prepared by Aqua Terra Consultants dated June 3, 2020
Geotechnical Engineering Report prepared by Terra Associates dated May 12, 2020
Subsurface Investigative Report prepared by ATC dated June 30, 2020

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.

A grading permit has been issued by the City of DuPont and cleanup of specific areas of contaminated soil on the site has been completed.

10. List any government approvals or permits that will be needed for your proposal, if known.

Environment Determination by City of DuPont
Site Work Construction Permit by City of DuPont
Type II Administrative Approval by City of DuPont
Minor Site Plan Modification by City of DuPont
Boundary Line Adjustment or Lot Line Adjustment by City of DuPont
Building Permit by City of DuPont
Plumbing/Electrical Mechanical Permits by City of DuPont
Fire Suppression/Underground Fire Supply and Fire Alarm Permits by City of DuPont
Right-of Way Use Permit by City of DuPont
Pre-Treatment Review by Pierce County Public Works and Utilities
Sanitary Sewer Permits by Pierce County Public Works and Utilities
NFA by Department of Ecology
Environmental Determination for Parking Lot Addition by City of DuPont
Major Site Plan Amendment by City of DuPont
Site Development Permit by City of DuPont
Water Connection Permit for Guard Shack by City of DuPont
Right-of-Way Use Permit by City of DuPont
Sewer Service Permit for Guard Shack by Pierce County Utilities
NPDES Permit by Department of Ecology

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 construct a 628,640± square foot warehouse building on an approximately 32 acre site with the associated grading activities, asphalt parking, drive aisles and truck loading and maneuvering areas, landscaping, stormwater infiltration facilities, water and sanitary sewer extensions, franchise utilities improvements and half-street frontage improvements to include sidewalk extension along International Place.

The proposed project will construct additional vehicular parking and a guard shack in association with the Northwest Logistics II project. The site is located on the 5.3-acre Steilacoom Historic School District (SHSD) lot adjacent to the north of the Northwest Logistics II site. A portion of the parking addition consists of removal and relocation of existing parking in the northeast corner of the Northwest Logistics II site. Along with construction of the additional parking, the project will also include clearing and grading, storm drainage facilities, and a guard shack to be located in the southeast corner of the site and will be connected to sewer and water available to the site. Tenant improvements inside the building include *mezzanine areas of 118,150 square feet of flammable and combustible liquid shelving and 51,040 square feet of aerosol shelving are proposed for the building.* Roadway improvements along the frontage of the site along International Place North will be constructed as part of the project.

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.

The site is located on the northeast corner of International Place and Center Drive in DuPont, Pierce County, Washington and includes tax parcel numbers 300039-0010 through 0210 and 300039-0240 through 0270 within the Northwest Landing Industrial Park Division I Plat. The project is located within a portion of the Southwest quarter of Section 24, Township 19 North, Range 1 East and the Northwest quarter of Section 25, Township 19 North, Range 1 East.

The parking lot addition is located on the eastern side of the terminus of International Place North and is within a portion of the southwest quarter of Section 24, Township 19 North, Range 1 East in DuPont, Pierce County, Washington.

Tax Parcel Nos: 300039-0011 (Northwest Logistics II) and 300039-0282 (SHSD)

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site:

The site is generally flat.

b. What is the steepest slope on the site (approximate percent slope)?

The steepest slope on site is approximately 8 percent.

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.

According to the Soil Survey of Pierce County Area, Washington, the soil type is classified as 41A-Spanaway gravelly sandy loam.

The Geologic Map of the Tacoma 1:100,000-scale Quadrangle, Washington, maps the site soils as Vashon Recessional outwash, Steilacoom gravel (Qgo_{sg}) Per the Geotechnical Engineering Report prepared by Terra Associates, dated May 12, 2020, soils observed in the test pits correlate with the published description of this soil unit.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There is no known history of unstable soils to our knowledge.

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.

Approximately 81,100 cubic yards of cut material and 65,200 cubic yards of fill material will be used to prepare the site for construction of the proposed building. Approximately 60,000 cubic yards of cut and 46,000 cubic yards of fill work has been completed on the site. Approximately 18,000 cubic yards of cut and 17,000 cubic yards of fill work will be completed for completion of the project.

Approximately 7,000 cubic yards of cut, 8,000 cubic yards of fill and 2,000 cubic yards of stripping will be used to prepare the site for construction of the proposed parking expansion. The source of fill material is unknown at this time but will be from an approved source.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Depending on weather conditions, erosion could occur as a result of construction activities.

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

Approximately 83% of the site will be impervious surface upon completion of the project. **Approximately 81 percent of the site will be impervious surface upon completion of the proposed new parking area.**

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

A temporary erosion and sedimentation control plan has been designed and constructed to meet City of DuPont standards to control erosion impacts.

2. Air

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 present from approximately 7 am to 6 pm, Monday through Friday during the construction phase of the project. Emissions from vehicular traffic to and from the site would be present upon project completion. **A minor additional emissions increase from vehicular traffic would be anticipated upon completion of the proposed new parking addition.**

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

Emissions from vehicular traffic traveling the surrounding roadways may be present but would not be anticipated to affect the proposal.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Construction equipment will meet state and federal emission standards. No other specific measures are proposed.

3. Water

a. Surface:

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.

There are no surface water bodies on or in the immediate vicinity of the site.

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.

No work will be done in or adjacent to any waters.

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.

No fill or dredge material will be placed in or removed from surface water.

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

No surface water withdrawals or diversions are proposed.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The site is not within a 100-year floodplain. **Per current FIRM map panel 53053C0507, dated March 7, 2017, the site is not located in the 100-year floodplain.**

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 waste materials will be discharged to surface waters.

b. Ground:

1) Will ground water 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.

No groundwater will be withdrawn however, water will be discharged into the ground from storm drainage infiltration facilities.

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.

No waste materials will be discharged into the ground under this proposal. All sanitary sewer effluent will be routed via tightlined pipe to the existing sanitary sewer system.

c. Water Runoff (including storm water):

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.

The source of runoff will be from the building roof top and pavement areas. All runoff will be routed via storm pipes and catch basins into infiltration galleries for water quality treatment and infiltration. **Under the new proposal, stormwater from new impervious surfaces will be collected and conveyed via storm pipe ad catch basins to a retention infiltration facility prior to discharging to the ground.**

2) Could waste materials enter ground or surface waters? If so, generally describe.

No waste material will enter ground or surface waters. All stormwater runoff will be routed for treatment into the infiltration system prior to discharge and all sanitary sewer discharge will be routed to the existing sanitary sewer system.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The proposed development is designed to incorporate the existing drainage system and will not affect the drainage patterns in the vicinity of the site.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, and drainage pattern impacts, if any:

Temporary erosion and sedimentation control measures will be implemented per City of DuPont standards for the construction phase of the project and the storm drainage infiltration system will be designed and constructed per City of DuPont standards to control stormwater runoff from the completed project. **A storm drainage plan for the parking lot addition will be designed according to the 2014 Department of Ecology stormwater manual and City of DuPont standards and implemented to control runoff from the proposed project.**

4. Plants

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

_____deciduous tree: Alder, Maple, Oregon White Oaks, Apple, Plum, Pear
_____evergreen tree: Fir, Cedar, Pine
__X__shrubs
__X__grass
_____pasture
_____crop or grain
_____Orchard, 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 of the vegetation has been removed from the site for development of the proposed project. Also, the project has complied with the City of DuPont Oak Management Mapping Criteria for tree retention. **The majority of the vegetation on the SHSD site will be removed and a portion of the existing landscaping on the Northwest Logistics II site will be removed for reconfiguration of the parking.**

c. List threatened and endangered species known to be on or near the site.

None are known to exist to our knowledge.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

Landscaping will be designed and implemented to meet City of DuPont standards and trees will be retained where possible to meet with City code.

e. List all noxious weeds and invasive species known to be on or near the site.

None are known to exist on or near the site.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

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 or endangered species known to be on or near the site.

None are known to exist to our knowledge.

c. Is the site part of a migration route? If so, explain.

Yes, the site is part of the Pacific Flyway for Migratory Birds.

d. Proposed measures to preserve or enhance wildlife, if any:

On-site landscaping and tree retention will help to preserve wildlife in the area.

e. List any invasive animal species known to be on or near the site.

None are known to be on or near the site to our knowledge.

6. Energy and Natural Resources

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.

Electricity will be used for lighting and natural gas will be used for heating.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe:

It is not anticipated that the project would affect potential use of solar energy by adjacent properties.

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 building will comply with all current energy code requirements. **The proposed guard shack will use electricity for lighting and natural gas for heating.**

7. Environmental Health

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 environmental hazards are expected to occur as a result of this project.

1) Describe any know or possible contamination at the site from present of past users.

None are known to be present at the site to our knowledge.

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 are known to exist to our knowledge.

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.

During the construction phase of the project, chemicals associated with construction equipment will be at the site. Upon project completion, no hazardous chemicals are anticipated to be at the site.

4) Describe special emergency services that might be required.

Other than fire, medical and police services already available in the area, no other specific services are anticipated.

5) Proposed measures to reduce or control environmental health hazards, if any:

No specific measures are proposed.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Noise from vehicular traffic along Center Drive and International Place exist but would not be anticipated to affect the project.

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.

On a short-term basis, noise from construction equipment will be present from approximately 7 am to 6 pm, Monday – Friday. On a long-term basis, noise from vehicular traffic to and from the site will be present from approximately 6 am to 6 pm, Monday – Friday.

3) Proposed measures to reduce or control noise impacts, if any:

Construction equipment will be maintained and will comply with state standards. No other specific measures are proposed.

8. Land and Shoreline Use

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.

The site is undeveloped but has been previously cleared and graded. Property to the north contains a warehouse facility and areas of undeveloped land which will be used for the future Steilacoom Historical School District Bus Barn. Directly to the northwest is a warehouse building for metal fabrication. Steilacoom-DuPont Road and JBLM are located to the east and Northwest Logistics Center Phase I is completed to the west and is currently being used as a storage warehouse. The property to the south contains office and warehouse use developments. **The SHSD site is vacant land that was previously cleared and graded and the Northwest Landing site is occupied with a warehouse facility. Adjacent properties to the north and west are industrial/warehouse use. Center Drive is located to the south and Steilacoom-DuPont Road S.W. is located to the east.**

b. Has the site been used as working farmlands or 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?

Historically, the site may have been used for agriculture but specific details are not known.

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:

There are no working farm or forest lands near the site to our knowledge.

c. Describe any structures on the site.

There are no structures on site.

d. Will any structures be demolished? If so, what?

No structures will be demolished.

e. What is the current zoning classification of the site?

The current zoning classification is Industrial (IND). **The current zoning of the site is Community Business.**

f. What is the current comprehensive plan designation of the site?

The current comprehensive plan designation is Industrial. **The current comprehensive plan designation is Manufacturing Research Park and Industry Planning area.**

g. If applicable, what is the current shoreline master program designation of the site?

N/A

h. Has any part of the site been classified as a critical area by the city of county? If so, specify.

Yes. The Department of Ecology indicates that the site and vicinity have a known or suspected presence of metals in the soil from the Tacoma Asarco Smelter plume, including lead and arsenic. A Soils Sampling Report has been prepared by Farallon Consulting to locate areas of contaminated soil and a grading permit to remove the soil in these areas has been approved by the City of DuPont. Clearing and grading work has been completed and NFA letters from the Department of Ecology have been issued.

i. Approximately how many people would reside or work in the completed project?

The maximum number of employees per shift would be a total of approximately 300 to 400 persons could work at the completed project depending on the tenants. **Nine-hundred and twelve (912) total employees is the maximum employee count per shift.**

j. Approximately how many people would the completed project displace?

No persons will be displaced.

k. Proposed measures to avoid or reduce displacement impacts, if any:

No specific measures are proposed.

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The proposed warehouse use is compatible with the City of DuPont zoning code and the project will be designed to meet City standards.

m. Proposed measures to ensure that proposal is compatible with nearby agricultural and forest lands of long-term commercial significance, if any:

There are no nearby working farms or forest lands.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

N/A

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

N/A

c. Proposed measures to reduce or control housing impacts, if any:

N/A

10. Aesthetics

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

The tallest height of the building will be approximately 38-foot and the principal building materials will be concrete and glass. **The guard shack proposed with the vehicular parking addition would be not taller than the maximum height allowed within the Community Business zoning designation.**

b. What views in the immediate vicinity would be altered or obstructed?

Some views from adjacent properties are expected to be altered with completion of the project but no views are anticipated to be obstructed.

c. Proposed measures to reduce or control aesthetic impacts, if any:

No specific measures are proposed.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Glare from building window glass could occur during daylight hours and light and glare from parking lot lighting could be present during evening hours. **Lighting for the parking lot addition could generate additional light or glare during evening hours.**

b. Could light or glare from the finished project be a safety hazard or interfere with views?

It is not anticipated that light or glare created by the project would be a safety hazard.

c. What existing off-site sources of light or glare may affect your proposal?

Headlights from vehicular traffic on nearby roadways could be present but would not be anticipated to affect the project.

d. Proposed measures to reduce or control light and glare impacts, if any:

The building will use non-glare window glass and the parking lot lighting will be shielded. Perimeter landscaping will also help to control light or glare impacts. **The additional parking lot lighting will be shielded and directed appropriately.** No other specific measures are proposed.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

No recreational areas are in the immediate vicinity of the site.

b. Would the proposed project displace any existing recreational uses? If so, describe.

No recreational uses will be displaced.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

No specific measures are proposed.

13. Historic and Cultural Preservation

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 located on or near the site? If so, specifically describe.

None are known to exist on the site to our knowledge.

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.

None are known to exist on the site to our knowledge. **A Cultural Resource Report has been completed for the parking lot addition site and a copy is included with this package.**

c. Describe the methods used to access the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archaeology and historic preservations, archaeological surveys, historic maps, GIS data, etc.

A Cultural Resource Report was prepared by Aqua Terra, dated October 2015 for the site and a copy is included with this package.

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.

No specific measures are proposed however, the Memorandum of Agreement will be implemented and if cultural artifacts are found during construction, the proper agencies will be notified.

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.

International Place is to the west of the site and Center Drive is to the south. Two driveways are proposed on International Place for access. Access will also be obtained from the existing cul-de-sak to the north that is part of the Northwest Landing Industrial Park Division I Plat. **One new driveway onto International Drive North will be constructed for access to the proposed parking area.**

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?

Transit service is not available to the site. The closest transit route is Route 592 with a stop at the park and ride located at Wilmington Drive and Palisades Drive.

c. How many parking spaces would the completed project or non-project have? How many would the project eliminate?

The completed project will provide 414 car parking stalls and 124 trailer parking stalls. No parking stalls will be eliminated. **With the proposed parking lot addition a total of 912 vehicular parking stalls and 77 trailer storage stalls will be provided across both lots. Some existing parking will be reconfigured but no parking will be eliminated.**

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).

Yes, half-street improvements along International Place will be required as well as completion of the cul-de-sac access on the north end and construction of a new traffic signal at Center Drive and International Place. **Roadway improvements to the frontage of the SHSD lot will be construction as part of the proposal.**

e. Will the project or proposed 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?

It is anticipated that, based on high-cube warehousing use, the proposed project could generate approximately 880 average daily trips upon completion. ***Upon tenant occupancy the site can be estimated to generate approximately 2,167 average daily trips. Peak volumes would likely occur between 6:30-7:30 AM with 363 trips and 5:30-6:30 PM with 604 trips. The majority of trips would be employee vehicles and delivery vans with approximately 10-15 percent of the total volumes in the form of multi-axle trucks. Data were obtained from an independent study on similar fulfillment centers.*** (Please refer to the updated Traffic Impact Analysis by Heath and Associates.)

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.

It is no anticipated that the proposal would affect the movement of agricultural or forest products on area roadways.

h. Proposed measures to reduce or control transportation impacts, if any:

Construction of roadway improvements and payment of traffic mitigation fees, if required will reduce transportation impacts.

15. Public Services

a. Would the project result in an increase need for public services (for example, fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

Yes, the project will result in an increased need for public services.

b. Proposed measures to reduce or control direct impacts on public services, if any.

Roadway improvements, construction of water line with the addition of fire hydrants and payment of traffic and fire mitigation fees will reduce impacts to public services. . **Payment of additional traffic mitigation and construction of roadway improvements, new fire line and fire hydrant will reduce current impacts from the parking addition.**

16. Utilities

a. Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.

b. 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.

Electricity:	Puget Sound Energy
Natural Gas:	Puget Sound Energy
Water:	City of DuPont
Sanitary Sewer:	Pierce County Public Works and Utilities
Refuse:	LeMay
Telephone:	CenturyLink
Cable:	Comcast

C. SIGNATURE

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: Daniel K. Balmelli

Print your name: Daniel K. Balmelli

Date Submitted: September 17, 2013 / Revised February 28, 2018 / Revised June 12, 2018 / Revised August 20, 2018/ Revised November 16, 2018, **Revised July 2, 2020, *Revised August 4, 2020, Revised August 25, 2020***
(Issued 4/6/01)

CULTURAL RESOURCES REPORT COVER SHEET

Author: Andrew Viloudaki and Sarah Amell

Title of Report: Cultural Resource Survey for the Steilacoom School Parking Project, City of DuPont, Pierce County, Washington

Date of Report: June 3, 2020

County(ies): Pierce Section: 24 Township: 19N Range: 01E

Quad: Nisqually, WA Acres: 5.34

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

Were Human Remains Found? ☐ Yes DAHP Case # ☒ No

DAHP Archaeological Site #:

_____
_____
_____
_____
_____
_____

- Submission of PDFs is required.
- Please be sure that any PDF submitted to DAHP has its cover sheet, figures, graphics, appendices, attachments, correspondence, etc., compiled into one single PDF file.
- Please check that the PDF displays correctly when opened.

Cultural Resource Survey for the NW Logistics Steilacoom School Site Parking Area

Prepared for:

Panattoni Development Company, Inc.

Prepared by:

Nicholas de Vry, Cultural Resource Technician
Andrew Viloudaki, Project Archaeologist
Sarah J. Amell, Principal Investigator

Aqua Terra Cultural Resource Consultants
8525 Stoney Creek Lane SW
Olympia, WA 98512
www.AquaTerraCRC.com

Report #PI-04-20
June 2, 2020

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Cultural Resource Survey for the NW Logistics Steilacoom School Site Parking Area Project, DuPont, Pierce County, Washington

Executive Summary

Aqua Terra Cultural Resource Consultants (ATCRC) has been contracted by Panattoni Development Company, Inc. to complete a cultural resources survey for the NW Logistics Steilacoom School Site Parking Area Project, located at International Place N. within the City of DuPont, Pierce County, Washington. The project proposes to level and construct parking on undeveloped Pierce County tax parcel no. 3000390282. The Area of Potential Impacts (API) encompasses 5.34 acres of previous leveled, cleared, and partially improved land currently overgrown with low shrubs.

The project requires permitting from the City of DuPont (City) and compliance with the Washington State Environmental Policy Act (SEPA). SEPA requires that impacts to cultural resources be considered during the public environmental review process. The City of DuPont responded to the project applicant requesting completion of a cultural resource assessment, and cultural resource monitoring services during the proposed construction.

In accordance with SEPA, ATCRC completed a cultural resource assessment that included background research, field investigation, and preparation of this report. The project area has been designated as "low" to "moderately low" for pre-contact or historic archaeological resources, based on the DAHP statewide predictive model and due to the API's distance to other archaeological sites or water sources, and previous regional soil disturbance.

Field investigations consisted of pedestrian survey and subsurface testing within the project API. Nineteen shovel probes (SP) were excavated and no cultural resources were identified during the surface and subsurface investigations. ATCRC recommends no further work, however will provide cultural resource monitoring services during construction in order to comply with the City of DuPont's request for cultural resource monitoring. ATCRC also recommends preparation and compliance with an Inadvertent Discovery Plan for reference during any future construction activities on the parcel. An Inadvertent Discovery Plan is attached in Appendix B.

Regulatory Compliance

This project was conducted, in part, to satisfy the regulatory requirements of the SEPA. SEPA requires that impacts to cultural resources be considered during the public environmental review process. Under SEPA, the Washington State DAHP is the sole agency with technical expertise in regards to cultural resources and provides formal opinions to local governments and other state agencies regarding a property's significance and the impact of proposed projects upon such properties.

In addition, the State of Washington requires compliance with the cultural resources management laws and regulations under the Revised Code of Washington (RCW) 27.53 Archaeological Sites and Resources, RCW 27.44 Indian Graves and Records, and RCW 68.50.645 Skeletal Human Remains—Duty to Notify. The latter regulation provides a strict process for notification of law enforcement and other interested parties in the event of the discovery of any human remains, regardless of inferred cultural affiliation.

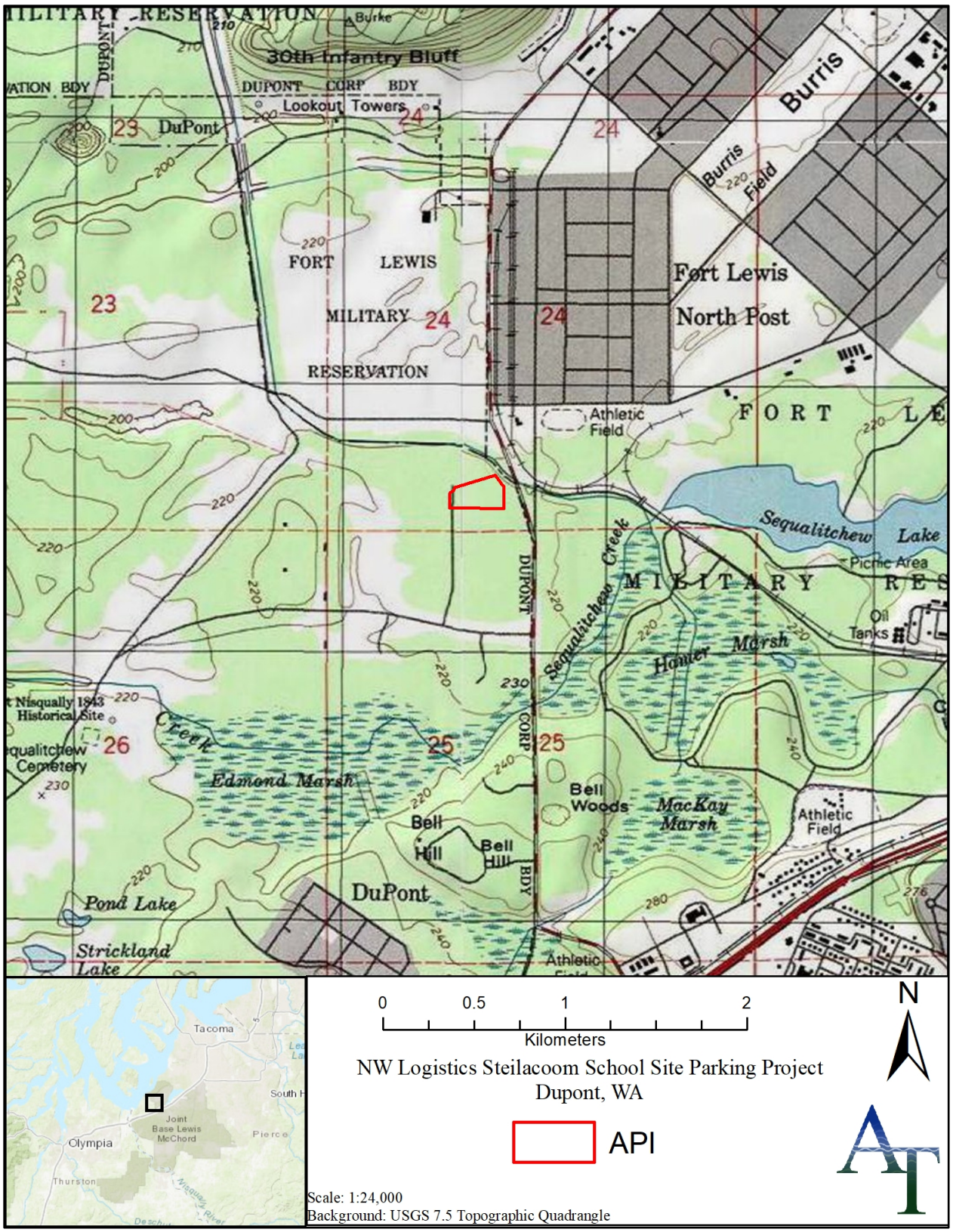

Figure 1. Steilacoom School Parking Project, USGS 7.5 min. Nisqually Quadrangle.

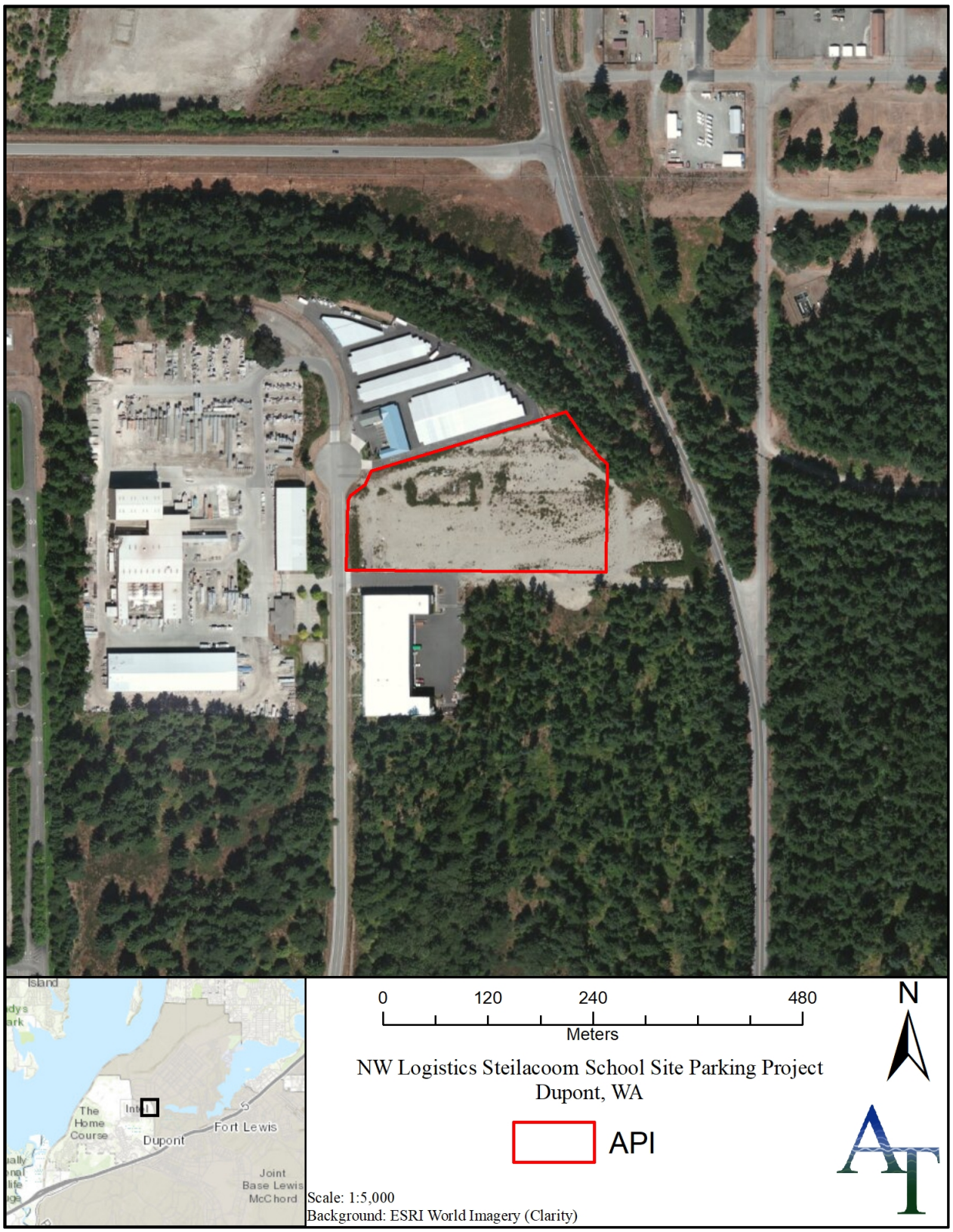

Figure 2. Aerial map of the Steilacoom School Parking Project.

Consultation

As part of the SEPA process, affiliated tribes were contacted by the City of DuPont regarding the project. ATCRC also completed a technical notification on May 19, 2020, to the Nisqually Indian Tribe Historic Preservation Office to request information related to cultural resource concerns within the project API and provide notification of the field survey schedule.

Project Area and Description

The Area of Potential Impacts (API) consists of approximately 5.34 acres of unimproved land covered with shrubs and previously cleared and partially leveled sometime before 2005 (USGS Satellite 2005) located in the city of DuPont, Washington, within Township 19, Range 01E, Section 24 (Figure 1).

The project proposes to develop the Steilacoom School vacant property into a parking lot that will serve the adjacent parcels Northwest Logistics industrial building complex. According to project plans, proposed ground disturbance includes underground electrical utilities 1 to 3-feet below ground surface, level grading of the surface, and paving. No other utilities or structures are being added to the property. Aerial maps from 1981 (USGS NHAP 1981) show that the parcel was undeveloped and covered in forest and remained so until 2005 (USGS 2005). By 2009 the property had been cleared of trees but has remained undeveloped (USGS 2009) (Figure 3).

The soils of the API are Spanaway gravelly sandy loam (Table 1), which is comprised of up of 60 inches of gravelly sandy loam or gravelly sand outwash over glacial deposits (USDA NRCS). Due to the previous land clearing and grading on the parcel, much of the original topsoil has been removed.

Background Research

In May 2020, ATCRC conducted an electronic record search and literature review for the project area using the DAHP Washington State System for Architectural and Archaeological Records Database (WISAARD). This record search was completed to determine the presence or absence of previously documented architectural, archaeological, and historical period resources within or near the API, to establish the historical and cultural contexts for resource identification and to evaluate the significance and the NRHP eligibility of cultural resources that may be present. Archaeological site forms, cultural resource assessments, historic property inventory forms, General Land Office maps, and National Register of Historic Places nomination forms were reviewed. Additionally, historic area maps, tax parcel records, and other public records were consulted to develop a better understanding of the land-use patterns of the area.

Environmental Setting

The API is located on the uplands terrace, northeast of the Nisqually River delta. The topography and geology were formed during the Late Pleistocene, following the advance of several glaciations that originated from Canada and extended between the Cascade and Olympic mountain ranges into the Puget Lowlands (Kruckeberg 1991:12, Lasmanis 1991).

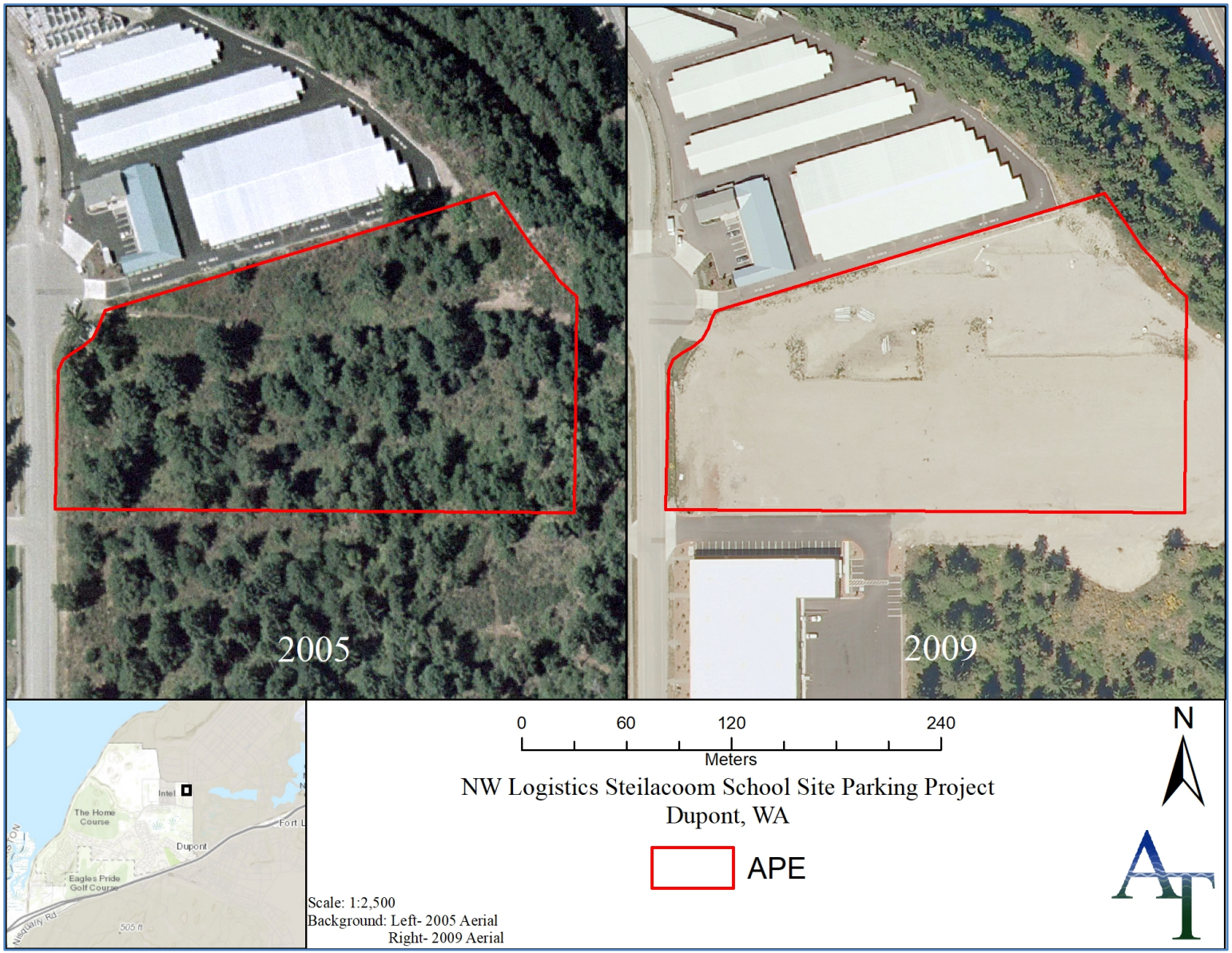

Figure 3. Development history of the API: 2005 and 2009.

Table 1: Soil types and Surface Geology within the API.

Name	Slope %	Typical Profile
Everett-Spanaway-Spana complex	0 to 30	Oi- 0 to 1 inch: slightly decomposed plant material A- 1 to 3 inches: very gravelly sandy loam Bw- 3 to 24 inches: very gravelly sandy loam C1- 24 to 35 inches: very gravelly loamy sand C2- 35 to 60 inches: extremely cobbly coarse sand
Semiahmoo muck	0 to 1	Oap 0 to 6 inches: muck Oa1 6 to 25 inches: muck Oa2 25 to 60 inches: muck
Spanaway gravelly sandy loam	0 to 3	H1 0 to 14 inches: gravelly medial sandy loam H2 14 to 18 inches: very gravelly medial sandy loam H3 18 to 60 inches: extremely gravelly sand

The Vashon Stade of the Fraser Glaciation began around 18,000 BP with an advance of the Cordilleran ice sheet into the lowlands (Porter and Swanson 1998). The Puget Lobe of the ice sheet flowed down into the Puget Lowland and reached its terminus just south of Olympia between 14,500 and 14,000 BP (Clague and James 2002). The Puget Lobe began to retreat shortly after reaching its terminus. Marine waters entered the lowlands that had been carved out by the glacier and filled Puget Sound. The remaining ice floated and wasted away rapidly. Glaciomarine drift deposits were released from the melting glacial ice and deposited on the seafloor across the northern and central Puget Lowland, causing the land to rebound and relative sea levels to fall and expose glacial outwash deposits (Clague and James 2002).

About 11,600 to 10,000 BP, the Cordilleran ice sheet advanced once again, leaving glacial till and outwash deposits in much of northwestern Washington (Easterbrook 2003). Following the rising temperatures, the glacier retreated rapidly to the north and left the regional landscape ice-free and suitable for inhabitants by approximately 11,000 years ago (Kruckeberg 1991:22).

Cultural Setting

Pre-contact Setting

Pre-contact occupation of the Puget Sound lowland can be subdivided into three phases that include Early (end of the last ice age to 5,000 years before present (BP), Middle (5,000 to 1,000 BP), and Late stages of development (1,000 to 250 BP). The Early period is characterized by an emphasis on the use of flaked stone tools, including fluted projectile points, leaf-shaped points, and cobble-derived tools. Camps were frequently established along river terraces or outwash channels and exist today as near-surface scatters or shallowly buried sites. The Middle period coincides with a stabilization of the environment to something similar to today. The broad cultural patterns include a more extensive suite of tools, including smaller notched points and groundstone, and bone or antler implements used for working wood. Shell midden sites first appear during this period indicating a transition to a more maritime-based subsistence pattern. The Late period is dominated by settlement along the coastline, streams and rivers and far greater specialization of technology. Trade goods also appear, indicating extensive trade networks up and down the coast as well as with inland plateau neighbors. Salmon became a primary food source at this time as sea levels had risen, and riparian environments supported large runs of salmon and provided plentiful food.

Ethnohistoric Setting

The API is located in the traditional territory of the Nisqually Indian Tribe, which is documented as extending along both sides of the Nisqually River from its delta at the southern end of the Puget Sound to nearly 30-miles upstream (Ruby and Brown 1986:150; Suttles and Lane 1990:486). Coastal Salish groups typically maintained strong social ties to neighboring groups in the pre-contact period. Ethnographic and archaeological information indicates that local bands established permanent villages near the convergence of protective marine shoreline and freshwater drainage outlets, while temporary camps were established during the warmer months during seasonal food source gathering times. In the ethnographic period, the Nisqually occupied at least 40 villages on the Nisqually River, where resources were plentiful. There was a village located on McAllister Creek, one at Sequalitchew Creek, one at the south end of Nisqually Lake, one near Roy, and the villages at South Bay and Olympia were called "associated villages," because of intermarriages between neighboring villages (Carpenter et al 2008). Temporary camps were also utilized while traveling for seasonal food sources, typically during the warmer summer months.

Reviewed ethnographic records (Hilbert et al. 2001; Smith 1940) do not indicate any Nisqually villages located in the immediate API. The nearest ethnographic village site appears to have been located west of the API on the mouth of the Nisqually River, "*^{tw}sqwE'le*". A second village site is located east of the API and near the junction of the Sequalitchew Creek and the river, "*stgwáletcabe*" (Smith 1940).

Historical Period Setting

Non-native settlement of the Puget Sound region followed soon after the establishment of Hudson Bay Company (HBC) fur trading posts. The HBC capitalized on the high demand for beaver pelts and enlisted the services of local Native American trappers. Two HBC forts and one associated village were stationed on the Nisqually delta. Fort Nisqually was a pastoral and agricultural branch of the Puget Sound Agricultural Company (a subsidiary of the Hudson Bay Company) and shipped supplies to England and other fort establishments (Stilson 2003). Further regional non-native settlement was encouraged by the Treaty of Washington in 1846, the Donation Land Claim Act of 1850, and the creation of the Territory of Washington in 1853.

Non-native settlement in Puget Sound drastically affected Indian people and their traditions. In 1854, following negotiations between the Nisqually, Squaxin, and Puyallup, and the United States government during the Medicine Creek Treaty, three reservations were to be established. Chief Leschi and Quiemuth refused to sign the treaty after learning that the Nisqually reserve was to be established west of the delta, and not on the river where people could fish (Carpenter et al 2008). This initiated the Treaty War of 1855. During this time, internment camps were established on Fox Island and Squaxin Island. The war ended when territorial Governor Isaac Stevens agreed to establish reservation lands along the rivers of both the Nisqually and Puyallup and requested that Indian warriors return to the area, which resulted in the hanging of Chief Leschi and murder of Quiemuth. Soon after, a large portion of the reservation was condemned by Pierce County and transferred to the US Army for development of military installations (later to become Fort Lewis), and many displaced Nisqually were forced to relocate to foreign lands on the Quinault River and the Puyallup, Skokomish, and Chehalis reservations, as much of the reservation land remaining had already been divided and allotted into family units (Carpenter et al 2008).

The project API lies within land claims of the Hudson Bay Company (HBC) and the associated Puget Sound Agricultural Company (PSAC). These land claims were sold to the United States following the 1864 Treaty between the United States and Great Britain that effectively removed the HBC and the PSAC from the Washington Territory (United States 1864, Kennedy et al. 1983, and Kaehler 2008).

Review of historic General Land Office maps (GLO) indicate that the project API is in close proximity to Fort Nisqually (GLO 1854), and was the homestead of James Vergon in 1862 (GLO 1862); however, the only mapped structure located near the API was owned by H. Williamson and is located less than a quarter-mile to the south (GLO 1871). This structure has been recorded as site 45PI00454.

Few European Americans lived in the immediate area at the turn of the 20th Century. In 1906 the E.I. DuPont de Nemours & Company purchased large tracts of land in the DuPont area and opened an explosives manufacturing facility called the DuPont Powder Works (Munyan 1972), on top of the site of a Nisqually Indian Tribe village site, "*Lach-ah-Lett's",* (Carpenter et al 2008:13). The City of DuPont was built around the DuPont Powder Works industry, and the City, as an example of a Pacific Northwest company town, is now listed on the National Register of Historic Places.

Previous Cultural Resource Studies, Archaeological Sites and Historic Properties

A review of the Washington State System for Architectural and Archaeological Records Database revealed that no cultural resource surveys, archaeological sites, or historic structures are located within the API. A total of 26 previous cultural resources studies have been completed within a 1-mile radius of the API. The majority of these studies were conducted for other residential or industrial-use development projects.

Within one mile of the API, there are a total of 25 recorded archaeological sites. These include pre-contact and historic refuse concentrations and scatters, domestic features, historic public works, and a historic railroad grade. There is also one recorded historic district, the DuPont Village Historic District, and one potentially eligible historic structure. None of these resources identified will be impacted by the proposed project.

Table 2. Previous cultural resource investigations within one mile of the API.

NADB No.	Author	Title (Date)	Findings	Distance from API
1693467	Amell, Sarah J.	Cultural Resources Survey for the DuPont-Steilacoom Road Improvement Project, DuPont, Pierce County, Washington (2020)	No further action required.	470 feet
1692193	Schultze, Carol	Cultural Resources Inventory, Phase II Development Northwest Logistics Center, City of DuPont, Pierce County, Washington (2015)	Monitoring recommended near 45PI1358	Adjacent to API
1691684	de Vry Nicholas	Cultural Resource Monitoring of the Intel Site Redevelopment Project, DuPont (2018)	No further action required.	0.20 miles
1687447	Taylor, Allie Rae	Assessment of Site 45PI01358 for the Northwest Logistics Building 2 Project, City of DuPont (2015)	No further action required.	0.25 miles
1686701	Wessen, Gary	Revised Cultural Resources Assessment for the Glacier Northwest North Sequalitchew Creek SEIS Project, City of DuPont (2008)	No further action required.	0.87 miles
168446	Gilpin, Jennifer	Memo to Gretchen Kaehler RE: NRHP Evaluation of Site 2245-1, Historic Period Stormwater System (2014)	No further action required.	0.20 miles
1685283	Cooper, Jason	Archaeological Survey, Evaluation, and National Register Eligibility Testing at Joint Base Lewis-McChord (2013)	Recommended further assessment or that sites were not eligible.	1 mile
1682888	Sikes, Nancy	Cultural Resources Monitoring Compliance Report for Creekside DuPont Partners, LLC/Creekside Village Development Project (2012)	No further action required.	0.90 miles
1682550	Falkner, Michael	Archaeological Site Verification of 55 Sites and Isolate on Fort Lewis (2012)	No further action required.	0.70 miles
1680626	Sikes, Nancy	Cultural Resources Assessment Creekside DuPont Partners, LLC/Creekside Village Development Project DuPont (2011)	No further action required.	0.90 miles
1353157	Thompson, Gail	Archaeological Monitoring at the Western Washington Sheet Metal Site, City of DuPont (2009)	No further action required.	1 mile

NADB No.	Author	Title (Date)	Findings	Distance from API
1352855	Dampf, Steven	An Archaeological Inventory Survey of 100 Acres at Fort Lewis (2008)	No further action required.	0.40 miles
1352607	Dampf, Steven	Archaeological Site Testing for National Register of Historic Places Eligibility of Five Archaeological Site at Fort Lewis, Fiscal Year 2006 (2006)	No further action required.	0.80 miles
1351410	Sadler, Dale	Fort Lewis Cultural Resources Office Assessment of Project Effects to Construct a POV (Personal Vehicle) RV Storage Lot and Fence Horse Stables, Fort Lewis Cantonment (2008)	No further action required.	1 mile
1351304	Thompson, Gail	Archaeological Resource Assessment of Community Park Site at the Centex Homes Bell Hill Development, City of DuPont (2008)	No further action required.	0.86 miles
1350484	Schumacher, James	Archaeological Monitoring for Basalite Office Facility, DuPont (2007)	No further action required.	
1349489	Sadler, Dale L.	Cultural Resources Survey for the New 110th Chemical Battalion Complex at North Fort Lewis (2007)	No further action required.	0.64 miles
1348810	Bialas, Catherine M.	Cultural Resources Assessment for the Glacier Northwest North Sequalitchew Creek SEIS Project, City of DuPont (2005)	Recommended monitoring.	0.86 miles
1348341	Forrest, James	Memo Re: Archaeological Survey of the Recondo Site Training Facility (1995)	Recommended monitoring.	0.76 miles
1348081	Sadler, Dale L.	Survey of Cultural Resources for the 5-5 Air Defense Artillery (ADA) Barracks Complex and Vehicle Maintenance Shops Construction at North Fort Lewis (2006)	No further action required.	0.89 miles
1346852	Sadler, Dale L.	Cultural Resources for the Whole Barracks Renewal Project at Fort Lewis (2006)	No further action required.	0.91 miles
1340385	Solimano, Paul S.	Intel DuPont Campus Project Cultural Resource Assessment and Monitoring (1996)	No further action required.	0.53 miles

NADB No.	Author	Title (Date)	Findings	Distance from API
1340358	Larson, Lynn L.	To Mr. Mike Wright, re: Cultural resource assessment of a soil storage location in the southwest corner of the Intel DuPont Campus (1996)	No further action required.	0.53 miles
1340325	Daughtery, Richard D.	Archaeological and Historical Investigations, Divisions Six and Seven Northwest Landing, DuPont (2000)	No further action required.	0.94 miles
1340322	Madson, Michael J.	Cultural Resource (Archaeological Site) Inventory 1997-1998, Fort Lewis Military Reservation (2000)	No further action required.	1 mile

Table 3. Archaeological sites within one mile of the API.

Author	Smithsonian Number	Site Name (Date)	Findings	Eligibility	Distance from API
Cooper, Jason	45PI01316	Greene Park Landing (2015)	Historic military properties, concrete pedestrian bridge, foundations, depressions, roadway elements, water line, metal, glass, earthenware, pre-contact lithic material, historic component ca. 1917-1922.	Eligible.	0.98 miles
Taylor, Allie Rae	45PI01358	Historic Debris Scatter (2015)	Historic scatter metal, glass, porcelain, copper, ca. 1915-1960.	Eligible.	0.31 miles
Gebhardt, Jennifer	45PI01359	Historic-period street lamp (2014)	Historic- period street lamp isolate, ca. early 20th century.	Unknown	0.31 miles
Gebhardt, Jennifer	45PI01333	Historic public works (2014)	Historic public works, utility vaults, concrete pipe, ca. 1944.	Not Eligible	0.21 miles
Olander, Jennifer	45PI01242	HRA 1721-2H (2011)	In ruin historic railroad bed, ca. 1941.	Eligible.	700 feet
Arrington, C.	45PI01229	Isolate #3 (2010)	Milled lumber, ca. 1906-1920s.	Eligible.	0.94 miles
Falkner, Michael	45PI01169	O.H. White Homestead (2009)	Ca. 1850s-1910.	Eligible.	0.74 miles

Author	Smithsonian Number	Site Name (Date)	Findings	Eligibility	Distance from API
Baumgartner, Joey	45PI00922	Historic scatter (2008)	Historic scatter, glass, ceramic, ca. early 20th Century.	Eligible.	0.40 miles
Thompson, Gail	45PI00969	Isolate 1456-1 (2008)	Historic glass druggist bottle isolate, ca. 1900.	Unknown.	0.33 miles
Dampf, Steven	45PI00791	1378-ISO-02 (2008)	Historic isolate, amber glass, ca. 1939-1937	Not eligible.	0.76 miles
Daughtery, Richard D.	45PI00454	Henry Williamson Homestead (1998)	Homestead, mid to late 1800's.	Eligible.	0.33 miles
Dampf, Steven	45PI00516	FLI-LAAS-8 (1998)	Possible historic homestead site with orchard & historic debris scatter.	Not eligible.	0.82 miles
Solimano, Paul S.	45PI00441	(1995)	Unimproved dirt road, road bed completed in 1852 with help of laborers lent by Hudson Bay Co.	Eligible.	0.71 miles
Solimano, Paul S.	45PI00440	Intel Railroad Dump No. 1 (1995)	---	Eligible.	0.66 miles
Welch, Jeanne	45PI00074	(1977)	Reported site of historic Indian camp or lodges outside Fort Nisqually.	Eligible.	0.84 miles
Welch, Jeanne	45PI00057	Old Town Men's Borading House Site (1993)	---	Not Eligible	0.91 miles
Welch, Jeanne	45PI00058	Brickyard Dump (1989)	---	Not Eligible	0.84 miles
Welch, Jeanne	45PI00060	Edmond Marsh Dump (1989)	---	Not Eligible	0.92 miles
Welch, Jeanne	45PI00061	Railroad Dump #1 (1989)	---	Not Eligible	0.82 miles

Author	Smithsonian Number	Site Name (Date)	Findings	Eligibility	Distance from API
Welch, Jeanne	45PI00062	(1989)	---	Not Eligible	0.88 miles
Welch, Jeanne	45PI00065	(1989)	---	Not Eligible	0.87 miles
Welch, Jeanne	45PI00069	(1989)	---	Not Eligible	0.97 miles
Welch, Jeanne	45PI00070	(1989)	---	Not Eligible	0.85 miles

Table 4. Potential and listed historic properties within one mile of the API.

Property ID	Name	Address	Building Type	Build Date	Eligibility
719218	Rail bridge RRoND, JBLM	Intersection of Plant Road and Lake Sequalitchew, JBLM, 98433	Bridge	1941	Not assessed
45DT00151	Dupont Village Historic District	Roughly bounded by Santa Cruz, Brandywine, Dupont and Penniman, DuPont, WA.	Historic District	1906-1915	NRHP

Cultural Resources Expectations

Based on ATCRC's background review of environmental and cultural contexts, and previously recorded cultural resources studies and sites, the project area is considered to be located in an area of moderately low to low probability for archaeological sites as indicated in the DAHP WISAARD site predictive model. Review of aerial photographs indicate that the API has been previously cleared of trees and graded (USGS NHAP 1981, USGS 2005, USGS 2009). However, due to the fact that that the API was part of former PSAC lands, there is potential for archaeological sites and features related to this historic use of the area. If any pre-contact or historical archaeological sites, features, or cultural deposits are present in the project area they are likely to exist in subsurface contexts and would be identified during archaeological survey.

Field Investigations

Field investigations were conducted on May 20, 2020, by Andrew Viloudaki (Project Archaeologist) and Colin Higashi (Cultural Resource Technician) during partly cloudy weather conditions.

The field investigations consisted of a pedestrian survey and subsurface testing. Pedestrian survey consisted of walking 10-meter transects across the API and photographing existing conditions including tree clearing, utilities, earthworks, and grading (Photo 1 and Figure 4). Subsurface testing consisted of excavating 19 SPs (Figure 4). SPs were strategically placed on transects with intervals based on environmental and modern cultural features identified during the pedestrian survey.

The pedestrian survey identified many of the landscape modifications identified in the background research that occurred between 2005 and 2009. These include earthworks, utility infrastructure, and construction and clearance debris (Figure 4). The earthwork areas identified on Figure 4 include areas of man-made burms, drainage pond, and a paved roundabout. The utility locations identified on Figure 4 include multiple water/sewer manholes, storm drain outlets, and natural gas pipeline markers.

Each SP measured approximately 40-centimeters (cm) in diameter and was excavated to a minimum 40 cm below the ground surface or impasse. Sediments were screened through ¼-inch mesh and backfilled upon completion. Photo 2 provides an example of the subsurface conditions encountered during the survey. Soils found across the API were representative of graded and redeposited glacial soils overlying glacial till. Based on aerial and satellite photos, the API was cleared between 2005 and 2009, which resulted in the removal of all topsoils. No cultural resources were observed. The soil strata encountered during excavations are presented in Appendix A.

Photo 1. View of weathered and reworked glacial till on the surface of API facing North.

Photo 2. View of SP1. Lighter soils at the bottom are representative of glacial soils across the API.

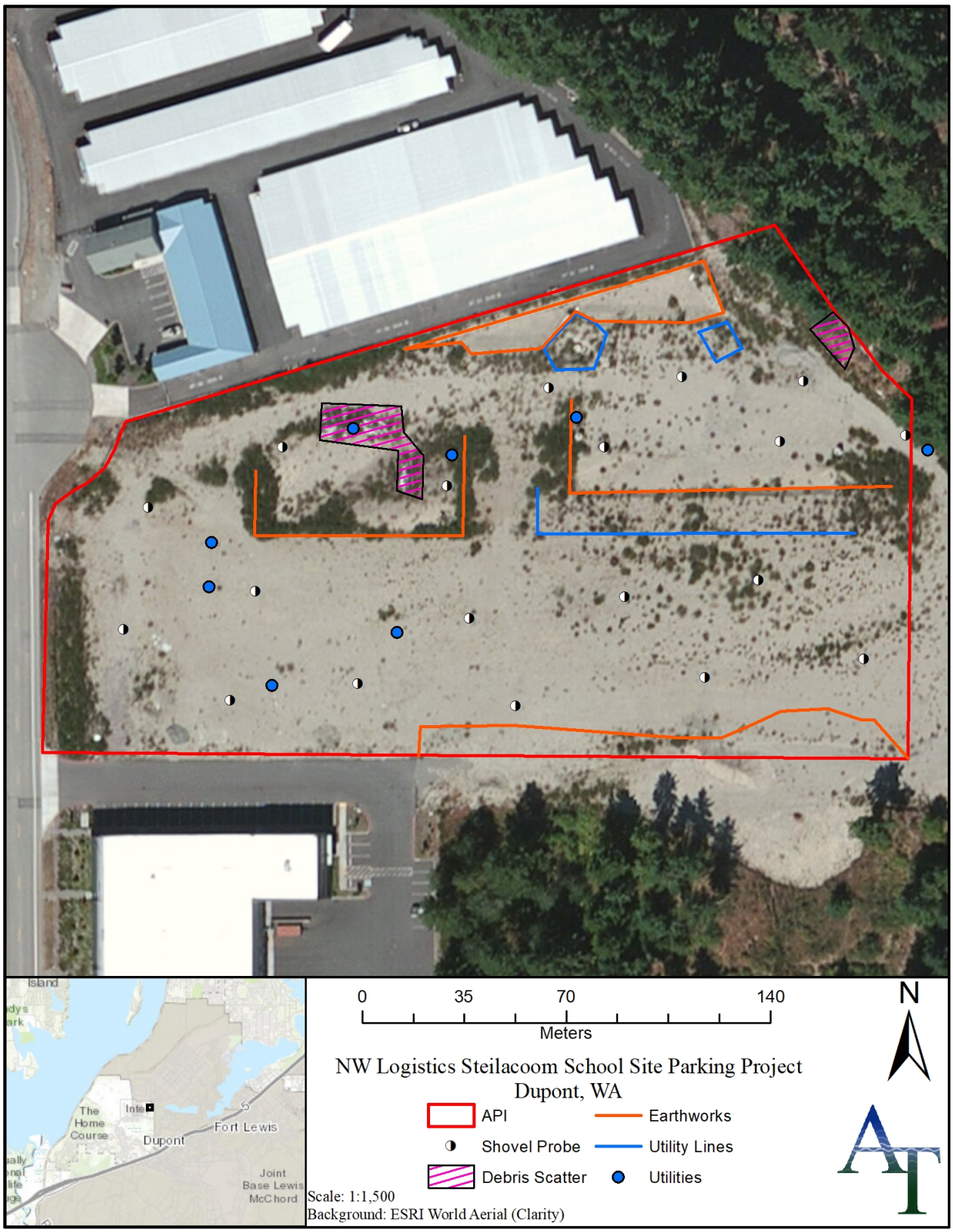

Figure 4. Results of the cultural resources survey.

Results and Recommendations

ATCRC's cultural resources assessment for the Steilacoom School Parking Project included background research, field investigation, and preparation of this report. Background review determined that the project area is located in an area considered to have a "low" to "moderately low" probability for cultural resources.

Field investigations consisted of pedestrian survey and subsurface testing within the project API. Nineteen shovel probes (SP) were excavated and no cultural resources were identified during the surface and subsurface investigations. The API is comprised of highly disturbed soils overlying glacial sediments. ATCRC recommends no further work, however will provide cultural resource monitoring services during construction in order to comply with the City of DuPont's request for cultural resource monitoring. ATCRC also recommends preparation and compliance with an Inadvertent Discovery Plan for reference during any future construction activities on the parcel. An Inadvertent Discovery Plan is attached in Appendix B.

No cultural resources study can wholly eliminate uncertainty regarding the potential for prehistoric sites, historic properties, or TCPs associated with a project. The information presented in this report is based on professional opinions derived from our analysis and interpretation of available documents, records, literature, and information identified in this report, and on our reconnaissance-level field investigation and observations as described herein. Conclusions and recommendations presented apply to project conditions existing at the time of our study and those reasonably foreseeable. The data, conclusions, and interpretations in this report should not be construed as a warranty of subsurface conditions described in this report. They cannot necessarily apply to site changes of which ATCRC is not aware and has not had the opportunity to evaluate.

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Appendix A: Shovel Probe Log

SP	Strata #	To depth (cm)	Basal Transition	Description	Cultural Materials	Notes
C1	1	2	Clear	100% Gravel and cobbles	None	Artificial resurfacing
	2	8	Gradual	Dark brown sandy gravelly loam	None	
	3	20		Buff compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C2	1	2	Clear	100% Gravel and cobbles	None	Artificial resurfacing
	2	40		Orange-brown compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C3	1	34	Mixed	Black silty loam with moderate gravel	None	Disturbed surface
	2	37		Dark buff compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C4	1	20	Gradual	Dark brown sandy loam with abundant gravel	None	
	2	32		Dark buff compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C5	1	16	Clear	Loose buff sand	None	Artificial resurfacing
	2	26		Light beige compact sand with abundant unsorted gravel	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C6	1	2	Clear	100% Gravel and cobbles	None	Artificial resurfacing
	2	18	Clear	Buff compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	3	40		Gray-buff compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C7	1	10	Gradual	Loose dark brown sandy loam with abundant unsorted gravel	None	
	2	30	Clear	Loose light brown sandy silt with abundant gravel	None	

SP	Strata #	To depth (cm)	Basal Transition	Description	Cultural Materials	Notes
	3	34		Buff compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C8	1	2	Clear	100% Gravel and cobbles	None	Artificial resurfacing
	2	30	Gradual	Dark beige compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	3	48		Orange-gray compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C9	1	8	Gradual	Gray sandy loam with abundant gravel	None	
	2	25	Clear	Orange-brown compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	3	29		Dark brown compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
C10	1	2	Clear	100% Gravel and cobbles	None	Artificial resurfacing
	2	30	Indistinct	Dark beige compact sand with abundant unsorted gravel, cobbles	None	Possibly reworked?
	3	38		Dark gray compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
A1	1	20	Clear	Olive Grey sand with abundant unsorted gravel	None	Glacial till
	2	30		Gray-buff compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
A2	1	30		Olive Grey compact sand with abundant unsorted gravel	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
A3	1	15	Clear	Olive Grey compact sand with abundant unsorted gravel	None	Glacial till
	2	20		Orange-brown compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		

SP	Strata #	To depth (cm)	Basal Transition	Description	Cultural Materials	Notes
A4	1	25	Gradual	Light beige compact sand with abundant unsorted gravel	None	Glacial till
	2	30		Orange-brown compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
A5	1	35	Gradual	Light beige compact sand with abundant unsorted gravel	None	Glacial till
	2	40		Dark brown compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
A6	1	5	Clear	Brown Sandy gravel with abundant unsorted gravel	None	Artificial resurfacing
	2	20		Orange-brown compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
A7	1	5	Clear	Light Brown sandy gravel with abundant unsorted gravel	None	Artificial resurfacing
	2	30		Reddish-brown compact sand with abundant unsorted gravel, cobbles	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
A8	1	5	Clear	Light Brown sandy gravel with abundant unsorted gravel	None	Artificial resurfacing
	2	30		Light beige compact sand with abundant unsorted gravel	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		
A9	1	5	Clear	Light Brown sandy gravel with abundant unsorted gravel	None	Artificial resurfacing
	2	30		Light beige compact sand with abundant unsorted gravel	None	Glacial till
	Termination:			Termination in glacial till at inhibitive cobble layer		

Appendix B: Inadvertent Discovery Plan (IDP)

Plans and Procedures for the Inadvertent Discovery of Cultural Resources and Human Skeletal Remains

1. Introduction

The following Inadvertent Discovery Plan (IDP) outlines procedures to follow, in accordance with state and federal laws, if archaeological materials or human remains are discovered.

2. Recognizing Cultural Resources

A cultural resource discovery could be prehistoric or historic. Examples include:

- An accumulation of shell, burned rocks, or other food-related materials;
- Bones or small pieces of bone,
- An area of charcoal or very dark stained soil with artifacts,
- Stone tools or waste flakes (i.e. an arrowhead, or stone chips),
- Clusters of tin cans or bottles, logging or agricultural equipment that appears to be older than 50 years,
- Buried railroad tracks, decking, or other industrial materials. When in doubt, assume the material is a cultural resource.

3. On-Site Responsibilities

STEP 1: STOP WORK. If any employee, contractor, or subcontractor believes that he or she has uncovered a cultural resource at any point in the project, all work in the immediate area of the discovery must stop (typically a 10-foot radius but depends on site conditions). The discovery location should be secured at all times.

STEP 2: NOTIFY MONITOR. If there is an archaeological monitor for the project, notify that person. If there is a monitoring plan in place, the monitor will follow its provisions.

STEP 3: NOTIFY PROJECT MANAGEMENT. Contact the Project Manager. If you cannot reach the Project Manager, contact the project's alternate point of contact. The Project Manager or the designated Alternate Contact will make all other calls and notifications.

Project Manager	**Alternate Contact**
Bjorn Brynestad, DM	Sarah Amell
234-444-8478	360-359-6701
bjorn@panattoni.com	Sarah@AquaTerraCRC.com

If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. Do not call or speak with the media about the remains specifically.

4. Further Contacts and Consultation

A. Project Manager's Responsibilities

- Protect Find: The Project Manager is responsible for taking appropriate steps to protect the discovery site. All work will stop in an area adequate to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel will not be permitted to traverse the discovery site. Work in the immediate area will not resume until treatment of the discovery has been completed following provisions for treating archaeological/cultural material as set forth in this document.
- Direct Construction Elsewhere On-site: The Project Manager may direct construction away from cultural resources to work in other areas prior to contacting the concerned parties.
- Identify Find: The Project Manager will ensure that a qualified professional archaeologist examines the find to determine if it is archaeological. This will either be an archaeological consultant hired by the Project or staff from DAHP.
- If the discovery is determined not archaeological, work may proceed with no further delay.
- If the discovery is determined to be archaeological, the Project Manager will continue with notification.
- If the discovery is human remains or funerary objects, the Project Manager will ensure that the DAHP State Physical Anthropologist examines the find. If the discovery is determined to be human remains, the procedure described in Section 5 will be followed.
- Notify DAHP if DAHP has not yet been contacted, the Project Manager will do so. The Project Manager will also contact the involved agencies (if any) and interested and affected Tribes.

B. Further Activities

- Archaeological discoveries will be documented as described in Section 6.
- Construction in the discovery area may resume as described in Section 7.

C. Contacts

Department of Archaeology and Historic Preservation	
Lance Wollwage, Ph.D. Assistant State Archaeologist, DAHP (360) 586-3536	Rob Whitlam, Ph.D. State Archaeologist, DAHP (360) 586-3080
Tribes	
Nisqually Indian Tribe Annette Bullchild Tribal Historic Preservation Officer (360) 456-5221 ext. 1106	

5. Special Procedures for the Discovery of Human Skeletal Material

If ground-disturbing activities encounter human skeletal remains during the course of construction, then all activity will cease that may cause further disturbance to those remains. The area of the find will be secured and protected from further disturbance. The finding of human skeletal remains will be reported to the county medical examiner/coroner and local law enforcement in the most expeditious manner possible.

The remains will not be touched, moved, or further disturbed. The county medical examiner/coroner will assume jurisdiction over the human skeletal remains and make a determination of whether those remains are forensic or non-forensic. If the county medical examiner/coroner determines the remains are non-forensic, then they will report that finding to the Department of Archaeology and Historic Preservation (DAHP) who will then take jurisdiction over the remains. The DAHP will notify any appropriate cemeteries and all affected tribes of the find. The State Physical Anthropologist will make a determination of whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected tribes. DAHP will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains.

Thomas B. Clark, Coroner Pierce County Medical Examiner's Office 3619 Pacific Ave. Tacoma, WA 98418 (253) 798-6494	DuPont City Police Department (253) 964-7060

6. Documentation of Archaeological Materials

Archaeological deposits discovered during construction will be assumed eligible for the Washington Heritage until a formal Determination of Eligibility is made. Contact the Project Manager or DAHP regarding the possible need for an Emergency Excavation Permit per RCW27.53. DAHP will make all decisions regarding procedures for evaluation of features and eligibility determinations.

All prehistoric and historic cultural material discovered during project construction will be recorded by a professional archaeologist on State of Washington cultural resource site or isolate form using standard techniques. Site overviews, features, and artifacts will be photographed; stratigraphic profiles and soil/sediment descriptions will be prepared for subsurface exposures. Discovery locations will be documented on scaled site plans and site location maps.

If assessment activity exposes human remains (burials, isolated teeth, or bones), the process described in Section 5 above will be followed.

7. Proceeding with Construction

Project construction outside the discovery location may continue while documentation and assessment of the cultural resources proceed. A Cultural Resources Specialist (either from DAHP, a consulting Tribe, or a professional consultant) must determine the boundaries of the discovery location. In consultation with DAHP and affected tribes, the Project Manager will determine the appropriate level of documentation and treatment of the resource. If federal agencies are involved, the agencies will make the final determinations about treatment and documentation.

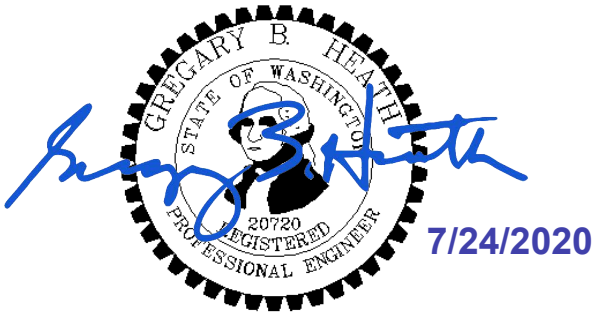
Construction may continue at the discovery location only after the process outlined in this plan is followed and DAHP determines that compliance with state and federal laws is complete.

State Archaeologist **Rob Whitlam, Ph.D.** Rob.Whitlam@dahp.wa.gov (360) 586-3080 (360) 890-2615 – Cell

The DAHP will review the eligibility criteria above, make a recommendation to the artifact or deposits potential eligibility, and will proceed with agency and tribal notification as necessary (so long as the artifact or deposit is determined eligible).

SNOW BLOSSOM FULFILLMENT CENTER
TRAFFIC IMPACT ANALYSIS

DuPont, WA



Prepared for: Mr. Brian Mattson
Panattoni Development Company, Inc.
1821 Dock Street, Suite 100
Tacoma, WA 98402

July 2020

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com

SNOW BLOSSOM FULFILLMENT CENTER
TRAFFIC IMPACT ANALYSIS

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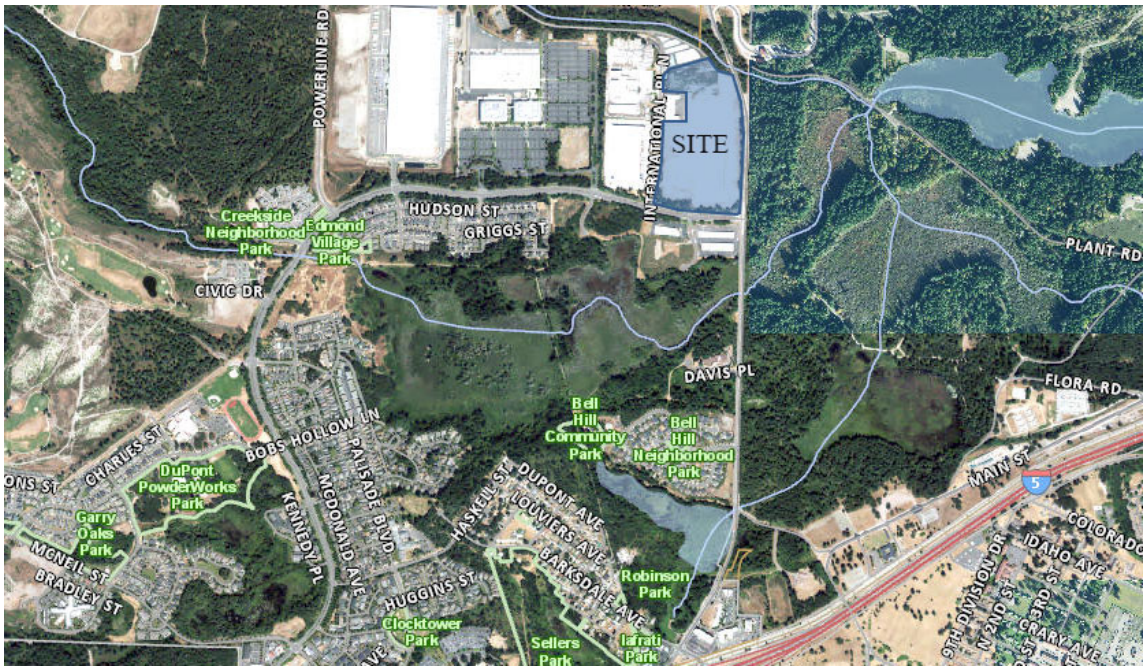
SNOW BLOSSOM FULFILLMENT CENTER
TRAFFIC IMPACT ANALYSIS

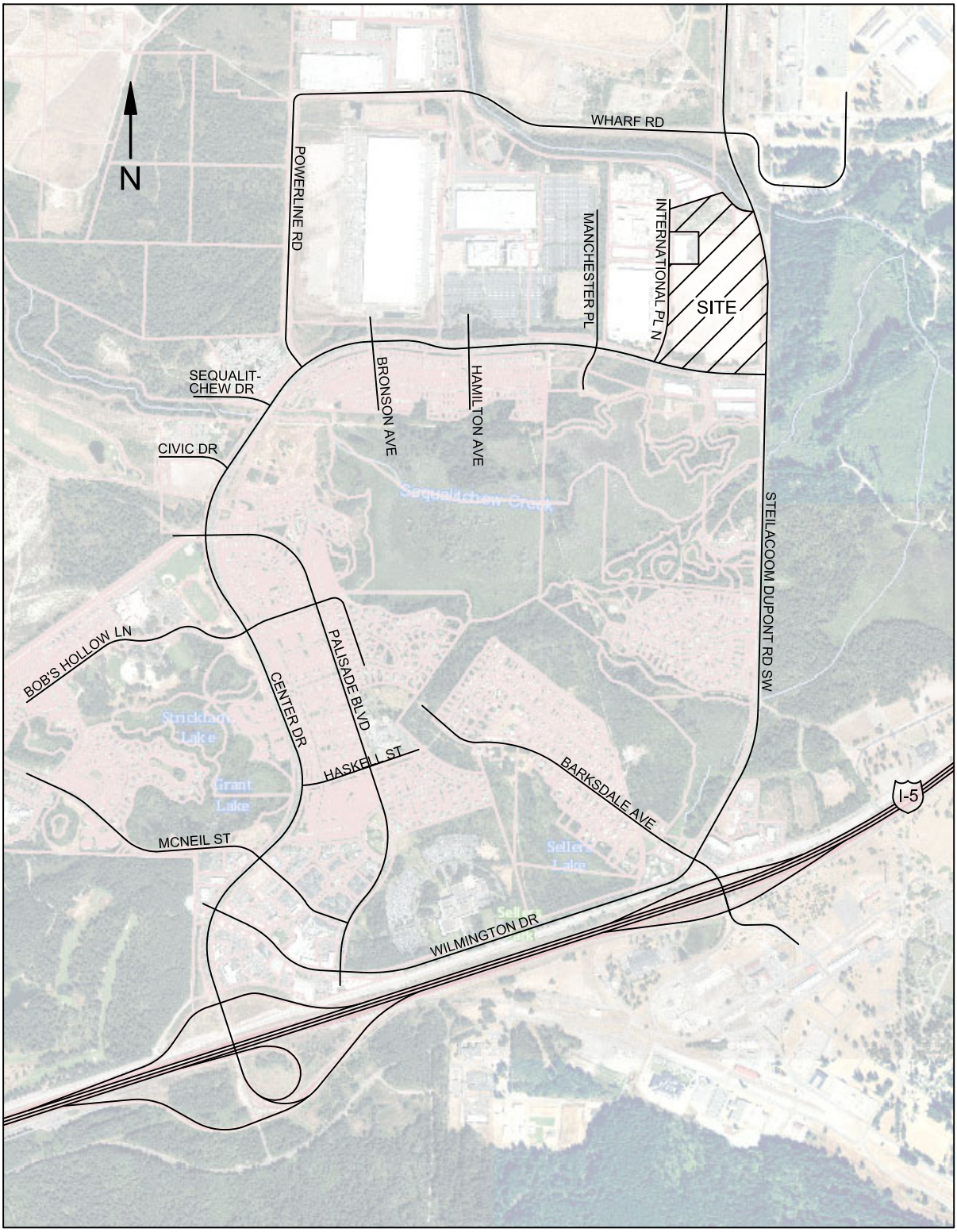
1. INTRODUCTION

The main goals of this study focus on the assessment of existing roadway conditions and forecasts of newly generated project traffic. The first task includes the review of general roadway information on the adjacent street system, baseline vehicular volumes, and any planned infrastructure projects that may affect the study area. Forecasts of future traffic and dispersion patterns on the street system are then determined using established trip generation and distribution techniques. As a final step, appropriate conclusions and mitigation measures are defined if needed.

2. PROJECT DESCRIPTION

Snow Blossom Fulfillment Center proposes to occupy an existing 612,412 square foot warehouse located in the city of DuPont. The warehouse, with a site address of 3230 International Place N, is proposed to be utilized as a hazmat fulfillment center. The subject property is bordered to the west by International Place N, to the east by Steilacoom DuPont Road SW and to the south by Center Drive on a cumulative 37.5-acres within tax parcel #'s: 300039-0011; - 3282. Access is to be provided via International Place N. A two-year horizon of 2022 was analyzed to assess future project impacts subsequent to tenant occupancy. Figure 1 on the following page shows the general site location and roadway network serving the vicinity. A site plan illustrating the overall configuration of the project is presented in Figure 2.





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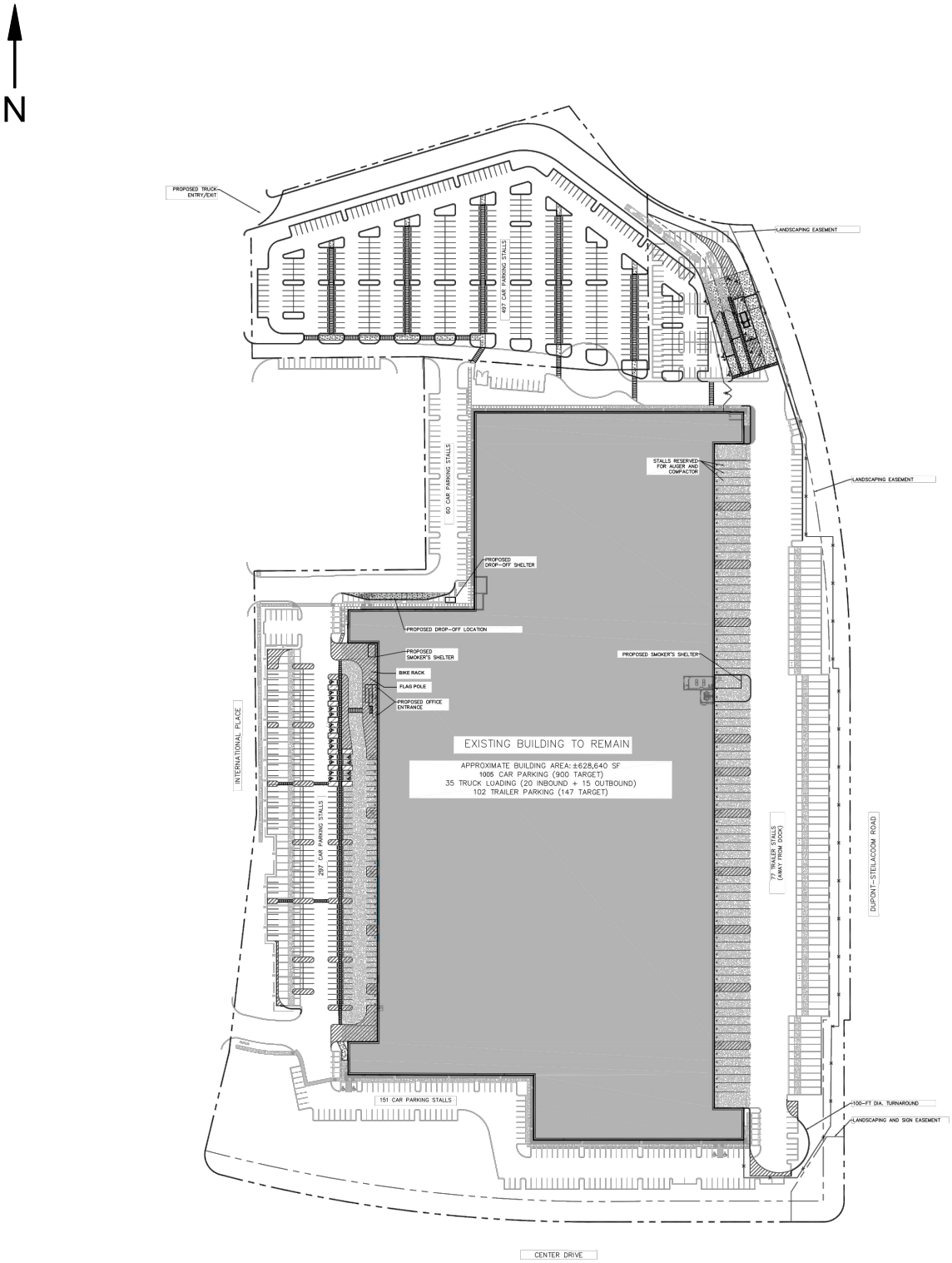
SNOW BLOSSOM FULFILLMENT CENTER

VICINITY MAP & ROADWAY SYSTEM
FIGURE 1

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com



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SNOW BLOSSOM FULFILLMENT CENTER

SITE PLAN
FIGURE 2

3. EXISTING CONDITIONS

3.1 Existing Roadway Characteristics

The street network serving the proposed project consists of a variety of roadways. The major roadways and arterials defined in the study area are listed and described below.

Table 1: Roadway Network

Functional Classification	Roadway	Speed Limit	Lanes	Street Parking	Sidewalk	Bike Facilities
Principal Arterial	Center Street	35 mph	4	No	Yes	Lanes
Minor Arterial	Steilacoom DuPont Rd SW	35-45 mph	2-3	No	S/O Station Dr	Signage
Local	International Place	25 mph	2	No	Yes	Paved Shoulders

3.2 Public Transit Service

Transit within the city is provided via two Sound Transit Express Bus routes. Route 592 – DuPont-Seattle provides service from DuPont to Downtown Seattle and runs from approximately 4:00 AM to 8:30 PM with 15-20 minute headways during peak periods. Route 594 – Lakewood/Tacoma-Seattle offers select service to DuPont (see Sound Transit routes and schedules for further information). All stops originate and depart from the DuPont Station located on the southeast corner of Wilmington Drive & Palisade Boulevard, approximately two miles from the subject site and is therefore not anticipated to be significantly utilized by the proposed development's employees.

According to the DuPont's Comprehensive Plan, the City would like to explore adding and expanding transit opportunities as employment and populations continue to grow. As a potential transportation demand measure, and if demand exists, the developer may consider adding a shuttle service to run to and from DuPont Station during employee shift periods as a way to incentivize and encourage alternative modes of transport.

3.3 Non-Motorist Infrastructure

The adjacent Center Drive and International Place roadways support detached sidewalks along either side and shoulders accommodating bicycle transport. The intersection of the two roadways allows for safe pedestrian crossings facilitated via actuated walk phases controlled by the signal. However, with no transit readily available within the immediate site vicinity, little non-motorist activity to/from the site can be expected.

3.4 Roadway Improvements

A review of the City of DuPont's Six-Year (2019-2024) Transportation Improvement Plan and WSDOT's 2020-2023 Statewide Transportation Improvement Program indicates improvement projects are scheduled within the project vicinity. The most significant project to note is WSDOT's proposed Interchange Exit 119 Redesign:

I-5 Exit 119 Reconstruction – is a proposed redesign of the existing I-5 Exit 119 to increase capacity and allow for a more efficient and safe design. The scope of work include removing a portion of Barksdale Avenue, east of Steilacoom-DuPont Road and constructing a new grade-separated southbound exit. Also proposed are new I-5 Northbound and Southbound Bypass routes to Steilacoom-DuPont Road and the JBLM DuPont Gate. See appendix for WSDOT's design exhibits. The project is currently undergoing environmental studies and the construction is estimated to be completed in 2025.

As part of WSDOT's involvements with the I-5 Exit 119 Reconstruction, the City has established a number of improvements along Steilacoom-DuPont Road from the proposed Exit 119 location to Wharf Road including intersection improvements at Center Drive.

Other City improvement projects consist of traffic signal modernization and coordination from I-5 Exit 118 to Steilacoom-DuPont Road; however, these projects have not secured funding and are in the preplanning stages. Given the time horizons of the planned improvements, no projects were considered in the forecast horizon analysis as they would not be completed at such time.

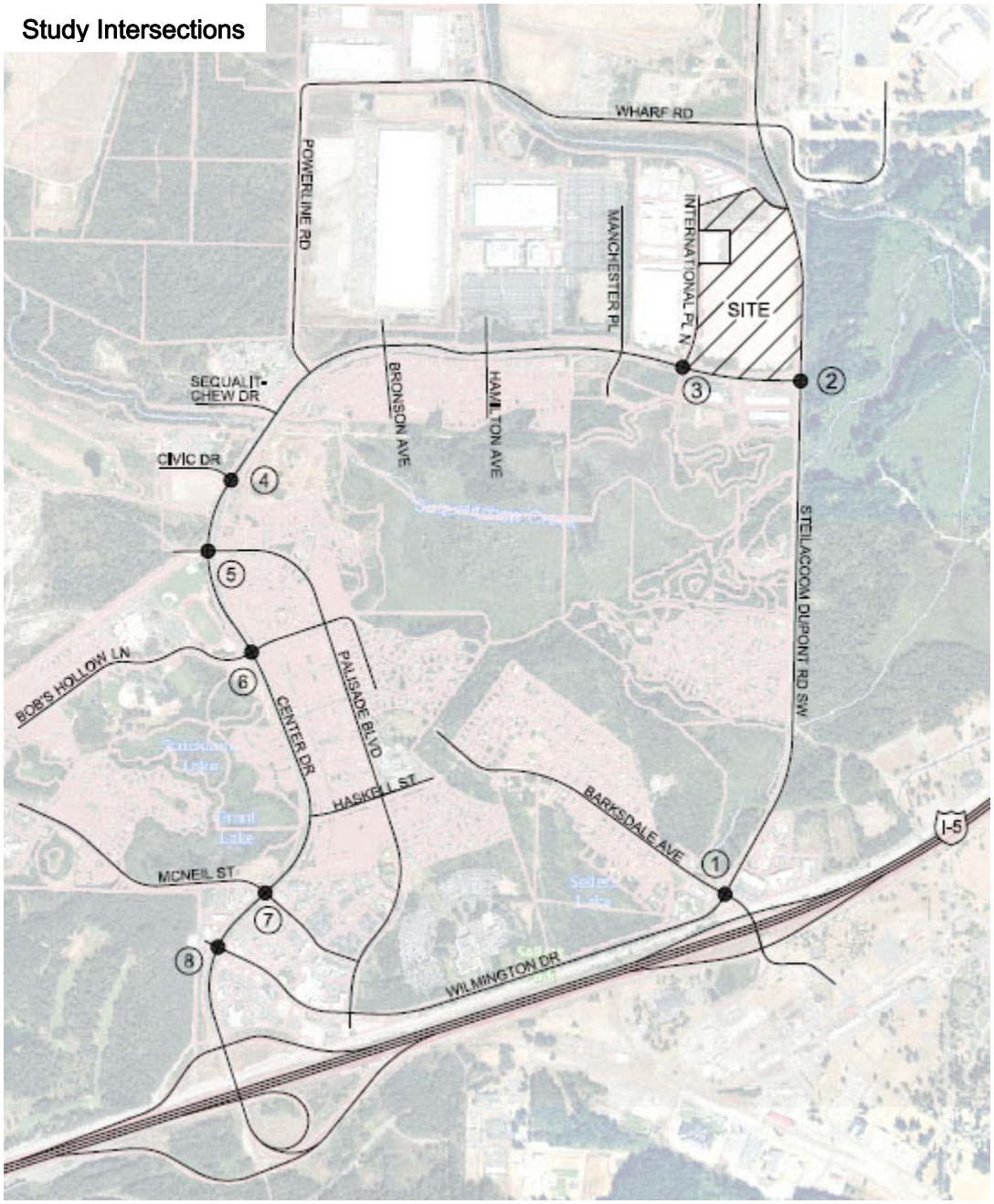
3.5 Baseline Intersection Volumes

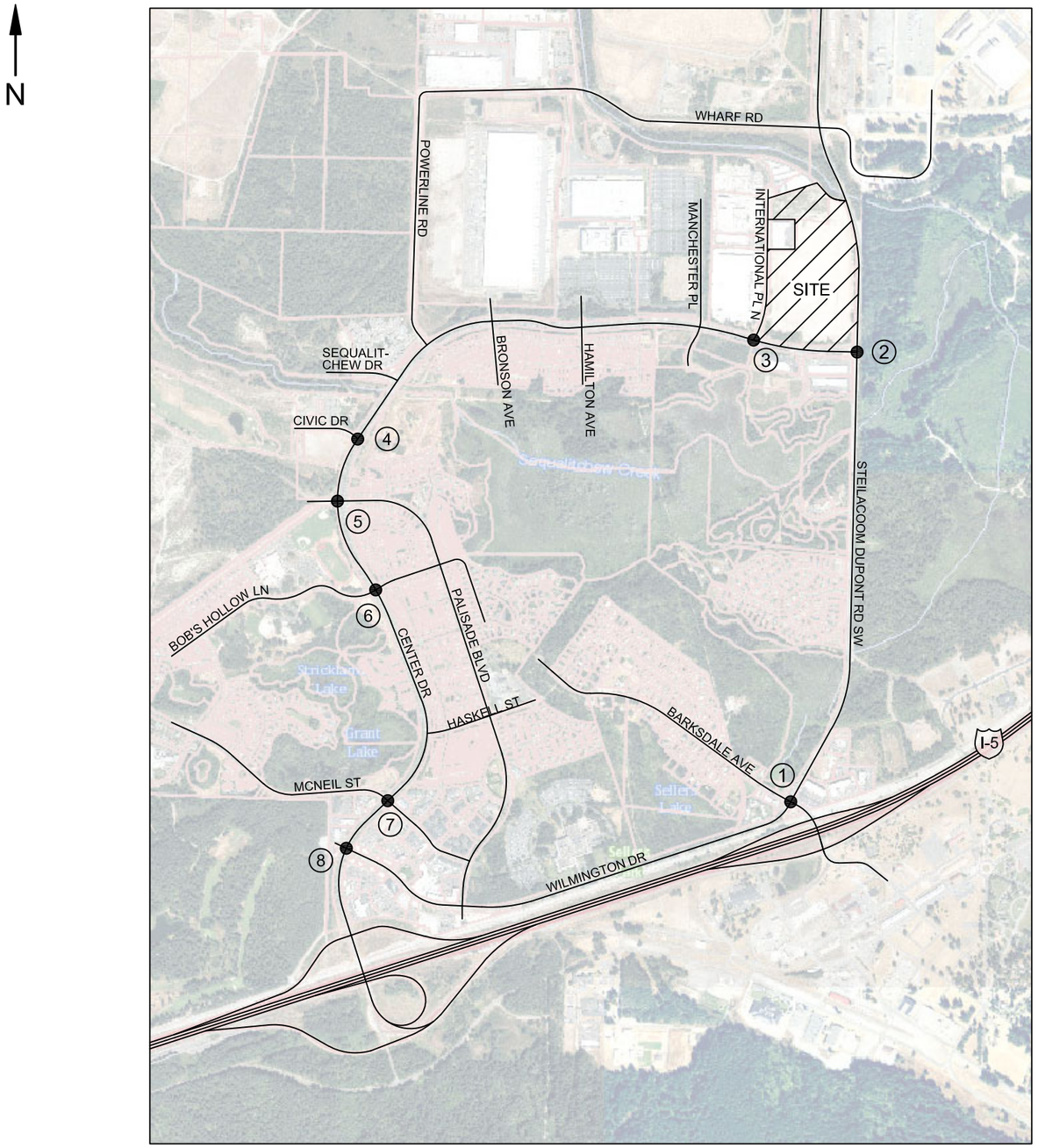
In order to assess and evaluate the project impacts relative to the adjacent street system, a number of outlying intersections were selected for evaluation by the City. All intersections are signalized controlled and turning movement count data were provided in the scoping request through the City. Timeframes examined in this analysis consist of the AM peak period (7:00-9:00 AM) and the PM peak period (4:00-6:00 PM) as these periods generally represent the highest congestion points of a typical weekday.

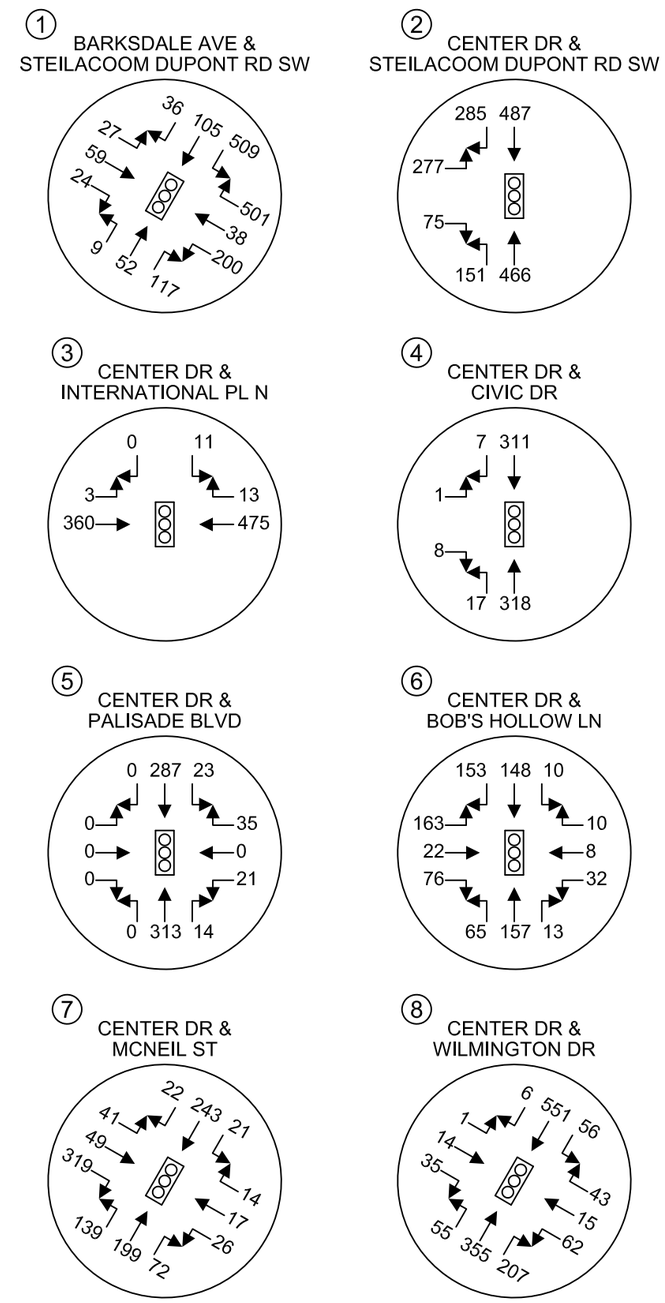
Data were available from 2019 for all locations with the exception of two intersections. These two intersections were from 2017 and have been adjusted via a two percent compound annual growth rate. Listed on the following page are the study intersections with respective AM and PM peak hour volumes illustrated in Figure 3A & 3B. Full count sheets and baseline volumes are included in the appendix.

1. Barksdale Ave & Steilacoom DuPont Rd
2. Center Drive & Steilacoom DuPont Rd
3. Center Drive & International Drive
4. Center Drive & Civic Drive
5. Center Drive & Palisade Drive
6. Center Drive & Bob's Hollow Lane
7. Center Drive & McNeil Street
8. Center Drive & Wilmington Drive

Study Intersections







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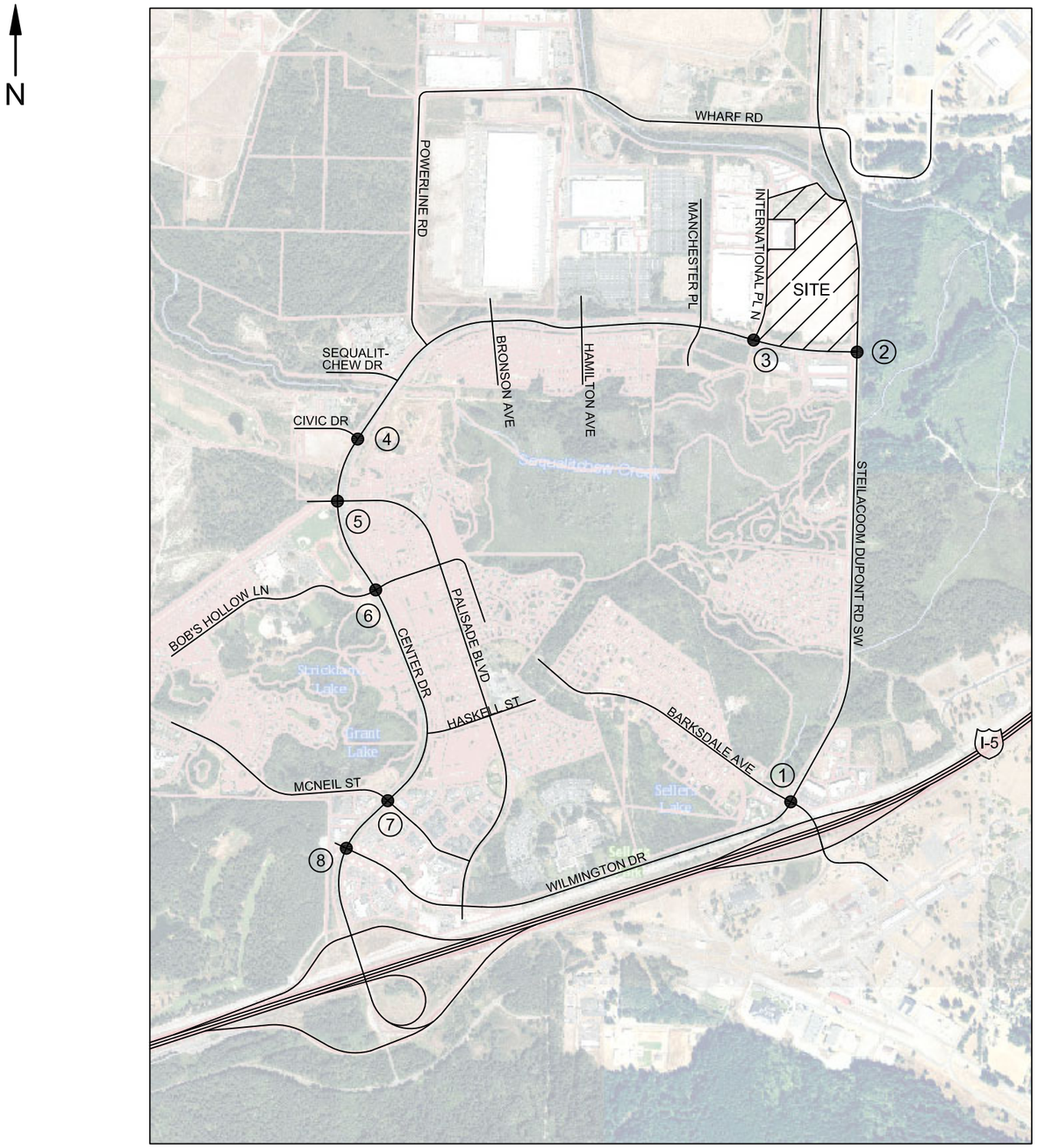
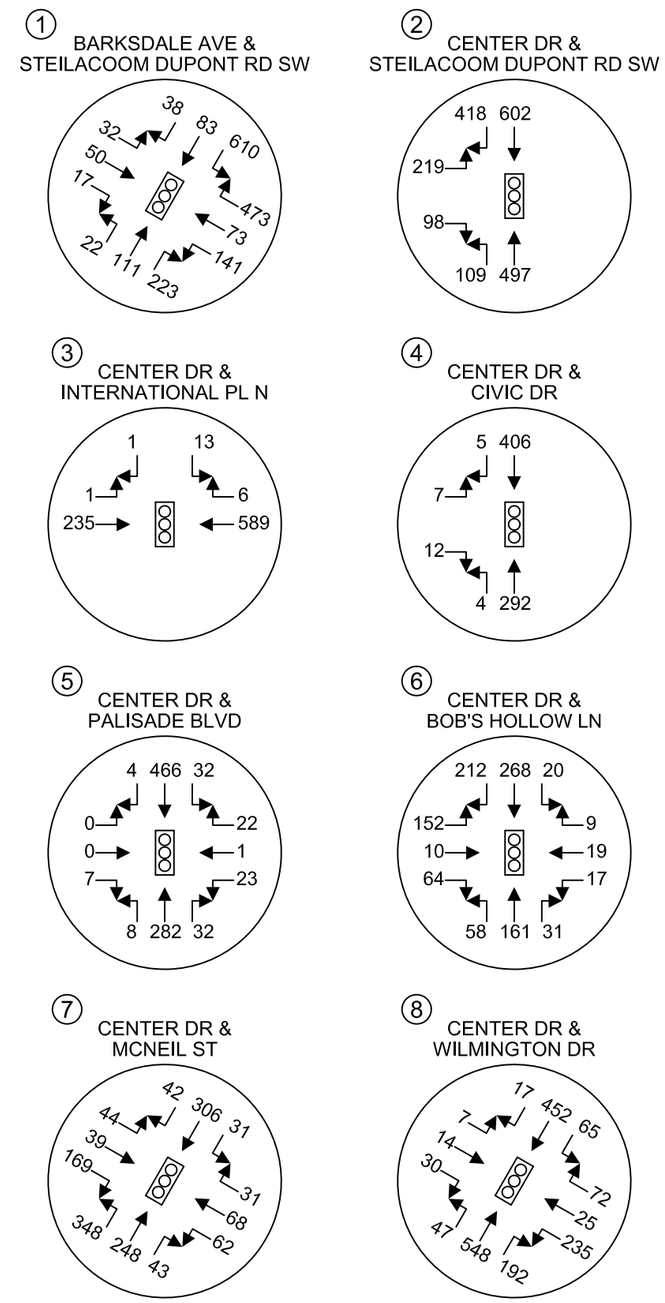
EXISTING AM PEAK HOUR VOLUMES
FIGURE 3A

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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EXISTING PM PEAK HOUR VOLUMES
FIGURE 3B

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com

3.6 Baseline Level of Service

Baseline peak hour delays were determined through the use of the *Highway Capacity Manual* 6th Edition. Capacity analysis is used to determine level of service (LOS) which is an established measure of congestion for transportation facilities. The range[1] for intersection level of service is LOS A to LOS F with the former indicating the best operating conditions with low control delays and the latter indicating saturated conditions with heavy control delays. Detailed descriptions of intersection LOS are given in the *2016 Highway Capacity Manual*. Level of service calculations were made through the use of the *Synchro 10* analysis program. Table 2 below summarizes existing peak hour delays at the eight study intersections. For signalized control, LOS is determined as the overall average delay experienced by the intersection. Delays are reported in seconds per vehicle.

Table 2: Existing Peak Hour Level of Service

Map ID	Intersection	Control	Peak Hour	LOS	Delay
1	Barksdale Ave & Steilacoom DuPont Rd / Wilmington Dr	Signal	AM	C	24.0
			PM	C	24.4
2	Center Drive & Steilacoom DuPont Rd	Signal	AM	B	14.3
			PM	B	12.6
3	Center Drive & International Place N	Signal	AM	A	2.1
			PM	A	3.1
4	Center Drive & Civic Drive	Signal	AM	A	4.4
			PM	A	4.6
5	Center Drive & Palisade Blvd	Signal	AM	A	5.5
			PM	A	6.8
6	Center Drive & Bob's Hollow Ln	Signal	AM	B	12.0
			PM	B	10.7
7	Center Drive & McNeil Street	Signal	AM	B	11.1
			PM	C	29.2
8	Center Drive & Wilmington Drive	Signal	AM	A	8.9
			PM	B	12.9

[1] *Signalized Intersections - Level of Service*

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	> 10 and ≤20
C	> 20 and ≤35
D	> 35 and ≤55
E	> 55 and ≤80
F	> 80

Stop Controlled Intersections – Level of Service

Level of Service	Control Delay per Vehicle (sec)
A	≤10
B	> 10 and ≤15
C	> 15 and ≤25
D	> 25 and ≤35
E	> 35 and ≤50
F	> 50

Highway Capacity Manual, 6th Edition

City of DuPont Level of Service Standards[2]: The city has an adopted standard of LOS D for most intersections within the City. Exemptions are allowed for Steilacoom DuPont Road's intersections with Barksdale Avenue and Center Drive, which may operate at LOS E.

As shown in Table 2 above, all study intersections are shown to meet City standards operating at LOS C of better for either the AM or PM peak hour periods.

4. FUTURE TRAFFIC CONDITIONS

4.1 Trip Generation

Trip generation can be defined by the number of vehicles entering or exiting a site within a particular time period such as a "peak hour" or an entire day. Vehicular volume estimates have been obtained from the client based on a number of similar hazmat fulfillment centers, which tend to function similarly. Table 3 below summarizes the average weekday daily trips (AWDT) and the AM and PM peak hour volumes. Classifications have been broken down to identify either passenger vehicle/delivery vans versus heavy vehicles (multi-axle).

Table 3: Project Trip Generation

Land Use	Vehicle Type	AWDT	AM Peak-Hour Trips			PM Peak-Hour Trips		
			In	Out	Total	In	Out	Total
Hazmat Fulfillment Center	Vehicle	**1942**	336	13	**349**	296	302	**598**
	Heavy Vehicle	**225**	7	7	**14**	3	3	**6**
Total		**2167**	343	20	**363**	299	305	**604**

Based on data provided by the client, the project can be anticipated to generate approximately 2,167 daily trips, 363 AM and 604 PM peak hour trips. As shown, the majority of trips would be in the form of employee or delivery vehicle/van with few heavy vehicle trips. It should be acknowledged that these volumes represent typical operations or "non-peak" volumes. During peak seasons (i.e., holiday season) volumes to and from the site would increase. According to the aggregated trip generation report, peak season AM peak hour volumes would close to double while peak PM volumes would increase by approximately 50 percent. These volumes, however, are not typical through most of the year. Also to consider, the hazmat fulfillment center's peak hours tend to be dissimilar with respect to the adjacent street. The AM peak hour tends to start at 6:00 or 6:30 AM while the PM peak hour tends to start at 5:30 PM. No volume adjustments were considered given the 7:00-9:00 AM and 4:00-6:00 PM study periods so as to remain conservative.

[2] 2015 Comprehensive Plan Periodic Update, City of DuPont – Chapter 9 Transportation

4.2 Trip Distribution and Assignment

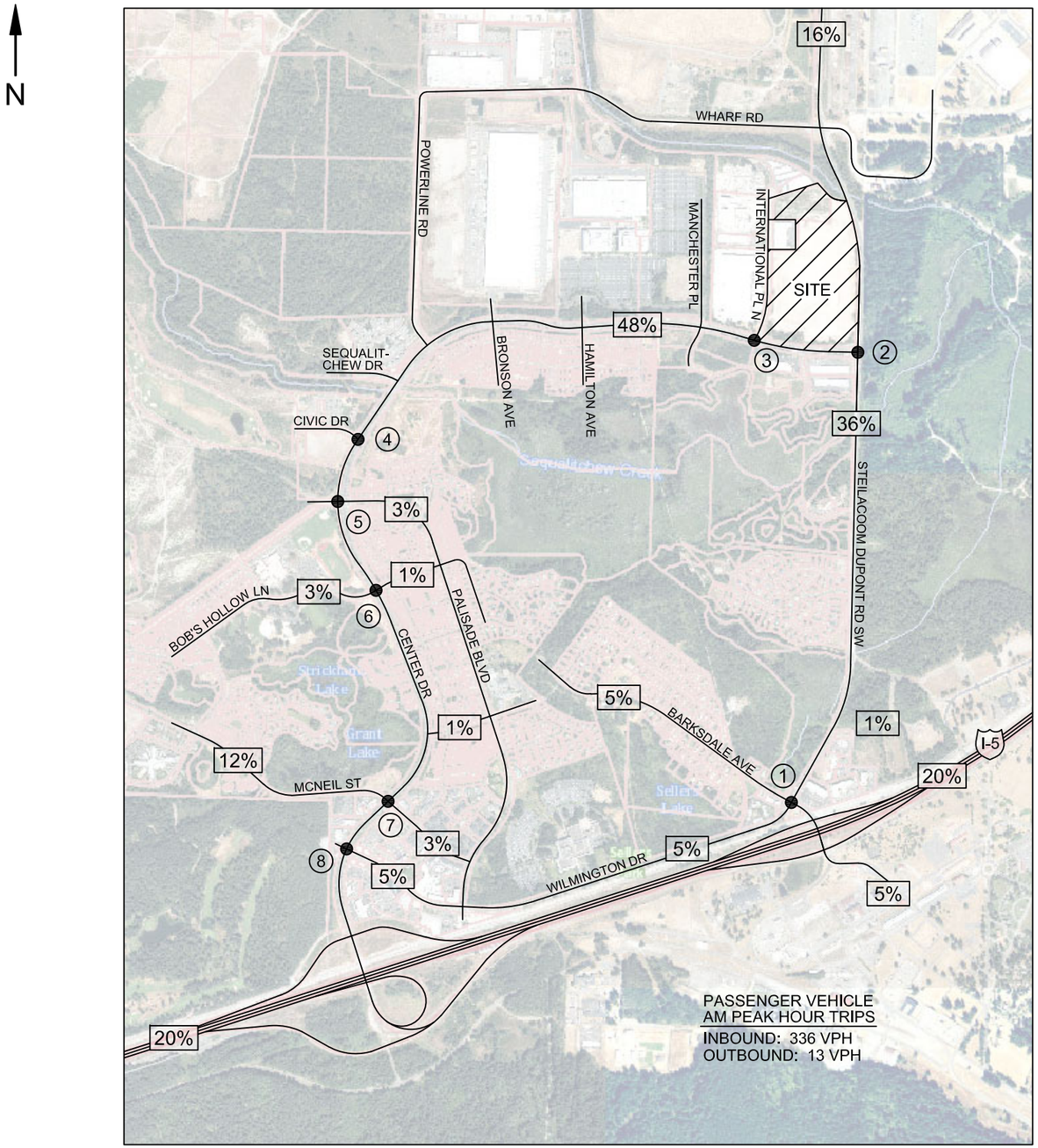
Trip distribution can be described as the travel routes to/from the subject site relative to the adjacent street system. The specific destinations and origins of the generated traffic primarily influences the key study intersections, which will effectively receive the bulk of project impacts. The trips generated by the project are expected to follow the general trip pattern as shown in Figures 4A & 4B and Figures 5A & 5B for the AM and PM peak hours, respectively. Separate distributions have been assigned to passenger and heavy vehicle trip types. Center Drive, west of the site, has a gross weight vehicle restriction of 14,000 pounds and therefore no heavy vehicles were routed to and from the west.

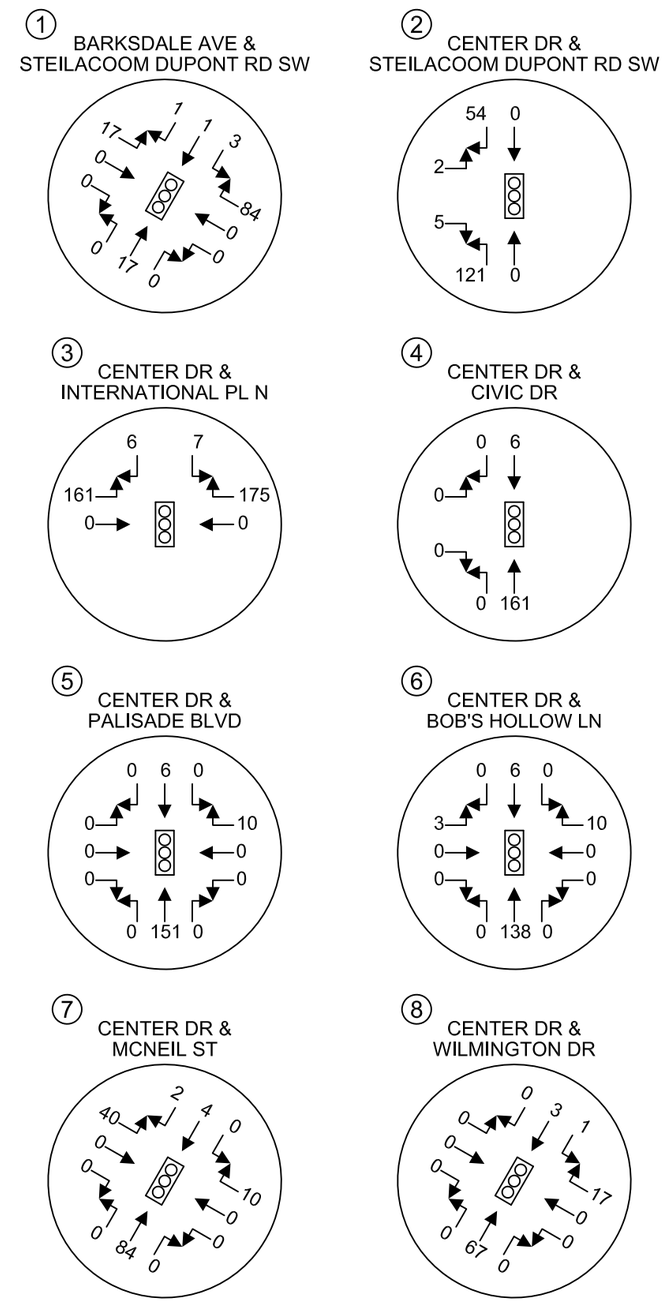
Additional trip distribution exhibits have been prepared under the following scenarios: Scenario 2 – With I-5 Interchange Project and Scenario 3 – Peak Season Volumes. These scenarios were provided as additional information for the City.

4.3 Future Peak Hour Volumes

A two-year horizon of 2022 was used for future delay analysis. The proposed building is already constructed and the developer would intend to occupy late 2021 or early 2022. Forecast 2022 background volumes were estimated by applying two assumptions: planned projects in the City that would act as pipeline; and a general background growth rate to account for other miscellaneous growth. Pipeline projects were obtained through the City and are included in the appendix. The aggregate AM and PM peak hour intersection pipeline volumes are illustrated in Figures 6A & 6B.

A general two percent compound annual growth rate was similarly applied to all existing volumes. Forecast 2022 AM and PM peak hour volumes without project (pipeline and background growth only) and with project are presented in Figures 7A & 7B and Figures 8A & 8B, respectively.





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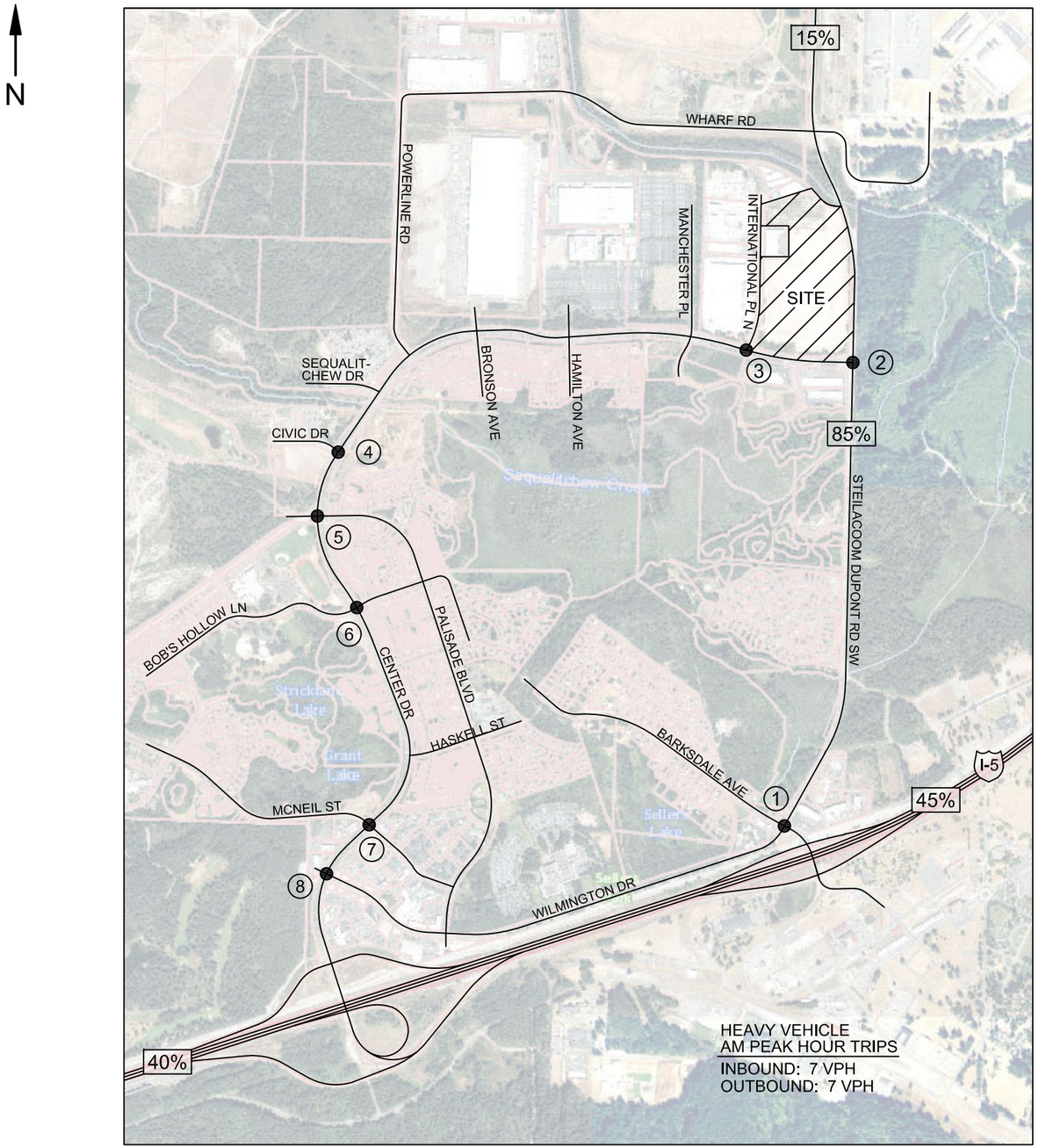
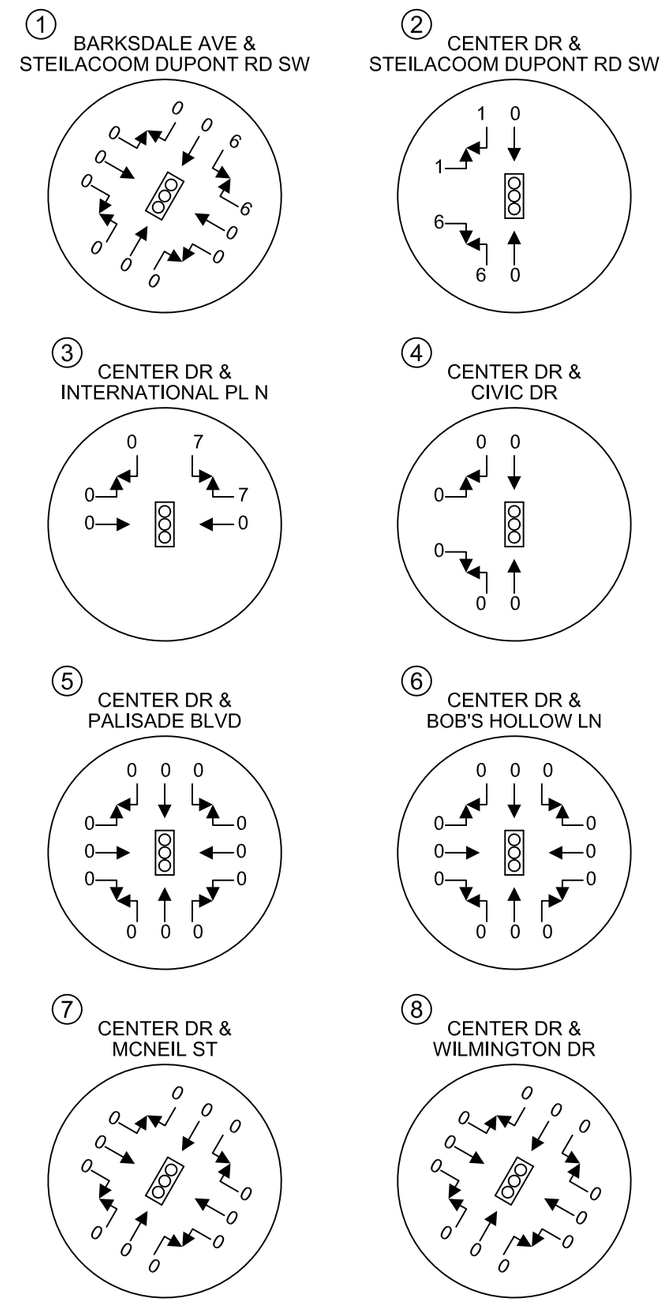
AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES

FIGURE 4A

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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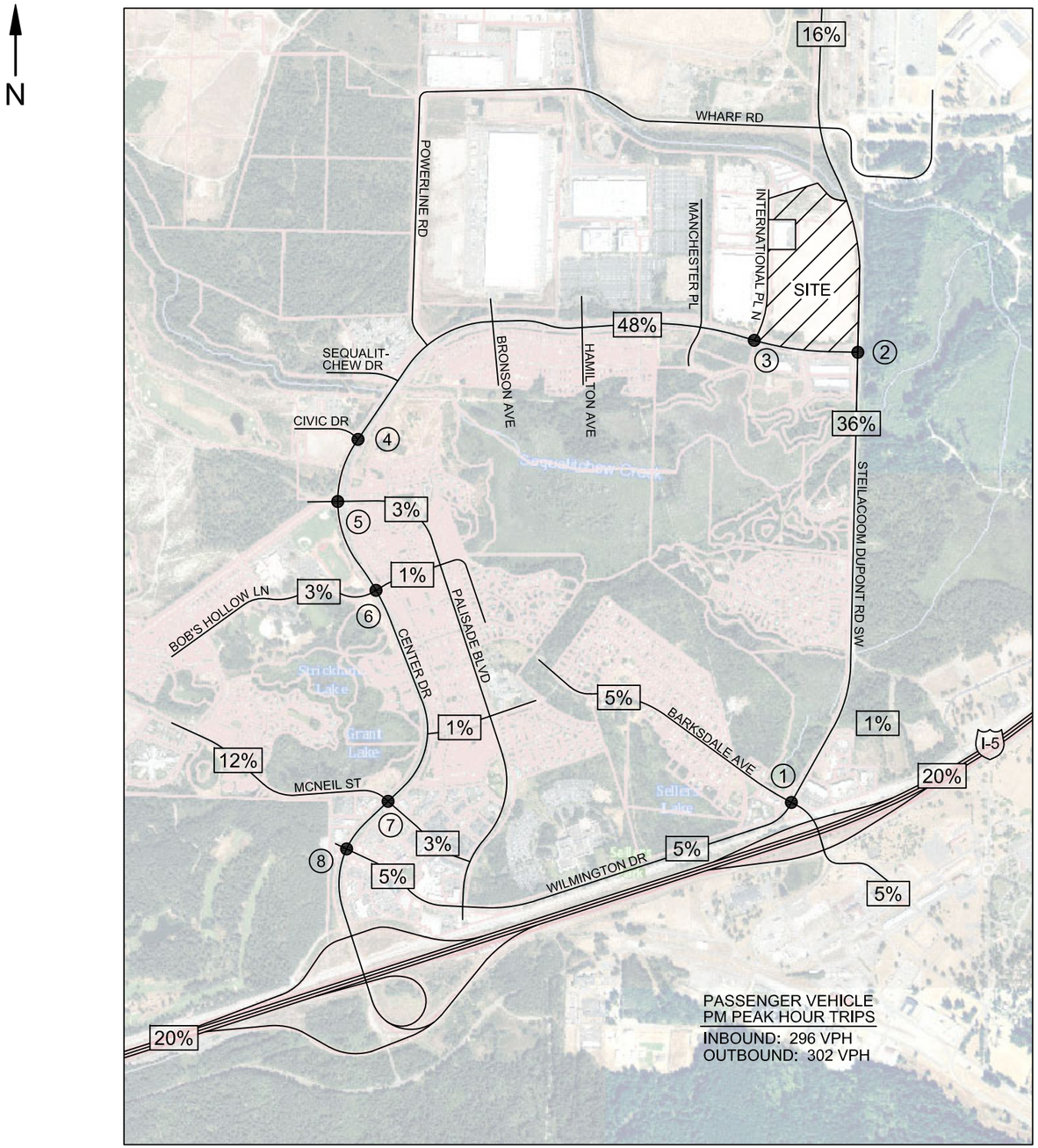
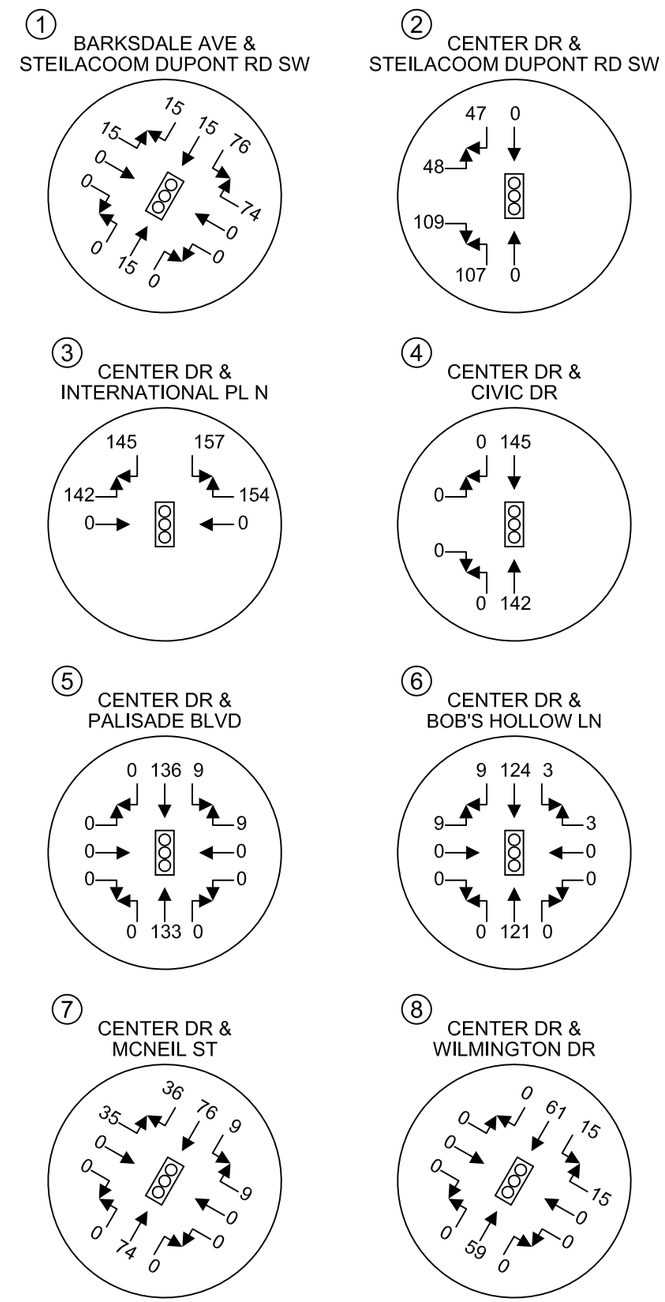
AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES

FIGURE 4B

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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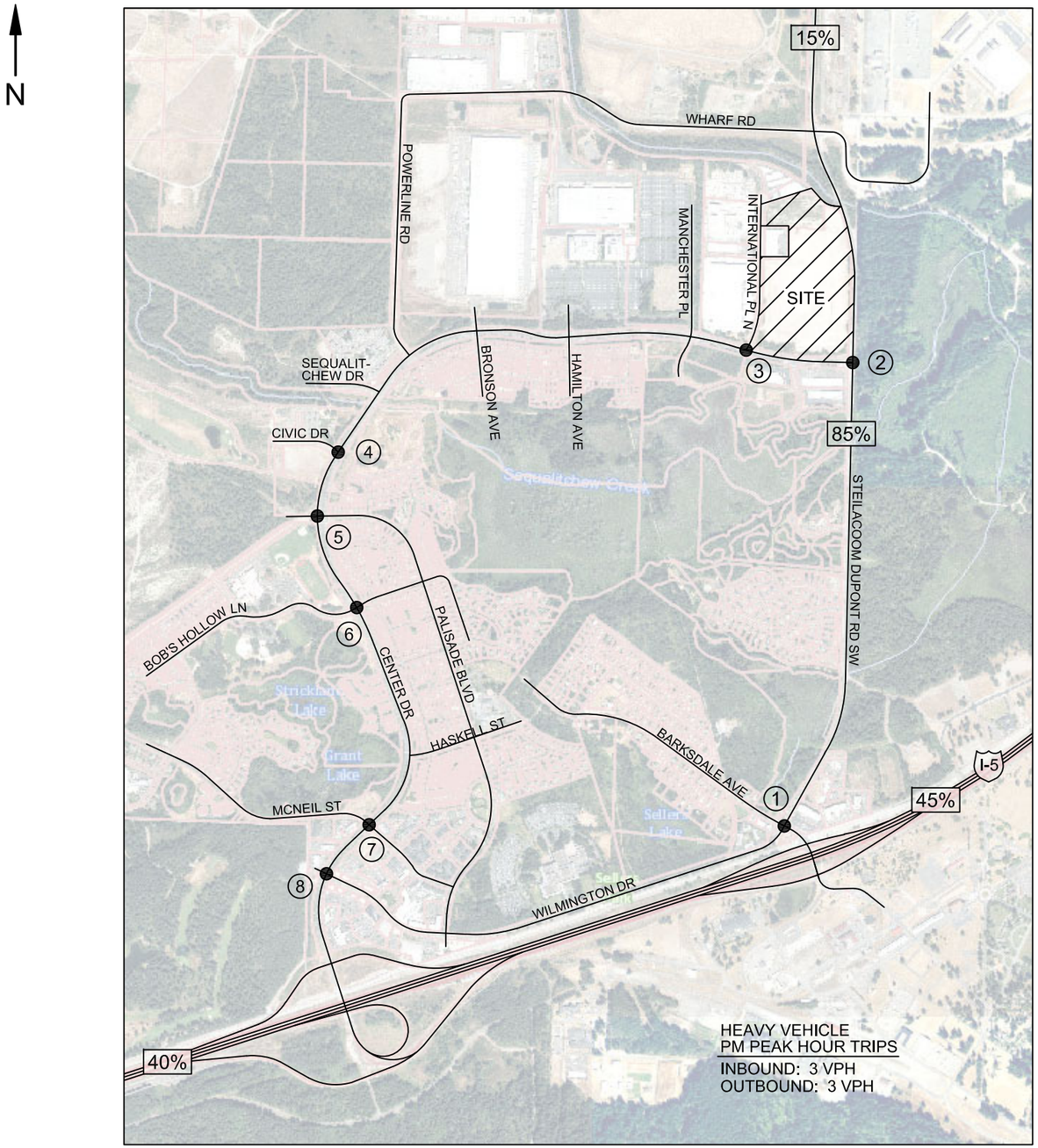
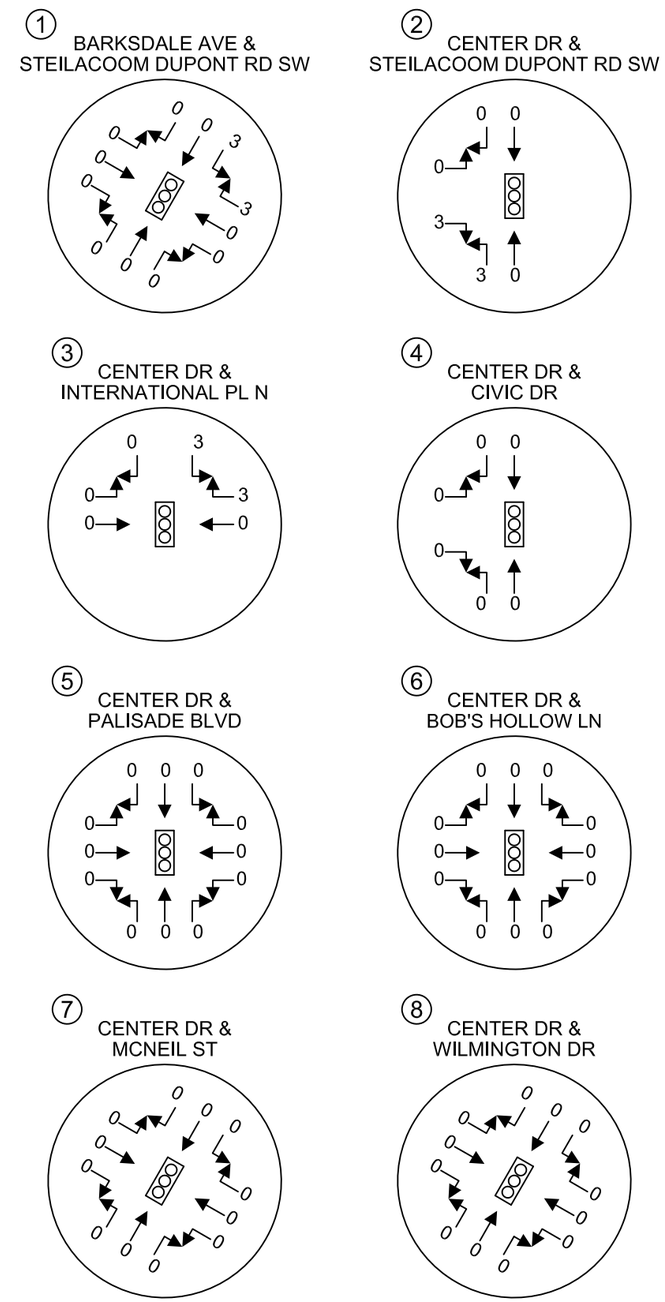
PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES

FIGURE 5A

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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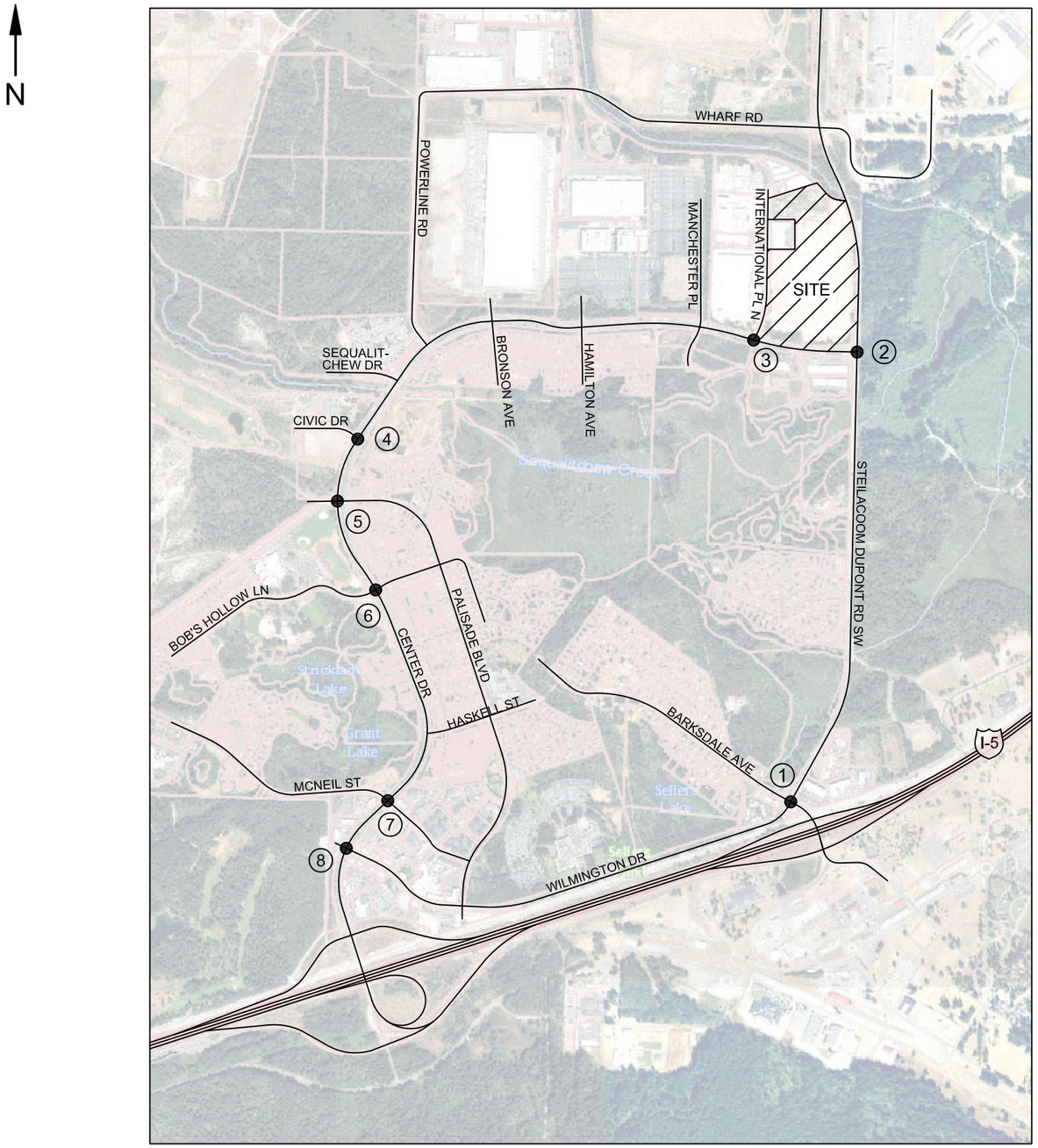
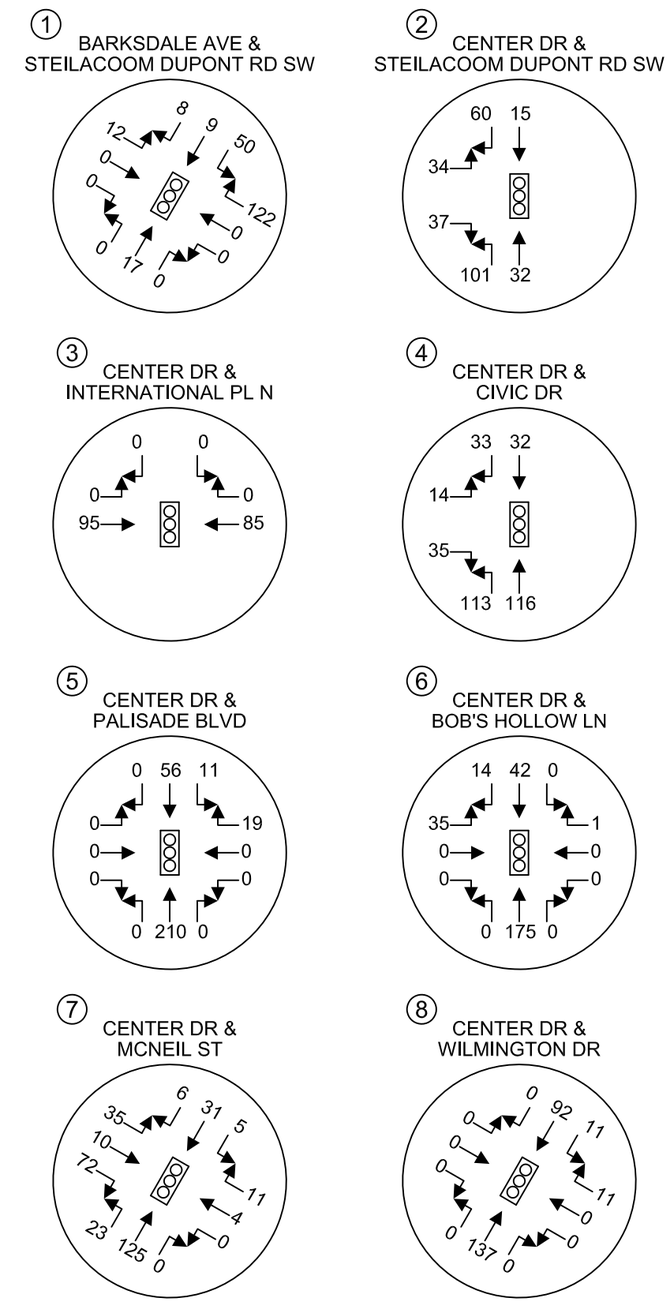
PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES

FIGURE 5B

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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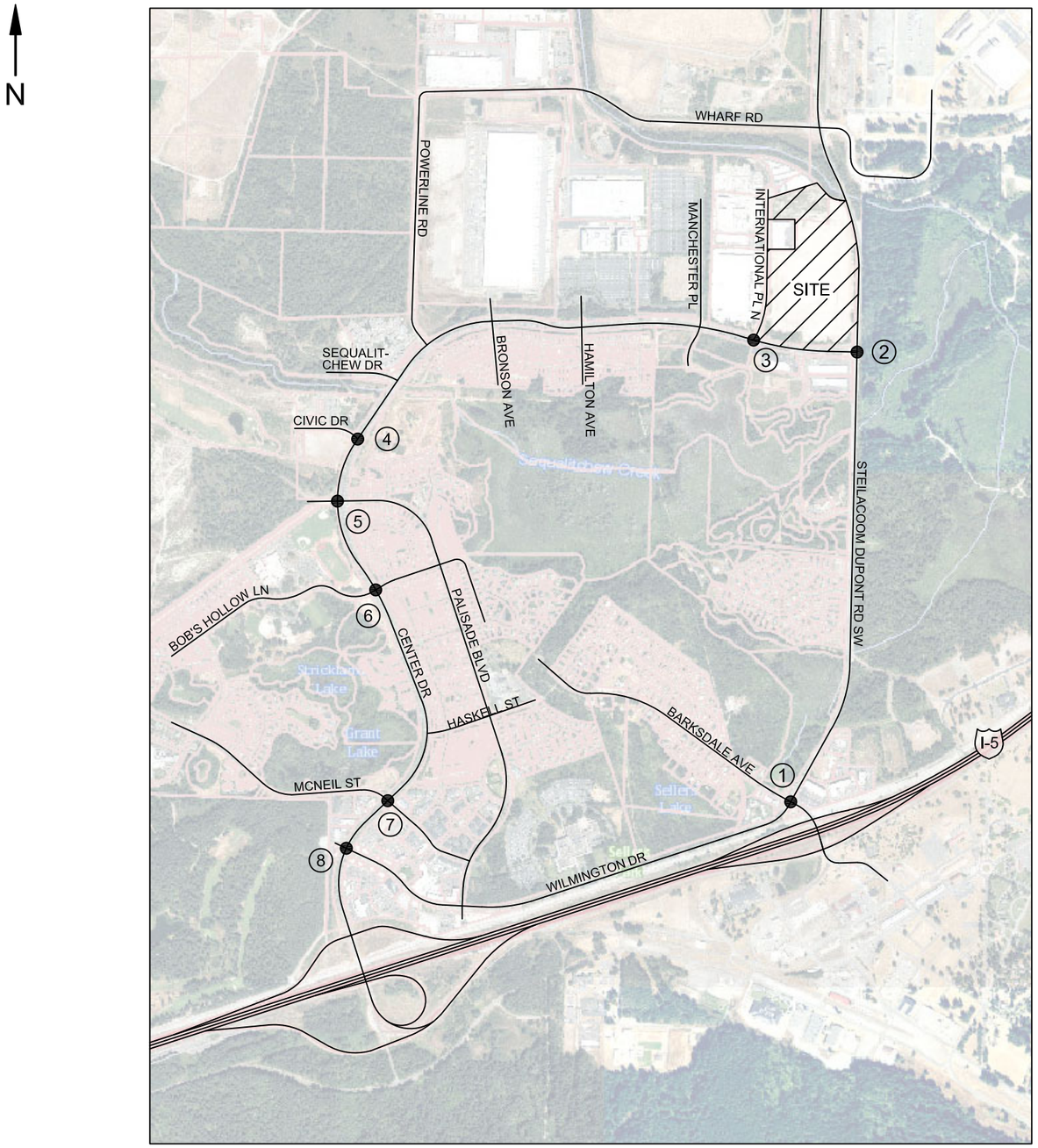
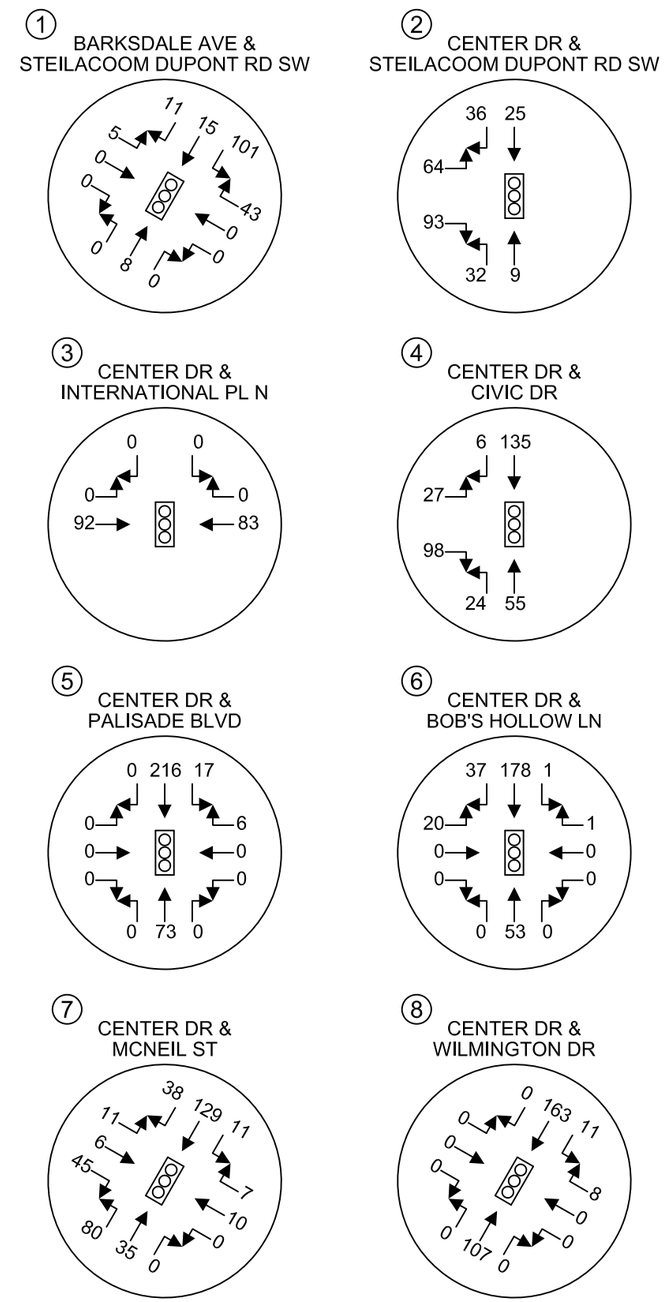
AM PEAK HOUR PIPELINE VOLUMES
FIGURE 6A

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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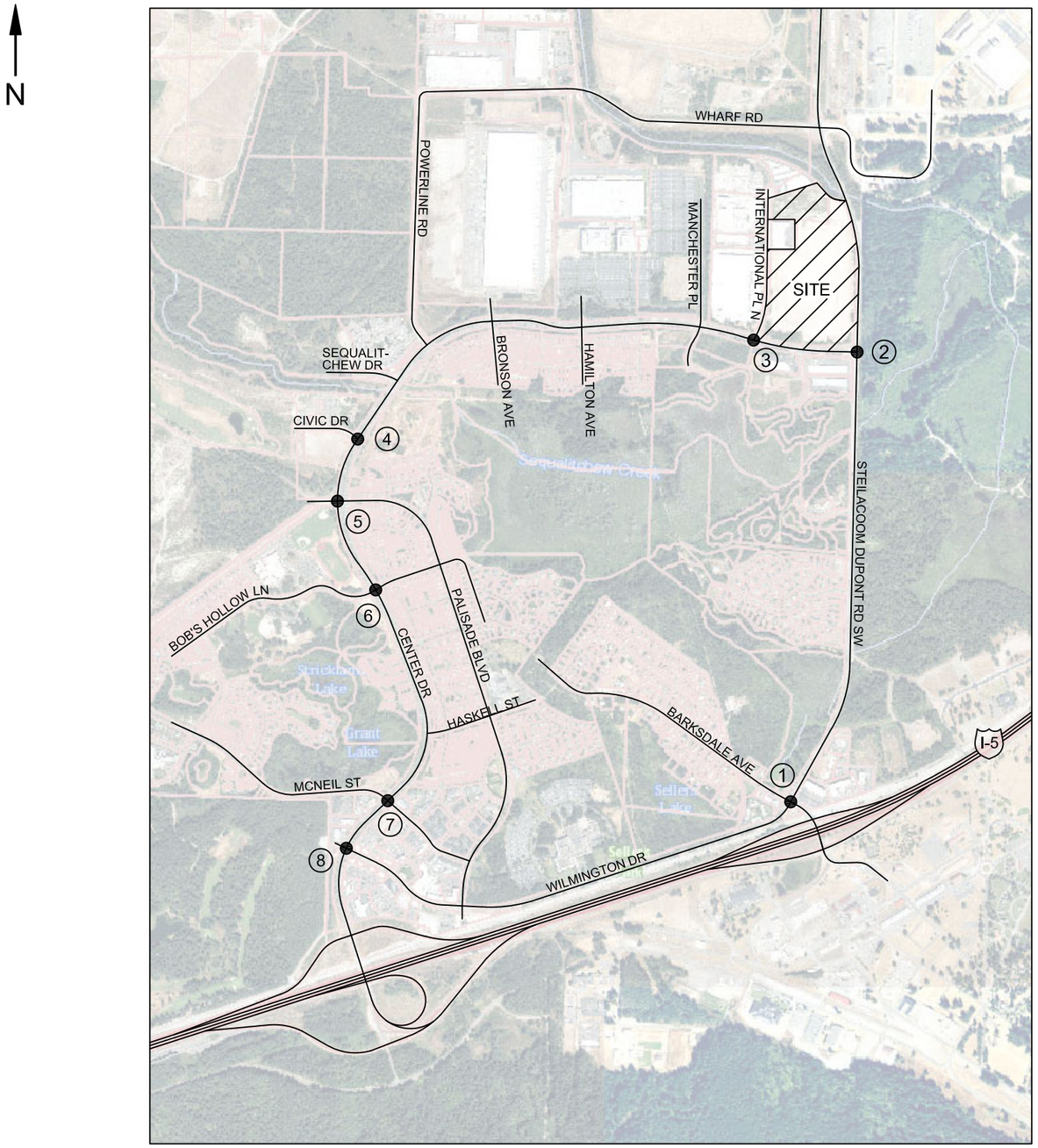
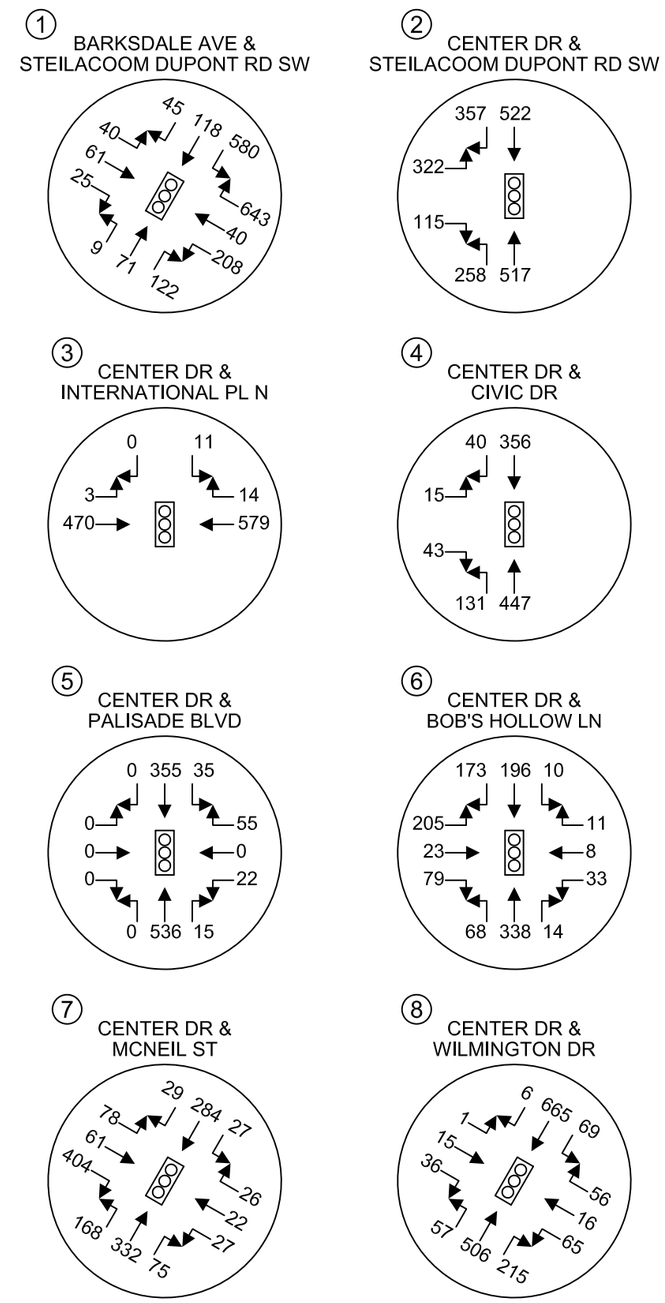
PM PEAK HOUR PIPELINE VOLUMES

FIGURE 6B

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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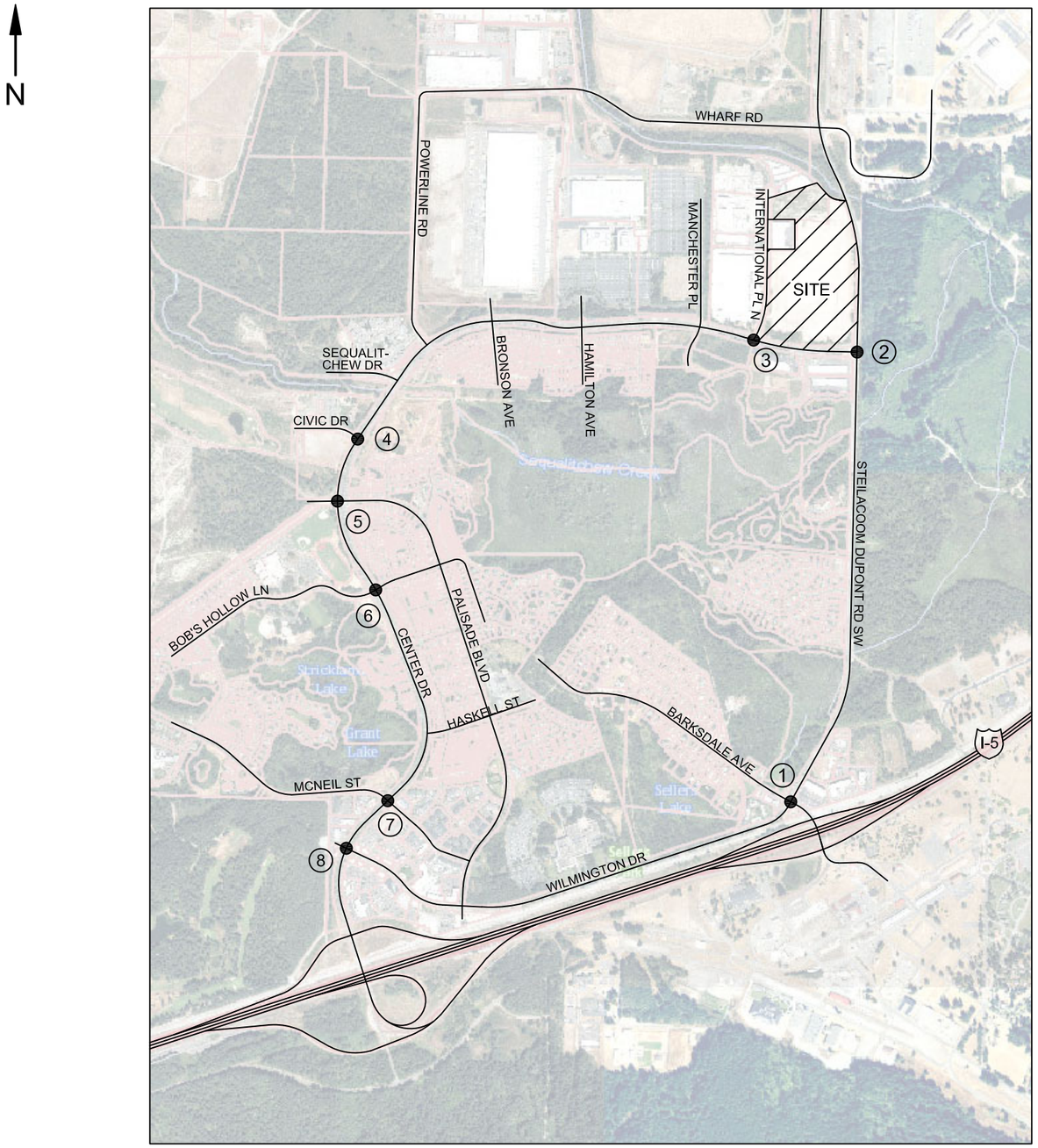
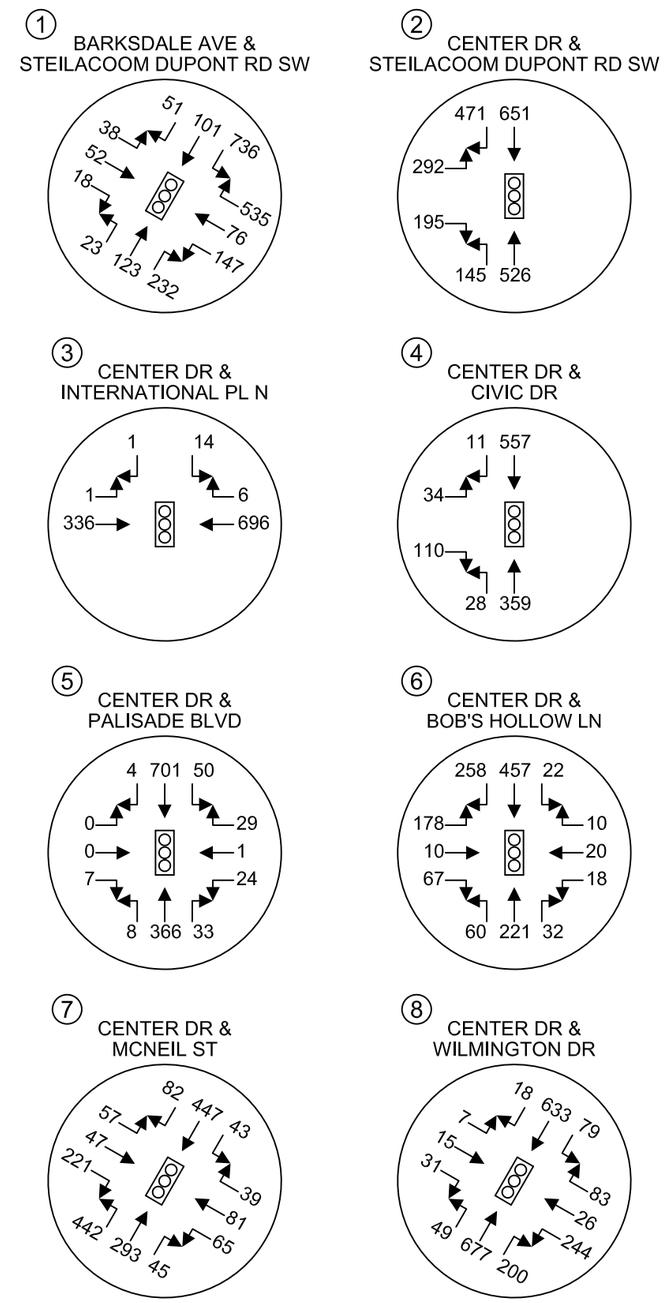
FORECAST 2022 AM PEAK HOUR BACKGROUND VOLUMES

FIGURE 7A

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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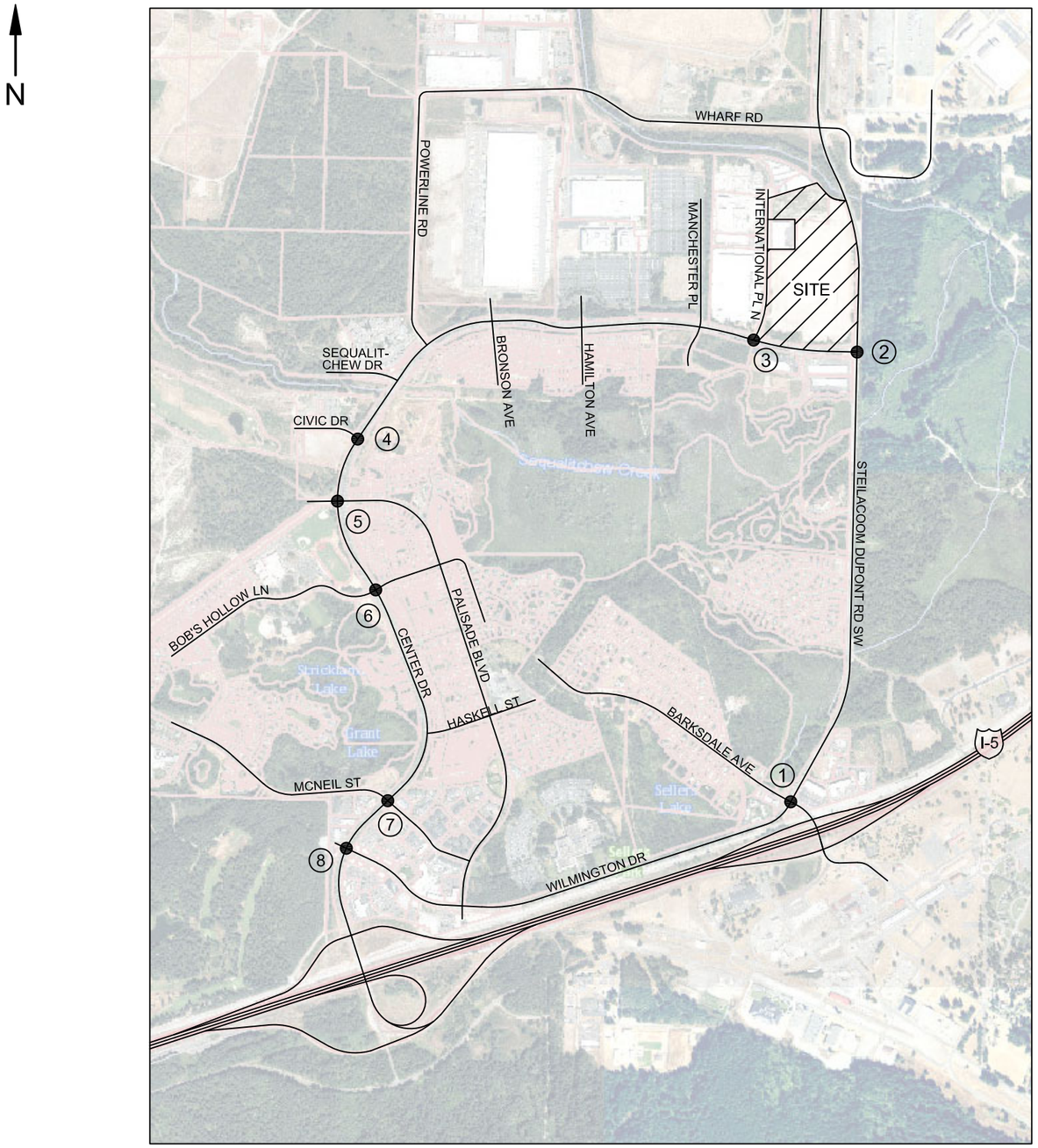
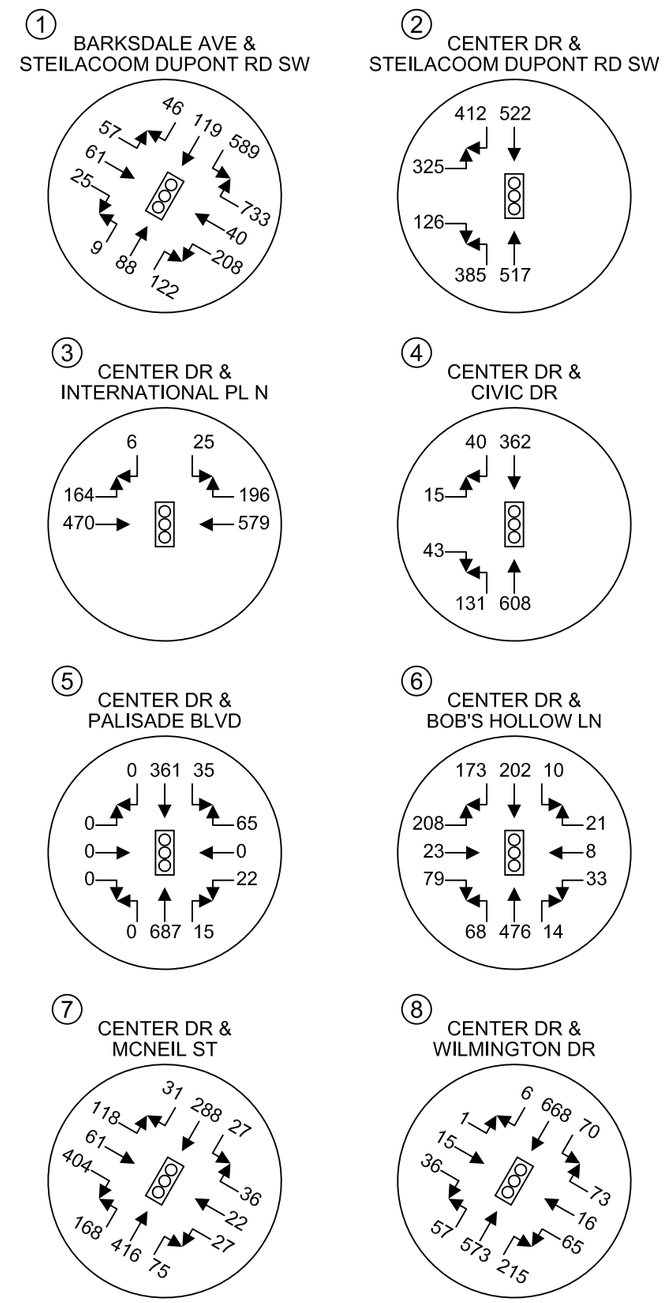
FORECAST 2022 PM PEAK HOUR BACKGROUND VOLUMES

FIGURE 7B

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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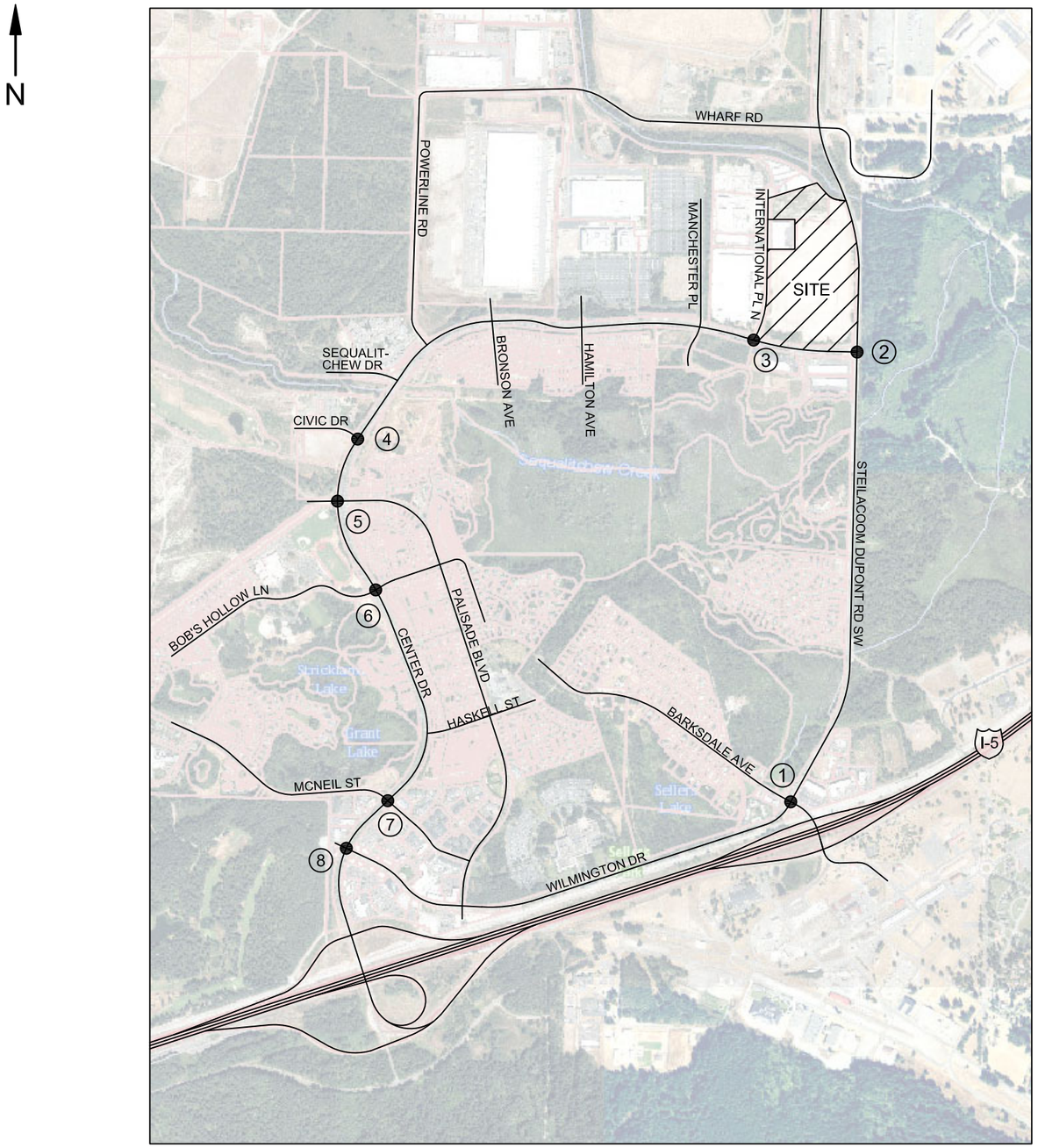
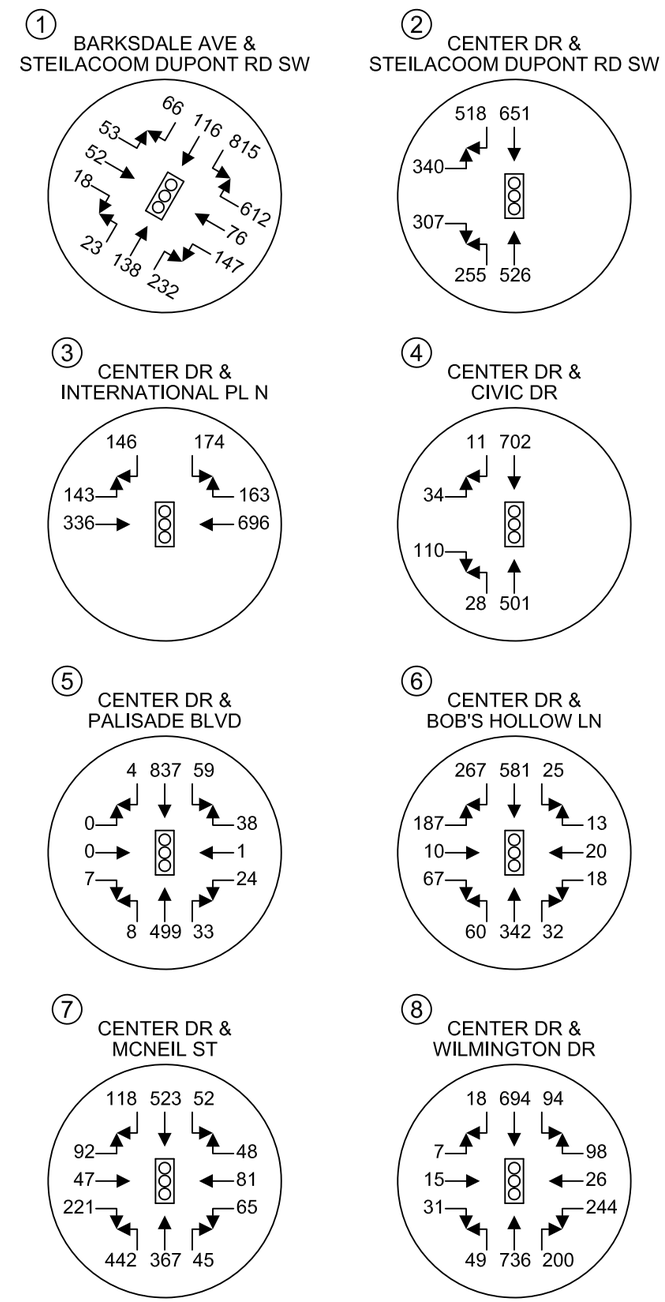
FORECAST 2022 AM PEAK HOUR VOLUMES WITH PROJECT

FIGURE 8A

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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FORECAST 2022 PM PEAK HOUR VOLUMES WITH PROJECT

FIGURE 8B

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com

4.4 Future Level of Service

Level of Service calculations were made for future conditions without (background) and with project-generated traffic added to the adjacent street network. Table 4 below portrays forecast LOS delays for the intersections of study.

Table 4: Forecast 2022 Peak Hour Level of Service

Delays given in seconds per vehicle

				Without Project		With Project	
Map ID	Intersection	Control	Peak Hour	LOS	Delay	LOS	Delay
1	Barksdale Ave & Steilacoom DuPont Rd / Wilmington Dr	Signal	AM	C	26.2	C	27.0
			PM	C	26.8	C	28.9
2	Center Drive & Steilacoom DuPont Rd	Signal	AM	C	21.0	C	30.9
			PM	B	17.7	C	29.4
3	Center Drive & International Place N	Signal	AM	A	2.8	A	8.3
			PM	A	3.1	B	13.7
4	Center Drive & Civic Drive	Signal	AM	A	5.6	A	6.1
			PM	A	6.8	A	7.1
5	Center Drive & Palisade Blvd	Signal	AM	A	6.3	A	6.7
			PM	A	7.2	A	7.3
6	Center Drive & Bob's Hollow Ln	Signal	AM	B	13.4	B	13.6
			PM	B	12.2	B	12.8
7	Center Drive & McNeil Street	Signal	AM	B	14.9	C	26.1
			PM	C	30.7	D	42.3
8	Center Drive & Wilmington Drive	Signal	AM	A	9.1	A	9.2
			PM	B	14.0	B	14.4

As shown in Table 4, all study intersections are anticipated to remain meeting the city of DuPont's LOS D standards. No operational deficiencies are identified as a result of the project.

4.5 Queuing

As part of the project evaluation, the City requested two specific movements to examine in terms of vehicle queuing: northbound left-turns at Steilacoom DuPont Road & Center Drive and eastbound left-turns at Center Drive & International Place N. A queuing analysis can determine whether there is sufficient storage capacity to accommodate turning demands during peak periods and avoid any spillover to the advancing through lanes.

Queues were estimated through the use of *SimTraffic*, a traffic simulation modeling program, in conjunction with *Synchro 10*. Using peak hour volumes under forecast 2022 conditions, 5 one-hour simulations were performed under each scenario to determined average queue lengths. As requested, the project's "non-peak" and "peak" conditions were both evaluated. Queue outputs are summarized in the table below.

Table 5: Forecast 2022 Queuing

Center Street at	Approach	Non-Peak Season				Peak Season			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Avg.	95th	Avg.	95th	Avg.	95th	Avg.	95th
Steilacoom DuPont Rd	NB LT	267'	303'	221'	308'	270'	296'	255'	311'
International Place	WB LT	52'	92'	66'	113'	69'	71'	95'	157'

Center Street & Steilacoom DuPont Road: is a signalized intersection offering approximately 250-feet of storage for the northbound left-turn before the lane striping transitions into a two-way left-turn lane. The max queue was estimated at 311 feet, which exceeds the storage capacity. However, no driveways exist south of the intersection where blocking conflicts would occur. Additional green time allocation and signal timing adjustments for the northbound left-turn phase could be implemented, should queuing become an issue.

Also of note: intersection improvements are identified at this location under the City's Six Year Transportation Improvement Plan. A consideration may be for the City to examine the benefits of dual northbound left-turn lanes. Dual left-turn lanes are generally considered when left-turn volumes exceed 300 vehicles per hour[3] provided that opposing volumes are moderate to high. Dual left-turn lanes can also allow for a shorter cycle while increasing left-turn capacity and allocate green time to other critical movements. However, with no queuing conflicts and acceptable service levels, dual left-turn lanes may not be needed until further demand and growth occur.

Center Drive & International Place: has recently been converted from stop-control to signalization with a new stop-bar and crosswalk located along the west leg. The eastbound left-turn lane has approximately 125-feet of storage as delineated by the solid white lane marking. An additional approximately 50 feet is available as the deceleration area before the tapers begin which can also be used to store vehicles under congested conditions. In total, approximately 175-feet of storage capacity is available which is shown to accommodate forecast peak demands under all scenarios.

[3] Federal Highway Administration Research and Technology

5. SUMMARY

Snow Blossom Fulfillment Center proposes to occupy an approximate 612,412 square foot warehouse for the use of a hazmat fulfillment center. The subject site is located on the northwest corner of Steilacoom DuPont Road & Center Drive and has multiple access driveways along International Place N. A site plan illustrating the building and parking configuration is presented in Figure 2.

The site can be expected to generate approximately 2,167 average weekday daily trips with 363 trips occurring during the AM peak hour and 604 during the PM peak hour. These volume estimates were derived from data provided by the client from a number of similar facilities and are representative of typical operations. Additional volume increases would be expected during the peak holiday season with volume and distribution estimations supplied in the appendix. The majority of traffic would be in the form of employee vehicles and delivery vans with relatively low amounts of heavy vehicles. A total of eight intersections within the city were selected for examination as part of this impact analysis. Existing conditions and a list of the study intersections are summarized in Table 2.

A two-year horizon was analyzed to assess project impacts subsequent to occupancy. Background growth rates and traffic volumes from nearby planned developments were included in the forecast analysis. All study intersections are shown to continue to meet the City of DuPont's LOS D standards for both AM and PM peak hours. No intersection or operational deficiencies were identified as a result of the proposed tenant occupancy. Queuing analyses were performed for the northbound left-turn approach at Steilacoom DuPont Road & Center Drive and the eastbound left-turn approach at Center Drive and International Place N with findings summarized in Table 5. Queuing was shown to exceed the 250-foot storage capacity for the northbound left-turn lane along Steilacoom DuPont Road at Center Drive with approximately 311 feet during the PM peak season period. However, additional storage is available as the lane transitions into a two-way left turn lane with no nearby driveways that would be obstructed. The City may want to consider dual left-turn lanes though the forecast Level of Service was shown to be acceptable. Additional green time allocation or other signal adjustments may also mitigate the left-turn queues.

Based on the findings above, no offsite mitigation is identified at this time.

SNOW BLOSSOM FULFILLMENT CENTER
TRAFFIC IMPACT ANALYSIS

APPENDIX

INTERSECTION COUNT SHEETS

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

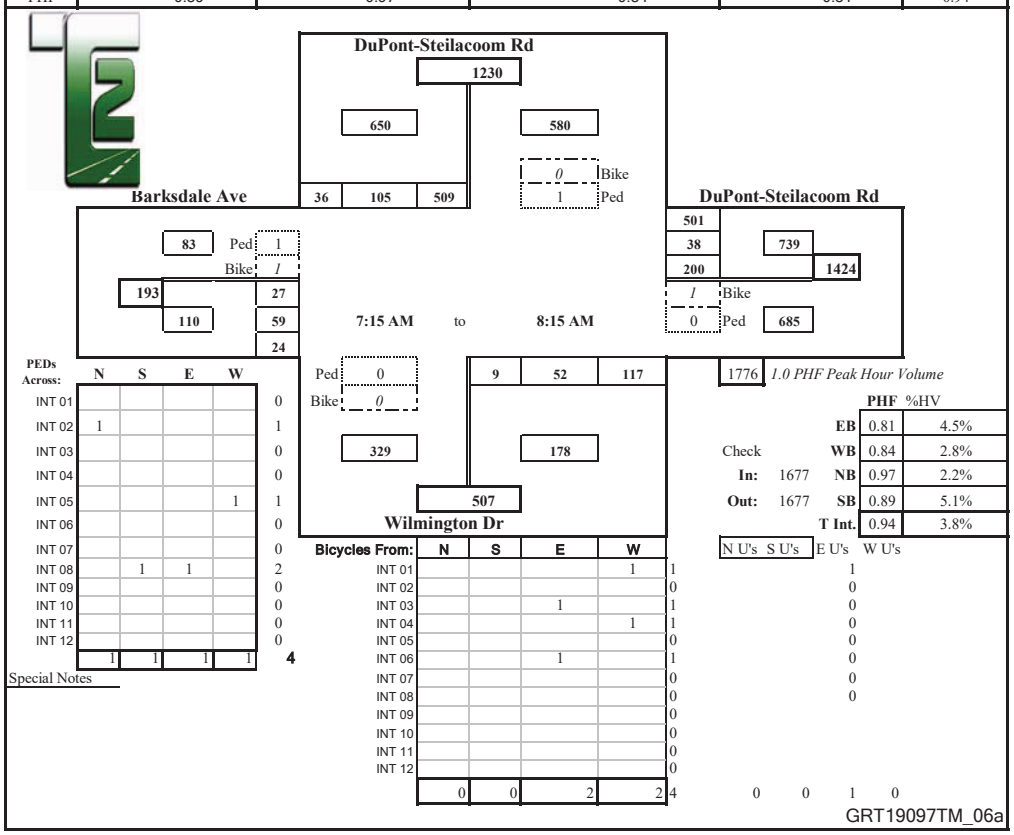
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: DuPont-Steilacoom Rd/Wilmington Dr & DuPont-Steilacoom Rd/Barksdale Ave **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) DuPont-Steilacoom Rd				From South on (NB) Wilmington Dr				From East on (WB) DuPont-Steilacoom Rd				From West on (EB) Barksdale Ave				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	2	112	8	8	1	0	6	32	6	43	14	136	0	6	12	2	379
7:30 A	2	108	30	10	1	3	10	32	4	57	10	154	0	10	16	4	444
7:45 A	10	136	23	7	1	1	11	31	8	47	5	151	0	4	16	4	436
8:00 A	12	137	33	13	1	2	13	31	2	56	12	98	3	8	8	6	417
8:15 A	9	128	19	6	1	3	18	23	7	40	11	98	2	5	19	10	380
8:30 A	11	105	19	10	0	3	14	41	3	36	9	106	0	12	12	3	370
8:45 A	14	120	14	12	0	7	16	49	3	27	16	106	1	11	13	8	399
9:00 A	3	90	12	10	1	5	10	34	5	35	11	126	1	10	16	10	369
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	63	936	158	76	6	24	98	273	38	341	88	975	7	66	112	47	3194
Peak Hour: 7:15 AM to 8:15 AM																	
Total	33	509	105	36	4	9	52	117	21	200	38	501	5	27	59	24	1677
Approach	650				178				739				110				1677
%HV	5.1%				2.2%				2.8%				4.5%				3.8%
PHF	0.89				0.97				0.84				0.81				0.94



Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

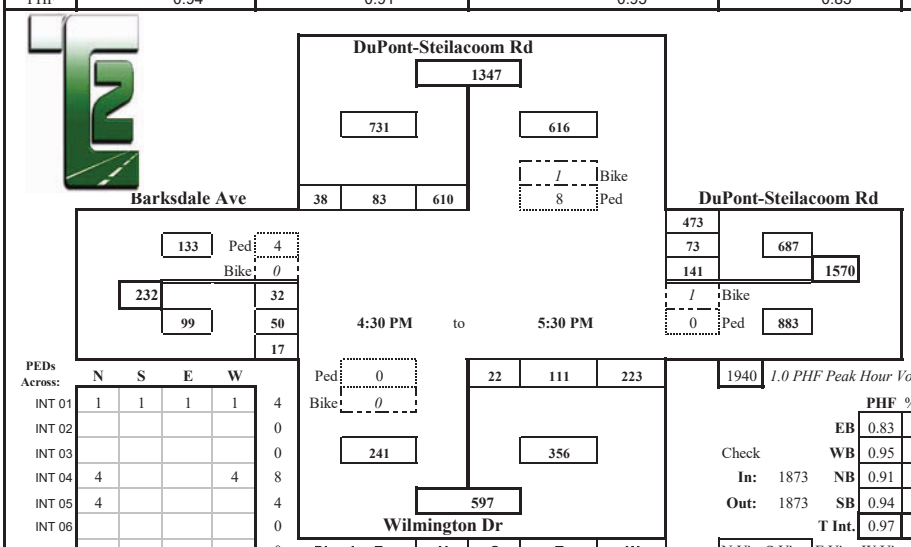
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: DuPont-Steilacoom Rd/Wilmington Dr & DuPont-Steilacoom Rd/Barksdale Ave **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) DuPont-Steilacoom Rd				From South on (NB) Wilmington Dr				From East on (WB) DuPont-Steilacoom Rd				From West on (EB) Barksdale Ave				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	7	131	9	5	2	8	25	54	2	32	16	110	1	11	20	7	428
4:30 P	4	167	13	10	0	4	12	31	1	36	20	114	0	10	19	5	441
4:45 P	4	167	16	7	1	4	23	61	5	26	20	119	1	6	8	3	460
5:00 P	0	146	20	15	2	9	41	48	6	38	10	132	1	8	14	4	485
5:15 P	4	160	26	8	0	5	28	46	3	31	19	117	0	8	12	6	466
5:30 P	4	137	21	8	0	4	19	68	4	46	24	105	0	10	16	4	462
5:45 P	3	124	15	8	1	3	27	57	1	46	21	123	1	8	11	5	448
6:00 P	3	97	15	2	0	2	13	34	3	38	18	125	1	10	12	8	374
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	29	1129	135	63	6	39	188	399	25	293	148	945	5	71	112	42	3564
	Peak Hour: 4:30 PM to 5:30 PM																
Total	12	610	83	38	3	22	111	223	18	141	73	473	2	32	50	17	1873
Approach	731				356				687				99				1873
%HV	1.6%				0.8%				2.6%				2.0%				1.9%
PHF	0.94				0.91				0.95				0.83				0.97



1940 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.83	2.0%
Check	WB	0.95	2.6%
In: 1873	NB	0.91	0.8%
Out: 1873	SB	0.94	1.6%
	T Int.	0.97	1.9%

PEDs Across:	N	S	E	W	
INT 01	1	1	1	1	4
INT 02					0
INT 03					0
INT 04	4			4	8
INT 05	4				4
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	9	1	1	5	16

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01			1		1	0			
INT 02					0	0			
INT 03			1		1	0			
INT 04					0	1			
INT 05					0	0			
INT 06	1				1	0			
INT 07	1				1	0			
INT 08				1	1	0			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	2	0	2	1	5	1	0	0	0

GRT19097TM_06p

Prepared for: **Geralyn Reinart, P.E.**

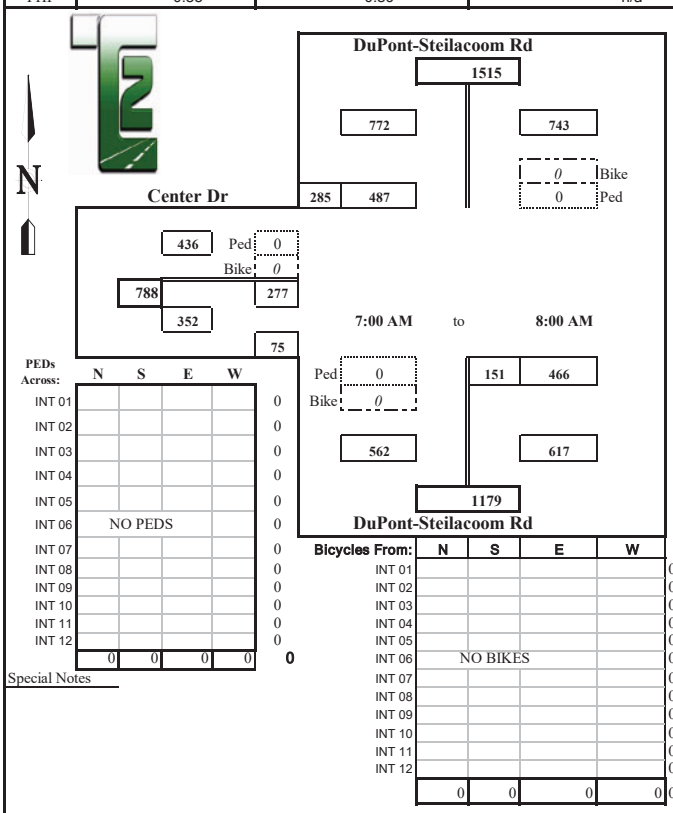
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: DuPont-Steilacoom Rd & Center Dr
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) DuPont-Steilacoom Rd				From South on (NB) DuPont-Steilacoom Rd				From East on (WB) 0				From West on (EB) Center Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	0	90	36	9	35	125	0	0	0	0	0	2	87	0	22	395
7:30 A	5	0	128	72	5	49	117	0	0	0	0	0	2	70	0	11	447
7:45 A	9	0	140	93	8	34	139	0	0	0	0	0	6	60	0	16	482
8:00 A	7	0	129	84	4	33	85	0	0	0	0	0	3	60	0	26	417
8:15 A	9	0	120	55	6	20	88	0	0	0	0	0	9	85	0	17	385
8:30 A	12	0	109	43	4	20	105	0	0	0	0	0	4	53	0	18	348
8:45 A	10	0	95	30	4	22	109	0	0	0	0	0	7	85	0	28	369
9:00 A	5	0	73	32	6	20	108	0	0	0	0	0	2	102	0	28	363
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	60	0	884	445	46	233	876	0	0	0	0	0	35	602	0	166	3206
	Peak Hour: 7:00 AM to 8:00 AM																
Total	24	0	487	285	26	151	466	0	0	0	0	0	13	277	0	75	1741
Approach	772				617				0				352				1741
%HV	3.1%				4.2%				n/a				3.7%				3.6%
PHF	0.83				0.89				n/a				0.81				0.90



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

1928 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.81	3.7%
Check	WB	n/a	n/a
In: 1741	NB	0.89	4.2%
Out: 1741	SB	0.83	3.1%
	T Int.	0.90	3.6%

Conditions:

GRT19097TM_05a

Prepared for: **Geralyn Reinart, P.E.**

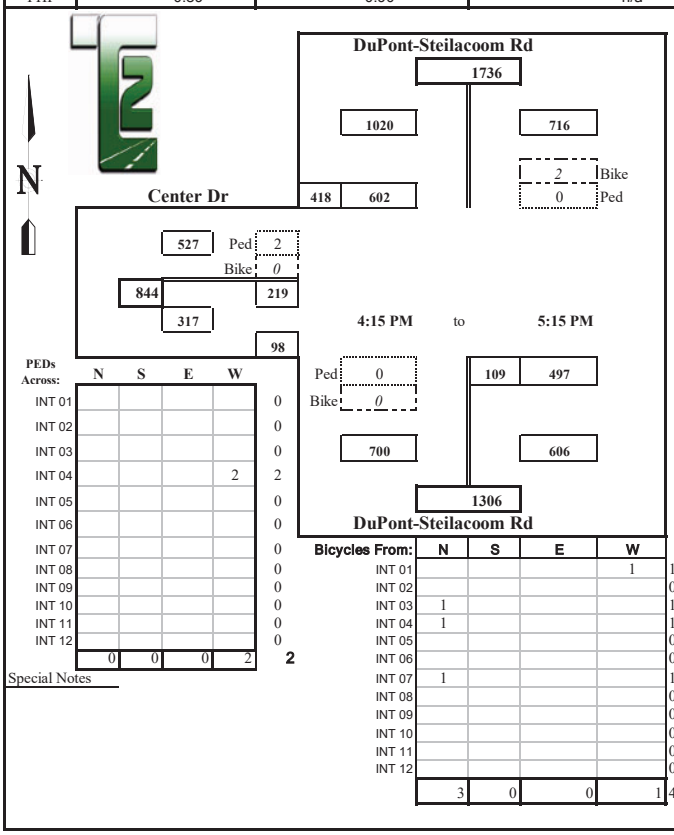
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: DuPont-Steilacoom Rd & Center Dr
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) DuPont-Steilacoom Rd				From South on (NB) DuPont-Steilacoom Rd				From East on (WB) 0				From West on (EB) Center Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	6	0	128	67	5	20	105	0	0	0	0	0	5	35	0	28	383
4:30 P	3	0	155	75	3	26	105	0	0	0	0	0	5	55	0	28	444
4:45 P	2	0	122	95	7	20	124	0	0	0	0	0	5	55	0	34	450
5:00 P	0	0	165	121	7	38	130	0	0	0	0	0	0	54	0	15	523
5:15 P	4	0	160	127	8	25	138	0	0	0	0	0	2	55	0	21	526
5:30 P	0	0	123	115	3	32	99	0	0	0	0	0	3	55	0	17	441
5:45 P	0	0	102	96	2	40	82	0	0	0	0	0	4	66	0	20	406
6:00 P	3	0	79	82	5	47	98	0	0	0	0	0	2	57	0	17	380
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	18	0	1034	778	40	248	881	0	0	0	0	0	26	432	0	180	3553
Peak Hour: 4:15 PM to 5:15 PM																	
Total	9	0	602	418	25	109	497	0	0	0	0	0	12	219	0	98	1943
Approach	1020				606				0				317				1943
%HV	0.9%				4.1%				n/a				3.8%				2.4%
PHF	0.89				0.90				n/a				0.89				0.92



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04				2	2
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	2	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03	1				1
INT 04	1				1
INT 05					0
INT 06					0
INT 07	1				1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	0	0	1	4

2104 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.89	3.8%
Check	WB	n/a	n/a
In: 1943	NB	0.90	4.1%
Out: 1943	SB	0.89	0.9%
	T Int.	0.92	2.4%

Conditions:

GRT19097TM_05p

Prepared for: **PH Consulting LLC**

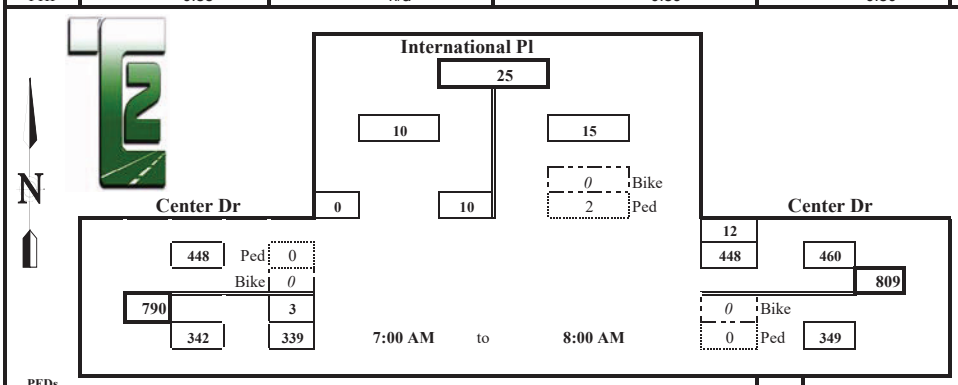
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: International Pl & Center Dr
Location: Dupont, Washington
Date of Count: Tues 10/03/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) International Pl				From South on (NB) 0				From East on (WB) Center Dr				From West on (EB) Center Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	3	0	0	0	0	0	0	3	0	88	3	3	0	107	0	201
7:30 A	2	2	0	0	0	0	0	0	6	0	115	5	0	0	77	0	199
7:45 A	3	3	0	0	0	0	0	0	2	0	119	1	0	1	77	0	201
8:00 A	2	2	0	0	0	0	0	0	11	0	126	3	4	2	78	0	211
8:15 A	2	2	0	0	0	0	0	0	1	0	65	1	4	0	78	0	146
8:30 A	2	1	0	1	0	0	0	0	2	0	40	1	3	0	81	0	124
8:45 A	2	2	0	0	0	0	0	0	6	0	55	4	0	0	99	0	160
9:00 A	1	1	0	0	0	0	0	0	2	0	44	1	4	0	144	0	190
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	17	16	0	1	0	0	0	0	33	0	652	19	18	3	741	0	1432
Peak Hour: 7:00 AM to 8:00 AM																	
Total	10	10	0	0	0	0	0	0	22	0	448	12	7	3	339	0	812
Approach	10				0				460				342				812
%HV	100.0%				n/a				4.8%				2.0%				4.8%
PHF	0.83				n/a				0.89				0.80				0.96



844 *1.0 PHF Peak Hour Volume*

PEDs Across:	N	S	E	W	
INT 01					0
INT 02	2				2
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	0	0	0	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06				1	1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

		PHF	%HV
	EB	0.80	2.0%
Check	WB	0.89	4.8%
In: 812	NB	n/a	n/a
Out: 812	SB	0.83	100.0%
	T Int.	0.96	4.8%

N U's	S U's	E U's	W U's
			0
			0
			0
			0
			0
			0
			1
			0
0	0	0	1

PHC17102M_01a

Prepared for: **PH Consulting LLC**

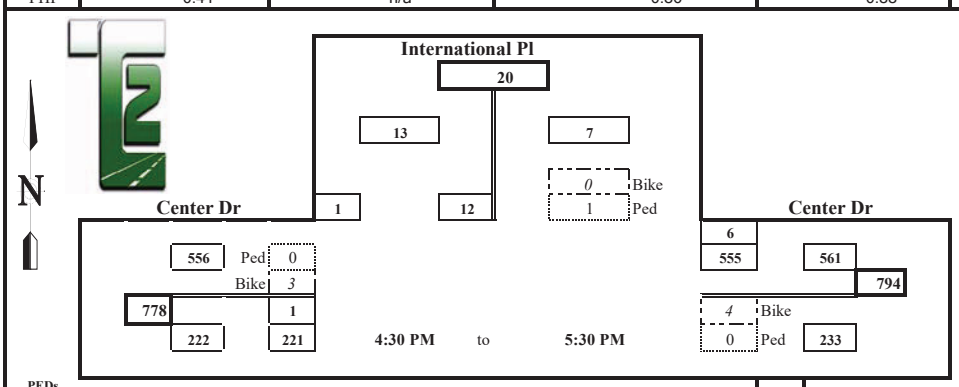
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: International Pl & Center Dr
Location: Dupont, Washington
Date of Count: Tues 10/03/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) International Pl				From South on (NB) 0				From East on (WB) Center Dr				From West on (EB) Center Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	3	0	6	0	0	0	0	2	0	91	0	5	0	55	0	155
4:30 P	0	2	0	1	0	0	0	0	2	0	86	0	4	0	48	0	137
4:45 P	0	7	0	1	0	0	0	0	4	0	108	3	1	0	54	0	173
5:00 P	0	4	0	0	0	0	0	0	2	0	164	0	3	0	52	0	220
5:15 P	0	1	0	0	0	0	0	0	3	0	139	1	3	0	63	0	204
5:30 P	0	0	0	0	0	0	0	0	1	0	144	2	2	1	52	0	199
5:45 P	1	1	0	1	0	0	0	0	0	0	106	1	4	0	62	0	171
6:00 P	1	2	0	3	0	0	0	0	0	0	132	1	3	0	59	0	197
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	3	20	0	12	0	0	0	0	14	0	970	8	25	1	445	0	1456
Peak Hour: 4:30 PM to 5:30 PM																	
Total	0	12	0	1	0	0	0	0	10	0	555	6	9	1	221	0	796
Approach	13				0				561				222				796
%HV	n/a				n/a				1.8%				4.1%				2.4%
PHF	0.41				n/a				0.86				0.88				0.90



880 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.88	4.1%
WB	0.86	1.8%
NB	n/a	n/a
SB	0.41	n/a
T Int.	0.90	2.4%

Check In: 796 Out: 796

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	1				1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03			1	1	2
INT 04			1	1	2
INT 05					0
INT 06			2	1	3
INT 07	1		1		2
INT 08				1	1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	5	5	11

PHC17102M_01p

Prepared for: **PH Consulting LLC**

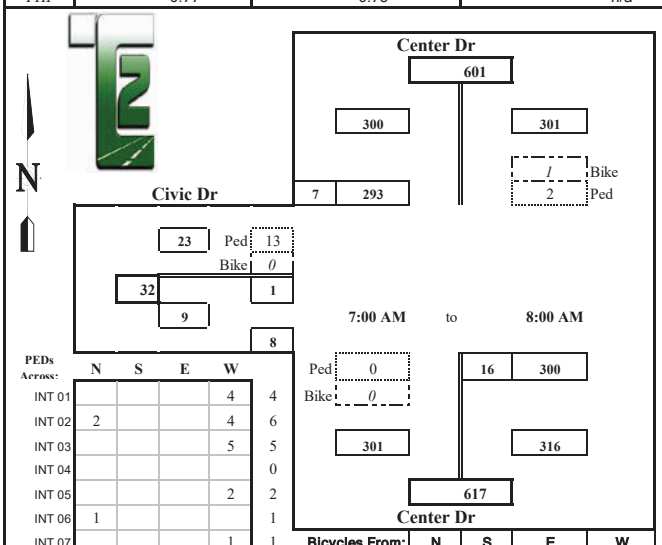
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Civic Dr
Location: Dupont, Washington
Date of Count: Tues 9/05/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) 0				From West on (EB) Civic Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	0	52	0	3	5	101	0	0	0	0	0	0	0	0	0	158
7:30 A	2	0	65	5	3	4	60	0	0	0	0	0	1	1	0	0	135
7:45 A	5	0	97	1	1	1	65	0	0	0	0	0	0	0	0	7	171
8:00 A	4	0	79	1	3	6	74	0	0	0	0	0	0	0	0	1	161
8:15 A	0	0	32	3	4	4	67	0	0	0	0	0	0	0	0	2	108
8:30 A	0	0	38	2	3	5	60	0	0	0	0	0	0	2	0	1	108
8:45 A	2	0	49	3	3	2	62	0	0	0	0	0	0	1	0	5	122
9:00 A	2	0	52	0	3	5	54	0	0	0	0	0	0	1	0	1	113
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	16	0	464	15	23	32	543	0	0	0	0	0	1	5	0	17	1076
Peak Hour: 7:00 AM to 8:00 AM																	
Total	12	0	293	7	10	16	300	0	0	0	0	0	1	1	0	8	625
Approach	300				316				0				9				625
%HV	4.0%				3.2%				n/a				11.1%				3.7%
PHF	0.77				0.75				n/a				0.32				0.91



684 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.32	11.1%
Check	WB	n/a	n/a
In: 625	NB	0.75	3.2%
Out: 625	SB	0.77	4.0%
	T Int.	0.91	3.7%

PEDs Across:	N	S	E	W	
INT 01				4	4
INT 02	2			4	6
INT 03				5	5
INT 04					0
INT 05				2	2
INT 06	1				1
INT 07				1	1
INT 08				1	1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	0	0	17	20

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0	0			
INT 02					0	2			
INT 03					0	0			
INT 04	1				1	1			
INT 05		1			1	0			
INT 06					0	0			
INT 07	2	2			4	0			
INT 08	1				1	0			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	4	3	0	0	7	3	0	0	0

PHC17102M_05a

Prepared for: **PH Consulting LLC**

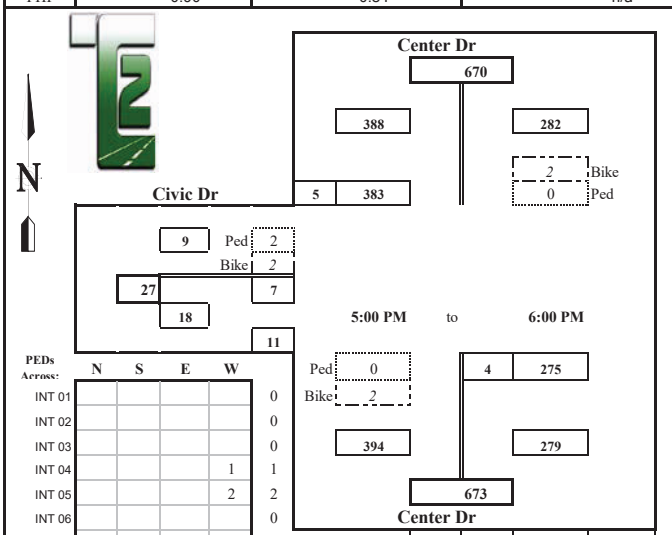
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Civic Dr
Location: Dupont, Washington
Date of Count: Tues 9/05/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) 0				From West on (EB) Civic Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	82	2	2	0	51	0	0	0	0	0	0	2	0	4	141
4:30 P	0	0	83	0	3	0	52	0	0	0	0	0	0	0	0	6	141
4:45 P	1	0	94	0	2	2	68	0	0	0	0	0	0	2	0	4	170
5:00 P	1	0	91	0	0	2	55	0	0	0	0	0	0	1	0	2	151
5:15 P	1	0	106	2	1	0	51	0	0	0	0	0	0	3	0	5	167
5:30 P	0	0	97	1	1	0	65	0	0	0	0	0	0	1	0	4	168
5:45 P	1	0	89	0	0	1	79	0	0	0	0	0	0	0	0	0	169
6:00 P	0	0	91	2	0	3	80	0	0	0	0	0	0	3	0	2	181
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	0	733	7	9	8	501	0	0	0	0	0	0	12	0	27	1288
Peak Hour: 5:00 PM to 6:00 PM																	
Total	2	0	383	5	2	4	275	0	0	0	0	0	0	7	0	11	685
Approach	388				279				0				18				685
%HV	0.5%				0.7%				n/a				n/a				0.6%
PHF	0.90				0.84				n/a				0.56				0.95



724 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.56	n/a
Check	WB	n/a	n/a
In: 685	NB	0.84	0.7%
Out: 685	SB	0.90	0.5%
	T Int.	0.95	0.6%

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04				1	1
INT 05				2	2
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	3	3

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01		1			1	0			
INT 02					0	0			
INT 03					0	2			
INT 04					0	0			
INT 05					0	0			
INT 06	2			2	4	0			
INT 07		1			1	1			
INT 08		1			1	0			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	2	3	0	2	7	3	0	0	0

PHC17102M_05p

Prepared for: **Geralyn Reinart, P.E.**

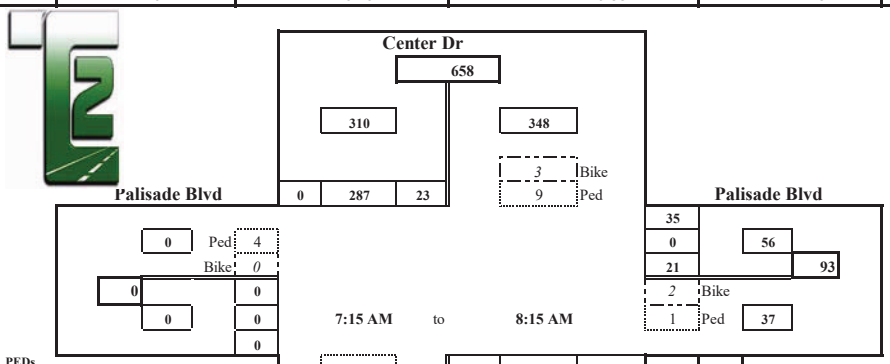
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Palisade Blvd
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Palisade Blvd				From West on (EB) Palisade Blvd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	6	30	0	0	0	90	2	0	5	0	7	0	0	0	0	140
7:30 A	2	4	46	0	0	0	96	7	0	5	0	7	0	0	0	0	165
7:45 A	7	5	91	0	0	0	67	3	0	7	0	9	0	0	0	0	182
8:00 A	7	6	101	0	1	0	69	2	0	5	0	10	0	0	0	0	193
8:15 A	0	8	49	0	6	0	81	2	1	4	0	9	0	0	0	0	153
8:30 A	1	6	44	0	1	0	62	5	0	6	0	2	0	0	0	0	125
8:45 A	1	3	48	0	1	1	92	7	0	4	0	9	0	0	0	0	164
9:00 A	2	5	56	0	3	0	105	5	0	9	0	6	0	0	0	0	186
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	20	43	465	0	12	1	662	33	1	45	0	59	0	0	0	0	1308
Peak Hour: 7:15 AM to 8:15 AM																	
Total	16	23	287	0	7	0	313	14	1	21	0	35	0	0	0	0	693
Approach	310				327				56				0				693
%HV	5.2%				2.1%				1.8%				n/a				3.5%
PHF	0.72				0.79				0.88				n/a				0.90



772 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.88	1.8%
In: 693	NB	0.79	2.1%
Out: 693	SB	0.72	5.2%
	T Int.	0.90	3.5%

PEDs Across:	N	S	E	W	
INT 01	1		2		3
INT 02					0
INT 03	1				1
INT 04	7	1		2	10
INT 05	1		1	2	4
INT 06			1	1	2
INT 07			1		1
INT 08			1	1	2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	10	1	6	6	23

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01				1	1	0			
INT 02	1				1	1			
INT 03	2		2		4	0			
INT 04					0	0			
INT 05					0	1			
INT 06		1			1	0			
INT 07					0	0			
INT 08	1				1	0			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	4	1	2	1	8	2	0	0	0

GRT19097TM_04a

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

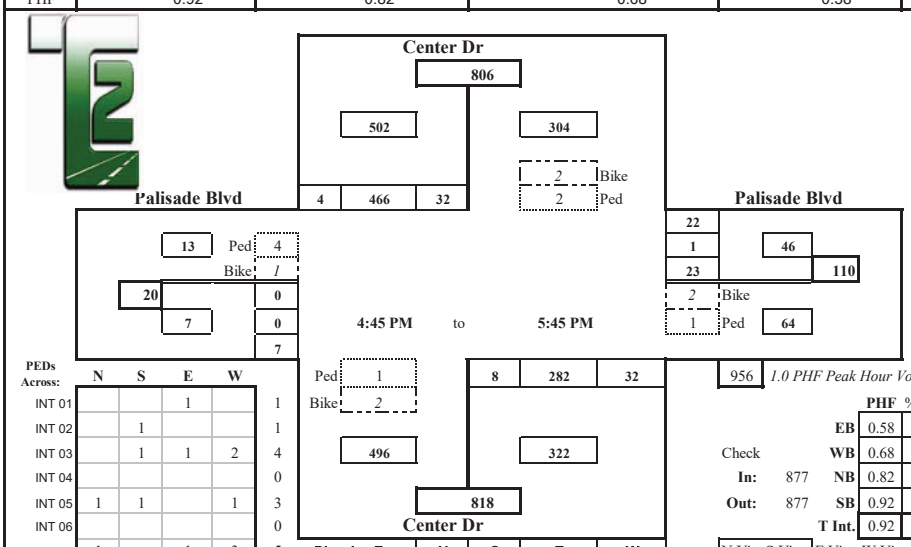
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Palisade Blvd **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Palisade Blvd				From West on (EB) Palisade Blvd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	6	83	0	3	0	48	2	0	7	0	7	0	0	0	1	154
4:30 P	1	5	83	0	2	0	57	8	1	2	0	10	0	0	0	0	165
4:45 P	0	7	94	2	3	1	57	9	0	6	0	6	0	0	0	0	182
5:00 P	0	11	114	1	0	3	55	7	0	7	0	3	0	0	0	2	203
5:15 P	0	4	128	1	1	1	64	9	0	5	1	2	0	0	0	1	216
5:30 P	0	8	128	0	1	2	75	8	0	7	0	10	0	0	0	1	239
5:45 P	0	9	96	2	1	2	88	8	0	4	0	7	0	0	0	3	219
6:00 P	1	6	72	0	0	0	83	2	0	4	0	8	0	0	0	0	175
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	56	798	6	11	9	527	53	1	42	1	53	0	0	0	8	1553
	Peak Hour: 4:45 PM to 5:45 PM																
Total	0	32	466	4	3	8	282	32	0	23	1	22	0	0	0	7	877
Approach	502				322				46				7				877
%HV	n/a				0.9%				n/a				n/a				0.3%
PHF	0.92				0.82				0.68				0.58				0.92



956 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.58	n/a
Check	WB	0.68	n/a
In: 877	NB	0.82	0.9%
Out: 877	SB	0.92	n/a
	T Int.	0.92	0.3%

PEDs Across:	N	S	E	W	
INT 01			1		1
INT 02		1			1
INT 03		1	1	2	4
INT 04					0
INT 05	1	1		1	3
INT 06					0
INT 07	1		1	3	5
INT 08	2		2	1	5
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	3	5	7	19

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01		1			1	0	0		
INT 02					0	0	0		
INT 03					0	0	1		
INT 04	1				1	1	0		
INT 05	1	1		1	3	1	1		
INT 06		1	1		2	0	0		
INT 07			1		1	0	0		
INT 08		2		5	7	0	0		
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	2	5	2	6	15	2	2	0	0

GRT19097TM_04p

Prepared for: **Geralyn Reinart, P.E.**

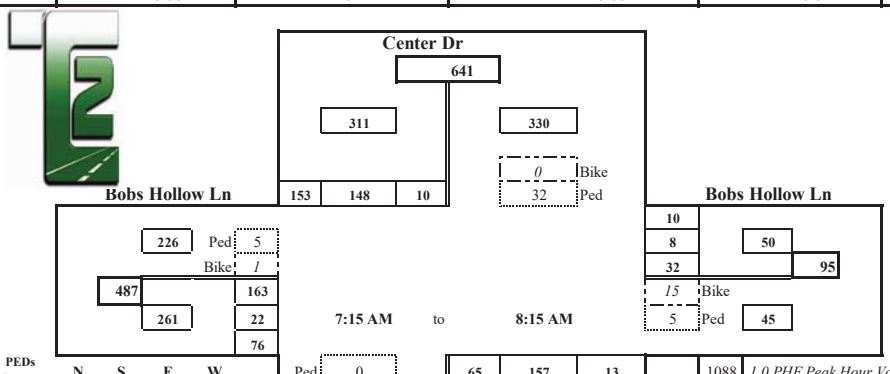
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Bobs Hollw Ln
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Bobs Hollow Ln				From West on (EB) Bobs Hollow Ln				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	25	11	0	4	45	0	0	6	1	3	0	43	5	8	151
7:30 A	2	2	27	17	0	7	65	4	0	13	0	5	0	33	3	7	183
7:45 A	7	1	43	42	0	23	33	4	0	9	2	1	0	34	2	8	202
8:00 A	7	4	44	70	1	18	26	1	0	7	3	1	5	52	7	39	272
8:15 A	0	3	34	24	1	17	33	4	0	3	3	3	4	44	10	22	200
8:30 A	1	2	31	14	0	6	38	1	0	7	0	3	1	28	3	8	141
8:45 A	0	1	34	15	0	1	52	0	0	7	1	4	1	40	15	13	183
9:00 A	3	4	42	14	3	6	53	2	0	12	9	10	1	43	24	11	230
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	20	17	280	207	5	82	345	16	0	64	19	30	12	317	69	116	1562
Peak Hour: 7:15 AM to 8:15 AM																	
Total	16	10	148	153	2	65	157	13	0	32	8	10	9	163	22	76	857
Approach	311				235				50				261				857
%HV	5.1%				0.9%				n/a				3.4%				3.2%
PHF	0.66				0.77				0.69				0.67				0.79



1088 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.67	3.4%
WB	0.69	n/a
NB	0.77	0.9%
SB	0.66	5.1%
T Int.	0.79	3.2%

Check In: 857 Out: 857

Conditions:

PEDs Across:	N	S	E	W	
INT 01			1		1
INT 02					0
INT 03	11		2		13
INT 04	18		2	4	24
INT 05	3		1	1	5
INT 06			2	1	3
INT 07	3		1		4
INT 08			2	1	3
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	35	0	11	7	53

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03			6	1	7
INT 04		2	8		10
INT 05			1		1
INT 06		1			1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	3	15	1	19

GRT19097TM_03a

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

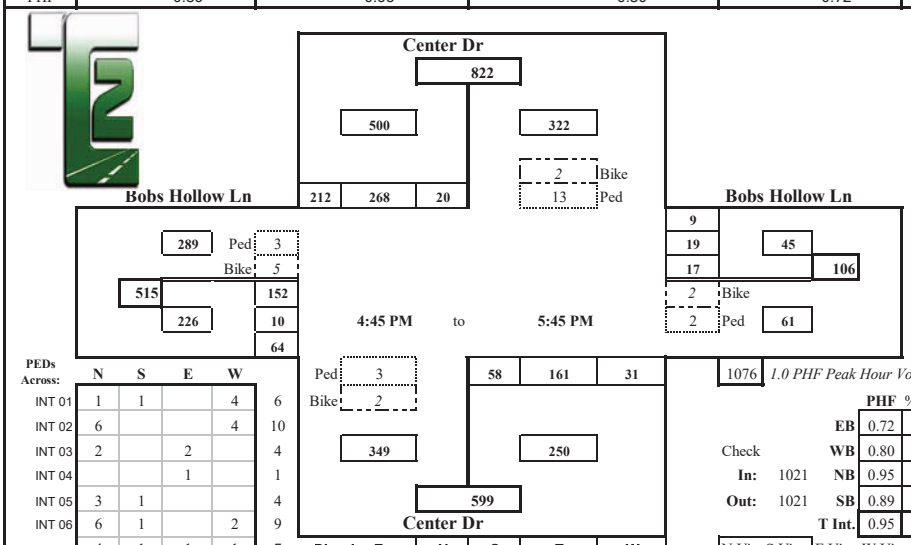
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Bobs Hollw Ln **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Bobs Hollow Ln				From West on (EB) Bobs Hollow Ln				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	5	49	36	2	18	33	1	0	1	4	4	1	17	3	3	174
4:30 P	0	5	48	28	1	6	35	10	0	1	2	2	2	26	6	6	175
4:45 P	1	4	66	36	2	23	44	9	0	1	2	7	1	18	3	7	220
5:00 P	0	2	68	49	0	12	36	9	0	4	4	2	1	30	3	8	227
5:15 P	0	6	74	60	0	12	43	9	0	7	5	1	1	36	3	10	266
5:30 P	0	5	78	48	1	16	40	7	0	4	3	1	1	38	1	18	259
5:45 P	0	7	48	55	0	18	42	6	0	2	7	5	1	48	3	28	269
6:00 P	1	3	46	22	0	12	58	3	0	1	5	3	0	23	4	11	191
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	37	477	334	6	117	331	54	0	21	32	25	8	236	26	91	1781
	Peak Hour: 4:45 PM to 5:45 PM																
Total	0	20	268	212	1	58	161	31	0	17	19	9	4	152	10	64	1021
Approach	500				250				45				226				1021
%HV	n/a				0.4%				n/a				1.8%				0.5%
PHF	0.89				0.95				0.80				0.72				0.95



PEDs Across:	N	S	E	W	
INT 01	1	1		4	6
INT 02	6			4	10
INT 03	2		2		4
INT 04			1		1
INT 05	3	1			4
INT 06	6	1		2	9
INT 07	4	1	1	1	7
INT 08	7	1	3	1	12
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	29	5	7	12	53

Special Notes

Bicycles From:	N	S	E	W	
INT 01			1		1
INT 02		3			3
INT 03	1	3		2	6
INT 04	2		1		3
INT 05				2	2
INT 06		1	1	2	4
INT 07		1		1	2
INT 08	3	1			4
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	6	9	3	7	25

1076 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.72	1.8%
Check	WB	0.80	n/a
In: 1021	NB	0.95	0.4%
Out: 1021	SB	0.89	n/a
	T Int.	0.95	0.5%

N U's	S U's	E U's	W U's
0			
0			
0			
0			
1			
0			
0			
1	0	0	0

GRT19097TM_03p

Prepared for: **Geralyn Reinart, P.E.**

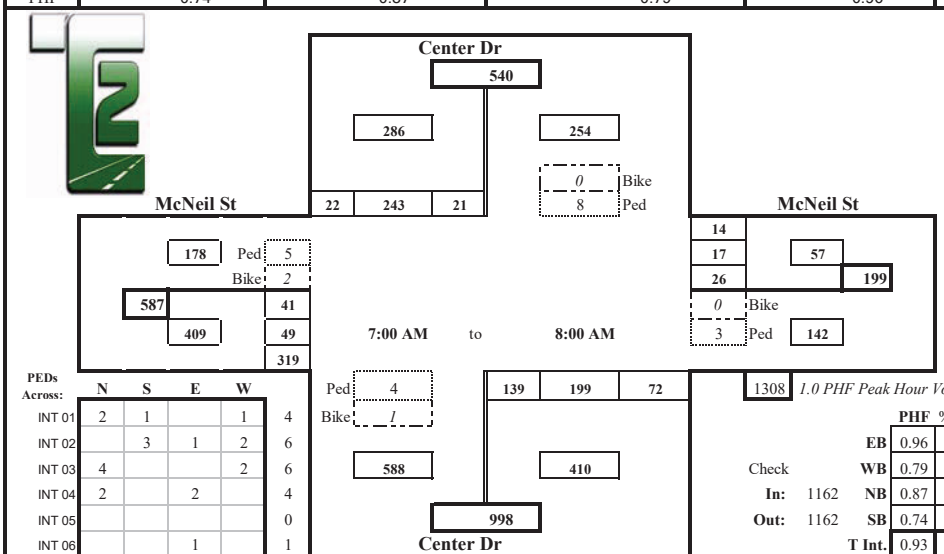
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & McNeil St
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) McNeil St				From West on (EB) McNeil St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	4	51	3	1	24	51	10	1	4	2	3	0	11	12	79	254
7:30 A	0	3	57	6	0	34	58	18	1	8	3	4	0	9	11	86	297
7:45 A	0	7	53	5	0	43	54	21	1	9	3	3	0	7	16	77	298
8:00 A	1	7	82	8	3	38	36	23	1	5	9	4	1	14	10	77	313
8:15 A	0	2	62	5	2	28	43	15	0	10	4	2	0	12	9	61	253
8:30 A	0	6	52	5	2	21	47	10	0	5	5	3	0	14	5	50	223
8:45 A	0	3	56	1	1	31	31	12	1	10	4	4	1	30	15	91	288
9:00 A	1	6	79	17	0	25	32	4	0	7	7	1	3	50	23	76	327
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	38	492	50	9	244	352	113	5	58	37	24	5	147	101	597	2253
Peak Hour:	7:00 AM to 8:00 AM																
Total	1	21	243	22	4	139	199	72	4	26	17	14	1	41	49	319	1162
Approach	286				410				57				409				1162
%HV	0.3%				1.0%				7.0%				0.2%				0.9%
PHF	0.74				0.87				0.79				0.96				0.93



1308 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.96	0.2%
WB	0.79	7.0%
NB	0.87	1.0%
SB	0.74	0.3%
T Int.	0.93	0.9%

Check In: 1162 Out: 1162

Conditions:

PEDs Across:	N	S	E	W	
INT 01	2	1		1	4
INT 02		3	1	2	6
INT 03	4			2	6
INT 04	2		2		4
INT 05					0
INT 06			1		1
INT 07			1		1
INT 08	2	1	2	1	6
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	10	5	7	6	28

Bicycles From:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03		1			1
INT 04				1	1
INT 05					0
INT 06		1			1
INT 07				2	2
INT 08	1		1		2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	2	1	4	8

Special Notes

GRT19097TM_02a

Prepared for: **Geralyn Reinart, P.E.**

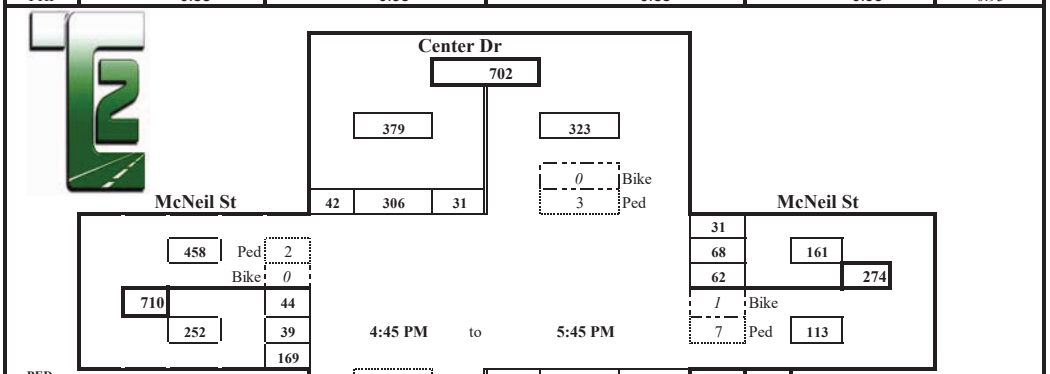
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & McNeil St
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) McNeil St				From West on (EB) McNeil St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	3	58	8	2	76	47	12	0	27	17	5	1	5	9	34	301
4:30 P	0	2	66	1	1	64	41	11	0	13	14	5	1	14	9	37	277
4:45 P	0	4	54	10	0	81	60	4	0	31	16	8	2	12	6	36	322
5:00 P	1	2	70	11	0	93	61	11	2	13	17	5	1	8	9	49	349
5:15 P	0	7	73	11	0	77	61	8	1	22	16	8	0	15	10	36	344
5:30 P	0	13	86	9	0	90	66	16	1	12	15	9	0	10	11	38	375
5:45 P	0	9	77	11	1	88	60	8	1	15	20	9	0	11	9	46	363
6:00 P	0	4	43	9	0	84	66	13	1	12	25	5	0	23	7	40	331
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	44	527	70	4	653	462	83	6	145	140	54	5	98	70	316	2662
Peak Hour: 4:45 PM to 5:45 PM																	
Total	1	31	306	42	1	348	248	43	5	62	68	31	1	44	39	169	1431
Approach	379				639				161				252				1431
%HV	0.3%				0.2%				3.1%				0.4%				0.6%
PHF	0.88				0.93				0.88				0.95				0.95



1500 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.95	0.4%
WB	0.88	3.1%
NB	0.93	0.2%
SB	0.88	0.3%
T Int.	0.95	0.6%

Check In: 1431 Out: 1431

PEDs Across:	N	S	E	W	
INT 01	3	1	1	3	8
INT 02	1		1		2
INT 03	1	1	1	1	4
INT 04		3	3		6
INT 05	1	1			2
INT 06	1				1
INT 07	1	1	4	2	8
INT 08	1	2		3	6
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	9	9	10	9	37

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0		2		
INT 02		3	2		5		0		
INT 03			3		3		0		
INT 04		1	1		2		0		
INT 05		1			1		0		
INT 06					0		0		
INT 07					0		0		
INT 08		1			1		0		
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	6	6	0	12	0	2	0	0

GRT19097TM_02p

Prepared for: **Geralyn Reinart, P.E.**

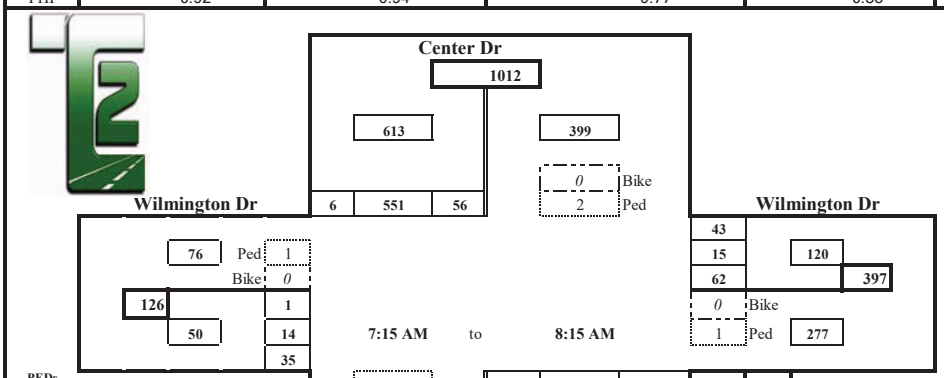
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Wilmington Dr
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Wilmington Dr				From West on (EB) Wilmington Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	5	122	4	2	10	66	27	0	27	5	7	0	1	2	9	285
7:30 A	2	9	155	2	1	7	97	52	0	12	3	8	0	1	6	8	360
7:45 A	1	19	126	1	2	6	101	57	0	19	6	14	0	0	3	12	364
8:00 A	2	18	147	1	3	17	85	54	1	13	4	9	0	0	2	5	355
8:15 A	0	10	123	2	2	25	72	44	0	18	2	12	0	0	3	10	321
8:30 A	0	13	96	5	2	13	62	56	0	22	5	13	0	3	2	14	304
8:45 A	1	9	160	6	1	17	60	47	0	34	3	9	0	3	4	9	361
9:00 A	1	21	147	8	0	11	46	43	0	13	5	9	0	4	3	7	317
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	8	104	1076	29	13	106	589	380	1	158	33	81	0	12	25	74	2667
Peak Hour: 7:15 AM to 8:15 AM																	
Total	5	56	551	6	8	55	355	207	1	62	15	43	0	1	14	35	1400
Approach	613				617				120				50				1400
%HV	0.8%				1.3%				0.8%				n/a				1.0%
PHF	0.92				0.94				0.77				0.83				0.96



1456 *1.0 PHF Peak Hour Volume*

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03	1		1		2
INT 04					0
INT 05	1			1	2
INT 06	2		2		4
INT 07	2		3	2	7
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	6	0	6	3	15

	PHF	%HV
EB	0.83	n/a
WB	0.77	0.8%
NB	0.94	1.3%
SB	0.92	0.8%
T Int.	0.96	1.0%

Check In: 1400 Out: 1400

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0	0			
INT 02					0	0			
INT 03					0	0			
INT 04					0	0			
INT 05					0	0			
INT 06		1			1	1			
INT 07					0	0			
INT 08					0	1			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	1	0	0	1	2	0	0	0

Special Notes

GRT19097TM_01a

Prepared for: **Geralyn Reinart, P.E.**

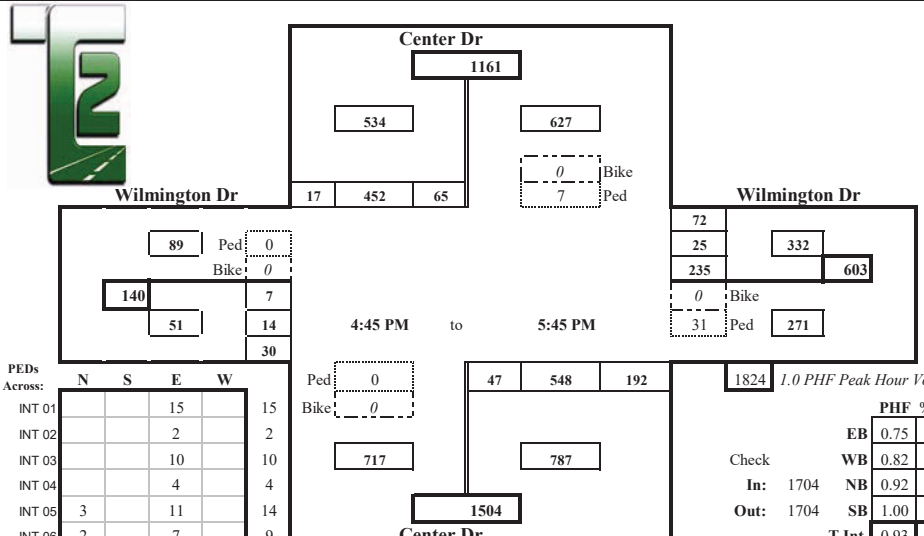
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Wilmington Dr
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Wilmington Dr				From West on (EB) Wilmington Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	14	102	3	2	11	117	40	3	57	5	17	0	1	2	10	379
4:30 P	0	19	102	5	1	19	100	38	0	46	11	12	0	2	4	7	365
4:45 P	0	14	106	1	2	6	142	29	1	61	6	11	0	1	6	10	393
5:00 P	4	21	110	3	3	17	138	58	1	62	6	15	0	2	5	10	447
5:15 P	1	16	109	9	1	9	131	40	0	64	6	19	0	2	1	5	411
5:30 P	1	13	118	3	0	4	143	34	0	37	4	18	0	1	5	10	390
5:45 P	1	15	115	2	2	17	136	60	0	72	9	20	0	2	3	5	456
6:00 P	2	18	83	2	2	11	135	31	0	42	12	24	0	2	5	4	369
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	130	845	28	13	94	1042	330	5	441	59	136	0	13	31	61	3210
Peak Hour: 4:45 PM to 5:45 PM																	
Total	7	65	452	17	6	47	548	192	1	235	25	72	0	7	14	30	1704
Approach	534				787				332				51				1704
%HV	1.3%				0.8%				0.3%				n/a				0.8%
PHF	1.00				0.92				0.82				0.75				0.93



1824 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.75	n/a
WB	0.82	0.3%
NB	0.92	0.8%
SB	1.00	1.3%
T Int.	0.93	0.8%

Check In: 1704 Out: 1704

PEDs Across:	N	S	E	W	
INT 01			15		15
INT 02			2		2
INT 03			10		10
INT 04			4		4
INT 05	3		11		14
INT 06	2		7		9
INT 07	2		9		11
INT 08			6		6
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	7	0	64	0	71

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0	0	0		
INT 02					0	0	0		
INT 03					0	1	1		
INT 04					0	0	0		
INT 05					0	0	0		
INT 06	NO BIKES				0	0	0		
INT 07					0	0	0		
INT 08					0	0	1		
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	0	0	0	0	1	2	0	0

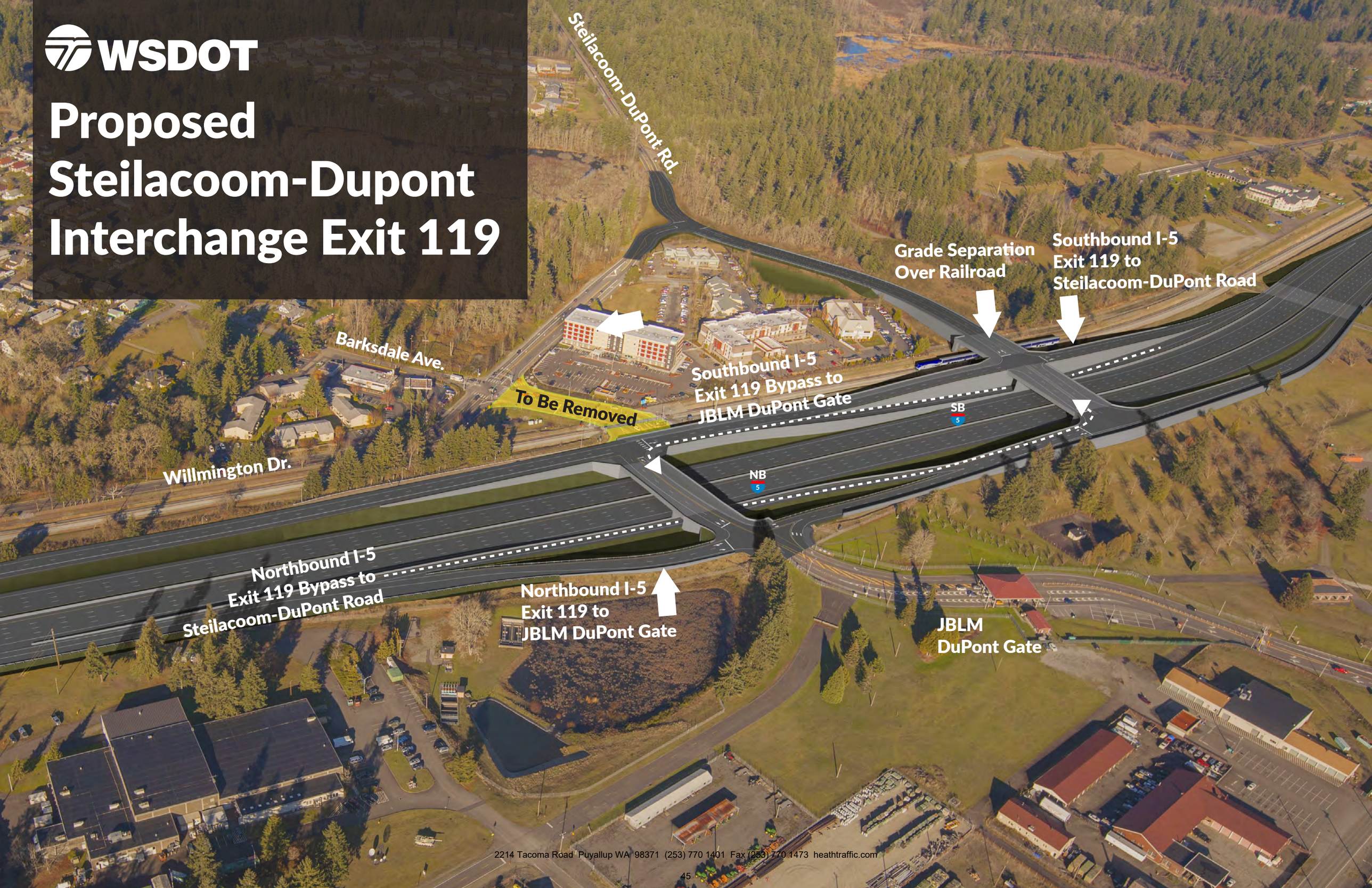
GRT19097TM_01p

APPENDIX

WSDOT I-5 EXIT 119 INTERCHANGE
DESIGN EXHIBITS

WSDOT

Proposed Steilacoom-Dupont Interchange Exit 119



2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com

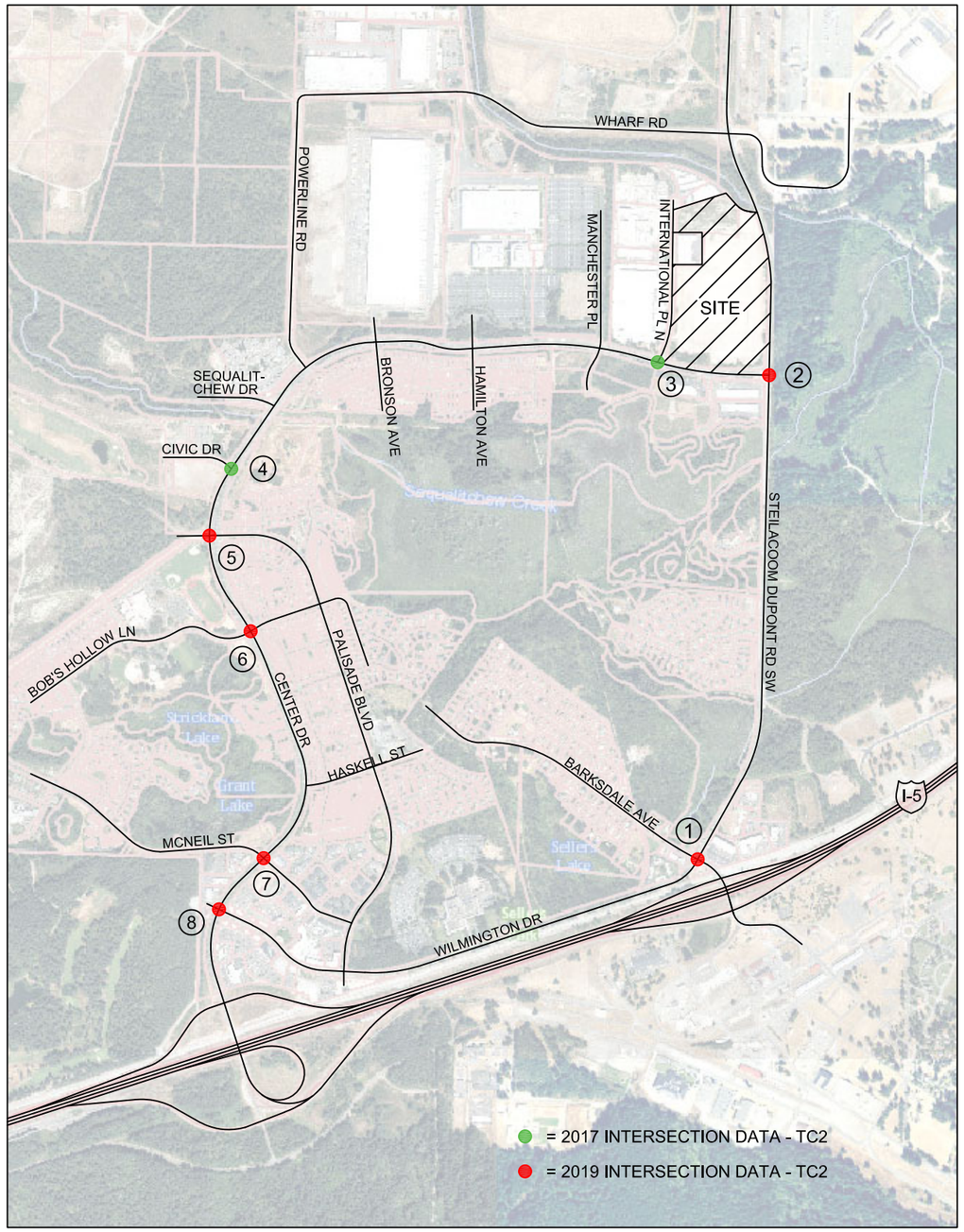
WSDOT

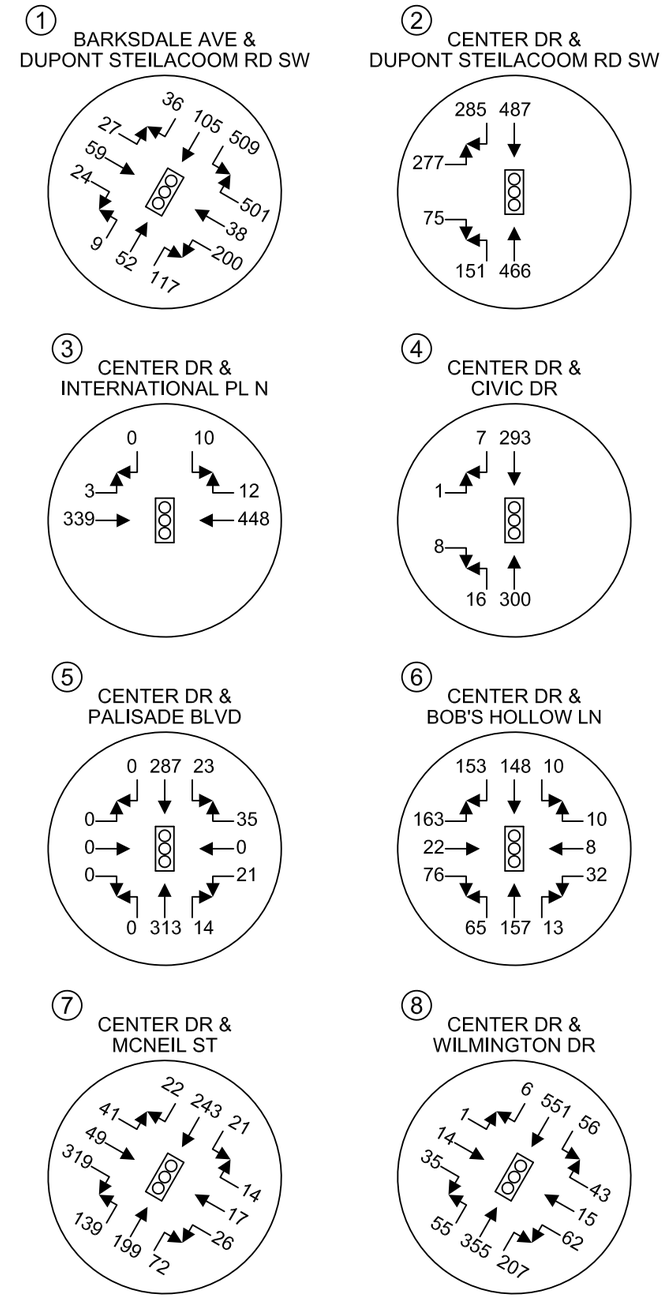
Proposed Steilacoom-Dupont Interchange Exit 119

APPENDIX

BASELINE VOLUMES &
INTERSECTION COMPARISON FIGURES

N





HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

BASELINE AM PEAK HOUR INTERSECTION DATA
APPENDIX: FIGURE A

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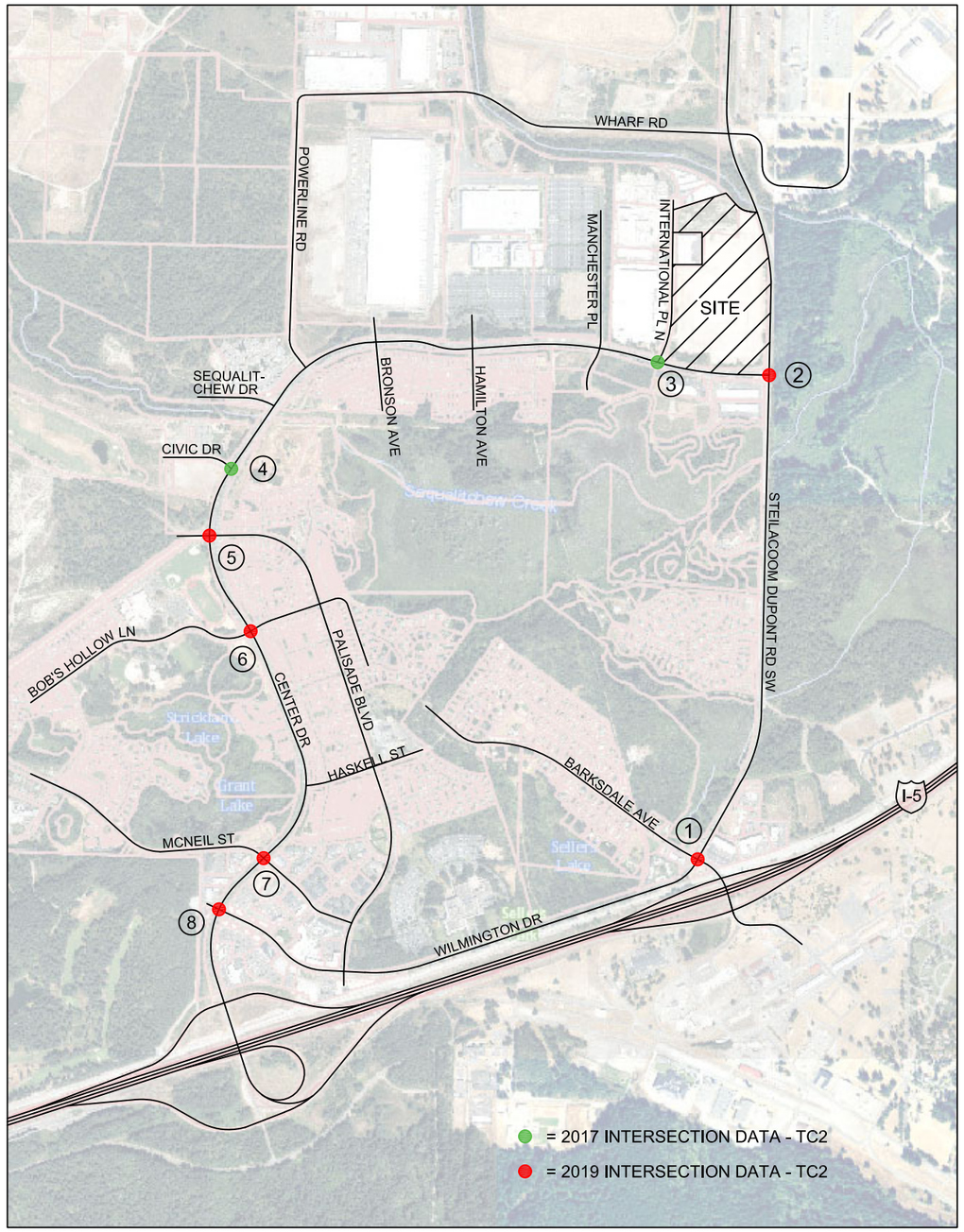
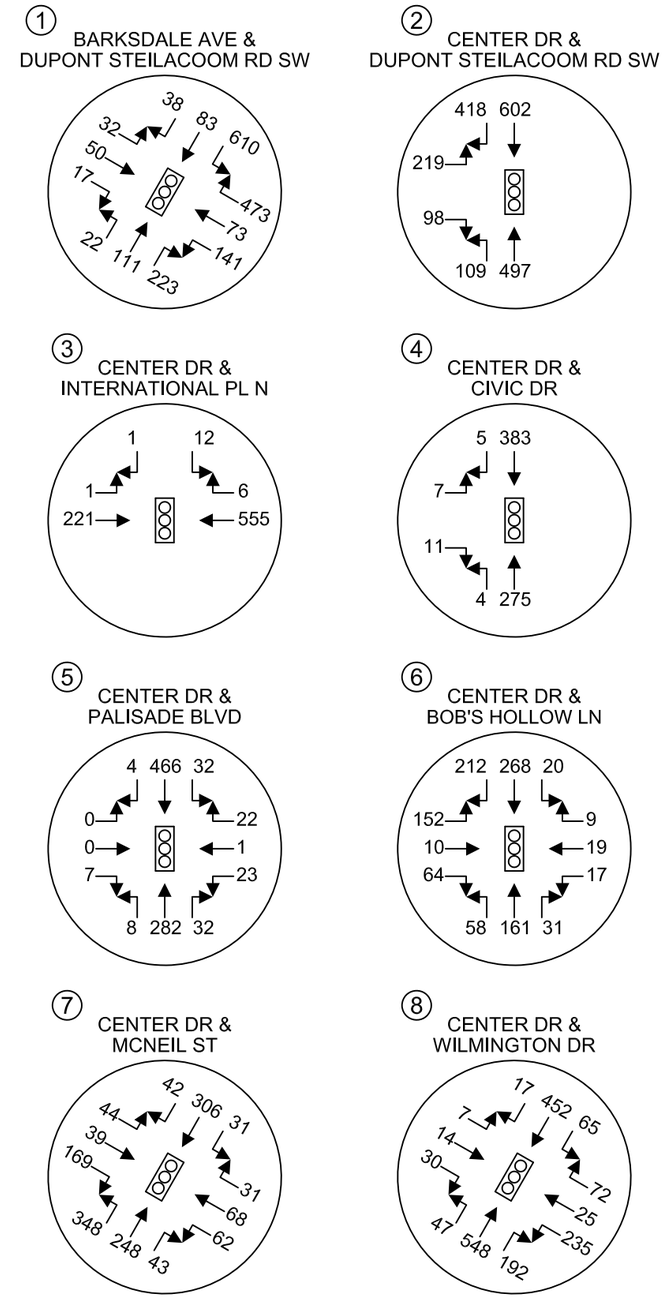
N





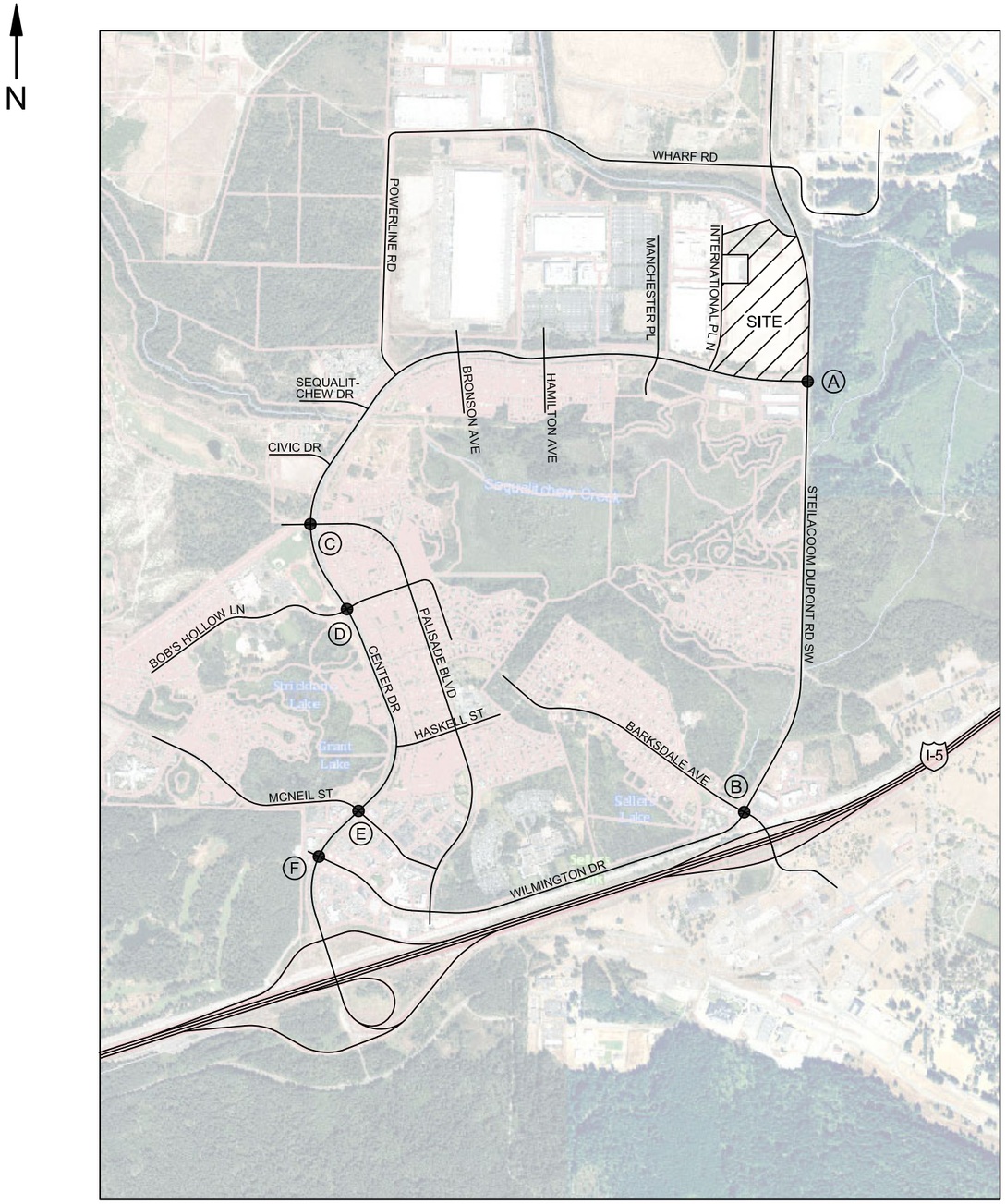
HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

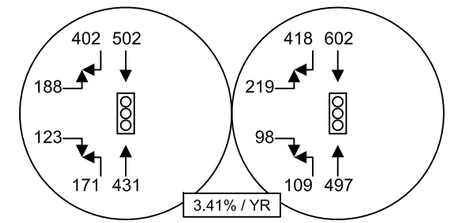
SNOW BLOSSOM FULFILLMENT CENTER

BASELINE PM PEAK HOUR INTERSECTION DATA
APPENDIX: FIGURE B

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com



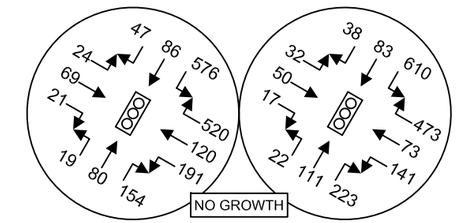
Ⓐ CENTER DR & DUPONT STEILACOOM RD SW



2017 VOLUMES
TOTAL VOL.: 1817

2019 VOLUMES
TOTAL VOL.: 1943

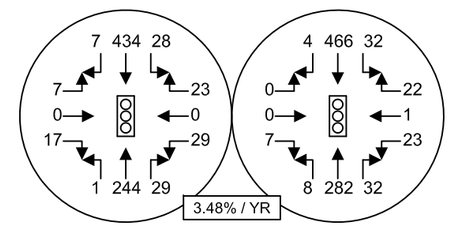
Ⓑ BARKSDALE AVE & STEILACOOM DUPONT RD SW



2017 VOLUMES
TOTAL VOL.: 1907

2019 VOLUMES
TOTAL VOL.: 1873

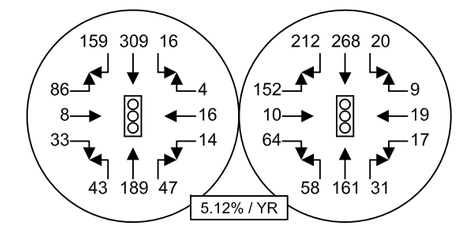
Ⓒ CENTER DR & PALISADE BLVD



2017 VOLUMES
TOTAL VOL.: 819

2019 VOLUMES
TOTAL VOL.: 877

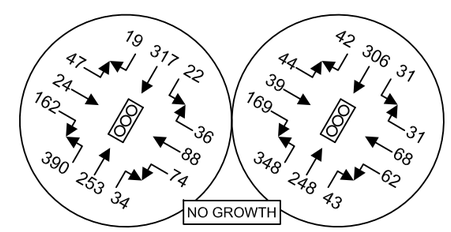
Ⓓ CENTER DR & BOB'S HOLLOW LN



2017 VOLUMES
TOTAL VOL.: 924

2019 VOLUMES
TOTAL VOL.: 1021

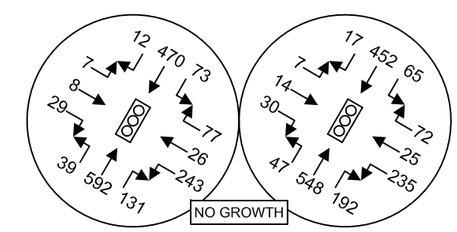
Ⓔ CENTER DR & MCNEIL ST



2017 VOLUMES
TOTAL VOL.: 1466

2019 VOLUMES
TOTAL VOL.: 1431

Ⓕ CENTER DR & WILMINGTON DR



2017 VOLUMES
TOTAL VOL.: 1707

2019 VOLUMES
TOTAL VOL.: 1704

HEATH & ASSOCIATES
TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

2017-2019 PM PEAK HOUR INTERSECTION VOLUME COMPARISON
APPENDIX: FIGURE C

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com

APPENDIX

TRIP GENERATION MODEL

HAZMAT FC - Non Peak Season

TRAFFIC DATA FOR ENTITLMENT USE

Headcount

Headcount - Day Shift	486
Headcount Night Shift	486

Shift Structure

	Start	End	
Day Shift Inbound Employees	7:00:00 AM	5:30:00 PM	Inbound Are Employees Working Receiving Side of Operation
Day Shift Outbound Employees	7:30:00 AM	6:00:00 PM	Outbound Are Employees Working Shipping Side of Operation
Night Shift Inbound Employees	6:00:00 PM	4:30:00 AM	
Night Shift Outbound Employees	6:30:00 PM	5:00:00 AM	

Adjustment below accounts for mass transit and carpool users. Adjust as needed for local jurisdiction.

Net Cars Factor 95%

Traffic Schedule

Cars

Average Weekday - Non Peak

	In	Out	Total
00:00	2	3	5
01:00	1	2	3
02:00	3	7	10
03:00	4	7	11
04:00	9	93	102
05:00	19	246	265
06:00	14	8	22
06:15	38	9	47
06:30	66	5	71
06:45	88	3	91
07:00	87	5	92
07:15	113	2	115
07:30	17	3	20
07:45	4	3	7
08:00	13	9	22
09:00	8	5	13
10:00	11	9	20
11:00	20	21	41
12:00	6	9	15
13:00	7	7	14
14:00	6	13	19
15:00	15	19	34
16:00	23	17	40
17:00	14	17	31
17:15	26	8	34
17:30	57	66	123
17:45	74	38	112
18:00	92	128	220
18:15	89	86	175
18:30	12	57	69
18:45	3	21	24
19:00	9	18	27
20:00	4	4	8
21:00	8	8	16
22:00	9	11	20
23:00	1	3	4
	972	970	1,942

Trucks

Average Weekday - Non Peak

	In	Out	Total
00:00	7	6	14
01:00	6	6	12
02:00	6	6	12
03:00	8	7	15
04:00	7	6	14
05:00	9	8	17
06:00	2	2	3
06:15	2	2	3
06:30	2	2	3
06:45	2	2	3
07:00	2	2	3
07:15	1	1	2
07:30	1	1	2
07:45	1	1	2
08:00	5	4	9
09:00	5	5	10
10:00	5	4	9
11:00	5	4	9
12:00	5	5	10
13:00	5	4	9
14:00	4	3	7
15:00	4	3	7
16:00	3	2	5
17:00	1	1	2
17:15	1	1	2
17:30	1	1	2
17:45	0	0	0
18:00	1	1	2
18:15	1	1	2
18:30	1	1	2
18:45	0	0	0
19:00	4	3	7
20:00	2	2	3
21:00	3	2	5
22:00	4	3	7
23:00	6	6	12
	119	106	225

Total

Average Weekday - Non Peak

	In	Out	Total
00:00	9	9	18
01:00	7	8	15
02:00	9	12	22
03:00	12	14	26
04:00	16	95	111
05:00	27	242	269
06:00	15	9	24
06:15	38	10	48
06:30	65	6	71
06:45	85	4	90
07:00	84	6	91
07:15	108	3	111
07:30	17	4	21
07:45	5	4	8
08:00	17	13	29
09:00	13	10	23
10:00	15	13	28
11:00	24	24	48
12:00	11	13	25
13:00	11	11	22
14:00	9	16	25
15:00	18	21	39
16:00	25	19	43
17:00	14	17	31
17:15	26	8	34
17:30	55	64	119
17:45	70	36	106
18:00	88	122	211
18:15	85	83	168
18:30	12	55	67
18:45	3	20	23
19:00	12	20	33
20:00	6	5	11
21:00	10	10	20
22:00	12	14	26
23:00	7	9	16
	1,042	1,028	2,070

APPENDIX

PIPELINE VOLUMES

PIPELINE TRIPS AT CRITICAL INTERSECTIONS
(AM PEAK HOUR)

1. Center Drive/Wilmington Drive

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	0	0	0	0	1	0	4	0	2	16	0
Williamson Pl. (3)	0	0	0	0	0	0	0	12	0	0	3	0
Patriot's Lndng. (1)	0	0	0	0	0	1	0	17	0	4	50	0
Civic Ctr. Phase 2	0	0	0	0	0	5	0	28	0	3	4	0
Civic Ctr. Phase 3	0	0	0	0	0	1	0	27	0	0	4	0
DuPont Corp. Ctr.	0	0	0	0	0	3	0	23	0	1	9	0
DuPont Industrial	0	0	0	0	0	0	0	21	0	0	6	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	5	0	1	0	0
Total	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**137**	**0**	**11**	**92**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

2. Center Drive/McNeil Street

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	2	18	0	1	0	5	0	0	0	0	0
Williamson Pl. (3)	17	0	0	0	0	3	0	12	0	0	3	2
Patriot's Lndng. (1)	2	8	54	0	3	0	18	0	0	0	0	1
Civic Ctr. Phase 2	3	0	0	0	0	4	0	33	0	3	7	0
Civic Ctr. Phase 3	3	0	0	0	0	2	0	28	0	0	4	0
DuPont Corp. Ctr.	7	0	0	0	0	2	0	26	0	1	10	2
DuPont Industrial	2	0	0	0	0	0	0	21	0	0	6	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	1	0	0	0	0	0	0	5	0	1	1	1
Total	**35**	**10**	**72**	**0**	**4**	**11**	**23**	**125**	**0**	**5**	**31**	**6**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

Revised 07/08/2020

3. Center Drive/Bob's Hollow Lane

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	7	0	0	0	0	0	0	0	0	0	0	2
Williamson Pl. (3)	0	0	0	0	0	0	0	35	0	0	5	0
Patriot's Lndng. (1)	5	0	0	0	0	0	0	2	0	0	1	2
Civic Ctr. Phase 2	12	0	0	0	0	0	0	40	0	0	10	6
Civic Ctr. Phase 3	6	0	0	0	0	0	0	33	0	0	4	1
DuPont Corp. Ctr.	2	0	0	0	0	1	0	35	0	0	13	1
DuPont Industrial	2	0	0	0	0	0	0	23	0	0	6	1
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	1	0	0	0	0	0	0	7	0	0	3	1
Total	**35**	**0**	**0**	**0**	**0**	**1**	**0**	**175**	**0**	**0**	**42**	**14**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

4. Center Drive/Palisade Blvd.

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	0	0	0	0	0	0	7	0	0	2	0
Williamson Pl. (3)	0	0	0	0	0	3	0	35	0	0	5	0
Patriot's Lndng. (1)	0	0	0	0	0	0	0	7	0	0	3	0
Civic Ctr. Phase 2	0	0	0	0	0	10	0	52	0	7	16	0
Civic Ctr. Phase 3	0	0	0	0	0	4	0	39	0	1	5	0
DuPont Corp. Ctr.	0	0	0	0	0	1	0	38	0	1	14	0
DuPont Industrial	0	0	0	0	0	0	0	25	0	0	7	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	1	0	7	0	2	4	0
Total	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**210**	**0**	**11**	**56**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

5. Center Drive/Civic

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0		0				0	7			2	0
Williamson Pl. (3)	0		0				0	38			5	0
Patriot's Lndng. (1)	0		0				0	7			3	0
Civic Ctr. Phase 2	8		23				62	0			0	18
Civic Ctr. Phase 3	2		6				43	0			0	11
DuPont Corp. Ctr.	0		0				0	39			15	0
DuPont Industrial	0		0				0	25			7	0
Barksdale Sta. (1)	0		0				0	0			0	0
PW Facility	4		6				8	0			0	4
Total	**14**		**35**				**113**	**116**			**32**	**33**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

Revised 07/08/2020

6. Center Drive/International Place

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	0	10	0	0	6	0	0	0	0	0	0	0
Williamson Pl. (3)	0	38	0	0	5	0	0	0	0	0	0	0
Patriot's Lndg. (1)	0	12	0	0	4	0	0	0	0	0	0	0
Civic Ctr. Phs. 2	0	8	0	0	18	0	0	0	0	0	0	0
Civic Ctr. Phs. 3	0	2	0	0	11	0	0	0	0	0	0	0
DuPont Corp. Ctr.	0	7	0	0	18	0	0	0	0	0	0	0
DuPont Industrial	0	3	0	0	8	0	0	0	0	0	0	0
Barksdale Sta. (1)	0	12	0	0	11	0	0	0	0	0	0	0
PW Facility	0	3	0	0	4	0	0	0	0	0	0	0
Total	**0**	**95**	**0**	**0**	**85**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

7. Center Drive/DuPont Steilacoom Road

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	8		2				2	0			0	4
Williamson Pl. (3)	4		10				61	0			0	20
Patriot's Lndg. (1)	12		0				0	0			0	4
Civic Ctr. Phase 2	4		4				6	0			0	12
Civic Ctr. Phase 3	1		1				3	0			0	8
DuPont Corp. Ctr.	3		4				9	27			10	9
DuPont Ind. (1)	1		2				6	0			0	2
Barksdale Sta.	0		12				11	5			5	0
PW Facility	1		2				3	0			0	1
Total	**34**		**37**				**101**	**32**			**15**	**60**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

8. Barksdale Avenue/DuPont-Steilacoom Road

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	0	0	0	0	0	2	0	0	0	2	0	0
Williamson Pl. (3)	6	0	0	0	0	49	0	6	0	8	0	2
Patriot's Lndg. (1)	0	0	0	0	0	0	0	0	0	0	0	0
Civic Ctr. Phs. 2 (1)	0	0	0	0	0	3	0	0	0	2	0	0
Civic Ctr. Phs. 3 (1)	0	0	0	0	0	2	0	0	0	0	0	0
DuPont Corp. Ctr.	3	0	0	0	0	30	0	3	0	11	1	1
DuPont Ind. (1)	0	0	0	0	0	6	0	0	0	2	0	0
Barksdale Sta.	3	0	0	0	0	27	0	8	0	25	8	3
PW Facility	0	0	0	0	0	3	0	0	0	0	0	2
Total	**12**	**0**	**0**	**0**	**0**	**122**	**0**	**17**	**0**	**50**	**9**	**8**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal
(4) – includes pass-by trip volumes
Barksdale Avenue considered the east-west street

Revised 07/08/2020

(PM PEAK HOUR)

1. Center Drive/Wilmington Drive

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	0	0	0	0	1	0	18	0	1	8	0
Williamson Pl. (3)	0	0	0	0	0	0	0	3	0	0	12	0
Patriot's Lndng. (1)	0	0	0	0	0	4	0	57	0	3	33	0
Civic Ctr. Phase 2	0	0	0	0	0	1	0	5	0	2	25	0
Civic Ctr. Phase 3	0	0	0	0	0	0	0	4	0	1	25	0
DuPont Corp. Ctr.	0	0	0	0	0	2	0	12	0	4	30	0
DuPont Industrial	0	0	0	0	0	0	0	8	0	0	23	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	0	0	0	7	0
Total	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**107**	**0**	**11**	**163**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

2. Center Drive/McNeil Street

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	1	9	0	1	0	19	0	0	0	0	0
Williamson Pl. (3)	3	0	0	0	0	3	0	3	0	3	12	17
Patriot's Lndng. (1)	2	5	36	0	9	0	61	0	0	0	0	3
Civic Ctr. Phase 2	1	0	0	0	0	2	0	6	0	3	27	3
Civic Ctr. Phase 3	1	0	0	0	0	1	0	4	0	2	26	3
DuPont Corp. Ctr.	3	0	0	0	0	1	0	14	0	2	34	9
DuPont Industrial	1	0	0	0	0	0	0	8	0	0	23	2
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	0	0	1	7	1
Total	**11**	**6**	**45**	**0**	**10**	**7**	**80**	**35**	**0**	**11**	**129**	**38**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

Revised 07/08/2020

3. Center Drive/Bob's Hollow Lane

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	8	0	0	0	0	0	0	0	0	0	0	10
Williamson Pl. (3)	0	0	0	0	0	0	0	9	0	0	32	0
Patriot's Lndng. (1)	6	0	0	0	0	0	0	2	0	0	3	10
Civic Ctr. Phase 2	3	0	0	0	0	0	0	9	0	0	33	7
Civic Ctr. Phase 3	1	0	0	0	0	0	0	6	0	0	31	5
DuPont Corp. Ctr.	1	0	0	0	0	1	0	18	0	1	45	2
DuPont Industrial	1	0	0	0	0	0	0	9	0	0	25	2
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	0	0	0	9	1
Total	**20**	**0**	**0**	**0**	**0**	**1**	**0**	**53**	**0**	**1**	**178**	**37**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

4. Center Drive/Palisade Blvd.

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	0	0	0	0	0	0	8	0	0	10	0
Williamson Pl. (3)	0	0	0	0	0	0	0	9	0	3	32	0
Patriot's Lndng. (1)	0	0	0	0	0	0	0	8	0	0	13	0
Civic Ctr. Phase 2	0	0	0	0	0	4	0	12	0	7	40	0
Civic Ctr. Phase 3	0	0	0	0	0	1	0	7	0	4	36	0
DuPont Corp. Ctr.	0	0	0	0	0	1	0	19	0	2	48	0
DuPont Industrial	0	0	0	0	0	0	0	10	0	0	27	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	0	0	1	10	0
Total	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**73**	**0**	**17**	**216**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

5. Center Drive/Civic Drive

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0		0				0	8			10	0
Williamson Pl. (3)	0		0				0	9			35	0
Patriot's Lndng. (1)	0		0				0	8			13	0
Civic Ctr. Phase 2	12		47				16	0			0	4
Civic Ctr. Phase 3	10		40				8	0			0	2
DuPont Corp. Ctr.	0		0				0	20			50	0
DuPont Industrial	0		0				0	10			27	0
Barksdale Sta. (1)	0		0				0	0			0	0
PW Facility	5		11				0	0			0	0
Total	**27**		**98**				**24**	**55**			**135**	**6**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

Revised 07/08/2020

6. Center Drive/International Place

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	0	8	0	0	10	0	0	0	0	0	0	0
Williamson Pl. (3)	0	9	0	0	35	0	0	0	0	0	0	0
Patriot's Lndg. (1)	0	8	0	0	13	0	0	0	0	0	0	0
Civic Ctr. Phs. 2	0	12	0	0	4	0	0	0	0	0	0	0
Civic Ctr. Phs. 3	0	10	0	0	2	0	0	0	0	0	0	0
DuPont Corp. Ctr.	0	24	0	0	10	0	0	0	0	0	0	0
DuPont Industrial	0	9	0	0	3	0	0	0	0	0	0	0
Barksdale Sta.	0	7	0	0	6	0	0	0	0	0	0	0
PW Facility	0	5	0	0	0	0	0	0	0	0	0	0
Total	**0**	**92**	**0**	**0**	**83**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

7. Center Drive/DuPont Steilacoom Road

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	6		2				2	0			0	8
Williamson Pl. (3)	17		57				14	0			0	6
Patriot's Lndg. (1)	8		0				0	0			0	13
Civic Ctr. Phase 2	9		3				2	0			0	2
Civic Ctr. Phase 3	8		2				1	0			0	1
DuPont Corp. Ctr.	12		12				5	9			21	5
DuPont Ind. (1)	3		6				2	0			0	1
Barksdale Sta. (1)	0		7				6	0			4	0
PW Facility	1		4				0	0			0	0
Total	**64**		**93**				**32**	**9**			**25**	**36**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

8. Barksdale Avenue/DuPont-Steilacoom Road

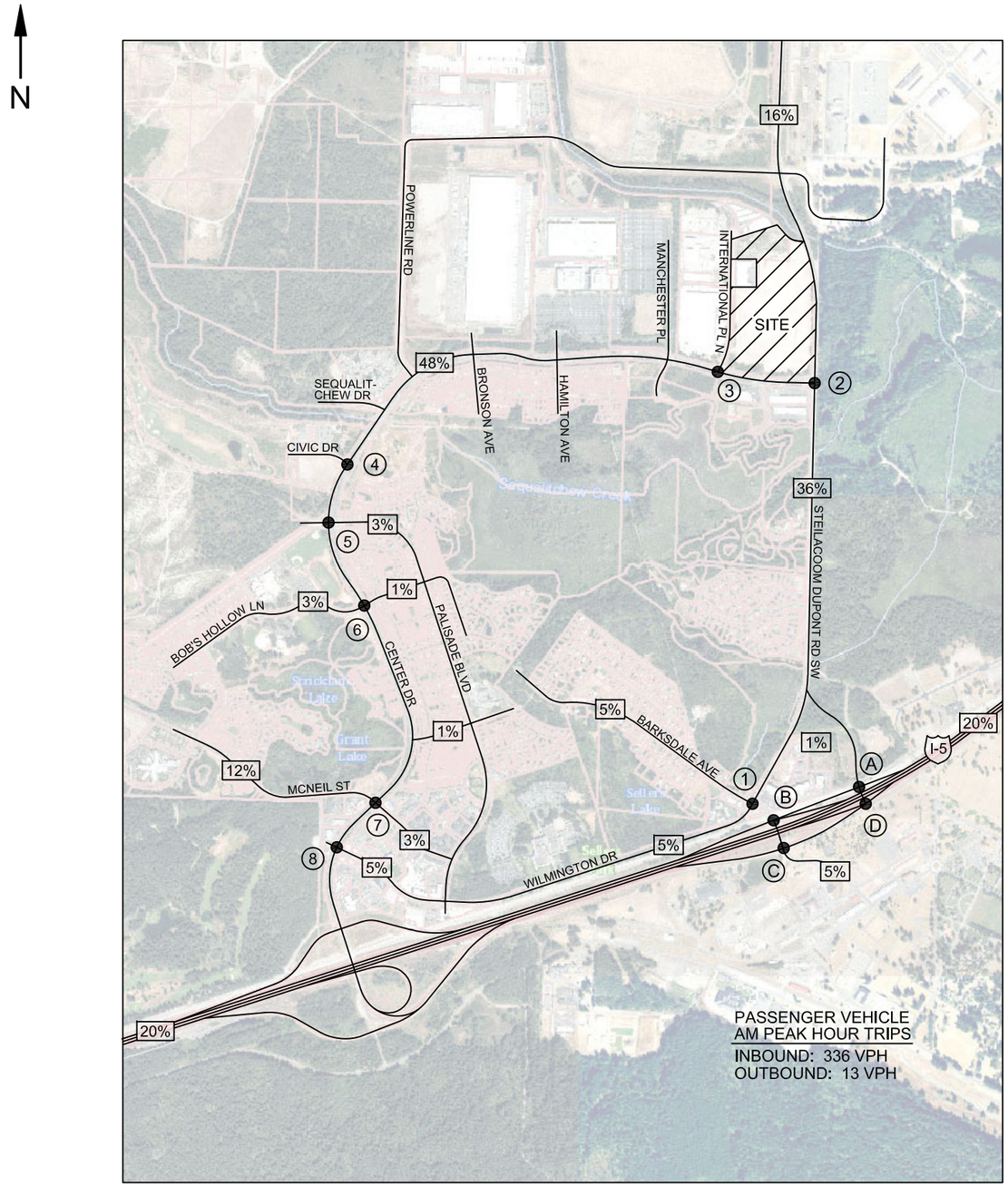
Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	0	0	0	0	0	2	0	0	0	2	0	0
Williamson Pl. (3)	1	0	0	0	0	12	0	1	0	46	6	5
Patriot's Lndg. (1)	0	0	0	0	0	0	0	0	0	0	0	0
Civic Ctr. Phs. 2 (1)	0	0	0	0	0	1	0	0	0	2	0	0
Civic Ctr. Phs. 3 (1)	0	0	0	0	0	0	0	0	0	1	0	0
DuPont Corp. Ctr.	2	0	0	0	0	10	0	2	0	24	4	4
DuPont Ind. (1)	0	0	0	0	0	2	0	0	0	6	0	0
Barksdale Sta. (1)	2	0	0	0	0	16	0	5	0	16	5	2
PW Facility	0	0	0	0	0	0	0	0	0	4	0	0
Total	**5**	**0**	**0**	**0**	**0**	**43**	**0**	**8**	**0**	**101**	**15**	**11**

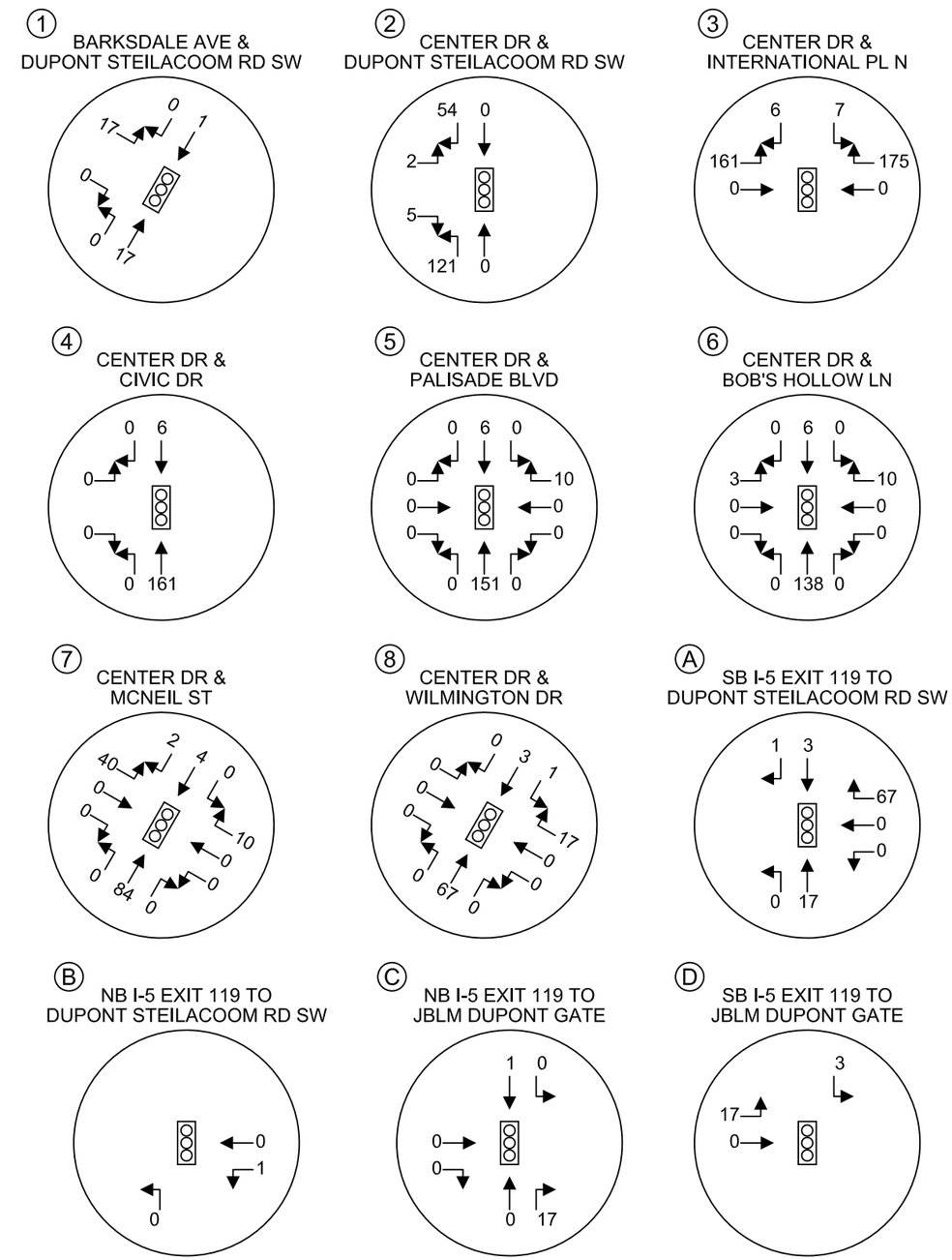
(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal
Barksdale Avenue considered the east-west street

Revised 07/08/2020

APPENDIX

TRIP DISTRIBUTION & ASSIGNMENT
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT





HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT
FIGURE D

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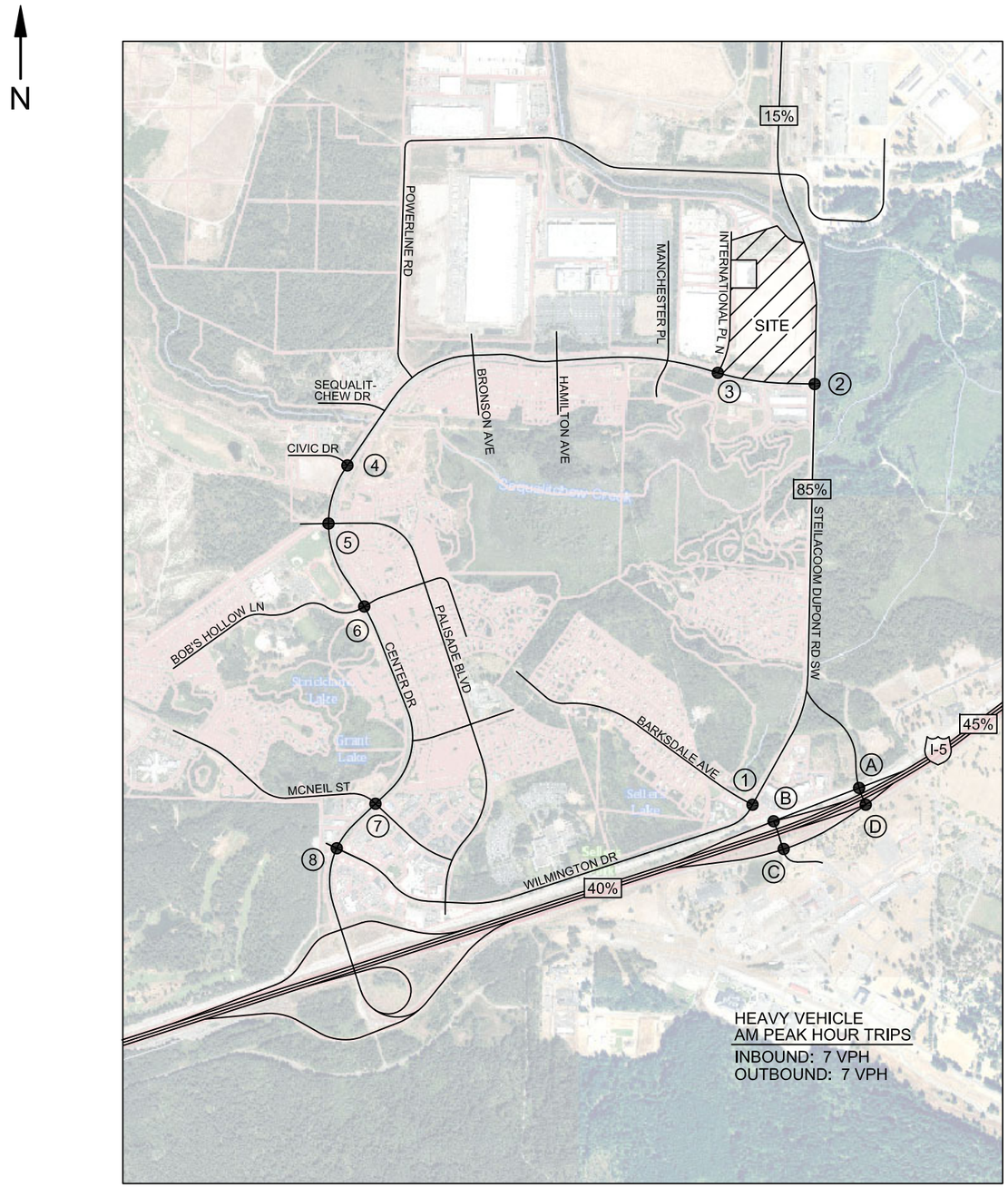

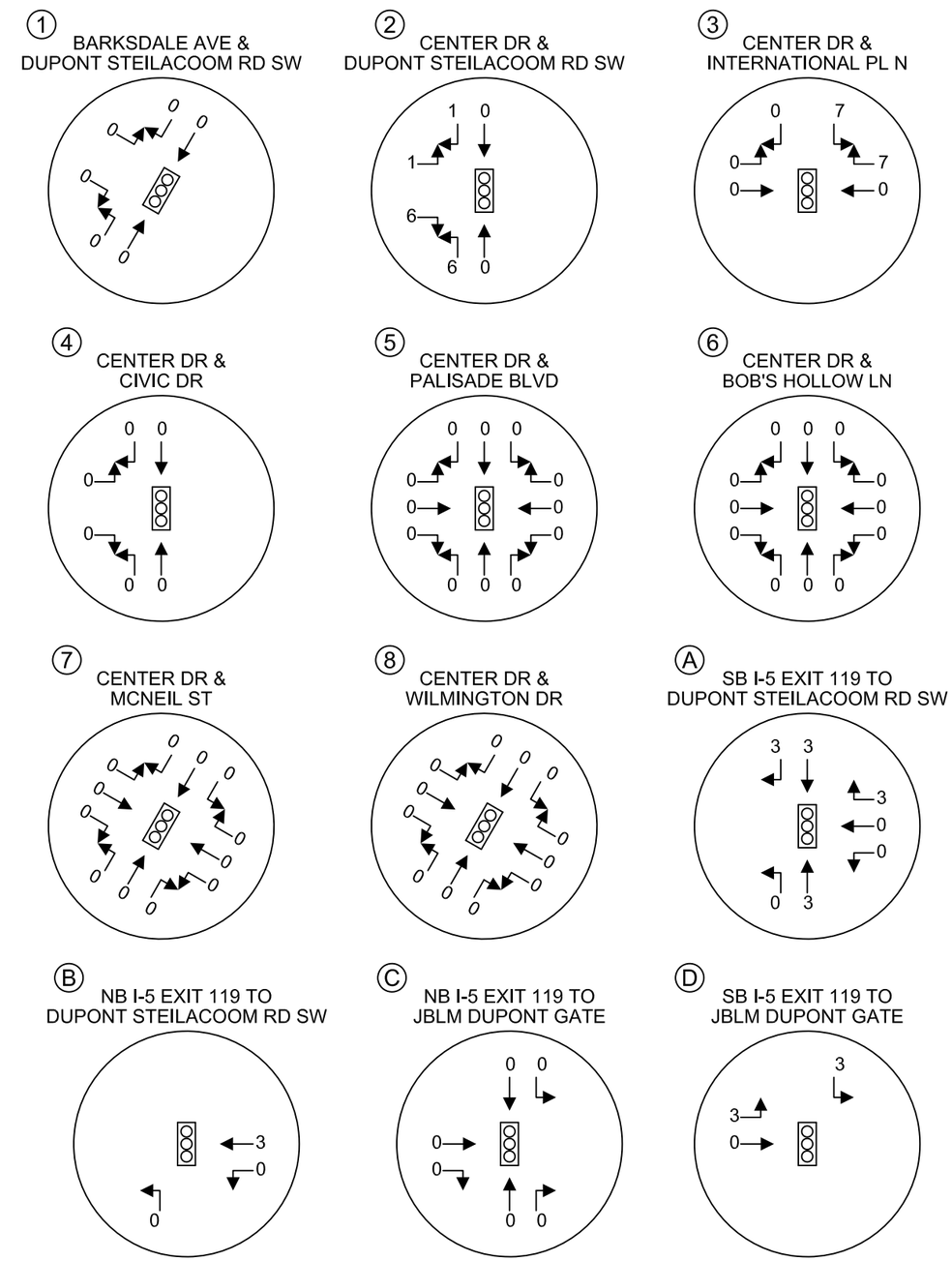

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SNOW BLOSSOM FULFILLMENT CENTER

AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT
FIGURE E

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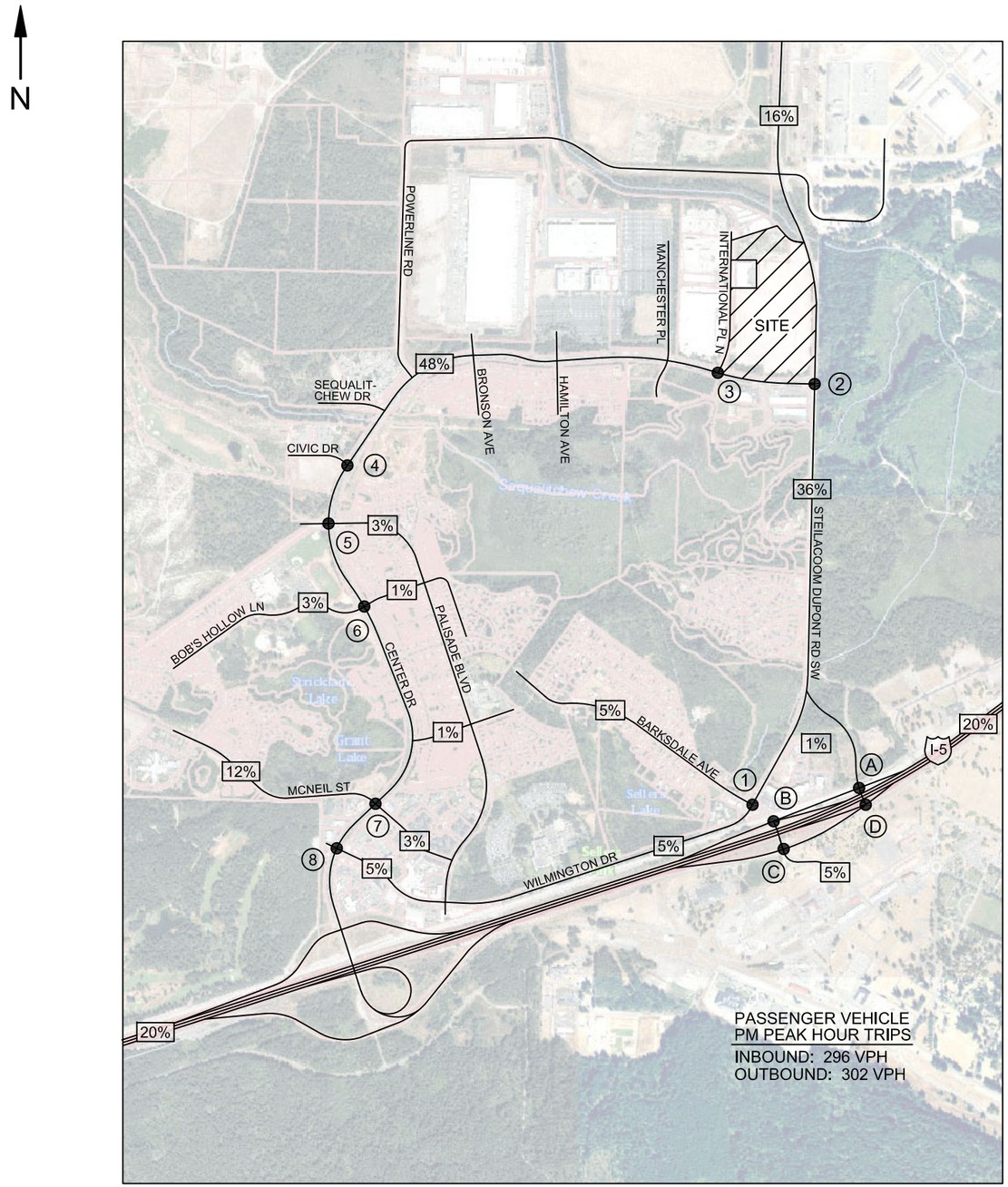

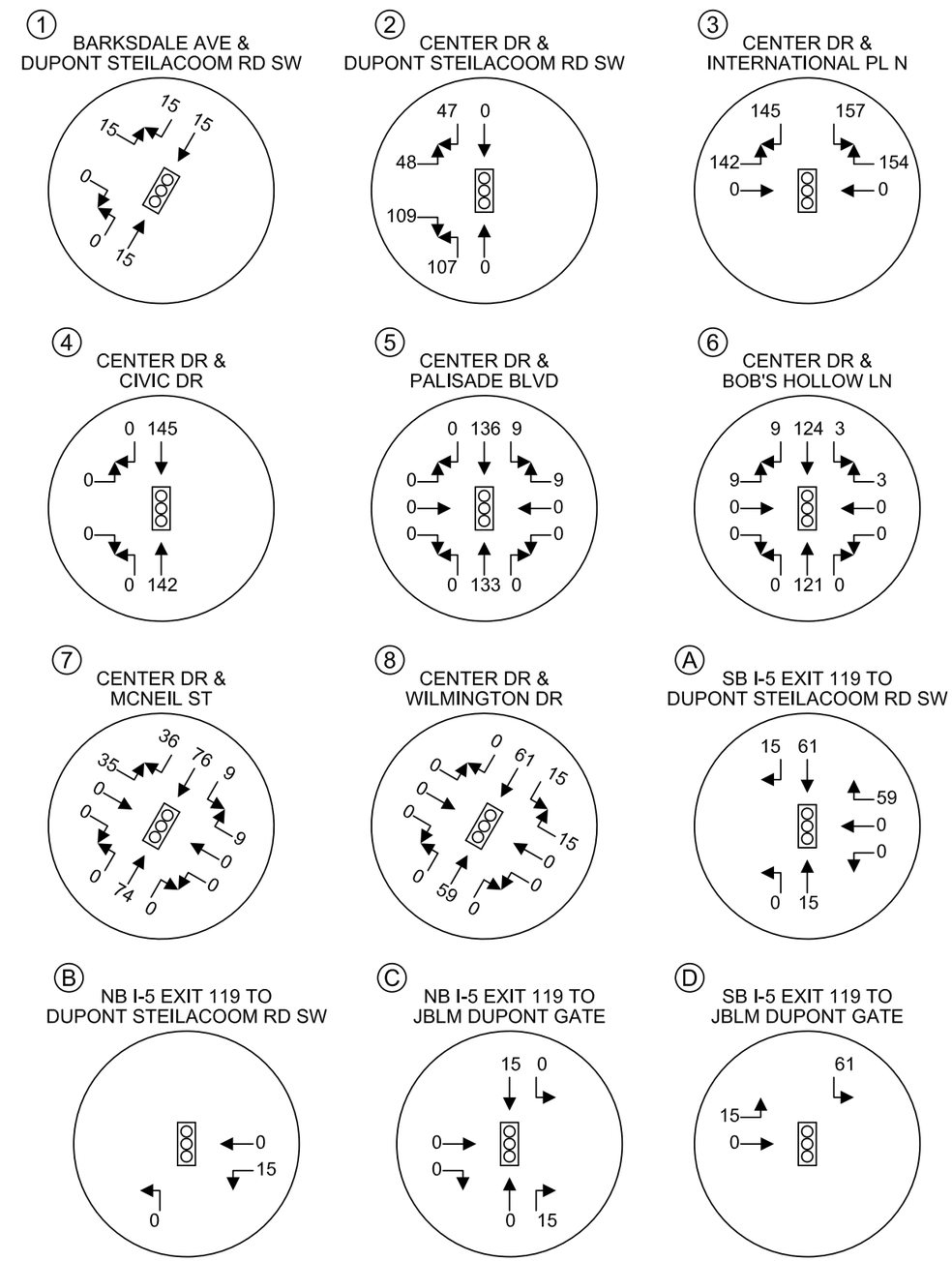

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SNOW BLOSSOM FULFILLMENT CENTER

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT
FIGURE F

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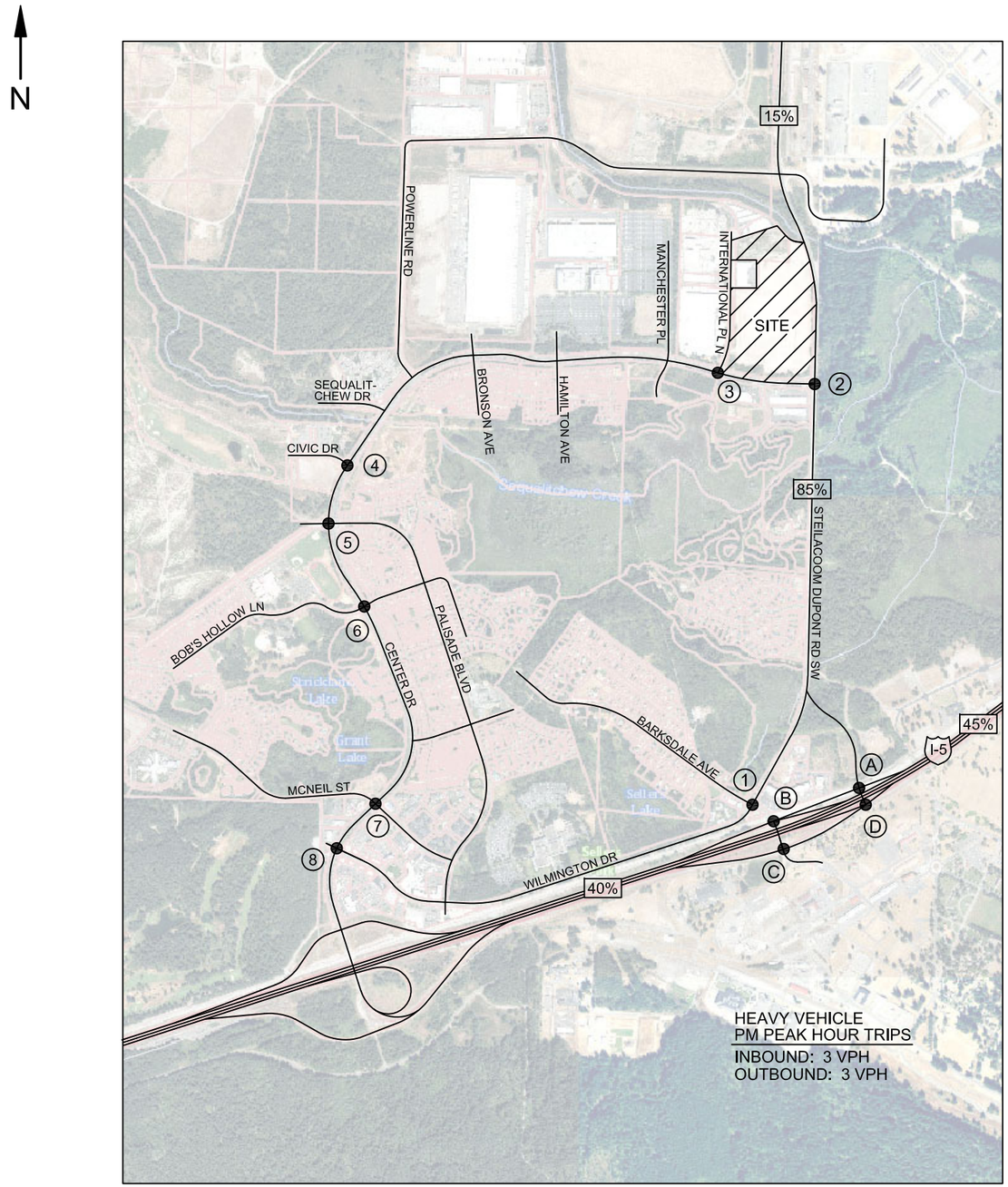

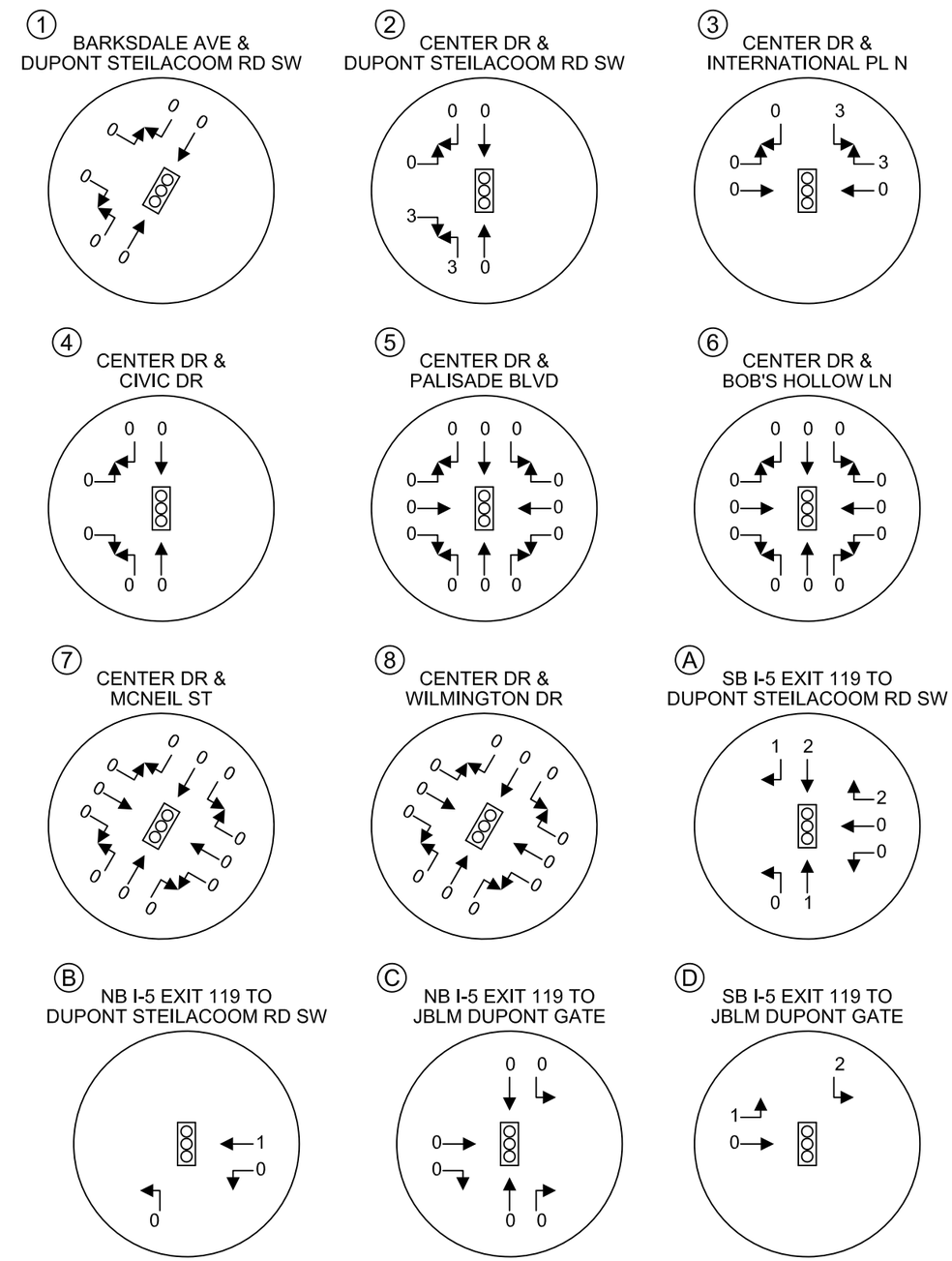

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SNOW BLOSSOM FULFILLMENT CENTER

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT
FIGURE G

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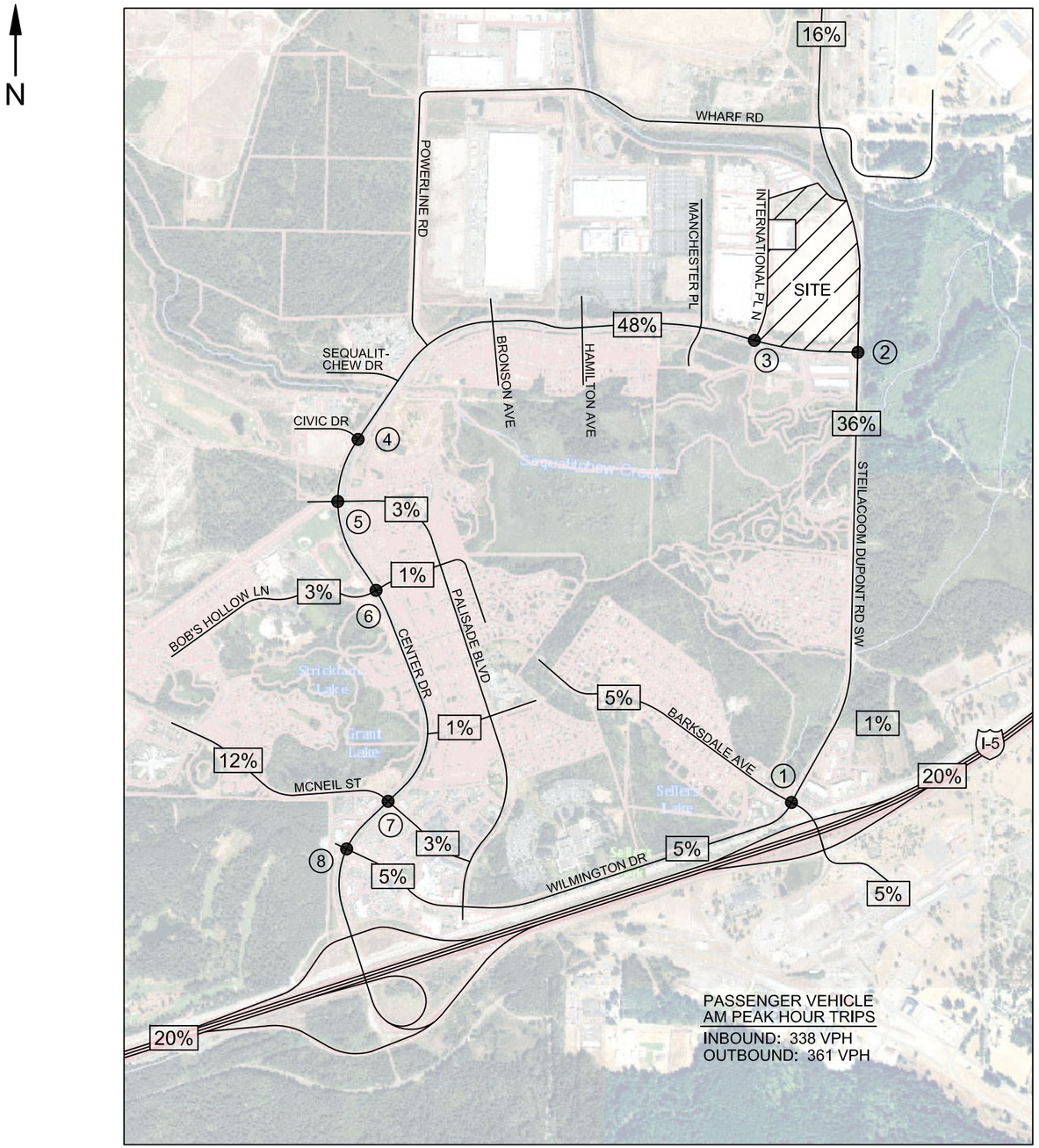
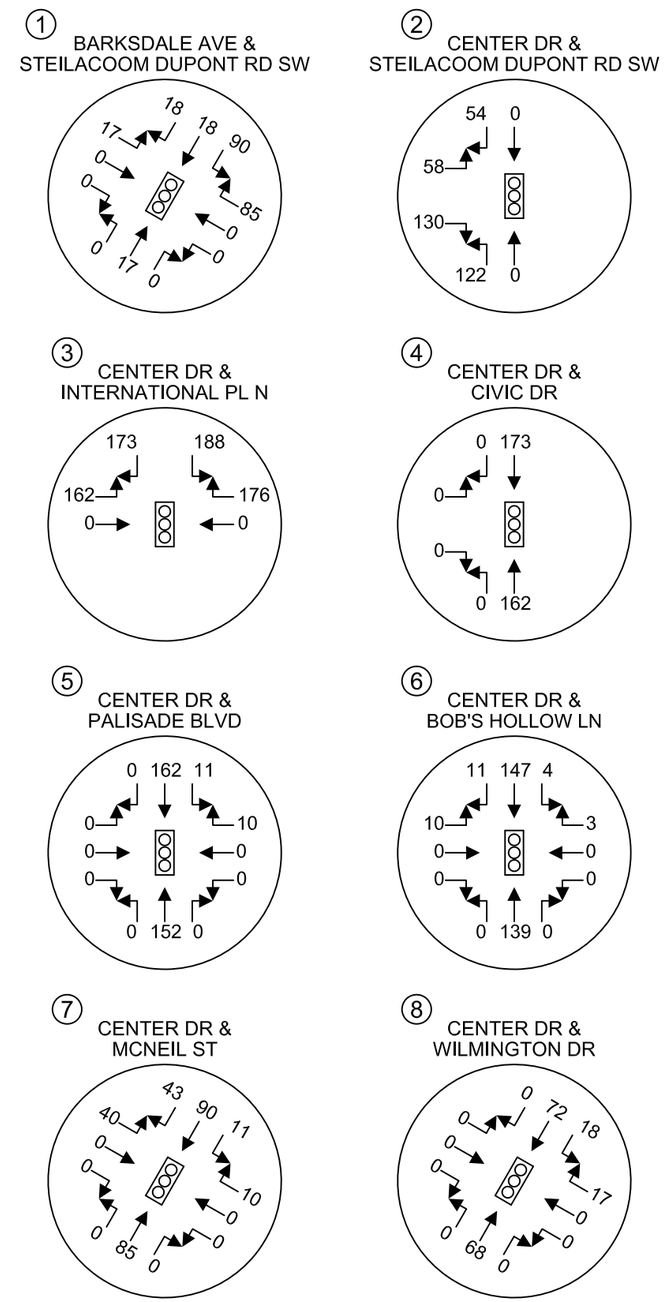
APPENDIX

TRIP DISTRIBUTION & ASSIGNMENT
SCENARIO 3: PEAK SEASON VOLUMES





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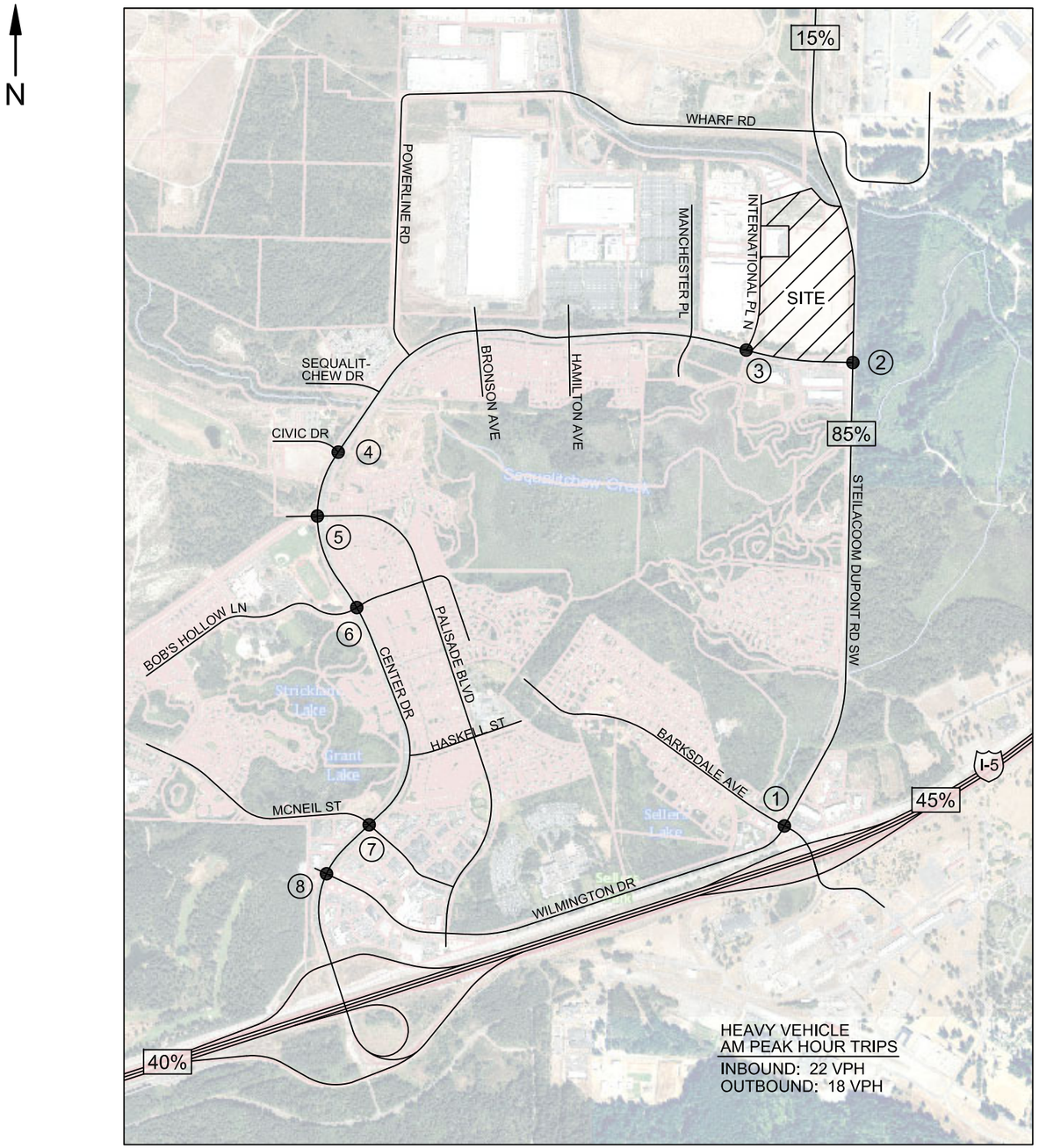
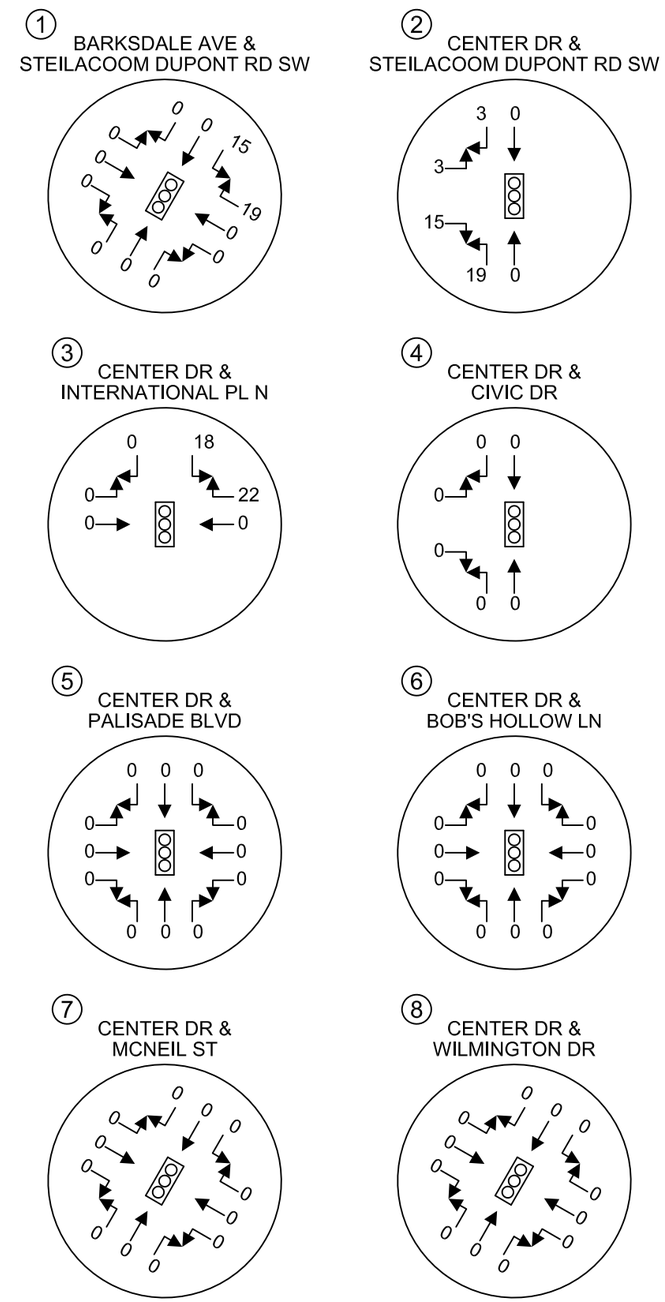
TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES
SCENARIO 3: PEAK SEASON VOLUMES
FIGURE H

2214 Tacoma Road Puyallup WA 98371 (253) 770 1401 Fax (253) 770 1473 heathtraffic.com





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SNOW BLOSSOM FULFILLMENT CENTER

AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES
SCENARIO 3: PEAK SEASON VOLUMES
FIGURE I

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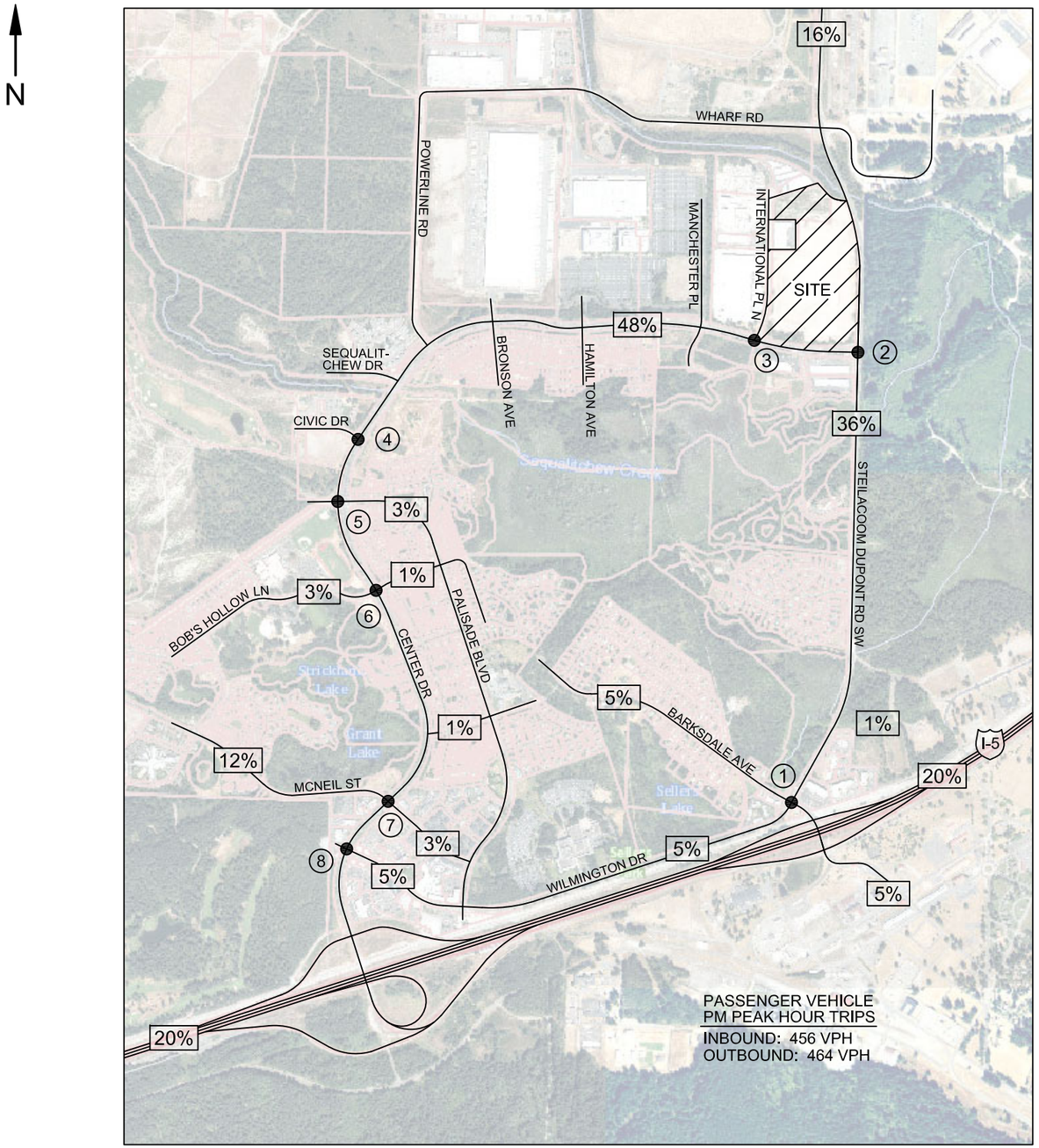

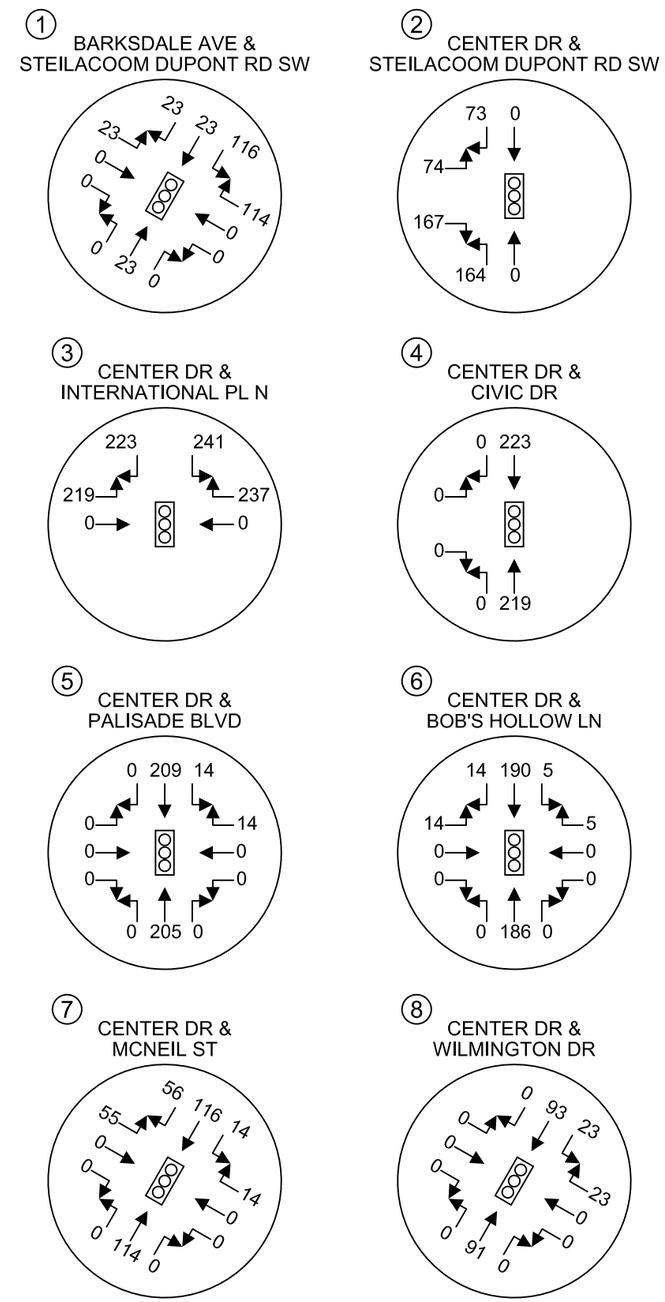

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SNOW BLOSSOM FULFILLMENT CENTER

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES
SCENARIO 3: PEAK SEASON VOLUMES
FIGURE J

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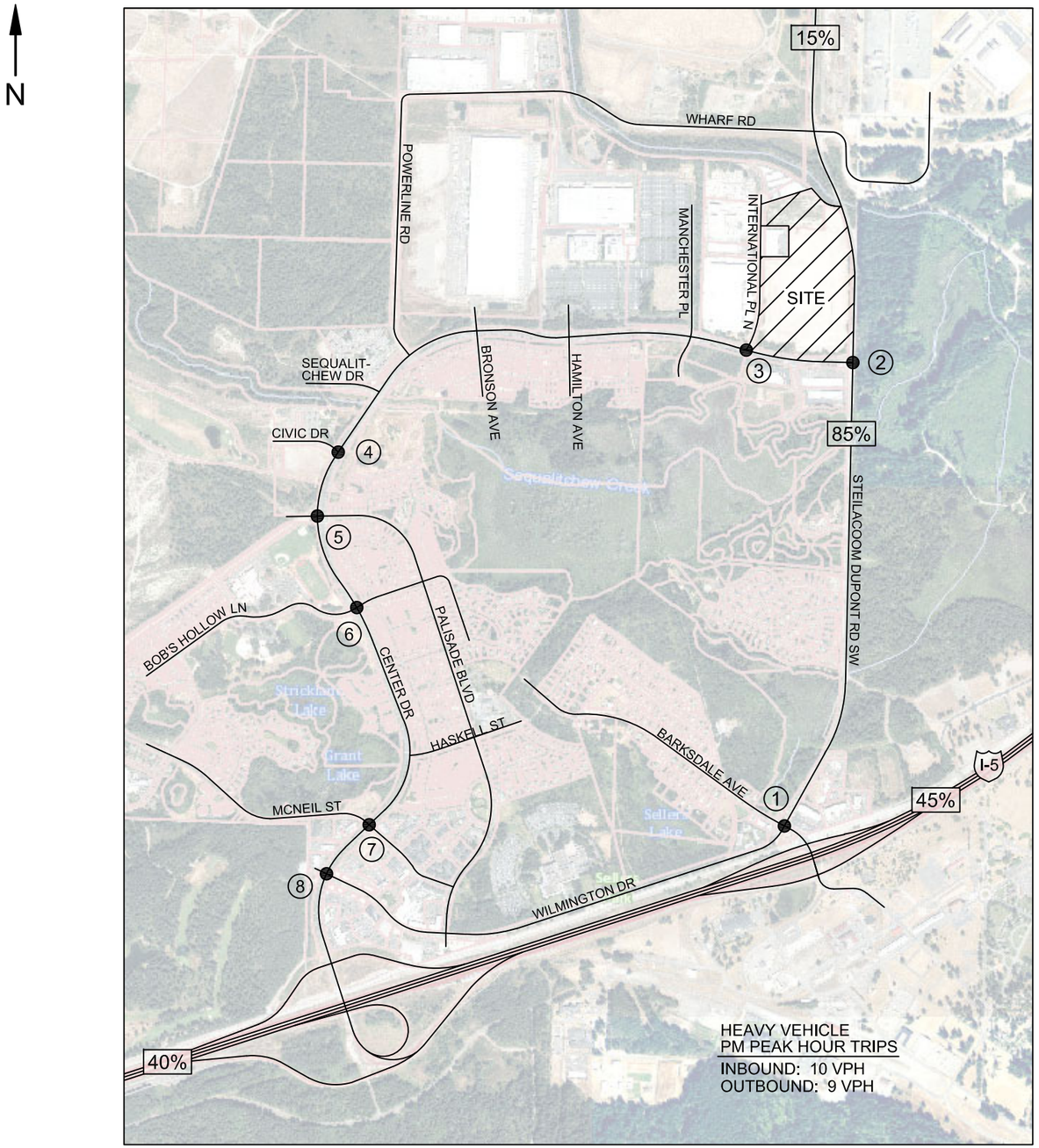

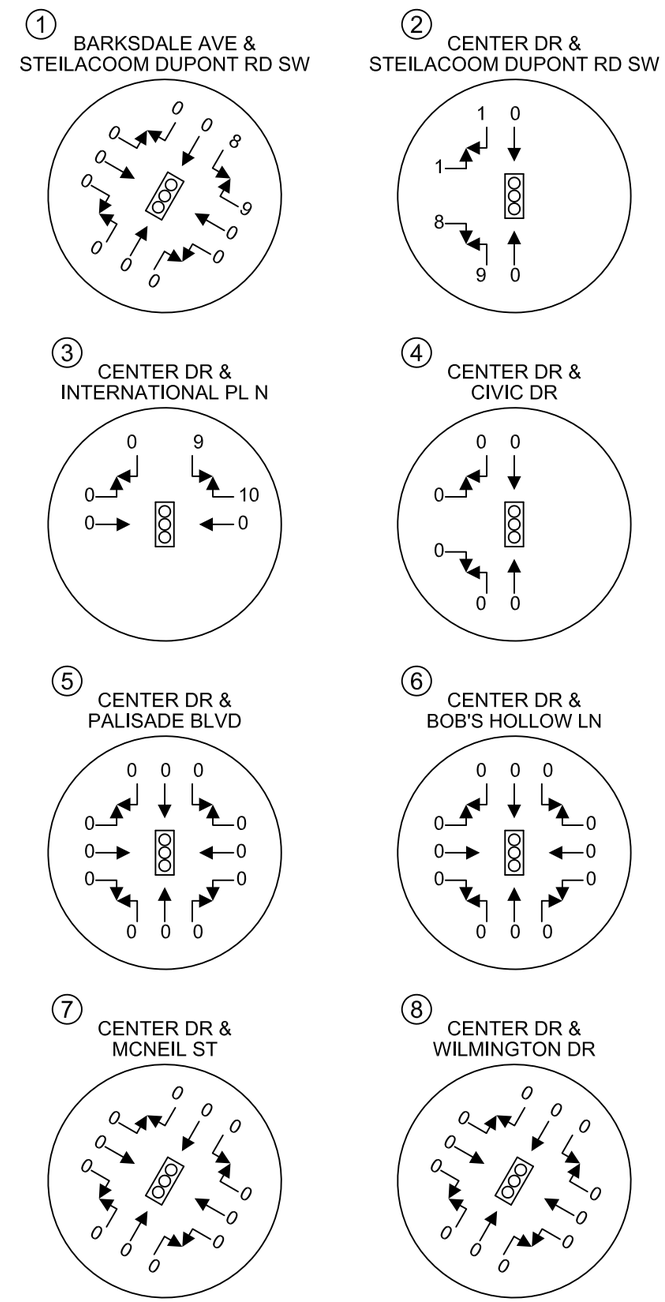

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SNOW BLOSSOM FULFILLMENT CENTER

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES
SCENARIO 3: PEAK SEASON VOLUMES
FIGURE K

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APPENDIX

LEVEL OF SERVICE

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	59	24	200	38	501	9	52	117	509	105	36
Future Volume (vph)	27	59	24	200	38	501	9	52	117	509	105	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99		0.97	0.99		0.97	0.99	0.99	
Frt		0.956				0.850			0.850		0.983	
Flt Protected	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (prot)	1719	1714	0	1752	1845	1568	1770	1863	1583	1633	1639	0
Flt Permitted	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (perm)	1702	1714	0	1737	1845	1519	1758	1863	1533	1618	1630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				533			134		5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	29	63	26	213	40	533	10	55	124	541	112	38
Shared Lane Traffic (%)										36%		
Lane Group Flow (vph)	29	89	0	213	40	533	10	55	124	346	345	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	14.5	26.5		29.5	24.6	24.6	27.5	27.5	27.5	39.5	39.5	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	8.4	10.8		16.7	23.6	23.6	13.4	13.4	13.4	24.5	24.5	
Actuated g/C Ratio	0.11	0.14		0.22	0.32	0.32	0.18	0.18	0.18	0.33	0.33	
v/c Ratio	0.15	0.34		0.54	0.07	0.63	0.03	0.17	0.32	0.65	0.64	
Control Delay	42.9	35.3		37.6	24.7	6.7	37.3	37.4	9.1	32.5	31.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	42.9	35.3		37.6	24.7	6.7	37.3	37.4	9.1	32.5	31.8	
LOS	D	D		D	C	A	D	D	A	C	C	
Approach Delay		37.2			16.0			18.9			32.2	
Approach LOS		D			B			B			C	
Queue Length 50th (ft)	13	33		93	12	0	4	24	0	149	146	
Queue Length 95th (ft)	51	98		220	48	89	22	74	46	348	343	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	283	631		722	1025	1081	671	706	664	878	883	
Starvation Cap Reductn	0	0		0	0	17	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.14		0.30	0.04	0.50	0.01	0.08	0.19	0.39	0.39	

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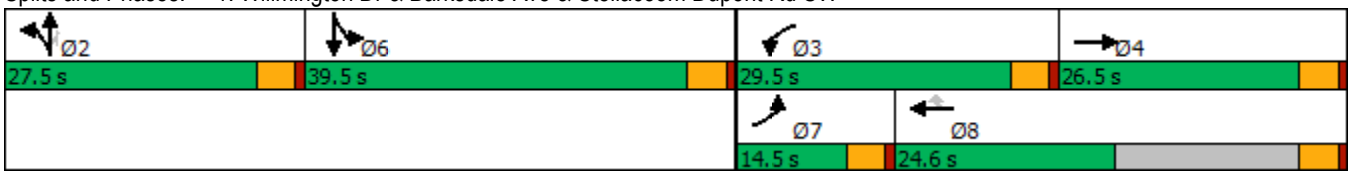
Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 74.8	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 56.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	277	75	151	466	487	285
Future Volume (veh/h)	277	75	151	466	487	285
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1841	1841	1841	1856	1856
Adj Flow Rate, veh/h	308	83	168	518	541	317
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	4	4	3	3
Cap, veh/h	399	355	224	1093	718	595
Arrive On Green	0.23	0.23	0.13	0.59	0.39	0.39
Sat Flow, veh/h	1753	1560	1753	1841	1856	1538
Grp Volume(v), veh/h	308	83	168	518	541	317
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1856	1538
Q Serve(g_s), s	8.3	2.2	4.7	8.0	12.7	8.0
Cycle Q Clear(g_c), s	8.3	2.2	4.7	8.0	12.7	8.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	399	355	224	1093	718	595
V/C Ratio(X)	0.77	0.23	0.75	0.47	0.75	0.53
Avail Cap(c_a), veh/h	1392	1239	1392	2193	2210	1832
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	18.2	15.9	21.2	5.8	13.4	11.9
Incr Delay (d2), s/veh	3.2	0.3	5.0	0.3	1.6	0.7
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	2.1	1.9	1.6	4.2	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.5	16.2	26.2	6.1	15.0	12.7
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	391			686	858	
Approach Delay, s/veh	20.3			11.0	14.1	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.9		15.5	10.4	24.5
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		60.0		40.0	40.0	60.0
Max Q Clear Time (g_c+I1), s		10.0		10.3	6.7	14.7
Green Ext Time (p_c), s		3.3		1.2	0.4	4.8

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	360	475	13	11	0
Future Volume (vph)	3	360	475	13	11	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	
Frt			0.996			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3360	0	902	0
Flt Permitted	0.394				0.950	
Satd. Flow (perm)	732	3539	3360	0	899	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3			
Link Speed (mph)		35	35		25	
Link Distance (ft)		687	519		307	
Travel Time (s)		13.4	10.1		8.4	
Confl. Peds. (#/hr)	2			2	2	2
Confl. Bikes (#/hr)				1		1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	5%	75%	100%	0%
Adj. Flow (vph)	3	375	495	14	11	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	375	509	0	11	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Total Split (s)	26.0	93.0	67.0		27.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	26.4	30.8	29.5		6.5	
Actuated g/C Ratio	0.81	0.94	0.90		0.20	
v/c Ratio	0.00	0.11	0.17		0.06	
Control Delay	1.7	1.0	2.6		16.4	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	1.7	1.0	2.6		16.4	
LOS	A	A	A		B	
Approach Delay		1.0	2.6		16.4	
Approach LOS		A	A		B	
Queue Length 50th (ft)	0	0	0		1	
Queue Length 95th (ft)	2	26	71		16	
Internal Link Dist (ft)		607	439		227	
Turn Bay Length (ft)	150					
Base Capacity (vph)	1337	3539	3360		679	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.00	0.11	0.15		0.02	

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Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 32.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.17	
Intersection Signal Delay: 2.1	Intersection LOS: A
Intersection Capacity Utilization 26.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	8	17	318	311	7
Future Volume (veh/h)	1	8	17	318	311	7
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1737	1737	1856	1856	1841	1841
Adj Flow Rate, veh/h	1	9	19	349	342	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	11	11	3	3	4	4
Cap, veh/h	22	20	624	1916	1037	24
Arrive On Green	0.01	0.01	0.03	0.54	0.30	0.30
Sat Flow, veh/h	1654	1472	1767	3618	3583	81
Grp Volume(v), veh/h	1	9	19	349	171	179
Grp Sat Flow(s),veh/h/ln	1654	1472	1767	1763	1749	1823
Q Serve(g_s), s	0.0	0.1	0.1	1.0	1.5	1.6
Cycle Q Clear(g_c), s	0.0	0.1	0.1	1.0	1.5	1.6
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	22	20	624	1916	519	542
V/C Ratio(X)	0.04	0.45	0.03	0.18	0.33	0.33
Avail Cap(c_a), veh/h	407	362	2102	15009	5551	5788
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	9.9	9.9	3.8	2.3	5.6	5.6
Incr Delay (d2), s/veh	0.8	15.2	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.7	25.2	3.8	2.4	5.9	5.9
LnGrp LOS	B	C	A	A	A	A
Approach Vol, veh/h	10			368	350	
Approach Delay, s/veh	23.7			2.5	5.9	
Approach LOS	C			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		15.5		4.8	5.0	10.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		86.5		5.0	17.5	64.5
Max Q Clear Time (g_c+I1), s		3.0		2.1	2.1	3.6
Green Ext Time (p_c), s		2.5		0.0	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	4.4
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	0	35	0	313	14	23	287	0
Future Volume (veh/h)	0	0	0	21	0	35	0	313	14	23	287	0
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	0.98		0.98	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	1900	1900	1900	1870	1900	1870	1900	1870	1870	1826	1826	1900
Adj Flow Rate, veh/h	0	0	0	23	0	39	0	348	16	26	319	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	2	0	2	0	2	2	5	5	0
Cap, veh/h	0	136	0	373	0	111	7	1360	62	46	2045	0
Arrive On Green	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.39	0.39	0.03	0.59	0.00
Sat Flow, veh/h	0	1900	0	1416	0	1550	1810	3455	158	1739	3561	0
Grp Volume(v), veh/h	0	0	0	23	0	39	0	178	186	26	319	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1416	0	1550	1810	1777	1837	1739	1735	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.6	0.0	1.8	1.8	0.4	1.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	0.0	0.6	0.0	1.8	1.8	0.4	1.1	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	0	136	0	373	0	111	7	699	723	46	2045	0
V/C Ratio(X)	0.00	0.00	0.00	0.06	0.00	0.35	0.00	0.26	0.26	0.57	0.16	0.00
Avail Cap(c_a), veh/h	0	2148	0	1872	0	1752	1364	4018	4153	1311	7844	0
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	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	11.6	0.0	11.7	0.0	5.4	5.4	12.8	2.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	1.9	0.0	0.2	0.2	10.6	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	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.3	0.3	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	11.7	0.0	13.6	0.0	5.6	5.6	23.4	2.5	0.0
LnGrp LOS	A	A	A	B	A	B	A	A	A	C	A	A
Approach Vol, veh/h		0			62			364			345	
Approach Delay, s/veh		0.0			12.9			5.6			4.1	
Approach LOS					B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	14.9		6.4	0.0	20.1		6.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.4	3.8		0.0	0.0	3.1		2.6
Green Ext Time (p_c), s	0.0	2.2		0.0	0.0	2.2		0.2

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	22	76	32	8	10	65	157	13	10	148	153
Future Volume (veh/h)	163	22	76	32	8	10	65	157	13	10	148	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.97	0.99		0.92
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	1856	1856	1856	1885	1885	1885	1885	1885	1885	1826	1826	1826
Adj Flow Rate, veh/h	206	28	96	41	10	13	82	199	16	13	187	194
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	1	1	1	1	1	1	5	5	5
Cap, veh/h	399	61	130	405	103	93	493	1151	92	521	477	391
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.09	0.34	0.34	0.02	0.27	0.27
Sat Flow, veh/h	846	200	429	861	340	306	1795	3351	267	1739	1735	1424
Grp Volume(v), veh/h	330	0	0	64	0	0	82	105	110	13	187	194
Grp Sat Flow(s),veh/h/ln	1476	0	0	1506	0	0	1795	1791	1827	1739	1735	1424
Q Serve(g_s), s	7.1	0.0	0.0	0.0	0.0	0.0	1.2	1.7	1.7	0.2	3.6	4.7
Cycle Q Clear(g_c), s	8.2	0.0	0.0	1.0	0.0	0.0	1.2	1.7	1.7	0.2	3.6	4.7
Prop In Lane	0.62		0.29	0.64		0.20	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	589	0	0	600	0	0	493	615	627	521	477	391
V/C Ratio(X)	0.56	0.00	0.00	0.11	0.00	0.00	0.17	0.17	0.17	0.02	0.39	0.50
Avail Cap(c_a), veh/h	1209	0	0	1197	0	0	1207	2615	2667	1333	2533	2079
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	0.0	0.0	10.3	0.0	0.0	8.9	9.4	9.4	10.3	12.1	12.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.5	1.0
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	2.4	0.0	0.0	0.4	0.0	0.0	0.4	0.5	0.5	0.1	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	0.0	10.4	0.0	0.0	9.1	9.5	9.6	10.3	12.6	13.5
LnGrp LOS	B	A	A	B	A	A	A	A	A	B	B	B
Approach Vol, veh/h		330			64			297			394	
Approach Delay, s/veh		13.6			10.4			9.4			13.0	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	18.7		16.9	8.2	15.9		16.9
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.2	3.7		10.2	3.2	6.7		3.0
Green Ext Time (p_c), s	0.0	1.3		2.1	0.1	2.6		0.3

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

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Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	41	49	319	26	17	14	139	199	72	21	243	22
Future Volume (veh/h)	41	49	319	26	17	14	139	199	72	21	243	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1796	1796	1796	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	44	53	343	28	18	15	149	214	77	23	261	24
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	7	7	7	1	1	1	1	1	1
Cap, veh/h	311	317	655	340	177	476	237	755	262	62	644	59
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.13	0.29	0.29	0.03	0.19	0.19
Sat Flow, veh/h	563	1116	1566	610	625	1493	1795	2583	896	1795	3307	301
Grp Volume(v), veh/h	97	0	343	46	0	15	149	146	145	23	140	145
Grp Sat Flow(s),veh/h/ln	1679	0	1566	1235	0	1493	1795	1791	1689	1795	1791	1817
Q Serve(g_s), s	0.0	0.0	5.7	0.0	0.0	0.2	2.7	2.2	2.3	0.4	2.4	2.4
Cycle Q Clear(g_c), s	1.3	0.0	5.7	1.3	0.0	0.2	2.7	2.2	2.3	0.4	2.4	2.4
Prop In Lane	0.45		1.00	0.61		1.00	1.00		0.53	1.00		0.17
Lane Grp Cap(c), veh/h	628	0	655	518	0	476	237	523	493	62	349	354
V/C Ratio(X)	0.15	0.00	0.52	0.09	0.00	0.03	0.63	0.28	0.29	0.37	0.40	0.41
Avail Cap(c_a), veh/h	1568	0	1566	1193	0	1344	1036	3100	2923	1036	3100	3145
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	7.6	9.1	0.0	8.1	14.2	9.5	9.5	16.4	12.2	12.2
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.1	0.0	0.0	2.7	0.3	0.3	3.7	0.7	0.8
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	0.5	0.0	1.2	0.2	0.0	0.1	1.0	0.6	0.6	0.2	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	0.0	8.2	9.2	0.0	8.2	17.0	9.7	9.8	20.1	12.9	13.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	C	B	B
Approach Vol, veh/h		440			61			440			308	
Approach Delay, s/veh		8.5			8.9			12.2			13.5	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.3	5.7	14.6		14.3	9.1	11.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		30.0	20.0	60.0		30.0	20.0	60.0				
Max Q Clear Time (g_c+I1), s		3.3	2.4	4.3		7.7	4.7	4.4				
Green Ext Time (p_c), s		0.3	0.0	1.8		1.8	0.3	1.7				

Intersection Summary	
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	14	35	62	15	43	55	355	207	56	551	6
Future Volume (veh/h)	1	14	35	62	15	43	55	355	207	56	551	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	1	15	36	65	16	45	57	370	216	58	574	6
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	408	78	188	417	69	195	525	730	419	513	1224	13
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.06	0.34	0.34	0.06	0.34	0.34
Sat Flow, veh/h	1348	486	1167	1360	431	1212	1795	2171	1245	1795	3630	38
Grp Volume(v), veh/h	1	0	51	65	0	61	57	304	282	58	283	297
Grp Sat Flow(s),veh/h/ln	1348	0	1653	1360	0	1643	1795	1791	1625	1795	1791	1877
Q Serve(g_s), s	0.0	0.0	0.8	1.3	0.0	1.0	0.6	4.2	4.3	0.6	3.8	3.8
Cycle Q Clear(g_c), s	1.0	0.0	0.8	2.2	0.0	1.0	0.6	4.2	4.3	0.6	3.8	3.8
Prop In Lane	1.00		0.71	1.00		0.74	1.00		0.77	1.00		0.02
Lane Grp Cap(c), veh/h	408	0	266	417	0	265	525	602	547	513	604	633
V/C Ratio(X)	0.00	0.00	0.19	0.16	0.00	0.23	0.11	0.50	0.52	0.11	0.47	0.47
Avail Cap(c_a), veh/h	1506	0	1612	1525	0	1603	1581	3494	3171	1566	3494	3663
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	0.0	11.2	12.1	0.0	11.2	6.0	8.2	8.2	6.0	8.0	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.2	0.0	0.4	0.1	0.7	0.8	0.1	0.6	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	0.0	0.0	0.3	0.3	0.0	0.3	0.1	1.1	1.0	0.1	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	0.0	11.5	12.3	0.0	11.7	6.1	8.8	8.9	6.1	8.6	8.6
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		52			126			643			638	
Approach Delay, s/veh		11.5			12.0			8.6			8.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.5	14.8		9.5	6.4	14.9		9.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.6	6.3		3.0	2.6	5.8		4.2
Green Ext Time (p_c), s	0.1	4.1		0.2	0.1	3.8		0.5

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	50	17	141	73	473	22	111	223	610	83	38
Future Volume (vph)	32	50	17	141	73	473	22	111	223	610	83	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.96	0.99	0.99	
Frt		0.961				0.850			0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (prot)	1770	1772	0	1752	1845	1568	1787	1881	1599	1681	1679	0
Flt Permitted	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (perm)	1742	1772	0	1725	1845	1508	1769	1881	1537	1657	1663	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				488			230		5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	33	52	18	145	75	488	23	114	230	629	86	39
Shared Lane Traffic (%)										40%		
Lane Group Flow (vph)	33	70	0	145	75	488	23	114	230	377	377	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	14.5	26.5		29.5	24.6	24.6	27.5	27.5	27.5	39.5	39.5	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	7.7	9.5		12.5	16.7	16.7	12.6	12.6	12.6	24.5	24.5	
Actuated g/C Ratio	0.10	0.13		0.17	0.22	0.22	0.17	0.17	0.17	0.33	0.33	
v/c Ratio	0.18	0.30		0.50	0.18	0.68	0.08	0.36	0.51	0.69	0.69	
Control Delay	41.2	33.7		39.6	29.3	8.7	34.5	37.6	10.0	31.8	31.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.2	33.7		39.6	29.3	8.7	34.5	37.6	10.0	31.8	31.3	
LOS	D	C		D	C	A	C	D	A	C	C	
Approach Delay		36.1			17.2			20.1			31.6	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	14	25		61	29	0	9	48	0	152	150	
Queue Length 95th (ft)	53	77		155	79	90	38	126	68	354	350	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	257	575		637	991	1035	598	629	667	856	857	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.12		0.23	0.08	0.47	0.04	0.18	0.34	0.44	0.44	

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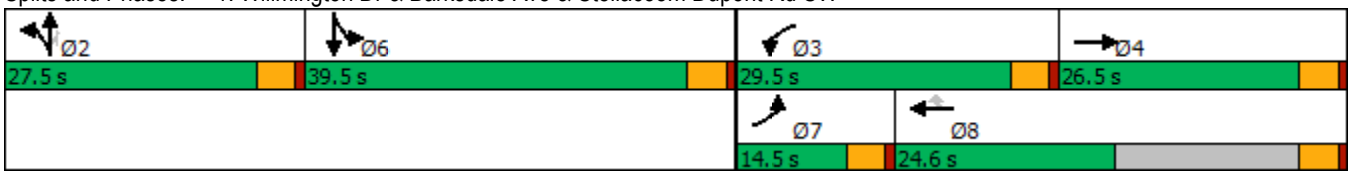
Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 75.2	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.69	
Intersection Signal Delay: 24.4	Intersection LOS: C
Intersection Capacity Utilization 55.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	219	98	109	497	602	418
Future Volume (veh/h)	219	98	109	497	602	418
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1841	1841	1841	1885	1885
Adj Flow Rate, veh/h	238	107	118	540	654	454
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	1	1
Cap, veh/h	329	292	158	1163	869	720
Arrive On Green	0.19	0.19	0.09	0.63	0.46	0.46
Sat Flow, veh/h	1753	1560	1753	1841	1885	1561
Grp Volume(v), veh/h	238	107	118	540	654	454
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1885	1561
Q Serve(g_s), s	6.3	3.0	3.3	7.6	14.2	11.0
Cycle Q Clear(g_c), s	6.3	3.0	3.3	7.6	14.2	11.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	329	292	158	1163	869	720
V/C Ratio(X)	0.72	0.37	0.75	0.46	0.75	0.63
Avail Cap(c_a), veh/h	1410	1255	1410	2221	2274	1883
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	19.0	17.6	22.1	4.8	11.1	10.2
Incr Delay (d2), s/veh	3.0	0.8	6.9	0.3	1.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.1	1.4	1.3	4.2	2.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.0	18.4	29.0	5.1	12.4	11.1
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	345			658	1108	
Approach Delay, s/veh	20.9			9.4	11.9	
Approach LOS	C			A	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.4		13.3	8.5	27.9
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		60.0		40.0	40.0	60.0
Max Q Clear Time (g_c+I1), s		9.6		8.3	5.3	16.2
Green Ext Time (p_c), s		3.5		1.1	0.3	6.7

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	235	589	6	13	1
Future Volume (vph)	1	235	589	6	13	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	
Frt			0.998		0.991	
Flt Protected	0.950				0.955	
Satd. Flow (prot)	1736	3471	3531	0	1761	0
Flt Permitted	0.349				0.955	
Satd. Flow (perm)	637	3471	3531	0	1757	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			1		1	
Link Speed (mph)		30	30		30	
Link Distance (ft)		687	519		294	
Travel Time (s)		15.6	11.8		6.7	
Confl. Peds. (#/hr)	1			1	1	1
Confl. Bikes (#/hr)				4		4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	1	261	654	7	14	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	261	661	0	15	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	7	4	8		6	
Permitted Phases	4					
Total Split (s)	16.0	91.0	75.0		29.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	31.4	36.3	35.2		7.9	
Actuated g/C Ratio	0.81	0.93	0.90		0.20	
v/c Ratio	0.00	0.08	0.21		0.04	
Control Delay	3.0	1.7	3.4		16.9	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	3.0	1.7	3.4		16.9	
LOS	A	A	A		B	
Approach Delay		1.7	3.4		16.9	
Approach LOS		A	A		B	
Queue Length 50th (ft)	0	0	0		2	
Queue Length 95th (ft)	2	34	128		20	
Internal Link Dist (ft)		607	439		214	
Turn Bay Length (ft)	150					
Base Capacity (vph)	897	3471	3453		1311	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.00	0.08	0.19		0.01	

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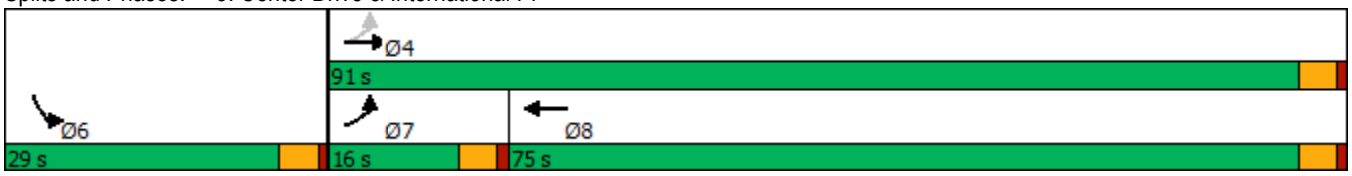
Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 38.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.21	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 28.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	12	4	292	406	5
Future Volume (veh/h)	7	12	4	292	406	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	7	13	4	307	427	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	47	42	581	1959	1189	14
Arrive On Green	0.03	0.03	0.01	0.55	0.33	0.33
Sat Flow, veh/h	1795	1598	1795	3676	3719	42
Grp Volume(v), veh/h	7	13	4	307	211	221
Grp Sat Flow(s),veh/h/ln	1795	1598	1795	1791	1791	1876
Q Serve(g_s), s	0.1	0.2	0.0	0.9	1.9	1.9
Cycle Q Clear(g_c), s	0.1	0.2	0.0	0.9	1.9	1.9
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	47	42	581	1959	587	615
V/C Ratio(X)	0.15	0.31	0.01	0.16	0.36	0.36
Avail Cap(c_a), veh/h	2001	1781	1891	14865	5734	6007
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	10.0	10.1	3.8	2.4	5.4	5.4
Incr Delay (d2), s/veh	1.4	4.1	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.5	14.2	3.8	2.4	5.8	5.8
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	20			311	432	
Approach Delay, s/veh	13.2			2.4	5.8	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		16.0		5.1	4.6	11.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		87.5		23.5	15.5	67.5
Max Q Clear Time (g_c+I1), s		2.9		2.2	2.0	3.9
Green Ext Time (p_c), s		2.1		0.0	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	4.6
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	23	1	22	8	282	32	32	466	4
Future Volume (veh/h)	0	0	7	23	1	22	8	282	32	32	466	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	1.00		0.97	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	1900	1900	1900	1885	1900	1885	1900	1885	1885	1885	1885	1900
Adj Flow Rate, veh/h	0	0	8	25	1	24	9	307	35	35	507	4
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, %	0	0	0	1	0	1	0	1	1	1	1	0
Cap, veh/h	0	0	105	352	3	104	18	1253	141	62	1501	12
Arrive On Green	0.00	0.00	0.07	0.07	0.07	0.07	0.01	0.39	0.39	0.03	0.41	0.41
Sat Flow, veh/h	0	0	1577	1272	51	1565	1810	3234	365	1795	3641	29
Grp Volume(v), veh/h	0	0	8	26	0	24	9	169	173	35	249	262
Grp Sat Flow(s),veh/h/ln	0	0	1577	1323	0	1565	1810	1791	1808	1795	1791	1879
Q Serve(g_s), s	0.0	0.0	0.1	0.5	0.0	0.4	0.1	1.7	1.7	0.5	2.5	2.5
Cycle Q Clear(g_c), s	0.0	0.0	0.1	0.6	0.0	0.4	0.1	1.7	1.7	0.5	2.5	2.5
Prop In Lane	0.00		1.00	0.96		1.00	1.00		0.20	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	105	356	0	104	18	694	701	62	738	774
V/C Ratio(X)	0.00	0.00	0.08	0.07	0.00	0.23	0.51	0.24	0.25	0.57	0.34	0.34
Avail Cap(c_a), veh/h	0	0	1793	1882	0	1779	1372	4073	4112	1361	4073	4274
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	11.6	11.8	0.0	11.7	13.0	5.5	5.5	12.5	5.3	5.3
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.1	0.0	1.1	21.4	0.2	0.2	8.0	0.3	0.3
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	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.3	0.3	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	11.9	11.9	0.0	12.8	34.4	5.6	5.7	20.5	5.6	5.6
LnGrp LOS	A	A	B	B	A	B	C	A	A	C	A	A
Approach Vol, veh/h		8			50			351			546	
Approach Delay, s/veh		11.9			12.3			6.4			6.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	14.7		6.3	4.8	15.4		6.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.5	3.7		2.1	2.1	4.5		2.6
Green Ext Time (p_c), s	0.0	2.1		0.0	0.0	3.2		0.2

Intersection Summary	
HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	10	64	17	19	9	58	161	31	20	268	212
Future Volume (veh/h)	152	10	64	17	19	9	58	161	31	20	268	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	0.99		0.97	0.99		0.96
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	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	160	11	67	18	20	9	61	169	33	21	282	223
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	381	41	100	244	232	80	492	1030	196	613	571	434
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.08	0.35	0.35	0.03	0.30	0.30
Sat Flow, veh/h	884	168	412	434	960	330	1795	2983	568	1795	1898	1443
Grp Volume(v), veh/h	238	0	0	47	0	0	61	100	102	21	265	240
Grp Sat Flow(s),veh/h/ln	1465	0	0	1725	0	0	1795	1791	1760	1795	1791	1550
Q Serve(g_s), s	4.5	0.0	0.0	0.0	0.0	0.0	0.8	1.4	1.4	0.3	4.4	4.6
Cycle Q Clear(g_c), s	5.2	0.0	0.0	0.7	0.0	0.0	0.8	1.4	1.4	0.3	4.4	4.6
Prop In Lane	0.67		0.28	0.38		0.19	1.00		0.32	1.00		0.93
Lane Grp Cap(c), veh/h	522	0	0	555	0	0	492	618	608	613	538	466
V/C Ratio(X)	0.46	0.00	0.00	0.08	0.00	0.00	0.12	0.16	0.17	0.03	0.49	0.51
Avail Cap(c_a), veh/h	1375	0	0	1488	0	0	1355	2993	2942	1556	2993	2591
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	0.0	0.0	10.6	0.0	0.0	7.5	8.1	8.2	8.1	10.3	10.4
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	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	1.5	0.0	0.0	0.2	0.0	0.0	0.2	0.4	0.4	0.1	1.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	0.0	0.0	10.7	0.0	0.0	7.6	8.3	8.3	8.1	11.0	11.3
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	B	B
Approach Vol, veh/h		238			47			263			526	
Approach Delay, s/veh		12.9			10.7			8.1			11.0	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	17.0		13.2	7.3	15.4		13.2
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	3.4		7.2	2.8	6.6		2.7
Green Ext Time (p_c), s	0.0	1.2		1.5	0.1	3.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

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Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	44	39	169	62	68	31	348	248	43	31	306	42
Future Volume (veh/h)	44	39	169	62	68	31	348	248	43	31	306	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1856	1856	1856	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	46	41	178	65	72	33	366	261	45	33	322	44
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, %	1	1	1	3	3	3	1	1	1	1	1	1
Cap, veh/h	90	58	1016	86	69	707	405	1067	181	71	517	70
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.23	0.35	0.35	0.04	0.16	0.16
Sat Flow, veh/h	27	139	1570	23	166	1546	1795	3047	517	1795	3152	426
Grp Volume(v), veh/h	87	0	178	137	0	33	366	152	154	33	181	185
Grp Sat Flow(s),veh/h/ln	166	0	1570	189	0	1546	1795	1791	1773	1795	1791	1787
Q Serve(g_s), s	1.0	0.0	3.2	1.0	0.0	0.8	13.9	4.2	4.3	1.3	6.6	6.7
Cycle Q Clear(g_c), s	29.1	0.0	3.2	29.1	0.0	0.8	13.9	4.2	4.3	1.3	6.6	6.7
Prop In Lane	0.53		1.00	0.47		1.00	1.00		0.29	1.00		0.24
Lane Grp Cap(c), veh/h	148	0	1016	155	0	707	405	627	621	71	294	293
V/C Ratio(X)	0.59	0.00	0.18	0.88	0.00	0.05	0.90	0.24	0.25	0.47	0.62	0.63
Avail Cap(c_a), veh/h	167	0	1035	173	0	726	514	1538	1523	514	1538	1535
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	5.0	22.8	0.0	10.5	26.3	16.1	16.2	32.8	27.2	27.2
Incr Delay (d2), s/veh	4.2	0.0	0.1	35.7	0.0	0.0	16.5	0.2	0.2	4.7	2.1	2.2
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	1.0	0.0	0.9	3.8	0.0	0.3	7.3	1.6	1.6	0.6	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	5.1	58.5	0.0	10.6	42.8	16.3	16.4	37.6	29.3	29.5
LnGrp LOS	C	A	A	E	A	B	D	B	B	D	C	C
Approach Vol, veh/h		265			170			672			399	
Approach Delay, s/veh		11.1			49.2			30.8			30.1	
Approach LOS		B			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	29.3		34.1	20.5	16.1		34.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.3	6.3		31.1	15.9	8.7		31.1
Green Ext Time (p_c), s	0.0	1.9		0.0	0.5	2.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	14	30	235	25	72	47	548	192	65	452	17
Future Volume (veh/h)	7	14	30	235	25	72	47	548	192	65	452	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	1.00		0.96	0.99		0.97	1.00		0.96
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	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	8	15	32	253	27	77	51	589	206	70	486	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	1	1	1	1	1	1	1	1	1
Cap, veh/h	460	154	328	522	121	346	487	924	322	383	1300	48
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.36	0.36	0.06	0.37	0.37
Sat Flow, veh/h	1269	530	1130	1366	417	1190	1795	2584	902	1795	3517	130
Grp Volume(v), veh/h	8	0	47	253	0	104	51	408	387	70	247	257
Grp Sat Flow(s),veh/h/ln	1269	0	1659	1366	0	1607	1795	1791	1694	1795	1791	1856
Q Serve(g_s), s	0.2	0.0	1.0	7.8	0.0	2.3	0.8	8.9	8.9	1.1	4.7	4.7
Cycle Q Clear(g_c), s	2.5	0.0	1.0	8.8	0.0	2.3	0.8	8.9	8.9	1.1	4.7	4.7
Prop In Lane	1.00		0.68	1.00		0.74	1.00		0.53	1.00		0.07
Lane Grp Cap(c), veh/h	460	0	482	522	0	467	487	641	606	383	662	686
V/C Ratio(X)	0.02	0.00	0.10	0.48	0.00	0.22	0.10	0.64	0.64	0.18	0.37	0.37
Avail Cap(c_a), veh/h	903	0	1062	999	0	1028	1160	2291	2168	1034	2291	2375
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	12.1	15.3	0.0	12.6	8.6	12.5	12.5	9.1	10.8	10.8
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.7	0.0	0.2	0.1	1.1	1.1	0.2	0.3	0.3
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	0.0	0.3	2.2	0.0	0.8	0.3	3.0	2.8	0.3	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	12.2	16.0	0.0	12.9	8.7	13.6	13.7	9.3	11.2	11.1
LnGrp LOS	B	A	B	B	A	B	A	B	B	A	B	B
Approach Vol, veh/h		55			357			846			574	
Approach Delay, s/veh		12.4			15.1			13.3			10.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	21.3		18.1	6.9	21.8		18.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.1	10.9		4.5	2.8	6.7		10.8
Green Ext Time (p_c), s	0.1	5.9		0.2	0.1	3.2		1.4

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	61	25	208	40	643	9	71	122	580	118	45
Future Volume (vph)	40	61	25	208	40	643	9	71	122	580	118	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99		0.97	0.99		0.97	0.99	0.99	
Frt		0.956				0.850			0.850		0.982	
Flt Protected	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (prot)	1719	1714	0	1752	1845	1568	1770	1863	1583	1633	1636	0
Flt Permitted	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (perm)	1702	1714	0	1737	1845	1519	1759	1863	1533	1618	1628	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				684			134		6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	43	65	27	221	43	684	10	76	130	617	126	48
Shared Lane Traffic (%)										36%		
Lane Group Flow (vph)	43	92	0	221	43	684	10	76	130	395	396	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	14.5	26.5		29.5	24.6	24.6	27.5	27.5	27.5	39.5	39.5	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	8.0	10.3		16.7	21.3	21.3	12.1	12.1	12.1	28.3	28.3	
Actuated g/C Ratio	0.10	0.12		0.20	0.26	0.26	0.15	0.15	0.15	0.34	0.34	
v/c Ratio	0.26	0.41		0.63	0.09	0.76	0.04	0.28	0.39	0.71	0.71	
Control Delay	46.3	39.1		42.6	28.2	9.0	38.9	41.0	10.9	35.0	34.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.3	39.1		42.6	28.2	9.0	38.9	41.0	10.9	35.0	34.3	
LOS	D	D		D	C	A	D	D	B	C	C	
Approach Delay		41.4			17.7			22.8			34.6	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	21	38		108	18	0	5	37	0	182	180	
Queue Length 95th (ft)	68	102		228	52	110	22	95	51	#434	#429	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	222	498		566	880	1082	526	554	550	739	744	
Starvation Cap Reductn	0	0		1	0	8	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.19	0.18		0.39	0.05	0.64	0.02	0.14	0.24	0.53	0.53	

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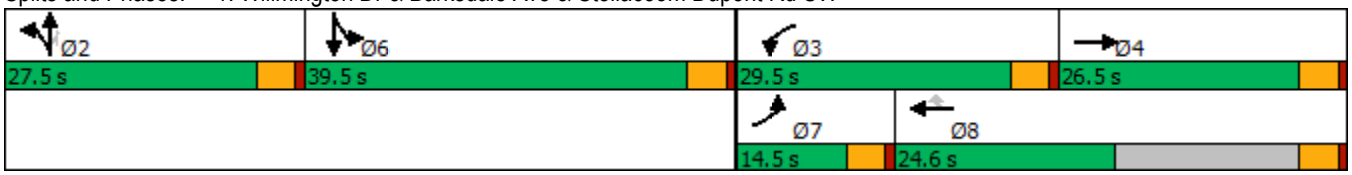
Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 83.2	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.2	Intersection LOS: C
Intersection Capacity Utilization 65.4%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	322	115	258	517	522	357
Future Volume (veh/h)	322	115	258	517	522	357
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1841	1841	1841	1856	1856
Adj Flow Rate, veh/h	358	128	287	574	580	397
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	4	4	3	3
Cap, veh/h	425	379	342	1167	712	590
Arrive On Green	0.24	0.24	0.20	0.63	0.38	0.38
Sat Flow, veh/h	1753	1560	1753	1841	1856	1538
Grp Volume(v), veh/h	358	128	287	574	580	397
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1856	1538
Q Serve(g_s), s	14.2	4.9	11.5	12.1	20.4	15.6
Cycle Q Clear(g_c), s	14.2	4.9	11.5	12.1	20.4	15.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	425	379	342	1167	712	590
V/C Ratio(X)	0.84	0.34	0.84	0.49	0.81	0.67
Avail Cap(c_a), veh/h	1010	899	842	2577	1604	1329
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	26.3	22.8	28.2	7.1	20.1	18.6
Incr Delay (d2), s/veh	4.6	0.5	5.5	0.3	2.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	4.6	4.9	3.3	8.0	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.8	23.3	33.7	7.4	22.5	20.0
LnGrp LOS	C	C	C	A	C	B
Approach Vol, veh/h	486			861	977	
Approach Delay, s/veh	28.8			16.2	21.5	
Approach LOS	C			B	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		51.2		21.7	18.2	33.0
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		102.0		42.0	35.0	63.0
Max Q Clear Time (g_c+I1), s		14.1		16.2	13.5	22.4
Green Ext Time (p_c), s		3.8		1.5	0.8	5.5

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	470	579	14	11	0
Future Volume (vph)	3	470	579	14	11	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	
Frt			0.996			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3368	0	902	0
Flt Permitted	0.363				0.950	
Satd. Flow (perm)	675	3539	3368	0	899	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3			
Link Speed (mph)		35	35		25	
Link Distance (ft)		687	519		294	
Travel Time (s)		15.6	11.8		6.7	
Confl. Peds. (#/hr)	2			2	2	2
Confl. Bikes (#/hr)				1		1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	5%	75%	100%	0%
Adj. Flow (vph)	3	490	603	15	11	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	490	618	0	11	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	7	4	8		6	
Permitted Phases	4					
Total Split (s)	18.0	88.0	70.0		32.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	31.0	36.0	35.0		8.2	
Actuated g/C Ratio	0.80	0.93	0.91		0.21	
v/c Ratio	0.00	0.15	0.20		0.06	
Control Delay	2.7	1.7	3.4		18.1	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.7	1.7	3.4		18.1	
LOS	A	A	A		B	
Approach Delay		1.7	3.4		18.1	
Approach LOS		A	A		B	
Queue Length 50th (ft)	0	0	0		1	
Queue Length 95th (ft)	3	62	121		17	
Internal Link Dist (ft)		607	439		214	
Turn Bay Length (ft)	150					
Base Capacity (vph)	1000	3539	3249		758	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.00	0.14	0.19		0.01	

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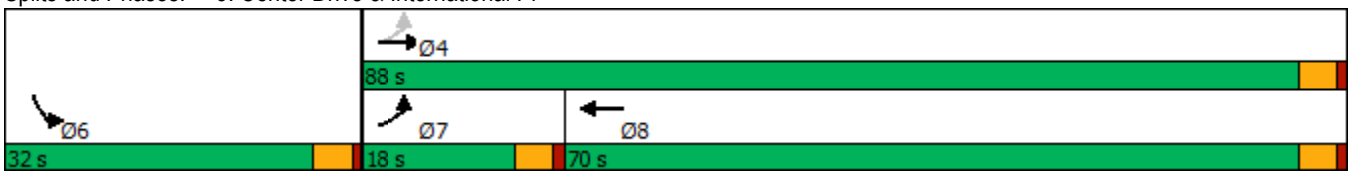
Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 38.6	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.20	
Intersection Signal Delay: 2.8	Intersection LOS: A
Intersection Capacity Utilization 29.2%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	43	131	447	356	40
Future Volume (veh/h)	15	43	131	447	356	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1737	1737	1856	1856	1841	1841
Adj Flow Rate, veh/h	16	47	144	491	391	44
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	11	11	3	3	4	4
Cap, veh/h	116	103	675	2078	935	104
Arrive On Green	0.07	0.07	0.12	0.59	0.30	0.30
Sat Flow, veh/h	1654	1472	1767	3618	3253	353
Grp Volume(v), veh/h	16	47	144	491	215	220
Grp Sat Flow(s),veh/h/ln	1654	1472	1767	1763	1749	1765
Q Serve(g_s), s	0.2	0.8	1.2	1.8	2.6	2.6
Cycle Q Clear(g_c), s	0.2	0.8	1.2	1.8	2.6	2.6
Prop In Lane	1.00	1.00	1.00			0.20
Lane Grp Cap(c), veh/h	116	103	675	2078	517	522
V/C Ratio(X)	0.14	0.46	0.21	0.24	0.42	0.42
Avail Cap(c_a), veh/h	313	278	1627	11539	4268	4308
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	11.5	11.8	4.2	2.6	7.5	7.5
Incr Delay (d2), s/veh	0.5	3.1	0.2	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.1	0.0	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	14.9	4.3	2.6	8.0	8.0
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	63			635	435	
Approach Delay, s/veh	14.2			3.0	8.0	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		20.1		6.4	7.8	12.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		86.5		5.0	17.5	64.5
Max Q Clear Time (g_c+I1), s		3.8		2.8	3.2	4.6
Green Ext Time (p_c), s		3.6		0.0	0.3	2.8

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	22	0	55	0	536	15	35	355	0
Future Volume (veh/h)	0	0	0	22	0	55	0	536	15	35	355	0
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		0.98	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	1900	1900	1900	1870	1900	1870	1900	1870	1870	1826	1826	1900
Adj Flow Rate, veh/h	0	0	0	24	0	61	0	596	17	39	394	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	2	0	2	0	2	2	5	5	0
Cap, veh/h	0	162	0	385	0	132	7	1349	38	65	2030	0
Arrive On Green	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.38	0.38	0.04	0.59	0.00
Sat Flow, veh/h	0	1900	0	1420	0	1549	1810	3525	100	1739	3561	0
Grp Volume(v), veh/h	0	0	0	24	0	61	0	300	313	39	394	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1420	0	1549	1810	1777	1849	1739	1735	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	1.0	0.0	3.4	3.4	0.6	1.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	0.0	1.0	0.0	3.4	3.4	0.6	1.5	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	0	162	0	385	0	132	7	680	708	65	2030	0
V/C Ratio(X)	0.00	0.00	0.00	0.06	0.00	0.46	0.00	0.44	0.44	0.60	0.19	0.00
Avail Cap(c_a), veh/h	0	2087	0	1823	0	1702	1325	3904	4062	1274	7622	0
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	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	11.6	0.0	11.9	0.0	6.3	6.3	12.9	2.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	2.5	0.0	0.5	0.4	8.5	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	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.7	0.7	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	11.7	0.0	14.4	0.0	6.7	6.7	21.4	2.7	0.0
LnGrp LOS	A	A	A	B	A	B	A	A	A	C	A	A
Approach Vol, veh/h		0			85			613			433	
Approach Delay, s/veh		0.0			13.6			6.7			4.4	
Approach LOS					B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	15.0		6.8	0.0	20.5		6.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.6	5.4		0.0	0.0	3.5		3.0
Green Ext Time (p_c), s	0.1	4.0		0.0	0.0	2.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	23	79	33	8	11	68	338	14	10	196	173
Future Volume (veh/h)	205	23	79	33	8	11	68	338	14	10	196	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.97	1.00		0.92
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	1856	1856	1856	1885	1885	1885	1885	1885	1885	1826	1826	1826
Adj Flow Rate, veh/h	259	29	100	42	10	14	86	428	18	13	248	219
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	1	1	1	1	1	1	5	5	5
Cap, veh/h	445	49	127	414	103	105	450	1221	51	427	490	403
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.09	0.35	0.35	0.02	0.28	0.28
Sat Flow, veh/h	942	146	378	857	309	314	1795	3497	147	1739	1735	1426
Grp Volume(v), veh/h	388	0	0	66	0	0	86	219	227	13	248	219
Grp Sat Flow(s),veh/h/ln	1465	0	0	1480	0	0	1795	1791	1853	1739	1735	1426
Q Serve(g_s), s	9.8	0.0	0.0	0.0	0.0	0.0	1.4	4.2	4.2	0.2	5.5	6.0
Cycle Q Clear(g_c), s	11.0	0.0	0.0	1.2	0.0	0.0	1.4	4.2	4.2	0.2	5.5	6.0
Prop In Lane	0.67		0.26	0.64		0.21	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	621	0	0	623	0	0	450	625	647	427	490	403
V/C Ratio(X)	0.63	0.00	0.00	0.11	0.00	0.00	0.19	0.35	0.35	0.03	0.51	0.54
Avail Cap(c_a), veh/h	1071	0	0	1059	0	0	1070	2321	2401	1143	2248	1848
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	10.6	0.0	0.0	9.9	11.2	11.2	11.4	13.9	14.1
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.1	0.0	0.0	0.2	0.3	0.3	0.0	0.8	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	3.3	0.0	0.0	0.4	0.0	0.0	0.5	1.4	1.4	0.1	1.9	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	0.0	0.0	10.7	0.0	0.0	10.1	11.5	11.5	11.4	14.7	15.2
LnGrp LOS	B	A	A	B	A	A	B	B	B	B	B	B
Approach Vol, veh/h		388			66			532			480	
Approach Delay, s/veh		14.8			10.7			11.3			14.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	20.8		20.0	8.6	17.7		20.0
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.2	6.2		13.0	3.4	8.0		3.2
Green Ext Time (p_c), s	0.0	2.8		2.4	0.2	3.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

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Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	78	61	404	27	22	26	168	332	75	27	284	29
Future Volume (veh/h)	78	61	404	27	22	26	168	332	75	27	284	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1796	1796	1796	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	84	66	434	29	24	28	181	357	81	29	305	31
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	7	7	7	1	1	1	1	1	1
Cap, veh/h	199	125	847	164	101	667	233	775	173	69	578	58
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.13	0.27	0.27	0.04	0.18	0.18
Sat Flow, veh/h	196	308	1570	112	248	1496	1795	2888	646	1795	3271	329
Grp Volume(v), veh/h	150	0	434	53	0	28	181	219	219	29	166	170
Grp Sat Flow(s),veh/h/ln	504	0	1570	360	0	1496	1795	1791	1743	1795	1791	1810
Q Serve(g_s), s	2.5	0.0	8.3	0.7	0.0	0.5	4.6	4.8	4.9	0.7	4.0	4.0
Cycle Q Clear(g_c), s	17.3	0.0	8.3	16.4	0.0	0.5	4.6	4.8	4.9	0.7	4.0	4.0
Prop In Lane	0.56		1.00	0.55		1.00	1.00		0.37	1.00		0.18
Lane Grp Cap(c), veh/h	324	0	847	265	0	667	233	480	467	69	316	320
V/C Ratio(X)	0.46	0.00	0.51	0.20	0.00	0.04	0.78	0.46	0.47	0.42	0.52	0.53
Avail Cap(c_a), veh/h	878	0	1407	667	0	1202	1734	2376	2312	438	1083	1095
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	7.0	10.7	0.0	7.4	19.8	14.4	14.4	22.1	17.6	17.6
Incr Delay (d2), s/veh	1.0	0.0	0.5	0.4	0.0	0.0	5.5	0.7	0.7	4.0	1.3	1.4
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	0.9	0.0	1.9	0.3	0.0	0.1	2.0	1.7	1.7	0.4	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	0.0	7.5	11.1	0.0	7.4	25.3	15.1	15.2	26.2	18.9	19.0
LnGrp LOS	B	A	A	B	A	A	C	B	B	C	B	B
Approach Vol, veh/h		584			81			619			365	
Approach Delay, s/veh		9.4			9.8			18.1			19.5	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		24.9	6.4	17.4		24.9	10.8	13.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		36.0	11.5	62.5		36.0	45.5	28.5				
Max Q Clear Time (g_c+I1), s		18.4	2.7	6.9		19.3	6.6	6.0				
Green Ext Time (p_c), s		0.3	0.0	2.8		2.4	0.5	1.8				

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	15	36	65	16	56	57	506	215	69	665	6
Future Volume (veh/h)	1	15	36	65	16	56	57	506	215	69	665	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	1	16	38	68	17	58	59	527	224	72	693	6
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	359	76	180	378	57	196	509	938	397	490	1437	12
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.06	0.39	0.39	0.07	0.40	0.40
Sat Flow, veh/h	1331	490	1163	1356	370	1263	1795	2432	1029	1795	3638	31
Grp Volume(v), veh/h	1	0	54	68	0	75	59	387	364	72	341	358
Grp Sat Flow(s),veh/h/ln	1331	0	1653	1356	0	1633	1795	1791	1671	1795	1791	1879
Q Serve(g_s), s	0.0	0.0	1.0	1.6	0.0	1.4	0.7	5.9	6.0	0.8	5.0	5.0
Cycle Q Clear(g_c), s	1.4	0.0	1.0	2.6	0.0	1.4	0.7	5.9	6.0	0.8	5.0	5.0
Prop In Lane	1.00		0.70	1.00		0.77	1.00		0.62	1.00		0.02
Lane Grp Cap(c), veh/h	359	0	256	378	0	253	509	690	644	490	707	742
V/C Ratio(X)	0.00	0.00	0.21	0.18	0.00	0.30	0.12	0.56	0.56	0.15	0.48	0.48
Avail Cap(c_a), veh/h	1298	0	1423	1335	0	1405	1427	3083	2876	1391	3083	3234
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	0.0	12.9	14.0	0.0	13.0	5.8	8.4	8.4	5.9	7.9	7.9
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.2	0.0	0.6	0.1	0.7	0.8	0.1	0.5	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	0.0	0.0	0.3	0.4	0.0	0.5	0.1	1.5	1.5	0.2	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	0.0	13.3	14.2	0.0	13.7	5.9	9.1	9.2	6.0	8.4	8.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		55			143			810			771	
Approach Delay, s/veh		13.3			13.9			8.9			8.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	17.9		9.9	6.7	18.3		9.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.8	8.0		3.4	2.7	7.0		4.6
Green Ext Time (p_c), s	0.1	5.5		0.3	0.1	4.7		0.6

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	52	18	147	76	535	23	123	232	736	101	51
Future Volume (vph)	38	52	18	147	76	535	23	123	232	736	101	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.96	0.99	0.99	
Frt		0.961				0.850			0.850		0.983	
Flt Protected	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (prot)	1770	1772	0	1752	1845	1568	1787	1881	1599	1681	1677	0
Flt Permitted	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (perm)	1742	1772	0	1725	1845	1508	1771	1881	1537	1657	1661	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				552			239		6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	39	54	19	152	78	552	24	127	239	759	104	53
Shared Lane Traffic (%)										40%		
Lane Group Flow (vph)	39	73	0	152	78	552	24	127	239	455	461	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	11.0	24.6		23.4	37.0	37.0	25.0	25.0	25.0	50.0	50.0	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	7.0	9.9		13.4	18.7	18.7	13.6	13.6	13.6	30.5	30.5	
Actuated g/C Ratio	0.08	0.12		0.16	0.22	0.22	0.16	0.16	0.16	0.36	0.36	
v/c Ratio	0.26	0.33		0.54	0.19	0.72	0.08	0.42	0.53	0.74	0.75	
Control Delay	50.9	39.3		46.1	32.4	9.3	38.9	43.1	10.6	33.3	33.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	50.9	39.3		46.1	32.4	9.3	38.9	43.1	10.6	33.3	33.3	
LOS	D	D		D	C	A	D	D	B	C	C	
Approach Delay		43.3			18.8			22.9			33.3	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	20	30		73	35	0	11	62	0	207	208	
Queue Length 95th (ft)	67	88		180	89	102	41	152	73	443	447	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	153	484		441	797	965	488	514	594	1019	1019	
Starvation Cap Reductn	0	0		0	0	3	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.15		0.34	0.10	0.57	0.05	0.25	0.40	0.45	0.45	

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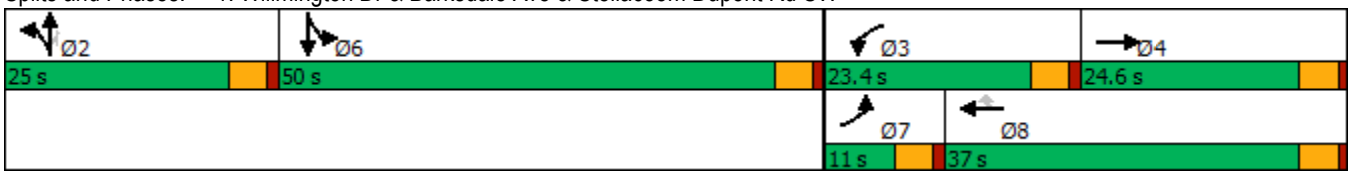
Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 83.6	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 26.8	Intersection LOS: C
Intersection Capacity Utilization 60.2%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	292	195	145	526	651	471
Future Volume (veh/h)	292	195	145	526	651	471
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1841	1841	1841	1885	1885
Adj Flow Rate, veh/h	317	212	158	572	708	512
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	1	1
Cap, veh/h	395	352	203	1181	879	728
Arrive On Green	0.23	0.23	0.12	0.64	0.47	0.47
Sat Flow, veh/h	1753	1560	1753	1841	1885	1561
Grp Volume(v), veh/h	317	212	158	572	708	512
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1885	1561
Q Serve(g_s), s	11.6	8.2	5.9	10.9	21.7	17.6
Cycle Q Clear(g_c), s	11.6	8.2	5.9	10.9	21.7	17.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	395	352	203	1181	879	728
V/C Ratio(X)	0.80	0.60	0.78	0.48	0.81	0.70
Avail Cap(c_a), veh/h	1036	922	612	2830	2129	1763
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	24.8	23.5	29.1	6.3	15.4	14.3
Incr Delay (d2), s/veh	3.8	1.7	6.3	0.3	1.8	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	7.2	2.6	2.7	7.8	5.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.6	25.1	35.4	6.6	17.2	15.6
LnGrp LOS	C	C	D	A	B	B
Approach Vol, veh/h	529			730	1220	
Approach Delay, s/veh	27.2			12.8	16.5	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		48.4		19.3	11.8	36.6
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		104.0		40.0	23.6	76.4
Max Q Clear Time (g_c+I1), s		12.9		13.6	7.9	23.7
Green Ext Time (p_c), s		3.8		1.7	0.3	7.9

Intersection Summary	
HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	336	696	6	14	1
Future Volume (vph)	1	336	696	6	14	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	
Frt			0.999		0.992	
Flt Protected	0.950				0.955	
Satd. Flow (prot)	1736	3471	3535	0	1763	0
Flt Permitted	0.309				0.955	
Satd. Flow (perm)	564	3471	3535	0	1760	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			1		1	
Link Speed (mph)		35	35		25	
Link Distance (ft)		687	519		294	
Travel Time (s)		13.4	10.1		8.0	
Confl. Peds. (#/hr)	1			1	1	1
Confl. Bikes (#/hr)				4		4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	1	373	773	7	16	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	373	780	0	17	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	7	4	8		6	
Permitted Phases	4					
Total Split (s)	21.0	72.0	51.0		48.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	32.2	37.0	36.0		8.0	
Actuated g/C Ratio	0.81	0.93	0.91		0.20	
v/c Ratio	0.00	0.12	0.24		0.05	
Control Delay	3.0	1.7	3.5		17.3	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	3.0	1.7	3.5		17.3	
LOS	A	A	A		B	
Approach Delay		1.7	3.5		17.3	
Approach LOS		A	A		B	
Queue Length 50th (ft)	0	0	0		2	
Queue Length 95th (ft)	2	47	154		22	
Internal Link Dist (ft)		607	439		214	
Turn Bay Length (ft)	150					
Base Capacity (vph)	1027	3368	3243		1604	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.00	0.11	0.24		0.01	

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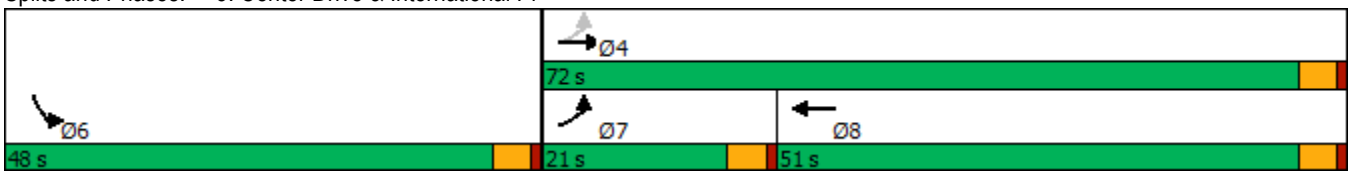
Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 39.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.24	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 31.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	110	28	359	557	11
Future Volume (veh/h)	34	110	28	359	557	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	116	29	378	586	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	223	199	512	1975	1268	26
Arrive On Green	0.12	0.12	0.04	0.55	0.35	0.35
Sat Flow, veh/h	1795	1598	1795	3676	3681	73
Grp Volume(v), veh/h	36	116	29	378	292	306
Grp Sat Flow(s),veh/h/ln	1795	1598	1795	1791	1791	1870
Q Serve(g_s), s	0.5	1.9	0.2	1.5	3.5	3.5
Cycle Q Clear(g_c), s	0.5	1.9	0.2	1.5	3.5	3.5
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	223	199	512	1975	633	661
V/C Ratio(X)	0.16	0.58	0.06	0.19	0.46	0.46
Avail Cap(c_a), veh/h	1520	1352	1449	11288	4354	4545
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	10.9	11.5	4.7	3.1	6.9	6.9
Incr Delay (d2), s/veh	0.3	2.7	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.8	0.0	0.1	0.8	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.2	14.2	4.7	3.2	7.5	7.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	152			407	598	
Approach Delay, s/veh	13.5			3.3	7.5	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		19.8		8.0	5.5	14.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		87.5		23.5	15.5	67.5
Max Q Clear Time (g_c+I1), s		3.5		3.9	2.2	5.5
Green Ext Time (p_c), s		2.7		0.4	0.0	3.9

Intersection Summary	
HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	24	1	29	8	366	33	50	701	4
Future Volume (veh/h)	0	0	7	24	1	29	8	366	33	50	701	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	1.00		0.97	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	1900	1900	1900	1885	1900	1885	1900	1885	1885	1885	1885	1900
Adj Flow Rate, veh/h	0	0	8	26	1	32	9	398	36	54	762	4
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, %	0	0	0	1	0	1	0	1	1	1	1	0
Cap, veh/h	0	0	114	350	4	113	17	1281	115	88	1556	8
Arrive On Green	0.00	0.00	0.07	0.07	0.07	0.07	0.01	0.39	0.39	0.05	0.43	0.43
Sat Flow, veh/h	0	0	1576	1283	49	1564	1810	3315	298	1795	3653	19
Grp Volume(v), veh/h	0	0	8	27	0	32	9	214	220	54	374	392
Grp Sat Flow(s),veh/h/ln	0	0	1576	1332	0	1564	1810	1791	1822	1795	1791	1881
Q Serve(g_s), s	0.0	0.0	0.1	0.5	0.0	0.5	0.1	2.3	2.3	0.8	4.1	4.1
Cycle Q Clear(g_c), s	0.0	0.0	0.1	0.6	0.0	0.5	0.1	2.3	2.3	0.8	4.1	4.1
Prop In Lane	0.00		1.00	0.96		1.00	1.00		0.16	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	114	354	0	113	17	692	704	88	763	801
V/C Ratio(X)	0.00	0.00	0.07	0.08	0.00	0.28	0.51	0.31	0.31	0.61	0.49	0.49
Avail Cap(c_a), veh/h	0	0	1725	1812	0	1711	1320	3919	3988	1310	3919	4117
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	11.9	12.2	0.0	12.0	13.5	5.9	5.9	12.8	5.7	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.1	0.0	1.4	21.5	0.3	0.3	6.7	0.5	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	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.4	0.4	0.4	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	12.1	12.2	0.0	13.4	35.0	6.1	6.1	19.4	6.2	6.2
LnGrp LOS	A	A	B	B	A	B	C	A	A	B	A	A
Approach Vol, veh/h		8			59			443			820	
Approach Delay, s/veh		12.1			12.9			6.7			7.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	15.1		6.5	4.8	16.2		6.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.8	4.3		2.1	2.1	6.1		2.6
Green Ext Time (p_c), s	0.1	2.7		0.0	0.0	5.3		0.2

Intersection Summary	
HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	10	67	18	20	10	60	221	32	22	457	258
Future Volume (veh/h)	178	10	67	18	20	10	60	221	32	22	457	258
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	187	11	71	19	21	11	63	233	34	23	481	272
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	378	33	98	228	229	95	423	1259	181	617	789	443
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.07	0.40	0.40	0.03	0.36	0.36
Sat Flow, veh/h	945	129	385	458	899	373	1795	3129	449	1795	2176	1223
Grp Volume(v), veh/h	269	0	0	51	0	0	63	132	135	23	395	358
Grp Sat Flow(s),veh/h/ln	1459	0	0	1731	0	0	1795	1791	1788	1795	1791	1607
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	0.0	0.9	2.1	2.2	0.3	8.0	8.1
Cycle Q Clear(g_c), s	7.4	0.0	0.0	1.0	0.0	0.0	0.9	2.1	2.2	0.3	8.0	8.1
Prop In Lane	0.70		0.26	0.37		0.22	1.00		0.25	1.00		0.76
Lane Grp Cap(c), veh/h	509	0	0	552	0	0	423	721	719	617	650	583
V/C Ratio(X)	0.53	0.00	0.00	0.09	0.00	0.00	0.15	0.18	0.19	0.04	0.61	0.61
Avail Cap(c_a), veh/h	1116	0	0	1217	0	0	1104	2431	2426	1370	2431	2182
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	0.0	12.6	0.0	0.0	8.1	8.5	8.5	8.2	11.5	11.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.9	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	2.3	0.0	0.0	0.4	0.0	0.0	0.3	0.6	0.6	0.1	2.6	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	0.0	0.0	12.7	0.0	0.0	8.3	8.6	8.7	8.2	12.4	12.6
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	B	B
Approach Vol, veh/h		269			51			330			776	
Approach Delay, s/veh		15.8			12.7			8.6			12.4	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	22.4		15.7	7.8	20.6		15.7
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	4.2		9.4	2.9	10.1		3.0
Green Ext Time (p_c), s	0.0	1.6		1.7	0.1	5.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

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Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	57	47	221	65	81	39	442	293	45	43	447	82
Future Volume (veh/h)	57	47	221	65	81	39	442	293	45	43	447	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1856	1856	1856	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	60	49	233	68	85	41	465	308	47	45	471	86
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, %	1	1	1	3	3	3	1	1	1	1	1	1
Cap, veh/h	88	49	901	82	73	519	513	1403	211	93	654	118
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.29	0.45	0.45	0.05	0.22	0.22
Sat Flow, veh/h	0	171	1566	0	256	1542	1795	3108	468	1795	3008	545
Grp Volume(v), veh/h	109	0	233	153	0	41	465	176	179	45	279	278
Grp Sat Flow(s),veh/h/ln	171	0	1566	256	0	1542	1795	1791	1785	1795	1791	1763
Q Serve(g_s), s	0.0	0.0	4.8	0.0	0.0	1.2	15.8	3.8	3.9	1.5	9.2	9.3
Cycle Q Clear(g_c), s	18.0	0.0	4.8	18.0	0.0	1.2	15.8	3.8	3.9	1.5	9.2	9.3
Prop In Lane	0.55		1.00	0.44		1.00	1.00		0.26	1.00		0.31
Lane Grp Cap(c), veh/h	137	0	901	155	0	519	513	808	806	93	389	383
V/C Ratio(X)	0.80	0.00	0.26	0.99	0.00	0.08	0.91	0.22	0.22	0.48	0.72	0.73
Avail Cap(c_a), veh/h	137	0	901	155	0	519	552	907	904	181	537	528
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.0	0.0	6.9	23.7	0.0	14.4	21.8	10.6	10.6	29.2	23.0	23.1
Incr Delay (d2), s/veh	27.4	0.0	0.2	68.6	0.0	0.1	17.9	0.1	0.1	3.9	2.8	3.1
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	2.7	0.0	1.3	5.2	0.0	0.4	8.5	1.3	1.3	0.7	3.8	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	0.0	7.0	92.4	0.0	14.4	39.7	10.7	10.7	33.1	25.8	26.2
LnGrp LOS	D	A	A	F	A	B	D	B	B	C	C	C
Approach Vol, veh/h		342			194			820			602	
Approach Delay, s/veh		21.2			75.9			27.2			26.5	
Approach LOS		C			E			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	7.8	33.1		22.5	22.6	18.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	6.4	32.1		18.0	19.5	19.0				
Max Q Clear Time (g_c+I1), s		20.0	3.5	5.9		20.0	17.8	11.3				
Green Ext Time (p_c), s		0.0	0.0	2.0		0.0	0.3	2.0				

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	15	31	244	26	83	49	677	200	79	633	18
Future Volume (veh/h)	7	15	31	244	26	83	49	677	200	79	633	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	1.00		0.96	1.00		0.97	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	8	16	33	262	28	89	53	728	215	85	681	19
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	421	155	319	494	109	347	430	1073	317	358	1466	41
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.40	0.40	0.07	0.41	0.41
Sat Flow, veh/h	1254	543	1119	1363	383	1217	1795	2708	800	1795	3555	99
Grp Volume(v), veh/h	8	0	49	262	0	117	53	481	462	85	343	357
Grp Sat Flow(s),veh/h/ln	1254	0	1661	1363	0	1600	1795	1791	1716	1795	1791	1863
Q Serve(g_s), s	0.3	0.0	1.2	9.4	0.0	3.0	0.9	11.9	11.9	1.4	7.5	7.5
Cycle Q Clear(g_c), s	3.3	0.0	1.2	10.6	0.0	3.0	0.9	11.9	11.9	1.4	7.5	7.5
Prop In Lane	1.00		0.67	1.00		0.76	1.00		0.47	1.00		0.05
Lane Grp Cap(c), veh/h	421	0	474	494	0	457	430	710	680	358	738	768
V/C Ratio(X)	0.02	0.00	0.10	0.53	0.00	0.26	0.12	0.68	0.68	0.24	0.46	0.46
Avail Cap(c_a), veh/h	764	0	928	866	0	893	1007	2001	1917	907	2001	2081
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	0.0	14.1	18.0	0.0	14.8	8.9	13.4	13.4	9.7	11.5	11.5
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.9	0.0	0.3	0.1	1.1	1.2	0.3	0.5	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	0.1	0.0	0.4	2.8	0.0	1.0	0.3	4.1	4.0	0.5	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	0.0	14.2	18.9	0.0	15.1	9.0	14.5	14.6	10.0	11.9	11.9
LnGrp LOS	B	A	B	B	A	B	A	B	B	B	B	B
Approach Vol, veh/h		57			379			996			785	
Approach Delay, s/veh		14.5			17.7			14.3			11.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	25.8		19.8	7.2	26.6		19.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.4	13.9		5.3	2.9	9.5		12.6
Green Ext Time (p_c), s	0.2	7.4		0.2	0.1	4.8		1.4

Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	61	25	208	40	733	9	88	122	589	119	46
Future Volume (vph)	57	61	25	208	40	733	9	88	122	589	119	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99		0.97	0.99		0.97	0.99	0.99	
Frt		0.956				0.850			0.850		0.982	
Flt Protected	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (prot)	1719	1714	0	1752	1845	1553	1770	1863	1583	1618	1628	0
Flt Permitted	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (perm)	1702	1714	0	1737	1845	1504	1759	1863	1533	1603	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				780			134		6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	5%	5%	5%	3%	3%	4%	2%	2%	2%	6%	5%	5%
Adj. Flow (vph)	61	65	27	221	43	780	10	94	130	627	127	49
Shared Lane Traffic (%)										36%		
Lane Group Flow (vph)	61	92	0	221	43	780	10	94	130	401	402	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	14.5	26.5		29.5	24.6	24.6	27.5	27.5	27.5	39.5	39.5	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	8.6	10.3		16.8	18.4	18.4	12.2	12.2	12.2	29.2	29.2	
Actuated g/C Ratio	0.10	0.12		0.20	0.22	0.22	0.14	0.14	0.14	0.35	0.35	
v/c Ratio	0.35	0.41		0.64	0.11	0.83	0.04	0.35	0.39	0.72	0.71	
Control Delay	48.0	39.7		43.3	29.9	11.5	39.0	42.5	10.9	35.4	34.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.0	39.7		43.3	29.9	11.5	39.0	42.5	10.9	35.4	34.5	
LOS	D	D		D	C	B	D	D	B	D	C	
Approach Delay		43.0			19.0			24.8			35.0	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	31	39		111	19	0	5	48	0	187	184	
Queue Length 95th (ft)	88	102		228	52	127	22	114	51	#448	#441	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	218	490		557	865	1119	517	544	543	720	727	
Starvation Cap Reductn	0	0		1	0	6	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.28	0.19		0.40	0.05	0.70	0.02	0.17	0.24	0.56	0.55	

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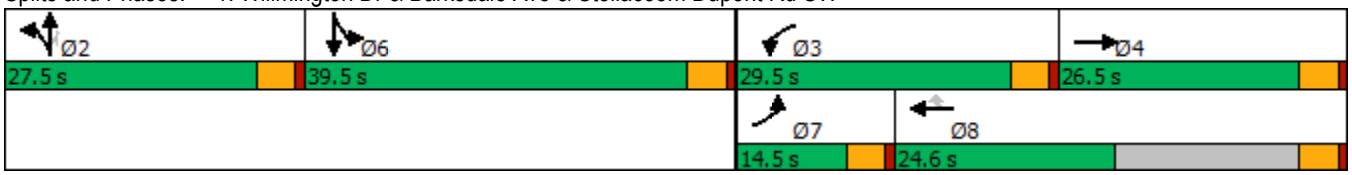
Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 84.4	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 71.0%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	325	126	385	517	522	412
Future Volume (veh/h)	325	126	385	517	522	412
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1826	1826	1841	1856	1856
Adj Flow Rate, veh/h	361	140	428	574	580	458
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	5	5	4	3	3
Cap, veh/h	410	362	469	1244	679	562
Arrive On Green	0.23	0.23	0.27	0.68	0.37	0.37
Sat Flow, veh/h	1753	1547	1739	1841	1856	1537
Grp Volume(v), veh/h	361	140	428	574	580	458
Grp Sat Flow(s),veh/h/ln	1753	1547	1739	1841	1856	1537
Q Serve(g_s), s	19.8	7.6	23.7	14.6	28.7	26.8
Cycle Q Clear(g_c), s	19.8	7.6	23.7	14.6	28.7	26.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	410	362	469	1244	679	562
V/C Ratio(X)	0.88	0.39	0.91	0.46	0.85	0.81
Avail Cap(c_a), veh/h	705	622	699	1244	1119	927
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	36.8	32.1	35.2	7.6	29.1	28.5
Incr Delay (d2), s/veh	6.8	0.7	12.0	0.3	3.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	0.1	11.0	4.6	12.5	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.6	32.8	47.2	7.9	32.7	31.5
LnGrp LOS	D	C	D	A	C	C
Approach Vol, veh/h	501			1002	1038	
Approach Delay, s/veh	40.5			24.6	32.2	
Approach LOS	D			C	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		72.2		27.3	30.8	41.4
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		60.0		40.0	40.0	60.0
Max Q Clear Time (g_c+I1), s		16.6		21.8	25.7	30.7
Green Ext Time (p_c), s		3.8		1.5	1.1	5.7

Intersection Summary	
HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	164	470	579	196	25	6
Future Volume (vph)	164	470	579	196	25	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99		0.99	
Frt			0.962		0.975	
Flt Protected	0.950				0.961	
Satd. Flow (prot)	1770	3539	3247	0	1103	0
Flt Permitted	0.237				0.961	
Satd. Flow (perm)	441	3539	3247	0	1099	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			54		6	
Link Speed (mph)		35	35		25	
Link Distance (ft)		687	519		294	
Travel Time (s)		13.4	10.1		8.0	
Confl. Peds. (#/hr)	2			2	2	2
Confl. Bikes (#/hr)				1		1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	5%	10%	75%	0%
Adj. Flow (vph)	171	490	603	204	26	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	171	490	807	0	32	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	7	4	8		6	
Permitted Phases	4					
Total Split (s)	27.0	90.0	63.0		30.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	38.4	41.9	22.6		8.3	
Actuated g/C Ratio	0.79	0.87	0.47		0.17	
v/c Ratio	0.26	0.16	0.52		0.16	
Control Delay	4.0	2.6	12.3		19.6	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	4.0	2.6	12.3		19.6	
LOS	A	A	B		B	
Approach Delay		3.0	12.3		19.6	
Approach LOS		A	B		B	
Queue Length 50th (ft)	0	0	48		5	
Queue Length 95th (ft)	51	63	204		30	
Internal Link Dist (ft)		607	439		214	
Turn Bay Length (ft)	150					
Base Capacity (vph)	1015	3539	3112		628	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.17	0.14	0.26		0.05	

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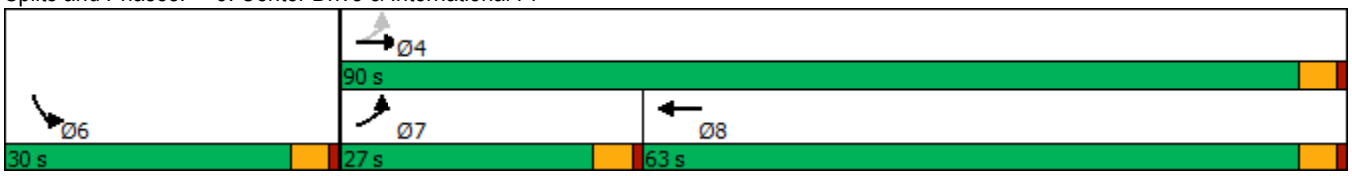
Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 48.4	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 8.3	Intersection LOS: A
Intersection Capacity Utilization 47.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	43	131	608	362	40
Future Volume (veh/h)	15	43	131	608	362	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1737	1737	1856	1856	1841	1841
Adj Flow Rate, veh/h	16	47	144	668	398	44
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	11	11	3	3	4	4
Cap, veh/h	116	103	673	2083	944	104
Arrive On Green	0.07	0.07	0.12	0.59	0.30	0.30
Sat Flow, veh/h	1654	1472	1767	3618	3259	348
Grp Volume(v), veh/h	16	47	144	668	219	223
Grp Sat Flow(s),veh/h/ln	1654	1472	1767	1763	1749	1767
Q Serve(g_s), s	0.2	0.8	1.2	2.5	2.7	2.7
Cycle Q Clear(g_c), s	0.2	0.8	1.2	2.5	2.7	2.7
Prop In Lane	1.00	1.00	1.00			0.20
Lane Grp Cap(c), veh/h	116	103	673	2083	521	527
V/C Ratio(X)	0.14	0.46	0.21	0.32	0.42	0.42
Avail Cap(c_a), veh/h	312	277	1621	11490	4250	4293
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	11.6	11.9	4.2	2.7	7.5	7.5
Incr Delay (d2), s/veh	0.5	3.1	0.2	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.1	0.0	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	15.0	4.3	2.8	8.0	8.0
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	63			812	442	
Approach Delay, s/veh	14.3			3.1	8.0	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		20.2		6.4	7.8	12.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		86.5		5.0	17.5	64.5
Max Q Clear Time (g_c+I1), s		4.5		2.8	3.2	4.7
Green Ext Time (p_c), s		5.2		0.0	0.3	2.8

Intersection Summary	
HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	22	0	65	0	687	15	35	361	0
Future Volume (veh/h)	0	0	0	22	0	65	0	687	15	35	361	0
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		0.98	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	1900	1900	1900	1870	1900	1870	1900	1870	1870	1826	1826	1900
Adj Flow Rate, veh/h	0	0	0	24	0	72	0	763	17	39	401	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	2	0	2	0	2	2	5	5	0
Cap, veh/h	0	169	0	368	0	138	6	1498	33	64	2115	0
Arrive On Green	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.42	0.42	0.04	0.61	0.00
Sat Flow, veh/h	0	1900	0	1421	0	1548	1810	3551	79	1739	3561	0
Grp Volume(v), veh/h	0	0	0	24	0	72	0	382	398	39	401	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1421	0	1548	1810	1777	1854	1739	1735	0
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	1.3	0.0	4.7	4.7	0.7	1.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.5	0.0	1.3	0.0	4.7	4.7	0.7	1.5	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.04	1.00		0.00
Lane Grp Cap(c), veh/h	0	169	0	368	0	138	6	750	782	64	2115	0
V/C Ratio(X)	0.00	0.00	0.00	0.07	0.00	0.52	0.00	0.51	0.51	0.61	0.19	0.00
Avail Cap(c_a), veh/h	0	1909	0	1669	0	1555	1212	3571	3725	1165	6972	0
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	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	12.6	0.0	13.0	0.0	6.4	6.4	14.2	2.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	3.0	0.0	0.5	0.5	8.8	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	0.0	0.0	0.0	0.1	0.0	0.5	0.0	0.9	1.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	12.7	0.0	16.0	0.0	6.9	6.9	23.0	2.6	0.0
LnGrp LOS	A	A	A	B	A	B	A	A	A	C	A	A
Approach Vol, veh/h		0			96			780			440	
Approach Delay, s/veh		0.0			15.2			6.9			4.4	
Approach LOS					B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	17.1		7.2	0.0	22.7		7.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.7	6.7		0.0	0.0	3.5		3.3
Green Ext Time (p_c), s	0.1	5.5		0.0	0.0	2.9		0.3

Intersection Summary	
HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	23	79	33	8	21	68	476	14	10	202	173
Future Volume (veh/h)	208	23	79	33	8	21	68	476	14	10	202	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.97	1.00		0.92
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	1856	1856	1856	1885	1885	1885	1885	1885	1885	1826	1826	1826
Adj Flow Rate, veh/h	263	29	100	42	10	27	86	603	18	13	256	219
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	1	1	1	1	1	1	5	5	5
Cap, veh/h	448	48	126	358	101	177	447	1240	37	358	496	400
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.09	0.35	0.35	0.02	0.28	0.28
Sat Flow, veh/h	946	142	372	711	298	524	1795	3547	106	1739	1751	1414
Grp Volume(v), veh/h	392	0	0	79	0	0	86	304	317	13	253	222
Grp Sat Flow(s),veh/h/ln	1460	0	0	1533	0	0	1795	1791	1862	1739	1735	1430
Q Serve(g_s), s	9.8	0.0	0.0	0.0	0.0	0.0	1.5	6.2	6.2	0.2	5.7	6.1
Cycle Q Clear(g_c), s	11.2	0.0	0.0	1.5	0.0	0.0	1.5	6.2	6.2	0.2	5.7	6.1
Prop In Lane	0.67		0.26	0.53		0.34	1.00		0.06	1.00		0.99
Lane Grp Cap(c), veh/h	621	0	0	635	0	0	447	626	651	358	491	405
V/C Ratio(X)	0.63	0.00	0.00	0.12	0.00	0.00	0.19	0.49	0.49	0.04	0.52	0.55
Avail Cap(c_a), veh/h	1056	0	0	1067	0	0	1060	2298	2390	1067	2226	1835
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	10.7	0.0	0.0	10.0	11.9	11.9	11.5	14.1	14.2
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.1	0.0	0.0	0.2	0.6	0.6	0.0	0.8	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	3.3	0.0	0.0	0.5	0.0	0.0	0.5	2.1	2.1	0.1	2.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	0.0	0.0	10.8	0.0	0.0	10.2	12.5	12.5	11.6	14.9	15.4
LnGrp LOS	B	A	A	B	A	A	B	B	B	B	B	B
Approach Vol, veh/h		392			79			707			488	
Approach Delay, s/veh		14.9			10.8			12.2			15.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	20.9		20.3	8.6	17.8		20.3
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.2	8.2		13.2	3.5	8.1		3.5
Green Ext Time (p_c), s	0.0	4.1		2.4	0.2	3.3		0.4

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

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Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	118	61	404	27	22	36	168	416	75	27	288	31
Future Volume (veh/h)	118	61	404	27	22	36	168	416	75	27	288	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1796	1796	1796	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	127	66	434	29	24	39	181	447	81	29	310	33
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	7	7	7	1	1	1	1	1	1
Cap, veh/h	131	43	826	122	65	651	233	812	146	73	586	62
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.13	0.27	0.27	0.04	0.18	0.18
Sat Flow, veh/h	0	109	1570	0	165	1496	1795	3015	542	1795	3254	343
Grp Volume(v), veh/h	193	0	434	53	0	39	181	264	264	29	169	174
Grp Sat Flow(s),veh/h/ln	109	0	1570	165	0	1496	1795	1791	1766	1795	1791	1807
Q Serve(g_s), s	0.0	0.0	8.3	0.0	0.0	0.7	4.5	5.8	5.9	0.7	3.9	4.0
Cycle Q Clear(g_c), s	18.0	0.0	8.3	18.0	0.0	0.7	4.5	5.8	5.9	0.7	3.9	4.0
Prop In Lane	0.66		1.00	0.55		1.00	1.00		0.31	1.00		0.19
Lane Grp Cap(c), veh/h	174	0	826	187	0	651	233	483	476	73	323	325
V/C Ratio(X)	1.11	0.00	0.53	0.28	0.00	0.06	0.78	0.55	0.55	0.40	0.52	0.53
Avail Cap(c_a), veh/h	174	0	826	187	0	651	374	883	870	236	745	752
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	7.1	11.6	0.0	7.5	19.2	14.3	14.3	21.4	16.9	17.0
Incr Delay (d2), s/veh	101.2	0.0	0.6	0.8	0.0	0.0	5.5	1.0	1.0	3.5	1.3	1.4
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	6.6	0.0	1.9	0.3	0.0	0.2	2.0	2.0	2.0	0.3	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.7	0.0	7.8	12.4	0.0	7.5	24.7	15.3	15.3	24.9	18.3	18.3
LnGrp LOS	F	A	A	B	A	A	C	B	B	C	B	B
Approach Vol, veh/h		627			92			709			372	
Approach Delay, s/veh		42.2			10.3			17.7			18.8	
Approach LOS		D			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	6.3	16.8		22.5	10.4	12.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	6.0	22.5		18.0	9.5	19.0				
Max Q Clear Time (g_c+I1), s		20.0	2.7	7.9		20.0	6.5	6.0				
Green Ext Time (p_c), s		0.0	0.0	2.7		0.0	0.1	1.5				

Intersection Summary	
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	15	36	65	16	73	57	573	215	70	668	6
Future Volume (veh/h)	1	15	36	65	16	73	57	573	215	70	668	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	1	16	38	68	17	76	59	597	224	73	696	6
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	331	75	179	366	46	204	516	1028	385	474	1513	13
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.06	0.41	0.41	0.07	0.42	0.42
Sat Flow, veh/h	1310	490	1163	1356	296	1324	1795	2531	948	1795	3638	31
Grp Volume(v), veh/h	1	0	54	68	0	93	59	422	399	73	343	359
Grp Sat Flow(s),veh/h/ln	1310	0	1652	1356	0	1620	1795	1791	1688	1795	1791	1879
Q Serve(g_s), s	0.0	0.0	1.0	1.7	0.0	1.9	0.7	6.7	6.7	0.8	5.1	5.1
Cycle Q Clear(g_c), s	1.9	0.0	1.0	2.7	0.0	1.9	0.7	6.7	6.7	0.8	5.1	5.1
Prop In Lane	1.00		0.70	1.00		0.82	1.00		0.56	1.00		0.02
Lane Grp Cap(c), veh/h	331	0	254	366	0	249	516	727	685	474	745	781
V/C Ratio(X)	0.00	0.00	0.21	0.19	0.00	0.37	0.11	0.58	0.58	0.15	0.46	0.46
Avail Cap(c_a), veh/h	1202	0	1353	1269	0	1327	1385	2934	2765	1326	2934	3077
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	13.6	14.8	0.0	13.9	5.7	8.5	8.5	5.9	7.7	7.7
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.2	0.0	0.9	0.1	0.7	0.8	0.1	0.4	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	0.0	0.0	0.4	0.5	0.0	0.7	0.2	1.8	1.7	0.2	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	0.0	14.0	15.0	0.0	14.8	5.8	9.2	9.2	6.1	8.2	8.1
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		55			161			880			775	
Approach Delay, s/veh		14.0			14.9			9.0			8.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	19.4		10.1	6.8	19.7		10.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.8	8.7		3.9	2.7	7.1		4.7
Green Ext Time (p_c), s	0.1	6.1		0.3	0.1	4.8		0.7

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	52	18	147	76	612	23	138	232	815	101	66
Future Volume (vph)	53	52	18	147	76	612	23	138	232	815	101	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.96	0.99	0.99	
Frt		0.961				0.850			0.850		0.980	
Flt Protected	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (prot)	1770	1772	0	1752	1845	1553	1787	1881	1599	1665	1659	0
Flt Permitted	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (perm)	1742	1772	0	1725	1845	1494	1772	1881	1537	1641	1644	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				631			239		7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	2%	2%	2%	3%	3%	4%	1%	1%	1%	3%	2%	2%
Adj. Flow (vph)	55	54	19	152	78	631	24	142	239	840	104	68
Shared Lane Traffic (%)										40%		
Lane Group Flow (vph)	55	73	0	152	78	631	24	142	239	504	508	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	11.1	23.7		23.4	36.0	36.0	25.9	25.9	25.9	50.0	50.0	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	7.1	10.2		13.6	16.6	16.6	14.3	14.3	14.3	34.8	34.8	
Actuated g/C Ratio	0.08	0.11		0.15	0.19	0.19	0.16	0.16	0.16	0.39	0.39	
v/c Ratio	0.39	0.34		0.57	0.23	0.80	0.08	0.47	0.53	0.78	0.78	
Control Delay	57.2	41.5		49.7	36.2	11.6	40.3	45.8	10.6	35.3	35.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	57.2	41.5		49.7	36.2	11.6	40.3	45.8	10.6	35.3	35.2	
LOS	E	D		D	D	B	D	D	B	D	D	
Approach Delay		48.2			20.6			24.7			35.2	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	31	34		82	39	0	12	77	0	252	251	
Queue Length 95th (ft)	#101	88		184	90	115	42	168	72	#560	#562	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	145	432		411	720	968	475	500	584	942	941	
Starvation Cap Reductn	0	0		0	0	4	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.38	0.17		0.37	0.11	0.65	0.05	0.28	0.41	0.54	0.54	

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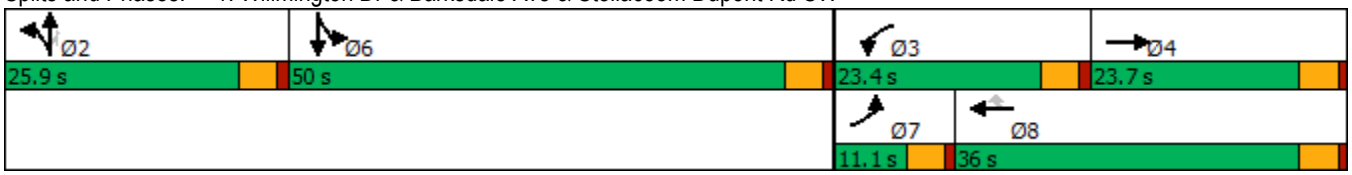
Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 89	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	340	307	255	526	651	518
Future Volume (veh/h)	340	307	255	526	651	518
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1826	1826	1841	1885	1885
Adj Flow Rate, veh/h	370	334	277	572	708	563
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	5	5	4	1	1
Cap, veh/h	437	386	316	1214	825	683
Arrive On Green	0.25	0.25	0.18	0.66	0.44	0.44
Sat Flow, veh/h	1753	1547	1739	1841	1885	1561
Grp Volume(v), veh/h	370	334	277	572	708	563
Grp Sat Flow(s),veh/h/ln	1753	1547	1739	1841	1885	1561
Q Serve(g_s), s	19.9	20.5	15.3	15.2	33.5	31.4
Cycle Q Clear(g_c), s	19.9	20.5	15.3	15.2	33.5	31.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	437	386	316	1214	825	683
V/C Ratio(X)	0.85	0.87	0.88	0.47	0.86	0.82
Avail Cap(c_a), veh/h	708	625	562	1934	1295	1072
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	35.3	35.6	39.4	8.3	25.1	24.5
Incr Delay (d2), s/veh	5.3	7.2	7.6	0.3	3.6	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	16.8	6.9	4.9	14.3	11.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.6	42.8	47.0	8.6	28.7	27.6
LnGrp LOS	D	D	D	A	C	C
Approach Vol, veh/h	704			849	1271	
Approach Delay, s/veh	41.7			21.1	28.2	
Approach LOS	D			C	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		70.3		28.7	22.0	48.3
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		104.0		40.0	32.0	68.0
Max Q Clear Time (g_c+I1), s		17.2		22.5	17.3	35.5
Green Ext Time (p_c), s		3.8		2.2	0.7	7.8

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

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Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	143	336	696	163	174	146
Future Volume (veh/h)	143	336	696	163	174	146
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	0.98
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	1841	1841	1870	1856	1856	1870
Adj Flow Rate, veh/h	159	373	773	181	193	162
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	2	3	3	2
Cap, veh/h	386	1988	1131	265	236	198
Arrive On Green	0.09	0.57	0.40	0.40	0.26	0.26
Sat Flow, veh/h	1753	3589	2935	665	900	755
Grp Volume(v), veh/h	159	373	483	471	356	0
Grp Sat Flow(s),veh/h/ln	1753	1749	1777	1730	1660	0
Q Serve(g_s), s	2.5	2.7	11.9	11.9	10.7	0.0
Cycle Q Clear(g_c), s	2.5	2.7	11.9	11.9	10.7	0.0
Prop In Lane	1.00			0.38	0.54	0.46
Lane Grp Cap(c), veh/h	386	1988	707	689	435	0
V/C Ratio(X)	0.41	0.19	0.68	0.68	0.82	0.00
Avail Cap(c_a), veh/h	815	4521	1559	1519	1331	0
HCM Platoon Ratio	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	0.00
Uniform Delay (d), s/veh	9.2	5.5	13.2	13.2	18.4	0.0
Incr Delay (d2), s/veh	0.7	0.0	1.2	1.2	3.9	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	0.8	0.7	4.0	3.9	4.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.9	5.6	14.4	14.4	22.2	0.0
LnGrp LOS	A	A	B	B	C	A
Approach Vol, veh/h		532	954		356	
Approach Delay, s/veh		6.9	14.4		22.2	
Approach LOS		A	B		C	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		34.6		18.4	9.0	25.6
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		68.5		42.5	17.5	46.5
Max Q Clear Time (g_c+I1), s		4.7		12.7	4.5	13.9
Green Ext Time (p_c), s		2.6		1.2	0.3	7.1

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	110	28	501	702	11
Future Volume (veh/h)	34	110	28	501	702	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	116	29	527	739	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	213	190	478	2099	1452	24
Arrive On Green	0.12	0.12	0.04	0.59	0.40	0.40
Sat Flow, veh/h	1795	1598	1795	3676	3699	59
Grp Volume(v), veh/h	36	116	29	527	367	384
Grp Sat Flow(s),veh/h/ln	1795	1598	1795	1791	1791	1873
Q Serve(g_s), s	0.5	2.1	0.2	2.2	4.7	4.7
Cycle Q Clear(g_c), s	0.5	2.1	0.2	2.2	4.7	4.7
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	213	190	478	2099	721	754
V/C Ratio(X)	0.17	0.61	0.06	0.25	0.51	0.51
Avail Cap(c_a), veh/h	1384	1232	1327	10282	3966	4147
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	12.1	12.8	4.6	3.1	6.8	6.8
Incr Delay (d2), s/veh	0.4	3.2	0.1	0.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.0	0.0	0.1	1.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.4	15.9	4.6	3.1	7.4	7.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	152			556	751	
Approach Delay, s/veh	15.1			3.2	7.4	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		22.4		8.1	5.6	16.8
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		87.5		23.5	15.5	67.5
Max Q Clear Time (g_c+I1), s		4.2		4.1	2.2	6.7
Green Ext Time (p_c), s		3.9		0.4	0.0	5.2

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

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	24	1	38	8	499	33	59	837	4
Future Volume (veh/h)	0	0	7	24	1	38	8	499	33	59	837	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	1.00		0.97	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	1885	1900	1885	1900	1885	1885	1885	1885	1900
Adj Flow Rate, veh/h	0	0	8	26	1	41	9	542	36	64	910	4
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, %	0	0	0	1	0	1	0	1	1	1	1	0
Cap, veh/h	0	0	119	330	4	119	17	1445	96	99	1719	8
Arrive On Green	0.00	0.00	0.08	0.08	0.08	0.08	0.01	0.42	0.42	0.05	0.47	0.47
Sat Flow, veh/h	0	0	1575	1289	50	1562	1810	3403	226	1795	3657	16
Grp Volume(v), veh/h	0	0	8	27	0	41	9	285	293	64	446	468
Grp Sat Flow(s),veh/h/ln	0	0	1575	1338	0	1562	1810	1791	1838	1795	1791	1882
Q Serve(g_s), s	0.0	0.0	0.1	0.5	0.0	0.8	0.2	3.3	3.3	1.1	5.3	5.3
Cycle Q Clear(g_c), s	0.0	0.0	0.1	0.7	0.0	0.8	0.2	3.3	3.3	1.1	5.3	5.3
Prop In Lane	0.00		1.00	0.96		1.00	1.00		0.12	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	119	334	0	119	17	761	781	99	842	885
V/C Ratio(X)	0.00	0.00	0.07	0.08	0.00	0.35	0.52	0.37	0.38	0.65	0.53	0.53
Avail Cap(c_a), veh/h	0	0	1555	1635	0	1543	1192	3538	3630	1182	3538	3717
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	13.0	13.4	0.0	13.3	15.0	6.0	6.0	14.1	5.7	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.1	0.0	1.7	21.7	0.3	0.3	7.0	0.5	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	0.0	0.0	0.0	0.2	0.0	0.3	0.2	0.6	0.7	0.5	0.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	13.3	13.5	0.0	15.0	36.7	6.3	6.3	21.0	6.2	6.2
LnGrp LOS	A	A	B	B	A	B	D	A	A	C	A	A
Approach Vol, veh/h		8			68			587			978	
Approach Delay, s/veh		13.3			14.4			6.7			7.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	17.4		6.8	4.8	18.8		6.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.1	5.3		2.1	2.2	7.3		2.8
Green Ext Time (p_c), s	0.1	3.8		0.0	0.0	6.8		0.2

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

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	10	67	18	20	13	60	342	32	25	581	267
Future Volume (veh/h)	187	10	67	18	20	13	60	342	32	25	581	267
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	197	11	71	19	21	14	63	360	34	26	612	281
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	374	28	95	209	214	113	388	1419	133	570	932	428
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.07	0.43	0.43	0.04	0.40	0.40
Sat Flow, veh/h	977	110	371	430	839	444	1795	3300	310	1795	2353	1080
Grp Volume(v), veh/h	279	0	0	54	0	0	63	194	200	26	466	427
Grp Sat Flow(s),veh/h/ln	1457	0	0	1714	0	0	1795	1791	1818	1795	1791	1642
Q Serve(g_s), s	7.4	0.0	0.0	0.0	0.0	0.0	1.0	3.4	3.5	0.4	10.4	10.4
Cycle Q Clear(g_c), s	8.6	0.0	0.0	1.1	0.0	0.0	1.0	3.4	3.5	0.4	10.4	10.4
Prop In Lane	0.71		0.25	0.35		0.26	1.00		0.17	1.00		0.66
Lane Grp Cap(c), veh/h	496	0	0	536	0	0	388	770	782	570	709	650
V/C Ratio(X)	0.56	0.00	0.00	0.10	0.00	0.00	0.16	0.25	0.26	0.05	0.66	0.66
Avail Cap(c_a), veh/h	1003	0	0	1093	0	0	992	2186	2219	1235	2186	2004
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	0.0	14.1	0.0	0.0	8.5	9.0	9.0	8.1	12.1	12.1
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.2	0.0	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	2.7	0.0	0.0	0.4	0.0	0.0	0.3	1.1	1.1	0.1	3.4	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	0.0	14.2	0.0	0.0	8.7	9.1	9.1	8.1	13.2	13.3
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	B	B
Approach Vol, veh/h		279			54			457			919	
Approach Delay, s/veh		17.7			14.2			9.1			13.1	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	25.7		17.0	8.1	24.1		17.0				
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5				
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0				
Max Q Clear Time (g_c+I1), s	2.4	5.5		10.6	3.0	12.4		3.1				
Green Ext Time (p_c), s	0.0	2.4		1.7	0.1	7.0		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		12.8
HCM 6th LOS		B

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Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	92	47	221	65	81	48	442	367	45	52	523	118
Future Volume (veh/h)	92	47	221	65	81	48	442	367	45	52	523	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1885	1885	1885	1856	1856	1856	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	97	49	233	68	85	51	465	386	47	55	551	124
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, %	1	1	1	3	3	3	1	1	1	1	1	1
Cap, veh/h	90	29	877	78	70	509	508	1499	181	103	698	156
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.28	0.47	0.47	0.06	0.24	0.24
Sat Flow, veh/h	0	106	1566	0	256	1541	1795	3206	387	1795	2886	647
Grp Volume(v), veh/h	146	0	233	153	0	51	465	214	219	55	341	334
Grp Sat Flow(s),veh/h/ln	106	0	1566	256	0	1541	1795	1791	1802	1795	1791	1741
Q Serve(g_s), s	0.0	0.0	5.2	0.0	0.0	1.5	16.6	4.8	4.9	2.0	11.8	11.9
Cycle Q Clear(g_c), s	18.0	0.0	5.2	18.0	0.0	1.5	16.6	4.8	4.9	2.0	11.8	11.9
Prop In Lane	0.66		1.00	0.44		1.00	1.00		0.21	1.00		0.37
Lane Grp Cap(c), veh/h	119	0	877	148	0	509	508	837	843	103	433	421
V/C Ratio(X)	1.23	0.00	0.27	1.03	0.00	0.10	0.91	0.26	0.26	0.53	0.79	0.79
Avail Cap(c_a), veh/h	119	0	877	148	0	509	528	867	872	173	513	499
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	0.0	7.7	25.3	0.0	15.4	23.0	10.7	10.7	30.4	23.5	23.6
Incr Delay (d2), s/veh	155.6	0.0	0.2	83.3	0.0	0.1	20.2	0.2	0.2	4.2	6.8	7.3
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	7.0	0.0	1.4	5.8	0.0	0.5	9.2	1.7	1.7	0.9	5.4	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	184.5	0.0	7.9	108.6	0.0	15.5	43.2	10.8	10.9	34.6	30.3	30.9
LnGrp LOS	F	A	A	F	A	B	D	B	B	C	C	C
Approach Vol, veh/h		379			204			898			730	
Approach Delay, s/veh		75.9			85.3			27.6			30.9	
Approach LOS		E			F			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	8.3	35.5		22.5	23.3	20.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	6.4	32.1		18.0	19.5	19.0				
Max Q Clear Time (g_c+I1), s		20.0	4.0	6.9		20.0	18.6	13.9				
Green Ext Time (p_c), s		0.0	0.0	2.5		0.0	0.2	1.8				

Intersection Summary	
HCM 6th Ctrl Delay	42.3
HCM 6th LOS	D

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	15	31	244	26	98	49	736	200	94	694	18
Future Volume (veh/h)	7	15	31	244	26	98	49	736	200	94	694	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	1.00		0.96	1.00		0.97	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	8	16	33	262	28	105	53	791	215	101	746	19
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	393	153	315	480	94	353	415	1139	310	351	1540	39
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.41	0.41	0.07	0.43	0.43
Sat Flow, veh/h	1237	542	1119	1363	335	1255	1795	2766	752	1795	3565	91
Grp Volume(v), veh/h	8	0	49	262	0	133	53	512	494	101	375	390
Grp Sat Flow(s),veh/h/ln	1237	0	1661	1363	0	1590	1795	1791	1727	1795	1791	1865
Q Serve(g_s), s	0.3	0.0	1.2	10.0	0.0	3.7	0.9	13.4	13.4	1.8	8.6	8.6
Cycle Q Clear(g_c), s	4.0	0.0	1.2	11.3	0.0	3.7	0.9	13.4	13.4	1.8	8.6	8.6
Prop In Lane	1.00		0.67	1.00		0.79	1.00		0.44	1.00		0.05
Lane Grp Cap(c), veh/h	393	0	467	480	0	447	415	738	711	351	774	806
V/C Ratio(X)	0.02	0.00	0.10	0.55	0.00	0.30	0.13	0.69	0.69	0.29	0.48	0.48
Avail Cap(c_a), veh/h	696	0	875	814	0	837	955	1886	1818	856	1886	1964
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	0.0	15.2	19.3	0.0	16.1	9.0	13.8	13.8	10.0	11.6	11.6
Incr Delay (d2), s/veh	0.0	0.0	0.1	1.0	0.0	0.4	0.1	1.2	1.2	0.4	0.5	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	0.1	0.0	0.5	3.1	0.0	1.3	0.3	4.7	4.5	0.6	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	15.3	20.3	0.0	16.4	9.2	15.0	15.0	10.5	12.1	12.1
LnGrp LOS	B	A	B	C	A	B	A	B	B	B	B	B
Approach Vol, veh/h		57			395			1059			866	
Approach Delay, s/veh		15.6			19.0			14.7			11.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	28.0		20.5	7.3	29.1		20.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.8	15.4		6.0	2.9	10.6		13.3
Green Ext Time (p_c), s	0.2	8.0		0.2	0.1	5.3		1.5

Intersection Summary	
HCM 6th Ctrl Delay	14.4
HCM 6th LOS	B

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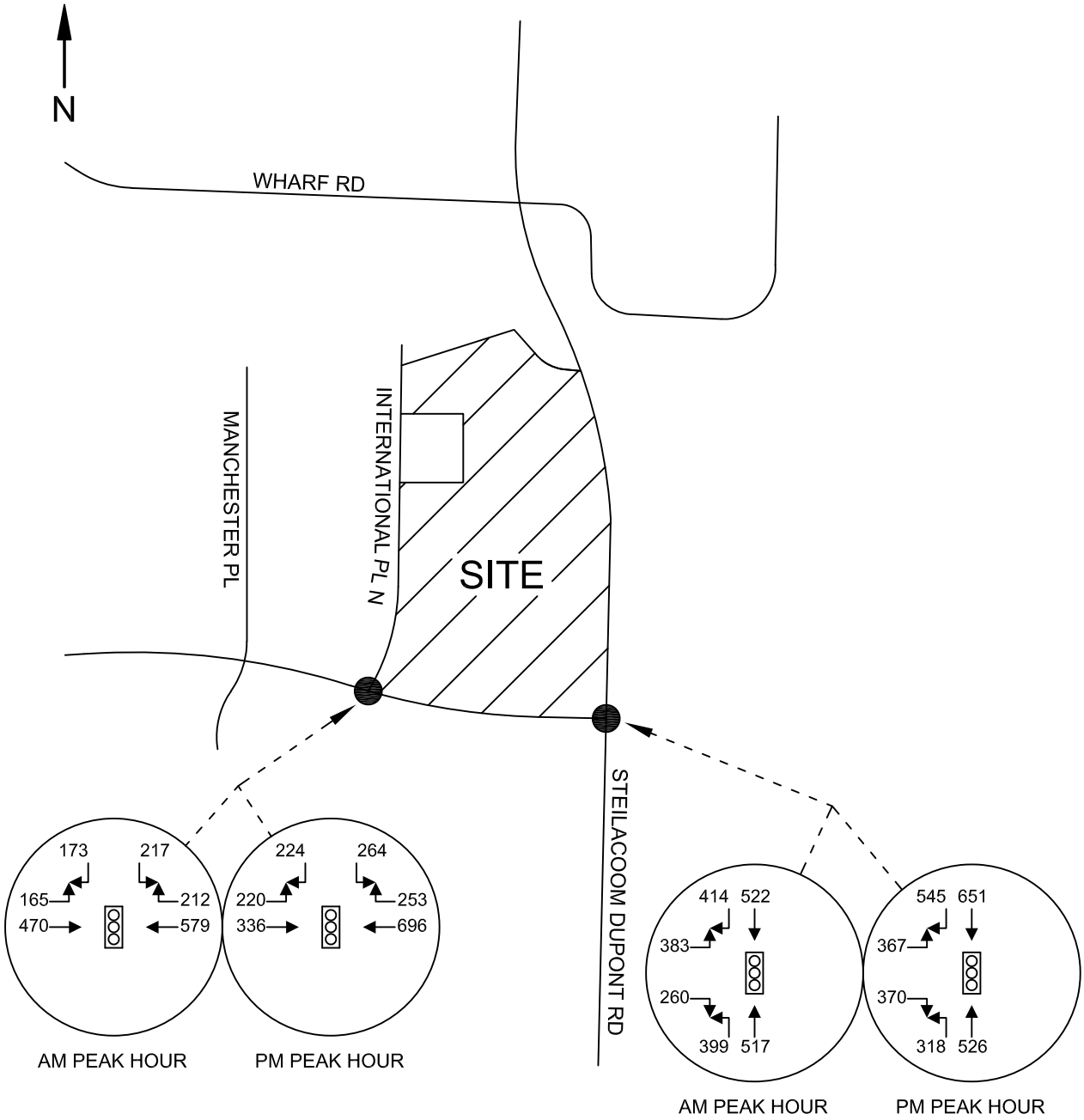
APPENDIX

QUEUING ANALYSIS



HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

FORECAST 2022 PEAK HOUR VOLUMES - PEAK SEASON QUEUING

FIGURE L

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Intersection: 3: Center Drive & Steilacoom-Dupont Rd

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	479	105	275	1318	1054	250
Average Queue (ft)	290	47	267	854	776	226
95th Queue (ft)	438	88	303	1540	1258	320
Link Distance (ft)	1070	1070		1274	1004	
Upstream Blk Time (%)				14	23	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			250			225
Storage Blk Time (%)			40	1	37	2
Queuing Penalty (veh)			227	4	168	9

Intersection: 4: Center Drive & International Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	117	101	38	151	208	104
Average Queue (ft)	52	22	9	42	77	38
95th Queue (ft)	92	66	32	106	150	89
Link Distance (ft)		919	919	1070	1070	319
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 408

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Intersection: 3: Center Drive & Steilacoom-Dupont Rd

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	657	389	275	1333	1035	250
Average Queue (ft)	419	139	270	1157	672	214
95th Queue (ft)	725	339	296	1660	1152	326
Link Distance (ft)	1070	1070		1274	1004	
Upstream Blk Time (%)				46	11	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			250			225
Storage Blk Time (%)			54	0	33	0
Queuing Penalty (veh)			306	2	149	2

Intersection: 4: Center Drive & International Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	152	153	140	256	279	316
Average Queue (ft)	69	71	58	116	152	176
95th Queue (ft)	124	129	112	222	261	290
Link Distance (ft)		919	919	1070	1070	319
Upstream Blk Time (%)						1
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	200					
Storage Blk Time (%)	0					
Queuing Penalty (veh)	1					

Network Summary

Network wide Queuing Penalty: 460

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Intersection: 3: Center Drive & Steilacoom-Dupont Rd

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	503	335	274	592	1048	250
Average Queue (ft)	283	154	221	225	978	227
95th Queue (ft)	433	270	308	467	1240	318
Link Distance (ft)	1070	1070		1274	1004	
Upstream Blk Time (%)					39	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)			250			225
Storage Blk Time (%)			10	2	36	1
Queuing Penalty (veh)			56	5	201	8

Intersection: 4: Center Drive & International Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	140	123	109	245	275	319
Average Queue (ft)	66	49	49	123	156	157
95th Queue (ft)	113	102	95	214	254	280
Link Distance (ft)		919	919	1070	1070	319
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	200					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 270

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Intersection: 3: Center Drive & Steilacoom-Dupont Rd

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	494	330	275	1107	1049	250
Average Queue (ft)	301	182	255	446	980	229
95th Queue (ft)	458	299	311	954	1229	315
Link Distance (ft)	1070	1070		1274	1004	
Upstream Blk Time (%)				1	42	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			250			225
Storage Blk Time (%)			26	2	39	2
Queuing Penalty (veh)			151	6	233	15

Intersection: 4: Center Drive & International Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	196	132	124	264	308	365
Average Queue (ft)	95	46	48	142	180	297
95th Queue (ft)	157	97	101	246	290	410
Link Distance (ft)		919	919	1070	1070	319
Upstream Blk Time (%)						39
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	200					
Storage Blk Time (%)	0					
Queuing Penalty (veh)	1					

Network Summary

Network wide Queuing Penalty: 406

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SNOW BLOSSOM FULFILLMENT CENTER
TRAFFIC IMPACT ANALYSIS

APPENDIX

INTERSECTION COUNT SHEETS

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

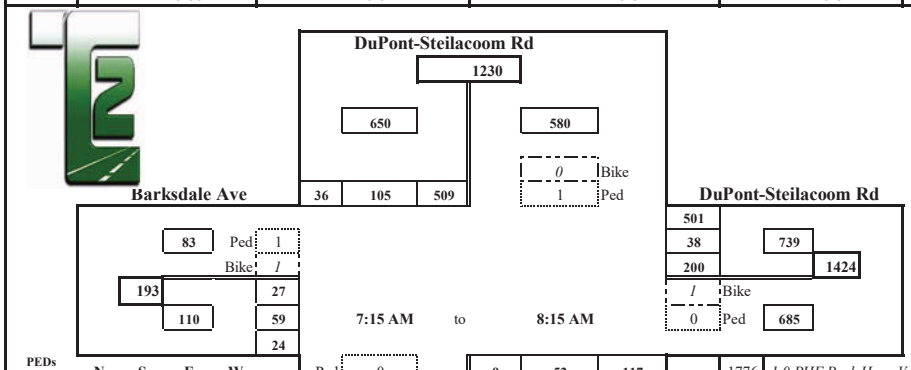
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: DuPont-Steilacoom Rd/Wilmington Dr & DuPont-Steilacoom Rd/Barksdale Ave **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) DuPont-Steilacoom Rd				From South on (NB) Wilmington Dr				From East on (WB) DuPont-Steilacoom Rd				From West on (EB) Barksdale Ave				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	2	112	8	8	1	0	6	32	6	43	14	136	0	6	12	2	379
7:30 A	2	108	30	10	1	3	10	32	4	57	10	154	0	10	16	4	444
7:45 A	10	136	23	7	1	1	11	31	8	47	5	151	0	4	16	4	436
8:00 A	12	137	33	13	1	2	13	31	2	56	12	98	3	8	8	6	417
8:15 A	9	128	19	6	1	3	18	23	7	40	11	98	2	5	19	10	380
8:30 A	11	105	19	10	0	3	14	41	3	36	9	106	0	12	12	3	370
8:45 A	14	120	14	12	0	7	16	49	3	27	16	106	1	11	13	8	399
9:00 A	3	90	12	10	1	5	10	34	5	35	11	126	1	10	16	10	369
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	63	936	158	76	6	24	98	273	38	341	88	975	7	66	112	47	3194
Peak Hour: 7:15 AM to 8:15 AM																	
Total	33	509	105	36	4	9	52	117	21	200	38	501	5	27	59	24	1677
Approach	650				178				739				110				1677
%HV	5.1%				2.2%				2.8%				4.5%				3.8%
PHF	0.89				0.97				0.84				0.81				0.94



1776 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.81	4.5%
Check	WB	0.84	2.8%
In: 1677	NB	0.97	2.2%
Out: 1677	SB	0.89	5.1%
	T Int.	0.94	3.8%

PEDs Across:	N	S	E	W	
INT 01					0
INT 02	1				1
INT 03					0
INT 04					0
INT 05				1	1
INT 06					0
INT 07					0
INT 08		1	1		2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	1	1	1	4

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01				1	1			1	
INT 02					0			0	
INT 03			1		1			0	
INT 04				1	1			0	
INT 05					0			0	
INT 06			1		1			0	
INT 07					0			0	
INT 08					0			0	
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	0	2	2	4	0	0	1	0

GRT19097TM_06a

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

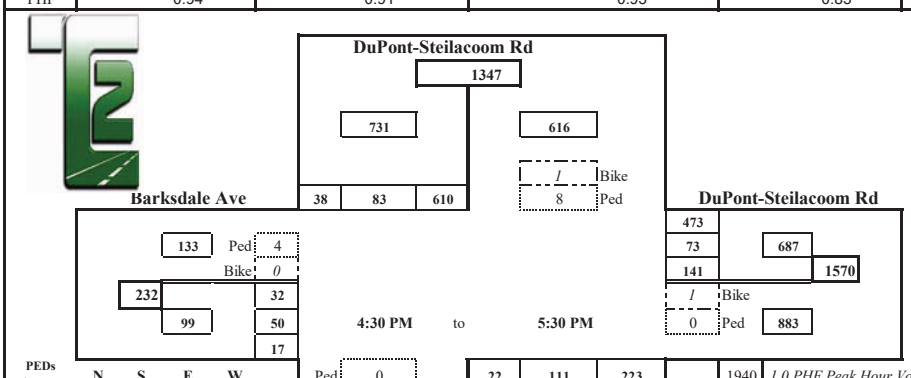
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: DuPont-Steilacoom Rd/Wilmington Dr & DuPont-Steilacoom Rd/Barksdale Ave **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) DuPont-Steilacoom Rd				From South on (NB) Wilmington Dr				From East on (WB) DuPont-Steilacoom Rd				From West on (EB) Barksdale Ave				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	7	131	9	5	2	8	25	54	2	32	16	110	1	11	20	7	428
4:30 P	4	167	13	10	0	4	12	31	1	36	20	114	0	10	19	5	441
4:45 P	4	167	16	7	1	4	23	61	5	26	20	119	1	6	8	3	460
5:00 P	0	146	20	15	2	9	41	48	6	38	10	132	1	8	14	4	485
5:15 P	4	160	26	8	0	5	28	46	3	31	19	117	0	8	12	6	466
5:30 P	4	137	21	8	0	4	19	68	4	46	24	105	0	10	16	4	462
5:45 P	3	124	15	8	1	3	27	57	1	46	21	123	1	8	11	5	448
6:00 P	3	97	15	2	0	2	13	34	3	38	18	125	1	10	12	8	374
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	29	1129	135	63	6	39	188	399	25	293	148	945	5	71	112	42	3564
	Peak Hour: 4:30 PM to 5:30 PM																
Total	12	610	83	38	3	22	111	223	18	141	73	473	2	32	50	17	1873
Approach	731				356				687				99				1873
%HV	1.6%				0.8%				2.6%				2.0%				1.9%
PHF	0.94				0.91				0.95				0.83				0.97



1940 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.83	2.0%
Check	WB	0.95	2.6%
In: 1873	NB	0.91	0.8%
Out: 1873	SB	0.94	1.6%
	T Int.	0.97	1.9%

PEDs Across:	N	S	E	W	
INT 01	1	1	1	1	4
INT 02					0
INT 03					0
INT 04	4			4	8
INT 05	4				4
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	9	1	1	5	16

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01			1		1	0			
INT 02					0	0			
INT 03			1		1	0			
INT 04					0	1			
INT 05					0	0			
INT 06	1				1	0			
INT 07	1				1	0			
INT 08				1	1	0			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	2	0	2	1	5	1	0	0	0

GRT19097TM_06p

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

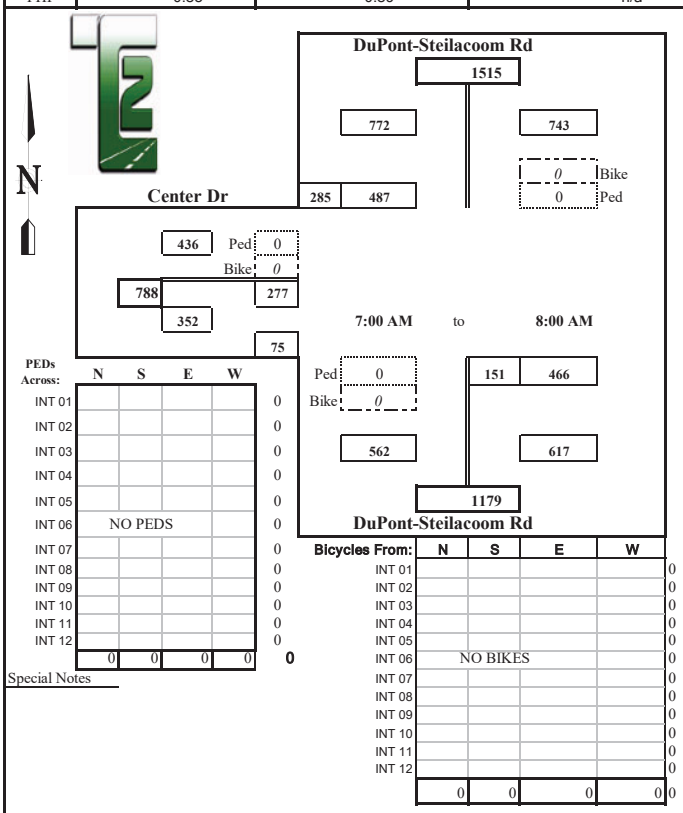
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: DuPont-Steilacoom Rd & Center Dr **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) DuPont-Steilacoom Rd				From South on (NB) DuPont-Steilacoom Rd				From East on (WB) 0				From West on (EB) Center Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	0	90	36	9	35	125	0	0	0	0	0	2	87	0	22	395
7:30 A	5	0	128	72	5	49	117	0	0	0	0	0	2	70	0	11	447
7:45 A	9	0	140	93	8	34	139	0	0	0	0	0	6	60	0	16	482
8:00 A	7	0	129	84	4	33	85	0	0	0	0	0	3	60	0	26	417
8:15 A	9	0	120	55	6	20	88	0	0	0	0	0	9	85	0	17	385
8:30 A	12	0	109	43	4	20	105	0	0	0	0	0	4	53	0	18	348
8:45 A	10	0	95	30	4	22	109	0	0	0	0	0	7	85	0	28	369
9:00 A	5	0	73	32	6	20	108	0	0	0	0	0	2	102	0	28	363
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	60	0	884	445	46	233	876	0	0	0	0	0	35	602	0	166	3206
	Peak Hour: 7:00 AM to 8:00 AM																
Total	24	0	487	285	26	151	466	0	0	0	0	0	13	277	0	75	1741
Approach	772				617				0				352				1741
%HV	3.1%				4.2%				n/a				3.7%				3.6%
PHF	0.83				0.89				n/a				0.81				0.90



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO PEDS				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	NO BIKES				0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	0	0

1928 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.81	3.7%
Check	WB	n/a	n/a
In: 1741	NB	0.89	4.2%
Out: 1741	SB	0.83	3.1%
	T Int.	0.90	3.6%

Conditions:

GRT19097TM_05a

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

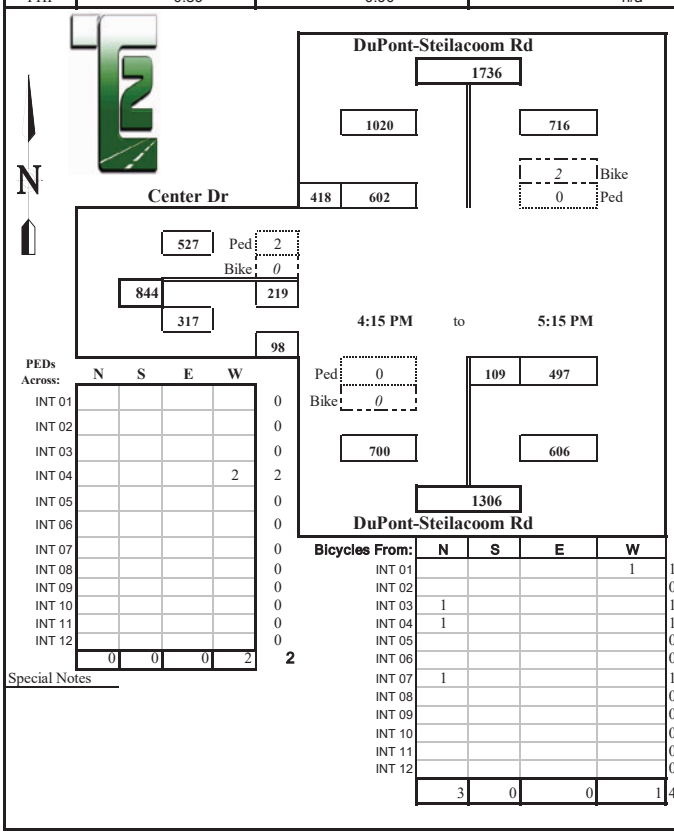
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: DuPont-Steilacoom Rd & Center Dr **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) DuPont-Steilacoom Rd				From South on (NB) DuPont-Steilacoom Rd				From East on (WB) 0				From West on (EB) Center Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	6	0	128	67	5	20	105	0	0	0	0	0	5	35	0	28	383
4:30 P	3	0	155	75	3	26	105	0	0	0	0	0	5	55	0	28	444
4:45 P	2	0	122	95	7	20	124	0	0	0	0	0	5	55	0	34	450
5:00 P	0	0	165	121	7	38	130	0	0	0	0	0	0	54	0	15	523
5:15 P	4	0	160	127	8	25	138	0	0	0	0	0	2	55	0	21	526
5:30 P	0	0	123	115	3	32	99	0	0	0	0	0	3	55	0	17	441
5:45 P	0	0	102	96	2	40	82	0	0	0	0	0	4	66	0	20	406
6:00 P	3	0	79	82	5	47	98	0	0	0	0	0	2	57	0	17	380
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	18	0	1034	778	40	248	881	0	0	0	0	0	26	432	0	180	3553
Peak Hour: 4:15 PM to 5:15 PM																	
Total	9	0	602	418	25	109	497	0	0	0	0	0	12	219	0	98	1943
Approach	1020				606				0				317				1943
%HV	0.9%				4.1%				n/a				3.8%				2.4%
PHF	0.89				0.90				n/a				0.89				0.92



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04				2	2
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	2	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03	1				1
INT 04	1				1
INT 05					0
INT 06					0
INT 07	1				1
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	0	0	1	4

2104 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.89	3.8%
Check	WB	n/a	n/a
In: 1943	NB	0.90	4.1%
Out: 1943	SB	0.89	0.9%
	T Int.	0.92	2.4%

Conditions:

GRT19097TM_05p

Prepared for: **PH Consulting LLC**

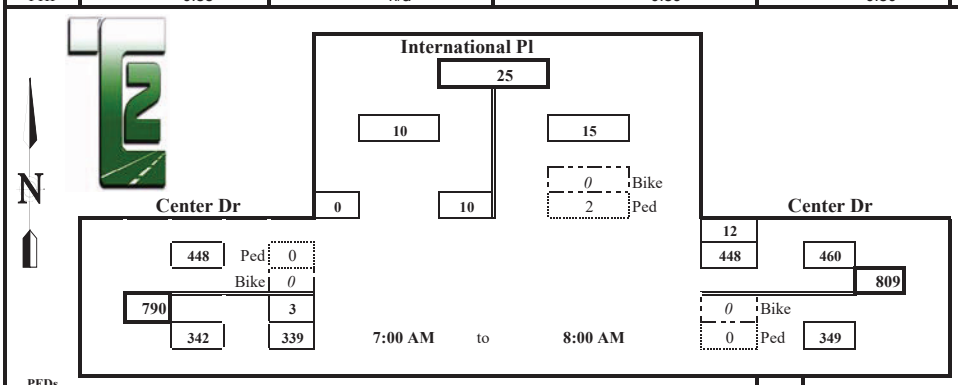
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: International Pl & Center Dr
Location: Dupont, Washington
Date of Count: Tues 10/03/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) International Pl				From South on (NB) 0				From East on (WB) Center Dr				From West on (EB) Center Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	3	3	0	0	0	0	0	0	3	0	88	3	3	0	107	0	201
7:30 A	2	2	0	0	0	0	0	0	6	0	115	5	0	0	77	0	199
7:45 A	3	3	0	0	0	0	0	0	2	0	119	1	0	1	77	0	201
8:00 A	2	2	0	0	0	0	0	0	11	0	126	3	4	2	78	0	211
8:15 A	2	2	0	0	0	0	0	0	1	0	65	1	4	0	78	0	146
8:30 A	2	1	0	1	0	0	0	0	2	0	40	1	3	0	81	0	124
8:45 A	2	2	0	0	0	0	0	0	6	0	55	4	0	0	99	0	160
9:00 A	1	1	0	0	0	0	0	0	2	0	44	1	4	0	144	0	190
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	17	16	0	1	0	0	0	0	33	0	652	19	18	3	741	0	1432
Peak Hour: 7:00 AM to 8:00 AM																	
Total	10	10	0	0	0	0	0	0	22	0	448	12	7	3	339	0	812
Approach	10				0				460				342				812
%HV	100.0%				n/a				4.8%				2.0%				4.8%
PHF	0.83				n/a				0.89				0.80				0.96



844 *1.0 PHF Peak Hour Volume*

PEDs Across:	N	S	E	W	
INT 01					0
INT 02	2				2
INT 03					0
INT 04					0
INT 05					0
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	0	0	0	2

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06				1	1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	1	1

			PHF	%HV
		EB	0.80	2.0%
Check		WB	0.89	4.8%
In:	812	NB	n/a	n/a
Out:	812	SB	0.83	100.0%
		T Int.	0.96	4.8%

N U's	S U's	E U's	W U's
			0
			0
			0
			0
			0
			0
			1
			0
0	0	0	1

PHC17102M_01a

Prepared for: **PH Consulting LLC**

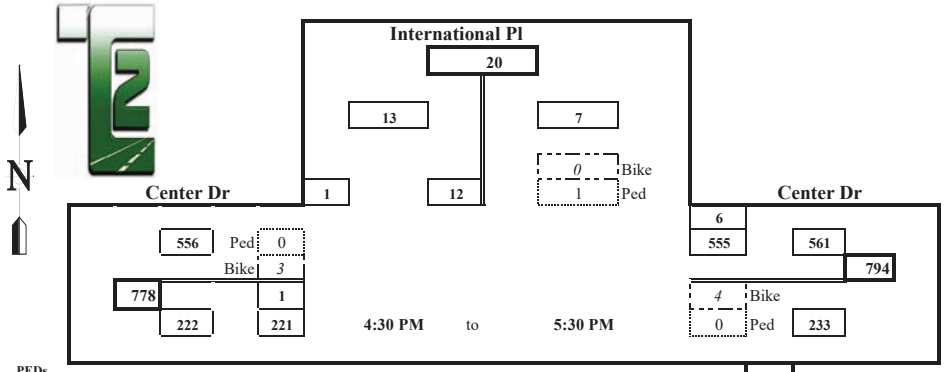
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: International Pl & Center Dr
Location: Dupont, Washington
Date of Count: Tues 10/03/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) International Pl				From South on (NB) 0				From East on (WB) Center Dr				From West on (EB) Center Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	3	0	6	0	0	0	0	2	0	91	0	5	0	55	0	155
4:30 P	0	2	0	1	0	0	0	0	2	0	86	0	4	0	48	0	137
4:45 P	0	7	0	1	0	0	0	0	4	0	108	3	1	0	54	0	173
5:00 P	0	4	0	0	0	0	0	0	2	0	164	0	3	0	52	0	220
5:15 P	0	1	0	0	0	0	0	0	3	0	139	1	3	0	63	0	204
5:30 P	0	0	0	0	0	0	0	0	1	0	144	2	2	1	52	0	199
5:45 P	1	1	0	1	0	0	0	0	0	0	106	1	4	0	62	0	171
6:00 P	1	2	0	3	0	0	0	0	0	0	132	1	3	0	59	0	197
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	3	20	0	12	0	0	0	0	14	0	970	8	25	1	445	0	1456
Peak Hour: 4:30 PM to 5:30 PM																	
Total	0	12	0	1	0	0	0	0	10	0	555	6	9	1	221	0	796
Approach	13				0				561				222				796
%HV	n/a				n/a				1.8%				4.1%				2.4%
PHF	0.41				n/a				0.86				0.88				0.90



880 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.88	4.1%
Check	WB	0.86	1.8%
In: 796	NB	n/a	n/a
Out: 796	SB	0.41	n/a
	T Int.	0.90	2.4%

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	1				1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	0	0	1

Special Notes

Bicycles From:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03			1	1	2
INT 04			1	1	2
INT 05					0
INT 06			2	1	3
INT 07	1		1		2
INT 08				1	1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	0	5	5	11

PHC17102M_01p

Prepared for: **PH Consulting LLC**

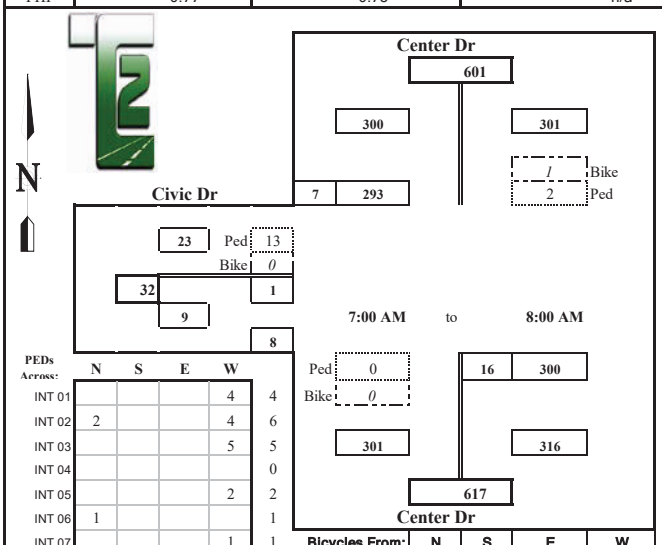
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Civic Dr
Location: Dupont, Washington
Date of Count: Tues 9/05/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) 0				From West on (EB) Civic Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	0	52	0	3	5	101	0	0	0	0	0	0	0	0	0	158
7:30 A	2	0	65	5	3	4	60	0	0	0	0	0	1	1	0	0	135
7:45 A	5	0	97	1	1	1	65	0	0	0	0	0	0	0	0	7	171
8:00 A	4	0	79	1	3	6	74	0	0	0	0	0	0	0	0	1	161
8:15 A	0	0	32	3	4	4	67	0	0	0	0	0	0	0	0	2	108
8:30 A	0	0	38	2	3	5	60	0	0	0	0	0	0	2	0	1	108
8:45 A	2	0	49	3	3	2	62	0	0	0	0	0	0	1	0	5	122
9:00 A	2	0	52	0	3	5	54	0	0	0	0	0	0	1	0	1	113
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	16	0	464	15	23	32	543	0	0	0	0	0	1	5	0	17	1076
Peak Hour: 7:00 AM to 8:00 AM																	
Total	12	0	293	7	10	16	300	0	0	0	0	0	1	1	0	8	625
Approach	300				316				0				9				625
%HV	4.0%				3.2%				n/a				11.1%				3.7%
PHF	0.77				0.75				n/a				0.32				0.91



684 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.32	11.1%
Check	WB	n/a	n/a
In: 625	NB	0.75	3.2%
Out: 625	SB	0.77	4.0%
	T Int.	0.91	3.7%

PEDs Across:	N	S	E	W	
INT 01				4	4
INT 02	2			4	6
INT 03				5	5
INT 04					0
INT 05				2	2
INT 06	1				1
INT 07				1	1
INT 08				1	1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	3	0	0	17	20

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0	0			
INT 02					0	2			
INT 03					0	0			
INT 04	1				1	1			
INT 05		1			1	0			
INT 06					0	0			
INT 07	2	2			4	0			
INT 08	1				1	0			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	4	3	0	0	7	3	0	0	0

PHC17102M_05a

Prepared for: **PH Consulting LLC**

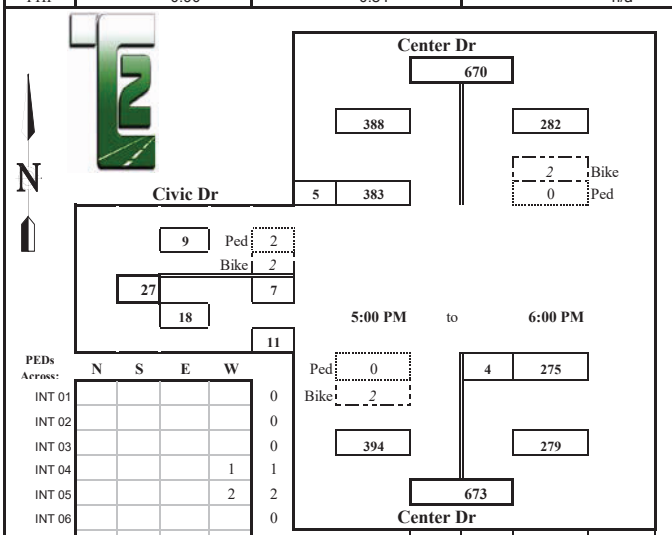
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Civic Dr
Location: Dupont, Washington
Date of Count: Tues 9/05/2017
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) 0				From West on (EB) Civic Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	0	82	2	2	0	51	0	0	0	0	0	0	2	0	4	141
4:30 P	0	0	83	0	3	0	52	0	0	0	0	0	0	0	0	6	141
4:45 P	1	0	94	0	2	2	68	0	0	0	0	0	0	2	0	4	170
5:00 P	1	0	91	0	0	2	55	0	0	0	0	0	0	1	0	2	151
5:15 P	1	0	106	2	1	0	51	0	0	0	0	0	0	3	0	5	167
5:30 P	0	0	97	1	1	0	65	0	0	0	0	0	0	1	0	4	168
5:45 P	1	0	89	0	0	1	79	0	0	0	0	0	0	0	0	0	169
6:00 P	0	0	91	2	0	3	80	0	0	0	0	0	0	3	0	2	181
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	0	733	7	9	8	501	0	0	0	0	0	0	12	0	27	1288
Peak Hour: 5:00 PM to 6:00 PM																	
Total	2	0	383	5	2	4	275	0	0	0	0	0	0	7	0	11	685
Approach	388				279				0				18				685
%HV	0.5%				0.7%				n/a				n/a				0.6%
PHF	0.90				0.84				n/a				0.56				0.95



PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03					0
INT 04				1	1
INT 05				2	2
INT 06					0
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	0	0	3	3

Special Notes

Bicycles From:	N	S	E	W	
INT 01		1			1
INT 02					0
INT 03					0
INT 04					0
INT 05					0
INT 06	2			2	4
INT 07		1			1
INT 08		1			1
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	2	3	0	2	7

724 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.56	n/a
Check	WB	n/a	n/a
In: 685	NB	0.84	0.7%
Out: 685	SB	0.90	0.5%
	T Int.	0.95	0.6%

N U's	S U's	E U's	W U's
0			
0			
2			
0			
0			
0			
1			
0			
3	0	0	0

PHC17102M_05p

Prepared for: **Geralyn Reinart, P.E.**

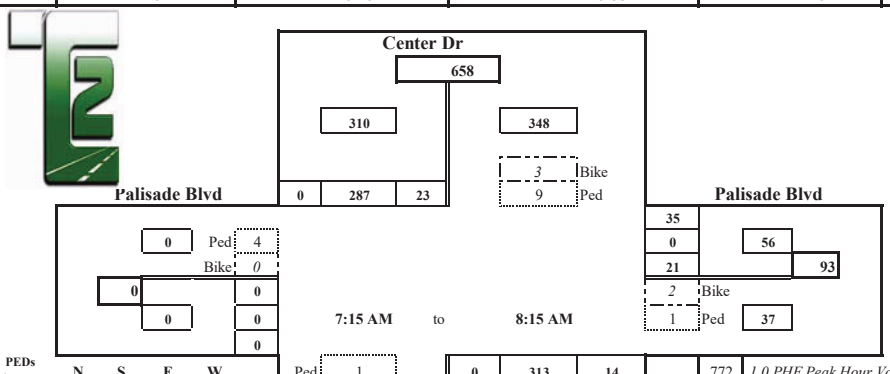
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Palisade Blvd
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Palisade Blvd				From West on (EB) Palisade Blvd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	6	30	0	0	0	90	2	0	5	0	7	0	0	0	0	140
7:30 A	2	4	46	0	0	0	96	7	0	5	0	7	0	0	0	0	165
7:45 A	7	5	91	0	0	0	67	3	0	7	0	9	0	0	0	0	182
8:00 A	7	6	101	0	1	0	69	2	0	5	0	10	0	0	0	0	193
8:15 A	0	8	49	0	6	0	81	2	1	4	0	9	0	0	0	0	153
8:30 A	1	6	44	0	1	0	62	5	0	6	0	2	0	0	0	0	125
8:45 A	1	3	48	0	1	1	92	7	0	4	0	9	0	0	0	0	164
9:00 A	2	5	56	0	3	0	105	5	0	9	0	6	0	0	0	0	186
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	20	43	465	0	12	1	662	33	1	45	0	59	0	0	0	0	1308
Peak Hour: 7:15 AM to 8:15 AM																	
Total	16	23	287	0	7	0	313	14	1	21	0	35	0	0	0	0	693
Approach	310				327				56				0				693
%HV	5.2%				2.1%				1.8%				n/a				3.5%
PHF	0.72				0.79				0.88				n/a				0.90



772 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	n/a	n/a
Check	WB	0.88	1.8%
In: 693	NB	0.79	2.1%
Out: 693	SB	0.72	5.2%
	T Int.	0.90	3.5%

PEDs Across:	N	S	E	W	
INT 01	1		2		3
INT 02					0
INT 03	1				1
INT 04	7	1		2	10
INT 05	1		1	2	4
INT 06			1	1	2
INT 07			1		1
INT 08			1	1	2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	10	1	6	6	23

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01				1	1	0			
INT 02	1				1	1			
INT 03	2		2		4	0			
INT 04					0	0			
INT 05					0	1			
INT 06		1			1	0			
INT 07					0	0			
INT 08	1				1	0			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	4	1	2	1	8	2	0	0	0

GRT19097TM_04a

Prepared for: **Geralyn Reinart, P.E.**

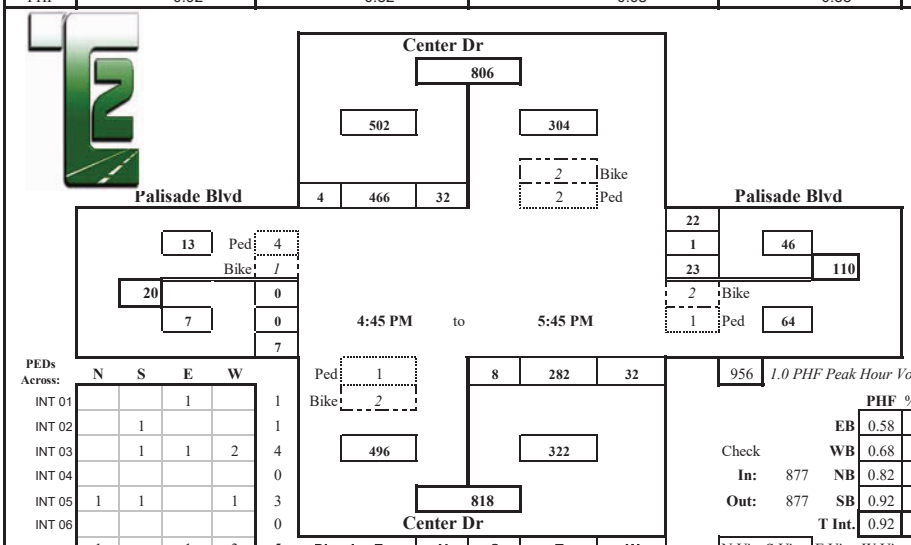
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Palisade Blvd
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Palisade Blvd				From West on (EB) Palisade Blvd				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	6	83	0	3	0	48	2	0	7	0	7	0	0	0	1	154
4:30 P	1	5	83	0	2	0	57	8	1	2	0	10	0	0	0	0	165
4:45 P	0	7	94	2	3	1	57	9	0	6	0	6	0	0	0	0	182
5:00 P	0	11	114	1	0	3	55	7	0	7	0	3	0	0	0	2	203
5:15 P	0	4	128	1	1	1	64	9	0	5	1	2	0	0	0	1	216
5:30 P	0	8	128	0	1	2	75	8	0	7	0	10	0	0	0	1	239
5:45 P	0	9	96	2	1	2	88	8	0	4	0	7	0	0	0	3	219
6:00 P	1	6	72	0	0	0	83	2	0	4	0	8	0	0	0	0	175
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	56	798	6	11	9	527	53	1	42	1	53	0	0	0	8	1553
	Peak Hour: 4:45 PM to 5:45 PM																
Total	0	32	466	4	3	8	282	32	0	23	1	22	0	0	0	7	877
Approach	502				322				46				7				877
%HV	n/a				0.9%				n/a				n/a				0.3%
PHF	0.92				0.82				0.68				0.58				0.92



PEDs Across:	N	S	E	W	
INT 01			1		1
INT 02		1			1
INT 03		1	1	2	4
INT 04					0
INT 05	1	1		1	3
INT 06					0
INT 07	1		1	3	5
INT 08	2		2	1	5
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	4	3	5	7	19

Special Notes

956 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.58	n/a
Check	WB	0.68	n/a
In: 877	NB	0.82	0.9%
Out: 877	SB	0.92	n/a
	T Int.	0.92	0.3%

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01		1			1	0	0		
INT 02					0	0	0		
INT 03					0	0	1		
INT 04	1				1	1	0		
INT 05	1	1		1	3	1	1		
INT 06		1	1		2	0	0		
INT 07			1		1	0	0		
INT 08		2		5	7	0	0		
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	2	5	2	6	15	2	2	0	0

GRT19097TM_04p

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

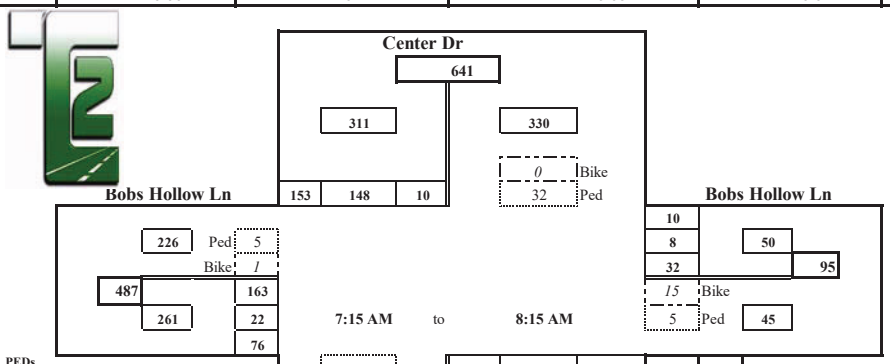
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Bobs Hollw Ln **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Bobs Hollow Ln				From West on (EB) Bobs Hollow Ln				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	0	25	11	0	4	45	0	0	6	1	3	0	43	5	8	151
7:30 A	2	2	27	17	0	7	65	4	0	13	0	5	0	33	3	7	183
7:45 A	7	1	43	42	0	23	33	4	0	9	2	1	0	34	2	8	202
8:00 A	7	4	44	70	1	18	26	1	0	7	3	1	5	52	7	39	272
8:15 A	0	3	34	24	1	17	33	4	0	3	3	3	4	44	10	22	200
8:30 A	1	2	31	14	0	6	38	1	0	7	0	3	1	28	3	8	141
8:45 A	0	1	34	15	0	1	52	0	0	7	1	4	1	40	15	13	183
9:00 A	3	4	42	14	3	6	53	2	0	12	9	10	1	43	24	11	230
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	20	17	280	207	5	82	345	16	0	64	19	30	12	317	69	116	1562
Peak Hour: 7:15 AM to 8:15 AM																	
Total	16	10	148	153	2	65	157	13	0	32	8	10	9	163	22	76	857
Approach	311				235				50				261				857
%HV	5.1%				0.9%				n/a				3.4%				3.2%
PHF	0.66				0.77				0.69				0.67				0.79



PEDs Across:	N	S	E	W	
INT 01			1		1
INT 02					0
INT 03	11		2		13
INT 04	18		2	4	24
INT 05	3		1	1	5
INT 06			2	1	3
INT 07	3		1		4
INT 08			2	1	3
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	35	0	11	7	53

Special Notes

Bicycles From:	N	S	E	W	
INT 01					0
INT 02					0
INT 03			6	1	7
INT 04		2	8		10
INT 05			1		1
INT 06		1			1
INT 07					0
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	0	3	15	1	19

1088 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.67	3.4%
Check	WB	0.69	n/a
In: 857	NB	0.77	0.9%
Out: 857	SB	0.66	5.1%
	T Int.	0.79	3.2%

Conditions:

GRT19097TM_03a

Prepared for: **Geralyn Reinart, P.E.**

Traffic Count Consultants, Inc.

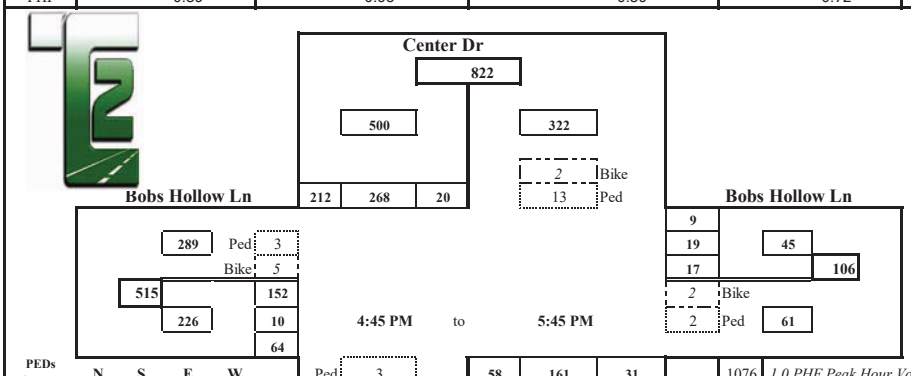
Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Bobs Hollw Ln **Date of Count:** Thurs 10/03/2019

Location: DuPont, Washington **Checked By:** Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Bobs Hollow Ln				From West on (EB) Bobs Hollow Ln				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	2	5	49	36	2	18	33	1	0	1	4	4	1	17	3	3	174
4:30 P	0	5	48	28	1	6	35	10	0	1	2	2	2	26	6	6	175
4:45 P	1	4	66	36	2	23	44	9	0	1	2	7	1	18	3	7	220
5:00 P	0	2	68	49	0	12	36	9	0	4	4	2	1	30	3	8	227
5:15 P	0	6	74	60	0	12	43	9	0	7	5	1	1	36	3	10	266
5:30 P	0	5	78	48	1	16	40	7	0	4	3	1	1	38	1	18	259
5:45 P	0	7	48	55	0	18	42	6	0	2	7	5	1	48	3	28	269
6:00 P	1	3	46	22	0	12	58	3	0	1	5	3	0	23	4	11	191
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	4	37	477	334	6	117	331	54	0	21	32	25	8	236	26	91	1781
	Peak Hour: 4:45 PM to 5:45 PM																
Total	0	20	268	212	1	58	161	31	0	17	19	9	4	152	10	64	1021
Approach	500				250				45				226				1021
%HV	n/a				0.4%				n/a				1.8%				0.5%
PHF	0.89				0.95				0.80				0.72				0.95



PEDs Across:	N	S	E	W	
INT 01	1	1		4	6
INT 02	6			4	10
INT 03	2		2		4
INT 04			1		1
INT 05	3	1			4
INT 06	6	1		2	9
INT 07	4	1	1	1	7
INT 08	7	1	3	1	12
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	29	5	7	12	53

Special Notes

Bicycles From:	N	S	E	W	
INT 01			1		1
INT 02		3			3
INT 03	1	3		2	6
INT 04	2		1		3
INT 05				2	2
INT 06		1	1	2	4
INT 07		1		1	2
INT 08	3	1			4
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	6	9	3	7	25

N U's	S U's	E U's	W U's
0			
0			
0			
0			
0			
1			
0			
0			
1	0	0	0

1076 *1.0 PHF Peak Hour Volume*

		PHF	%HV
	EB	0.72	1.8%
Check	WB	0.80	n/a
In: 1021	NB	0.95	0.4%
Out: 1021	SB	0.89	n/a
	T Int.	0.95	0.5%

GRT19097TM_03p

Prepared for: **Geralyn Reinart, P.E.**

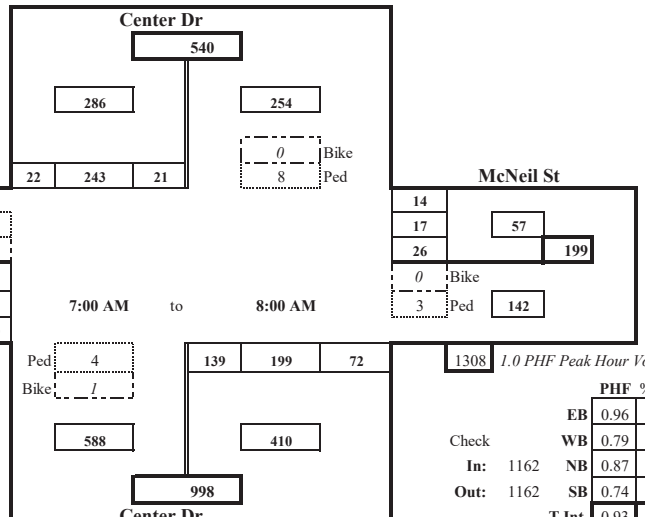
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & McNeil St
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) McNeil St				From West on (EB) McNeil St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	0	4	51	3	1	24	51	10	1	4	2	3	0	11	12	79	254
7:30 A	0	3	57	6	0	34	58	18	1	8	3	4	0	9	11	86	297
7:45 A	0	7	53	5	0	43	54	21	1	9	3	3	0	7	16	77	298
8:00 A	1	7	82	8	3	38	36	23	1	5	9	4	1	14	10	77	313
8:15 A	0	2	62	5	2	28	43	15	0	10	4	2	0	12	9	61	253
8:30 A	0	6	52	5	2	21	47	10	0	5	5	3	0	14	5	50	223
8:45 A	0	3	56	1	1	31	31	12	1	10	4	4	1	30	15	91	288
9:00 A	1	6	79	17	0	25	32	4	0	7	7	1	3	50	23	76	327
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	38	492	50	9	244	352	113	5	58	37	24	5	147	101	597	2253
Peak Hour:	7:00 AM to 8:00 AM																
Total	1	21	243	22	4	139	199	72	4	26	17	14	1	41	49	319	1162
Approach	286				410				57				409				1162
%HV	0.3%				1.0%				7.0%				0.2%				0.9%
PHF	0.74				0.87				0.79				0.96				0.93



1308 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.96	0.2%
WB	0.79	7.0%
NB	0.87	1.0%
SB	0.74	0.3%
T Int.	0.93	0.9%

Check In: 1162 Out: 1162

Conditions:

PEDs Across:	N	S	E	W	
INT 01	2	1		1	4
INT 02		3	1	2	6
INT 03	4			2	6
INT 04	2		2		4
INT 05					0
INT 06			1		1
INT 07			1		1
INT 08	2	1	2	1	6
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	10	5	7	6	28

Bicycles From:	N	S	E	W	
INT 01				1	1
INT 02					0
INT 03		1			1
INT 04				1	1
INT 05					0
INT 06		1			1
INT 07				2	2
INT 08	1		1		2
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	1	2	1	4	8

Special Notes

GRT19097TM_02a

Prepared for: **Geralyn Reinart, P.E.**

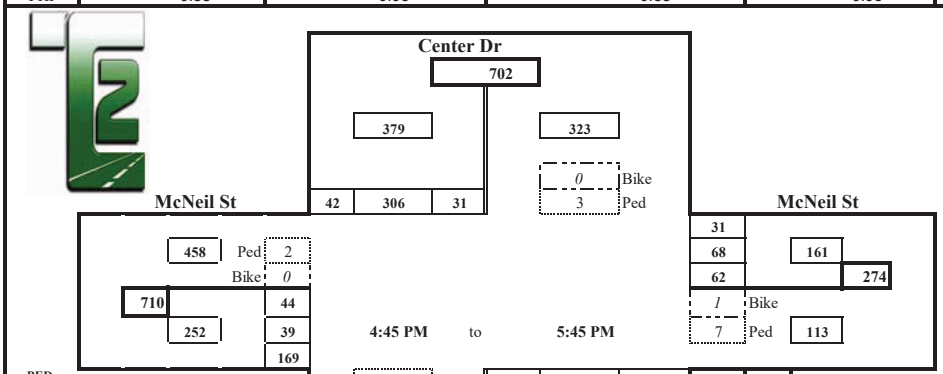
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & McNeil St
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) McNeil St				From West on (EB) McNeil St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	1	3	58	8	2	76	47	12	0	27	17	5	1	5	9	34	301
4:30 P	0	2	66	1	1	64	41	11	0	13	14	5	1	14	9	37	277
4:45 P	0	4	54	10	0	81	60	4	0	31	16	8	2	12	6	36	322
5:00 P	1	2	70	11	0	93	61	11	2	13	17	5	1	8	9	49	349
5:15 P	0	7	73	11	0	77	61	8	1	22	16	8	0	15	10	36	344
5:30 P	0	13	86	9	0	90	66	16	1	12	15	9	0	10	11	38	375
5:45 P	0	9	77	11	1	88	60	8	1	15	20	9	0	11	9	46	363
6:00 P	0	4	43	9	0	84	66	13	1	12	25	5	0	23	7	40	331
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	2	44	527	70	4	653	462	83	6	145	140	54	5	98	70	316	2662
Peak Hour: 4:45 PM to 5:45 PM																	
Total	1	31	306	42	1	348	248	43	5	62	68	31	1	44	39	169	1431
Approach	379				639				161				252				1431
%HV	0.3%				0.2%				3.1%				0.4%				0.6%
PHF	0.88				0.93				0.88				0.95				0.95



1500 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.95	0.4%
WB	0.88	3.1%
NB	0.93	0.2%
SB	0.88	0.3%
T Int.	0.95	0.6%

Check In: 1431 Out: 1431

PEDs Across:	N	S	E	W	
INT 01	3	1	1	3	8
INT 02	1		1		2
INT 03	1	1	1	1	4
INT 04		3	3		6
INT 05	1	1			2
INT 06	1				1
INT 07	1	1	4	2	8
INT 08	1	2		3	6
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	9	9	10	9	37

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0		2		
INT 02		3	2		5		0		
INT 03			3		3		0		
INT 04		1	1		2		0		
INT 05		1			1		0		
INT 06					0		0		
INT 07					0		0		
INT 08		1			1		0		
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	6	6	0	12	0	2	0	0

GRT19097TM_02p

Prepared for: **Geralyn Reinart, P.E.**

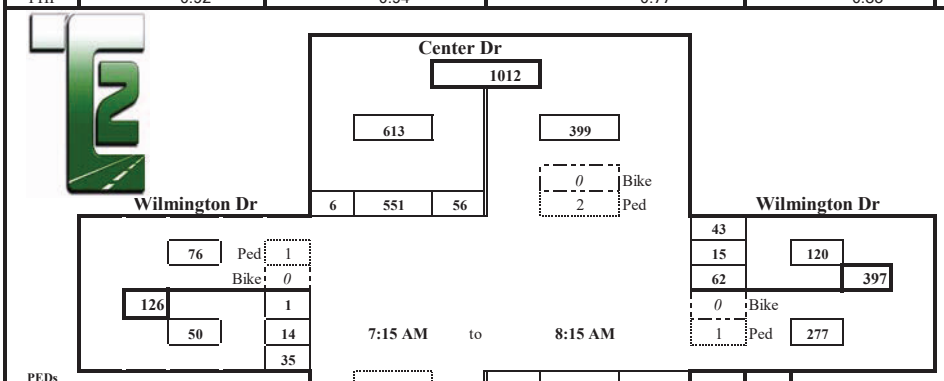
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Wilmington Dr
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Wilmington Dr				From West on (EB) Wilmington Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
7:15 A	1	5	122	4	2	10	66	27	0	27	5	7	0	1	2	9	285
7:30 A	2	9	155	2	1	7	97	52	0	12	3	8	0	1	6	8	360
7:45 A	1	19	126	1	2	6	101	57	0	19	6	14	0	0	3	12	364
8:00 A	2	18	147	1	3	17	85	54	1	13	4	9	0	0	2	5	355
8:15 A	0	10	123	2	2	25	72	44	0	18	2	12	0	0	3	10	321
8:30 A	0	13	96	5	2	13	62	56	0	22	5	13	0	3	2	14	304
8:45 A	1	9	160	6	1	17	60	47	0	34	3	9	0	3	4	9	361
9:00 A	1	21	147	8	0	11	46	43	0	13	5	9	0	4	3	7	317
9:15 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00 A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	8	104	1076	29	13	106	589	380	1	158	33	81	0	12	25	74	2667
Peak Hour: 7:15 AM to 8:15 AM																	
Total	5	56	551	6	8	55	355	207	1	62	15	43	0	1	14	35	1400
Approach	613				617				120				50				1400
%HV	0.8%				1.3%				0.8%				n/a				1.0%
PHF	0.92				0.94				0.77				0.83				0.96



1456 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.83	n/a
WB	0.77	0.8%
NB	0.94	1.3%
SB	0.92	0.8%
T Int.	0.96	1.0%

Check In: 1400 Out: 1400

PEDs Across:	N	S	E	W	
INT 01					0
INT 02					0
INT 03	1		1		2
INT 04					0
INT 05	1			1	2
INT 06	2		2		4
INT 07	2		3	2	7
INT 08					0
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	6	0	6	3	15

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0	0			
INT 02					0	0			
INT 03					0	0			
INT 04					0	0			
INT 05					0	0			
INT 06		1			1	1			
INT 07					0	0			
INT 08					0	1			
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	1	0	0	1	2	0	0	0

Special Notes

GRT19097TM_01a

Prepared for: **Geralyn Reinart, P.E.**

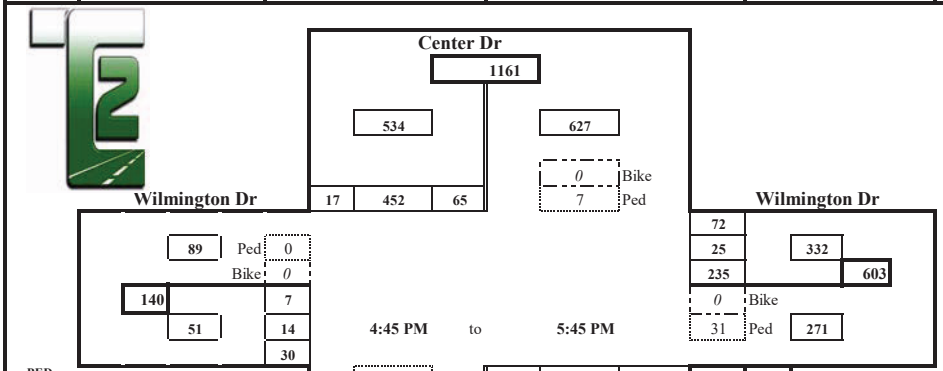
Traffic Count Consultants, Inc.

Phone: (253) 770-1407 FAX: (253) 770-1411 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Center Dr & Wilmington Dr
Location: DuPont, Washington
Date of Count: Thurs 10/03/2019
Checked By: Jess

Time Interval Ending at	From North on (SB) Center Dr				From South on (NB) Center Dr				From East on (WB) Wilmington Dr				From West on (EB) Wilmington Dr				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	0	14	102	3	2	11	117	40	3	57	5	17	0	1	2	10	379
4:30 P	0	19	102	5	1	19	100	38	0	46	11	12	0	2	4	7	365
4:45 P	0	14	106	1	2	6	142	29	1	61	6	11	0	1	6	10	393
5:00 P	4	21	110	3	3	17	138	58	1	62	6	15	0	2	5	10	447
5:15 P	1	16	109	9	1	9	131	40	0	64	6	19	0	2	1	5	411
5:30 P	1	13	118	3	0	4	143	34	0	37	4	18	0	1	5	10	390
5:45 P	1	15	115	2	2	17	136	60	0	72	9	20	0	2	3	5	456
6:00 P	2	18	83	2	2	11	135	31	0	42	12	24	0	2	5	4	369
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	9	130	845	28	13	94	1042	330	5	441	59	136	0	13	31	61	3210
Peak Hour: 4:45 PM to 5:45 PM																	
Total	7	65	452	17	6	47	548	192	1	235	25	72	0	7	14	30	1704
Approach	534				787				332				51				1704
%HV	1.3%				0.8%				0.3%				n/a				0.8%
PHF	1.00				0.92				0.82				0.75				0.93



1824 *1.0 PHF Peak Hour Volume*

	PHF	%HV
EB	0.75	n/a
WB	0.82	0.3%
NB	0.92	0.8%
SB	1.00	1.3%
T Int.	0.93	0.8%

Check In: 1704 Out: 1704

PEDs Across:	N	S	E	W	
INT 01			15		15
INT 02			2		2
INT 03			10		10
INT 04			4		4
INT 05	3		11		14
INT 06	2		7		9
INT 07	2		9		11
INT 08			6		6
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	7	0	64	0	71

Special Notes

Bicycles From:	N	S	E	W		N U's	S U's	E U's	W U's
INT 01					0	0	0		
INT 02					0	0	0		
INT 03					0	1	1		
INT 04					0	0	0		
INT 05					0	0	0		
INT 06	NO BIKES				0	0	0		
INT 07					0	0	0		
INT 08					0	0	1		
INT 09					0				
INT 10					0				
INT 11					0				
INT 12					0				
	0	0	0	0	0	1	2	0	0

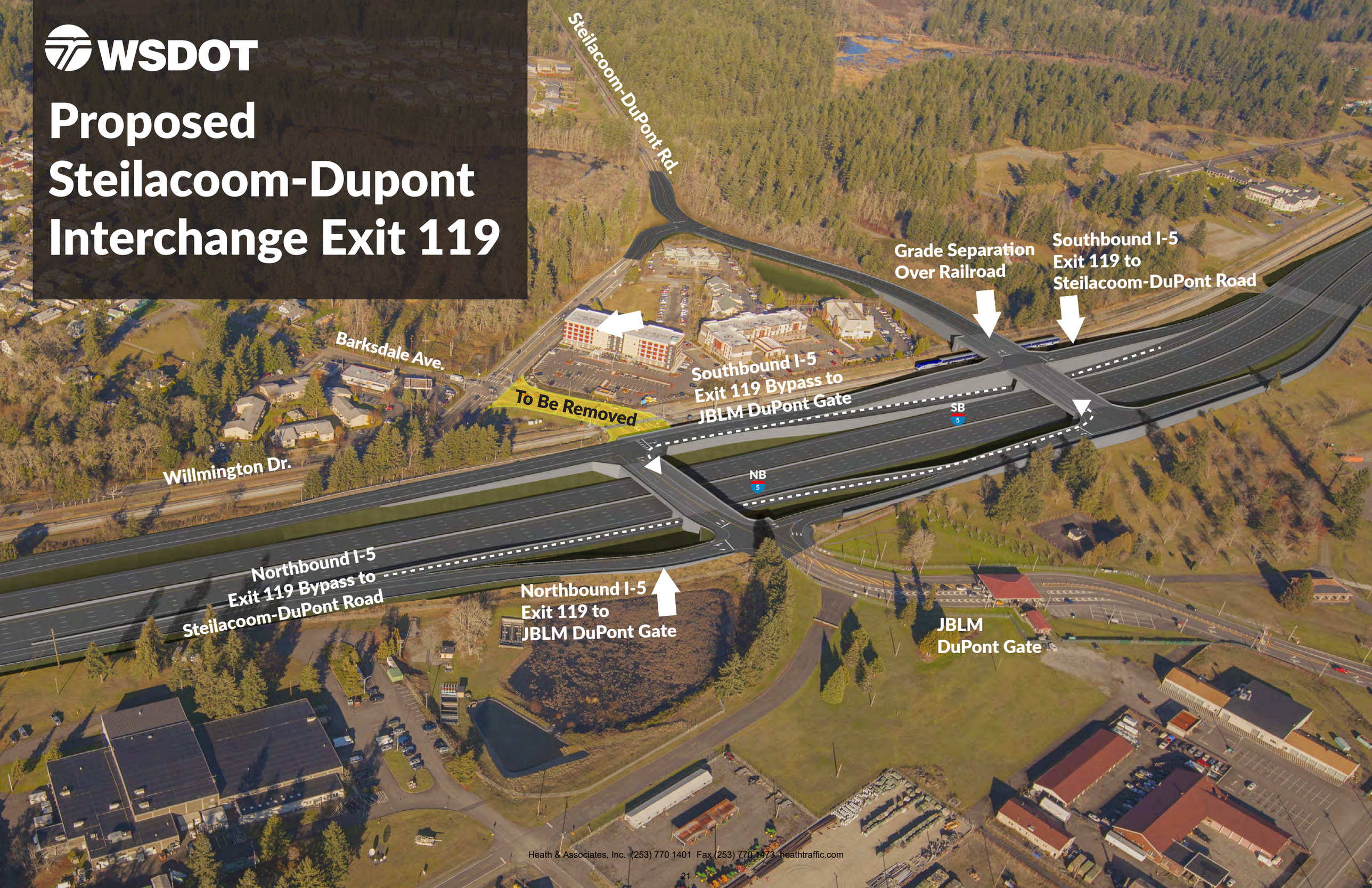
GRT19097TM_01p

APPENDIX

WSDOT I-5 EXIT 119 INTERCHANGE
DESIGN EXHIBITS

WSDOT

Proposed Steilacoom-Dupont Interchange Exit 119



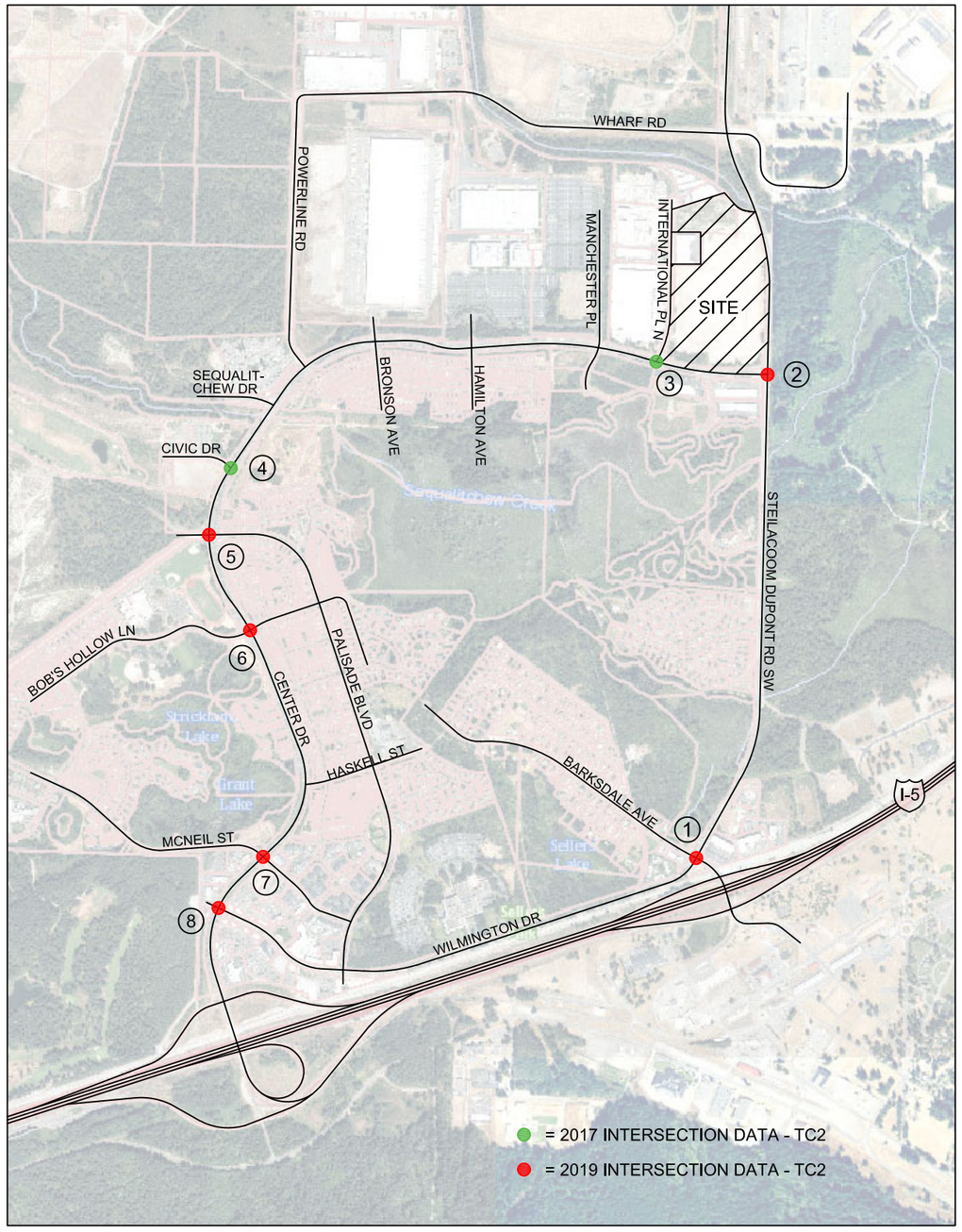
WSDOT

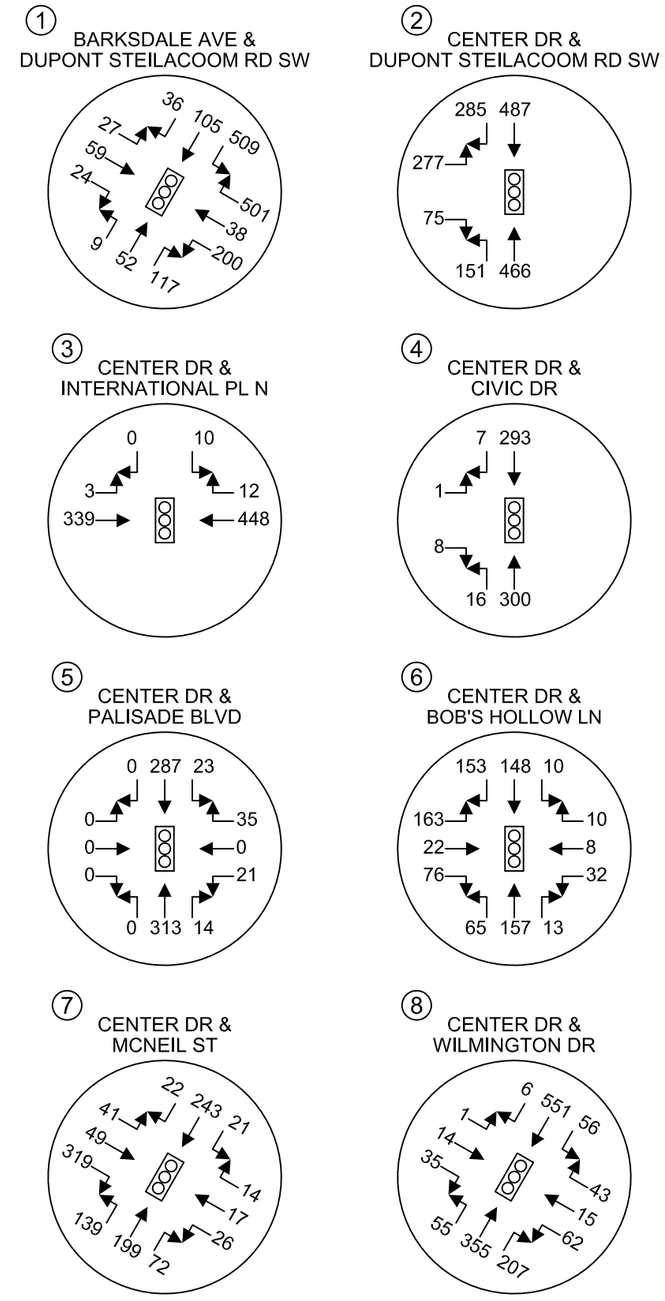
Proposed Steilacoom-Dupont Interchange Exit 119

APPENDIX

BASELINE VOLUMES &
INTERSECTION COMPARISON FIGURES

N





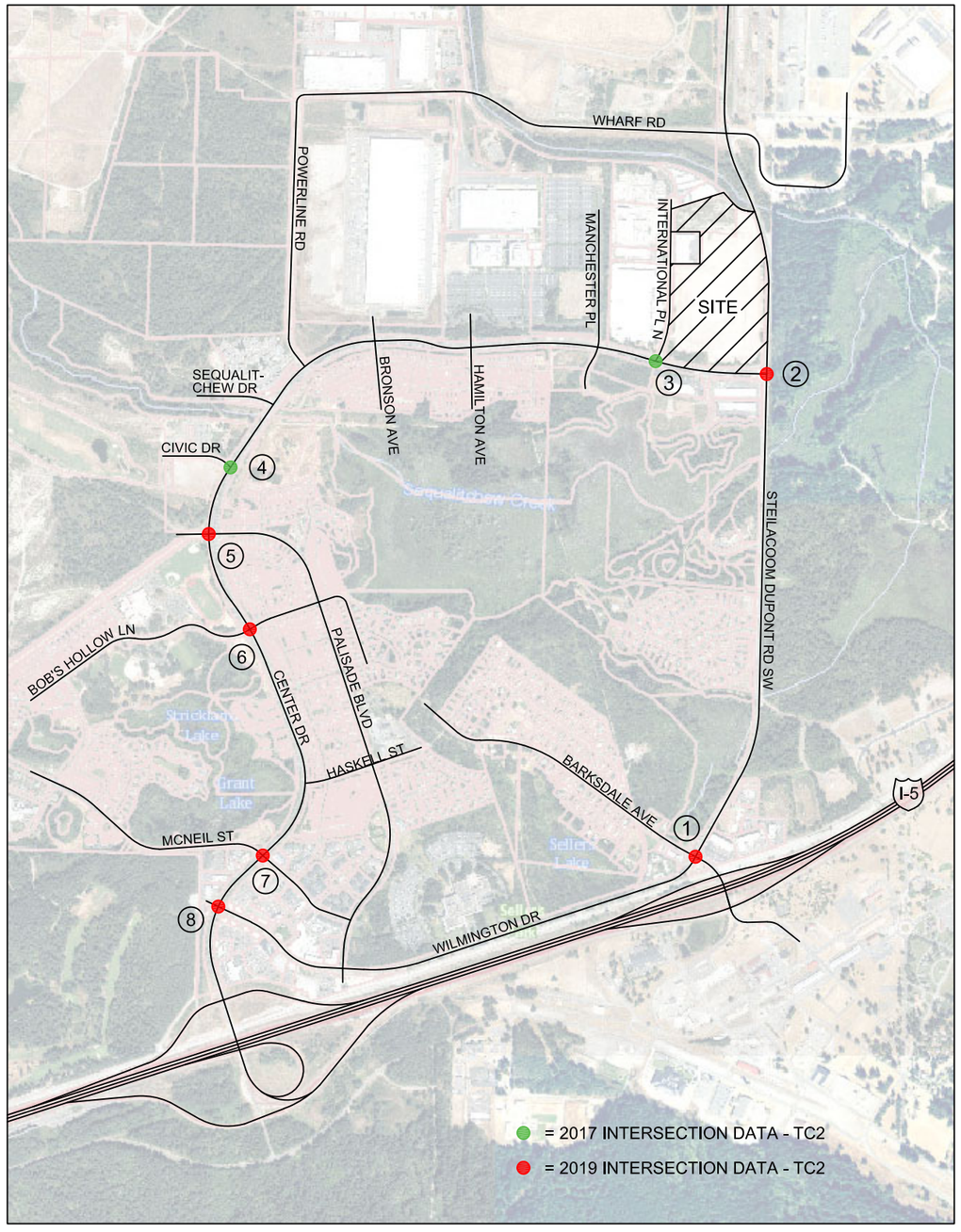
HEATH & ASSOCIATES

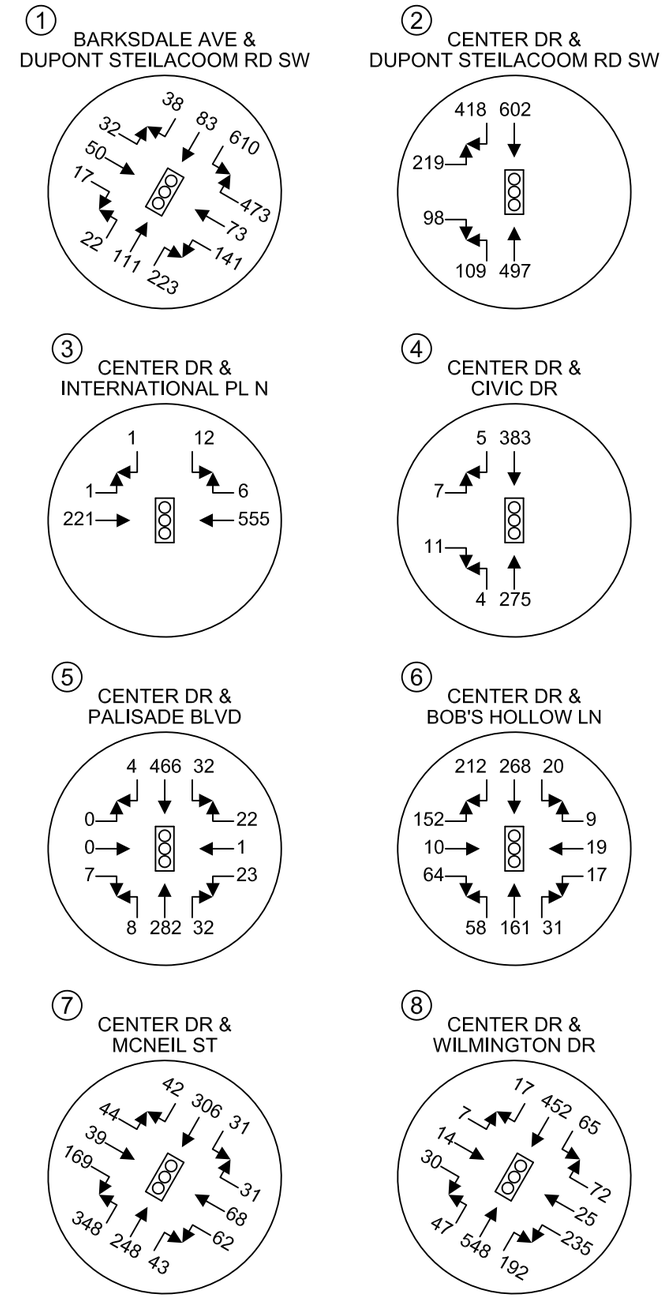
TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

BASELINE AM PEAK HOUR INTERSECTION DATA

APPENDIX: FIGURE A





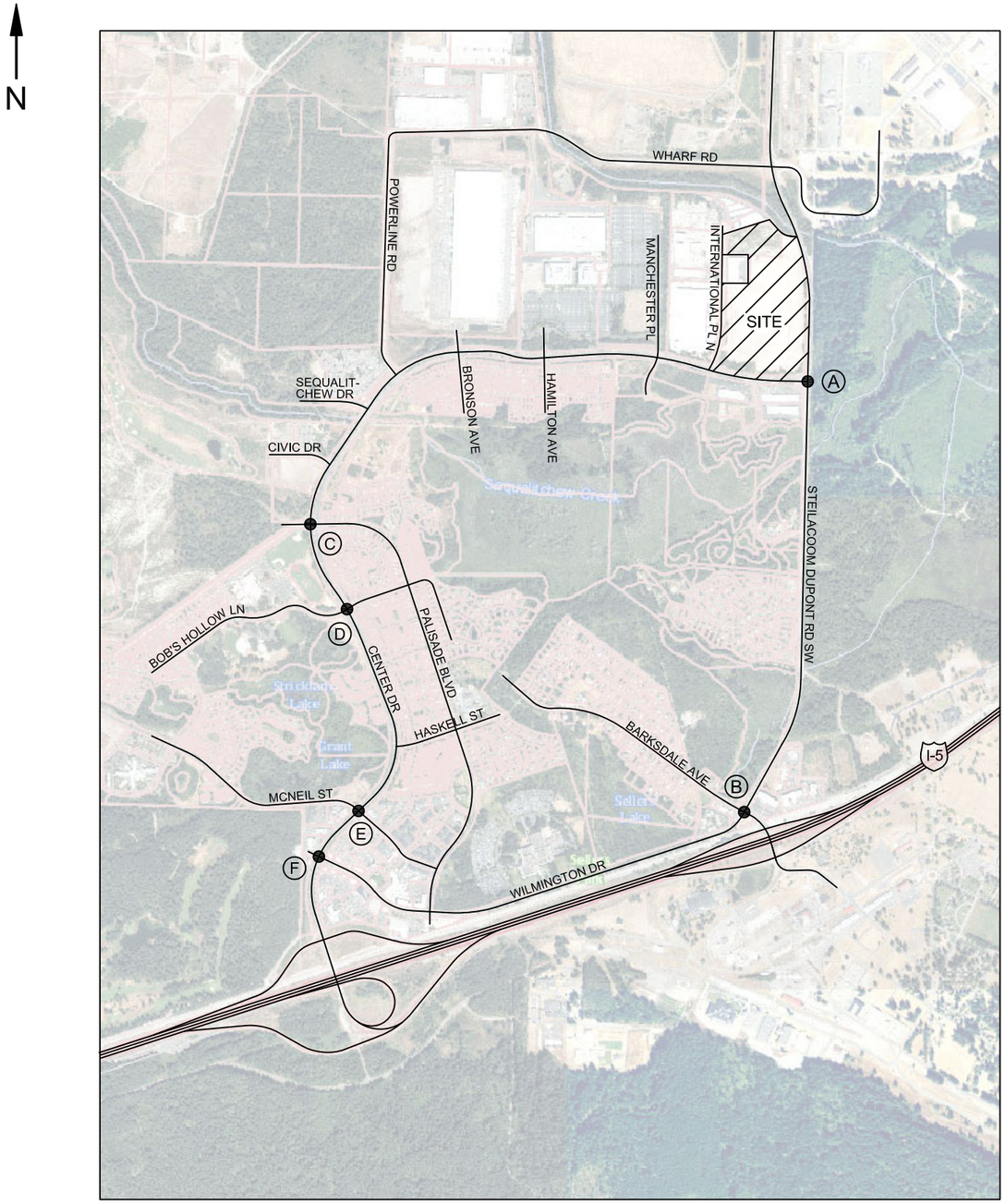
HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

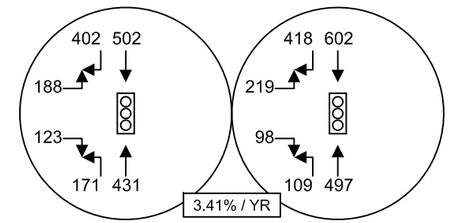
SNOW BLOSSOM FULFILLMENT CENTER

BASELINE PM PEAK HOUR INTERSECTION DATA

APPENDIX: FIGURE B



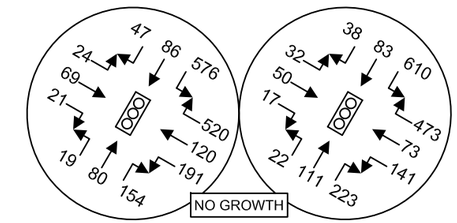
Ⓐ CENTER DR & DUPONT STEILACOOM RD SW



2017 VOLUMES
TOTAL VOL.: 1817

2019 VOLUMES
TOTAL VOL.: 1943

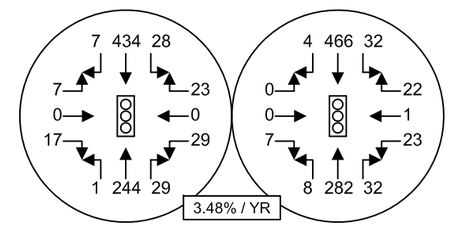
Ⓑ BARKSDALE AVE & STEILACOOM DUPONT RD SW



2017 VOLUMES
TOTAL VOL.: 1907

2019 VOLUMES
TOTAL VOL.: 1873

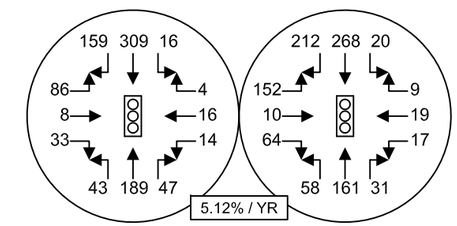
Ⓒ CENTER DR & PALISADE BLVD



2017 VOLUMES
TOTAL VOL.: 819

2019 VOLUMES
TOTAL VOL.: 877

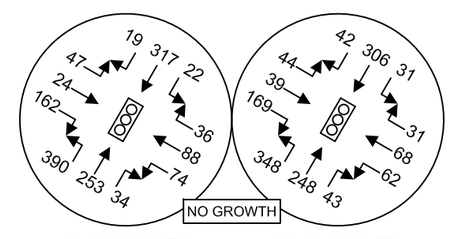
Ⓓ CENTER DR & BOB'S HOLLOW LN



2017 VOLUMES
TOTAL VOL.: 924

2019 VOLUMES
TOTAL VOL.: 1021

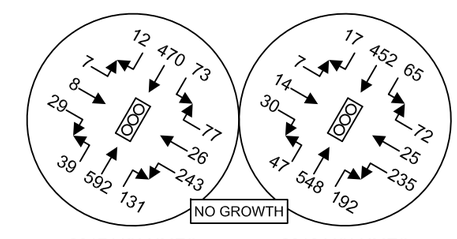
Ⓔ CENTER DR & MCNEIL ST



2017 VOLUMES
TOTAL VOL.: 1466

2019 VOLUMES
TOTAL VOL.: 1431

Ⓕ CENTER DR & WILMINGTON DR



2017 VOLUMES
TOTAL VOL.: 1707

2019 VOLUMES
TOTAL VOL.: 1704

HEATH & ASSOCIATES
TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

2017-2019 PM PEAK HOUR INTERSECTION VOLUME COMPARISON
APPENDIX: FIGURE C

APPENDIX

TRIP GENERATION MODEL

HAZMAT FC - Non Peak Season

TRAFFIC DATA FOR ENTITLMENT USE

Headcount

Headcount - Day Shift	486
Headcount Night Shift	486

Shift Structure

	Start	End	
Day Shift Inbound Employees	7:00:00 AM	5:30:00 PM	Inbound Are Employees Working Receiving Side of Operation
Day Shift Outbound Employees	7:30:00 AM	6:00:00 PM	Outbound Are Employees Working Shipping Side of Operation
Night Shift Inbound Employees	6:00:00 PM	4:30:00 AM	
Night Shift Outbound Employees	6:30:00 PM	5:00:00 AM	

Adjustment below accounts for mass transit and carpool users. Adjust as needed for local jurisdiction.

Net Cars Factor 95%

Traffic Schedule

Cars

Average Weekday - Non Peak

	In	Out	Total
00:00	2	3	5
01:00	1	2	3
02:00	3	7	10
03:00	4	7	11
04:00	9	93	102
05:00	19	246	265
06:00	14	8	22
06:15	38	9	47
06:30	66	5	71
06:45	88	3	91
07:00	87	5	92
07:15	113	2	115
07:30	17	3	20
07:45	4	3	7
08:00	13	9	22
09:00	8	5	13
10:00	11	9	20
11:00	20	21	41
12:00	6	9	15
13:00	7	7	14
14:00	6	13	19
15:00	15	19	34
16:00	23	17	40
17:00	14	17	31
17:15	26	8	34
17:30	57	66	123
17:45	74	38	112
18:00	92	128	220
18:15	89	86	175
18:30	12	57	69
18:45	3	21	24
19:00	9	18	27
20:00	4	4	8
21:00	8	8	16
22:00	9	11	20
23:00	1	3	4
	972	970	1,942

Trucks

Average Weekday - Non Peak

	In	Out	Total
00:00	7	6	14
01:00	6	6	12
02:00	6	6	12
03:00	8	7	15
04:00	7	6	14
05:00	9	8	17
06:00	2	2	3
06:15	2	2	3
06:30	2	2	3
06:45	2	2	3
07:00	2	2	3
07:15	1	1	2
07:30	1	1	2
07:45	1	1	2
08:00	5	4	9
09:00	5	5	10
10:00	5	4	9
11:00	5	4	9
12:00	5	5	10
13:00	5	4	9
14:00	4	3	7
15:00	4	3	7
16:00	3	2	5
17:00	1	1	2
17:15	1	1	2
17:30	1	1	2
17:45	0	0	0
18:00	1	1	2
18:15	1	1	2
18:30	1	1	2
18:45	0	0	0
19:00	4	3	7
20:00	2	2	3
21:00	3	2	5
22:00	4	3	7
23:00	6	6	12
	119	106	225

Total

Average Weekday - Non Peak

	In	Out	Total
00:00	9	9	18
01:00	7	8	15
02:00	9	12	22
03:00	12	14	26
04:00	16	95	111
05:00	27	242	269
06:00	15	9	24
06:15	38	10	48
06:30	65	6	71
06:45	85	4	90
07:00	84	6	91
07:15	108	3	111
07:30	17	4	21
07:45	5	4	8
08:00	17	13	29
09:00	13	10	23
10:00	15	13	28
11:00	24	24	48
12:00	11	13	25
13:00	11	11	22
14:00	9	16	25
15:00	18	21	39
16:00	25	19	43
17:00	14	17	31
17:15	26	8	34
17:30	55	64	119
17:45	70	36	106
18:00	88	122	211
18:15	85	83	168
18:30	12	55	67
18:45	3	20	23
19:00	12	20	33
20:00	6	5	11
21:00	10	10	20
22:00	12	14	26
23:00	7	9	16
	1,042	1,028	2,070

APPENDIX

PIPELINE VOLUMES

PIPELINE TRIPS AT CRITICAL INTERSECTIONS
(AM PEAK HOUR)

1. Center Drive/Wilmington Drive

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	0	0	0	0	1	0	4	0	2	16	0
Williamson Pl. (3)	0	0	0	0	0	0	0	12	0	0	3	0
Patriot's Lndng. (1)	0	0	0	0	0	1	0	17	0	4	50	0
Civic Ctr. Phase 2	0	0	0	0	0	5	0	28	0	3	4	0
Civic Ctr. Phase 3	0	0	0	0	0	1	0	27	0	0	4	0
DuPont Corp. Ctr.	0	0	0	0	0	3	0	23	0	1	9	0
DuPont Industrial	0	0	0	0	0	0	0	21	0	0	6	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	5	0	1	0	0
Total	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**137**	**0**	**11**	**92**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

2. Center Drive/McNeil Street

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	2	18	0	1	0	5	0	0	0	0	0
Williamson Pl. (3)	17	0	0	0	0	3	0	12	0	0	3	2
Patriot's Lndng. (1)	2	8	54	0	3	0	18	0	0	0	0	1
Civic Ctr. Phase 2	3	0	0	0	0	4	0	33	0	3	7	0
Civic Ctr. Phase 3	3	0	0	0	0	2	0	28	0	0	4	0
DuPont Corp. Ctr.	7	0	0	0	0	2	0	26	0	1	10	2
DuPont Industrial	2	0	0	0	0	0	0	21	0	0	6	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	1	0	0	0	0	0	0	5	0	1	1	1
Total	**35**	**10**	**72**	**0**	**4**	**11**	**23**	**125**	**0**	**5**	**31**	**6**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

3. Center Drive/Bob's Hollow Lane

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	7	0	0	0	0	0	0	0	0	0	0	2
Williamson Pl. (3)	0	0	0	0	0	0	0	35	0	0	5	0
Patriot's Lndng. (1)	5	0	0	0	0	0	0	2	0	0	1	2
Civic Ctr. Phase 2	12	0	0	0	0	0	0	40	0	0	10	6
Civic Ctr. Phase 3	6	0	0	0	0	0	0	33	0	0	4	1
DuPont Corp. Ctr.	2	0	0	0	0	1	0	35	0	0	13	1
DuPont Industrial	2	0	0	0	0	0	0	23	0	0	6	1
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	1	0	0	0	0	0	0	7	0	0	3	1
Total	**35**	**0**	**0**	**0**	**0**	**1**	**0**	**175**	**0**	**0**	**42**	**14**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

4. Center Drive/Palisade Blvd.

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	0	0	0	0	0	0	7	0	0	2	0
Williamson Pl. (3)	0	0	0	0	0	3	0	35	0	0	5	0
Patriot's Lndng. (1)	0	0	0	0	0	0	0	7	0	0	3	0
Civic Ctr. Phase 2	0	0	0	0	0	10	0	52	0	7	16	0
Civic Ctr. Phase 3	0	0	0	0	0	4	0	39	0	1	5	0
DuPont Corp. Ctr.	0	0	0	0	0	1	0	38	0	1	14	0
DuPont Industrial	0	0	0	0	0	0	0	25	0	0	7	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	1	0	7	0	2	4	0
Total	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**210**	**0**	**11**	**56**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

5. Center Drive/Civic

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0		0				0	7			2	0
Williamson Pl. (3)	0		0				0	38			5	0
Patriot's Lndng. (1)	0		0				0	7			3	0
Civic Ctr. Phase 2	8		23				62	0			0	18
Civic Ctr. Phase 3	2		6				43	0			0	11
DuPont Corp. Ctr.	0		0				0	39			15	0
DuPont Industrial	0		0				0	25			7	0
Barksdale Sta. (1)	0		0				0	0			0	0
PW Facility	4		6				8	0			0	4
Total	**14**		**35**				**113**	**116**			**32**	**33**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

6. Center Drive/International Place

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	0	10	0	0	6	0	0	0	0	0	0	0
Williamson Pl. (3)	0	38	0	0	5	0	0	0	0	0	0	0
Patriot's Lndg. (1)	0	12	0	0	4	0	0	0	0	0	0	0
Civic Ctr. Phs. 2	0	8	0	0	18	0	0	0	0	0	0	0
Civic Ctr. Phs. 3	0	2	0	0	11	0	0	0	0	0	0	0
DuPont Corp. Ctr.	0	7	0	0	18	0	0	0	0	0	0	0
DuPont Industrial	0	3	0	0	8	0	0	0	0	0	0	0
Barksdale Sta. (1)	0	12	0	0	11	0	0	0	0	0	0	0
PW Facility	0	3	0	0	4	0	0	0	0	0	0	0
Total	**0**	**95**	**0**	**0**	**85**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

7. Center Drive/DuPont Steilacoom Road

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	8		2				2	0			0	4
Williamson Pl. (3)	4		10				61	0			0	20
Patriot's Lndg. (1)	12		0				0	0			0	4
Civic Ctr. Phase 2	4		4				6	0			0	12
Civic Ctr. Phase 3	1		1				3	0			0	8
DuPont Corp. Ctr.	3		4				9	27			10	9
DuPont Ind. (1)	1		2				6	0			0	2
Barksdale Sta.	0		12				11	5			5	0
PW Facility	1		2				3	0			0	1
Total	**34**		**37**				**101**	**32**			**15**	**60**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

8. Barksdale Avenue/DuPont-Steilacoom Road

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	0	0	0	0	0	2	0	0	0	2	0	0
Williamson Pl. (3)	6	0	0	0	0	49	0	6	0	8	0	2
Patriot's Lndg. (1)	0	0	0	0	0	0	0	0	0	0	0	0
Civic Ctr. Phs. 2 (1)	0	0	0	0	0	3	0	0	0	2	0	0
Civic Ctr. Phs. 3 (1)	0	0	0	0	0	2	0	0	0	0	0	0
DuPont Corp. Ctr.	3	0	0	0	0	30	0	3	0	11	1	1
DuPont Ind. (1)	0	0	0	0	0	6	0	0	0	2	0	0
Barksdale Sta.	3	0	0	0	0	27	0	8	0	25	8	3
PW Facility	0	0	0	0	0	3	0	0	0	0	0	2
Total	**12**	**0**	**0**	**0**	**0**	**122**	**0**	**17**	**0**	**50**	**9**	**8**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal
(4) – includes pass-by trip volumes
Barksdale Avenue considered the east-west street

(PM PEAK HOUR)

1. Center Drive/Wilmington Drive

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	0	0	0	0	1	0	18	0	1	8	0
Williamson Pl. (3)	0	0	0	0	0	0	0	3	0	0	12	0
Patriot's Lndng. (1)	0	0	0	0	0	4	0	57	0	3	33	0
Civic Ctr. Phase 2	0	0	0	0	0	1	0	5	0	2	25	0
Civic Ctr. Phase 3	0	0	0	0	0	0	0	4	0	1	25	0
DuPont Corp. Ctr.	0	0	0	0	0	2	0	12	0	4	30	0
DuPont Industrial	0	0	0	0	0	0	0	8	0	0	23	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	0	0	0	7	0
Total	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**107**	**0**	**11**	**163**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

2. Center Drive/McNeil Street

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	1	9	0	1	0	19	0	0	0	0	0
Williamson Pl. (3)	3	0	0	0	0	3	0	3	0	3	12	17
Patriot's Lndng. (1)	2	5	36	0	9	0	61	0	0	0	0	3
Civic Ctr. Phase 2	1	0	0	0	0	2	0	6	0	3	27	3
Civic Ctr. Phase 3	1	0	0	0	0	1	0	4	0	2	26	3
DuPont Corp. Ctr.	3	0	0	0	0	1	0	14	0	2	34	9
DuPont Industrial	1	0	0	0	0	0	0	8	0	0	23	2
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	0	0	1	7	1
Total	**11**	**6**	**45**	**0**	**10**	**7**	**80**	**35**	**0**	**11**	**129**	**38**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

3. Center Drive/Bob's Hollow Lane

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	8	0	0	0	0	0	0	0	0	0	0	10
Williamson Pl. (3)	0	0	0	0	0	0	0	9	0	0	32	0
Patriot's Lndng. (1)	6	0	0	0	0	0	0	2	0	0	3	10
Civic Ctr. Phase 2	3	0	0	0	0	0	0	9	0	0	33	7
Civic Ctr. Phase 3	1	0	0	0	0	0	0	6	0	0	31	5
DuPont Corp. Ctr.	1	0	0	0	0	1	0	18	0	1	45	2
DuPont Industrial	1	0	0	0	0	0	0	9	0	0	25	2
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	0	0	0	9	1
Total	**20**	**0**	**0**	**0**	**0**	**1**	**0**	**53**	**0**	**1**	**178**	**37**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

4. Center Drive/Palisade Blvd.

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0	0	0	0	0	0	0	8	0	0	10	0
Williamson Pl. (3)	0	0	0	0	0	0	0	9	0	3	32	0
Patriot's Lndng. (1)	0	0	0	0	0	0	0	8	0	0	13	0
Civic Ctr. Phase 2	0	0	0	0	0	4	0	12	0	7	40	0
Civic Ctr. Phase 3	0	0	0	0	0	1	0	7	0	4	36	0
DuPont Corp. Ctr.	0	0	0	0	0	1	0	19	0	2	48	0
DuPont Industrial	0	0	0	0	0	0	0	10	0	0	27	0
Barksdale Sta. (1)	0	0	0	0	0	0	0	0	0	0	0	0
PW Facility	0	0	0	0	0	0	0	0	0	1	10	0
Total	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**73**	**0**	**17**	**216**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

5. Center Drive/Civic Drive

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (2)	0		0				0	8			10	0
Williamson Pl. (3)	0		0				0	9			35	0
Patriot's Lndng. (1)	0		0				0	8			13	0
Civic Ctr. Phase 2	12		47				16	0			0	4
Civic Ctr. Phase 3	10		40				8	0			0	2
DuPont Corp. Ctr.	0		0				0	20			50	0
DuPont Industrial	0		0				0	10			27	0
Barksdale Sta. (1)	0		0				0	0			0	0
PW Facility	5		11				0	0			0	0
Total	**27**		**98**				**24**	**55**			**135**	**6**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

6. Center Drive/International Place

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	0	8	0	0	10	0	0	0	0	0	0	0
Williamson Pl. (3)	0	9	0	0	35	0	0	0	0	0	0	0
Patriot's Lndg. (1)	0	8	0	0	13	0	0	0	0	0	0	0
Civic Ctr. Phs. 2	0	12	0	0	4	0	0	0	0	0	0	0
Civic Ctr. Phs. 3	0	10	0	0	2	0	0	0	0	0	0	0
DuPont Corp. Ctr.	0	24	0	0	10	0	0	0	0	0	0	0
DuPont Industrial	0	9	0	0	3	0	0	0	0	0	0	0
Barksdale Sta.	0	7	0	0	6	0	0	0	0	0	0	0
PW Facility	0	5	0	0	0	0	0	0	0	0	0	0
Total	**0**	**92**	**0**	**0**	**83**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

7. Center Drive/DuPont Steilacoom Road

Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	6		2				2	0			0	8
Williamson Pl. (3)	17		57				14	0			0	6
Patriot's Lndg. (1)	8		0				0	0			0	13
Civic Ctr. Phase 2	9		3				2	0			0	2
Civic Ctr. Phase 3	8		2				1	0			0	1
DuPont Corp. Ctr.	12		12				5	9			21	5
DuPont Ind. (1)	3		6				2	0			0	1
Barksdale Sta. (1)	0		7				6	0			4	0
PW Facility	1		4				0	0			0	0
Total	**64**		**93**				**32**	**9**			**25**	**36**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal

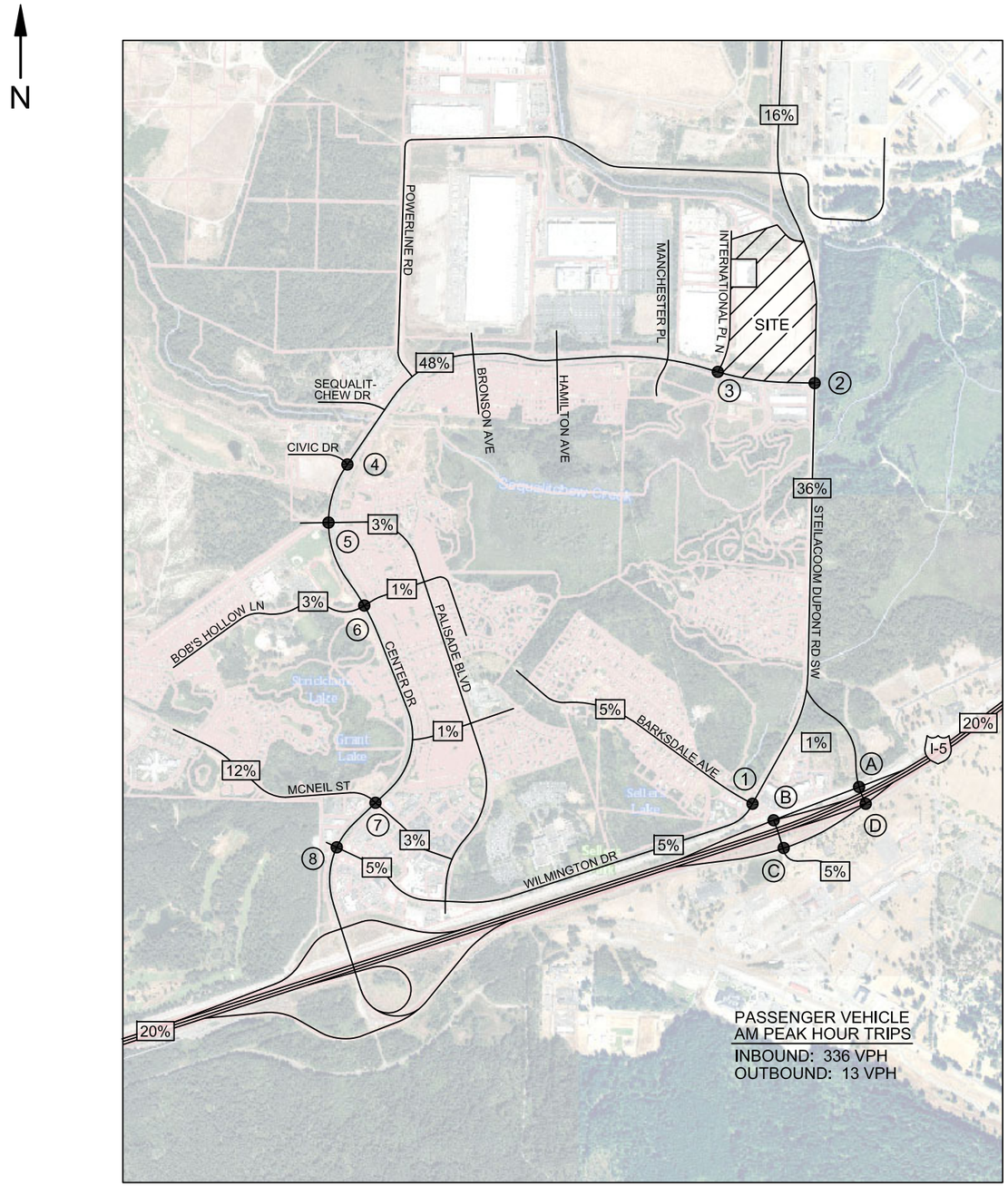
8. Barksdale Avenue/DuPont-Steilacoom Road

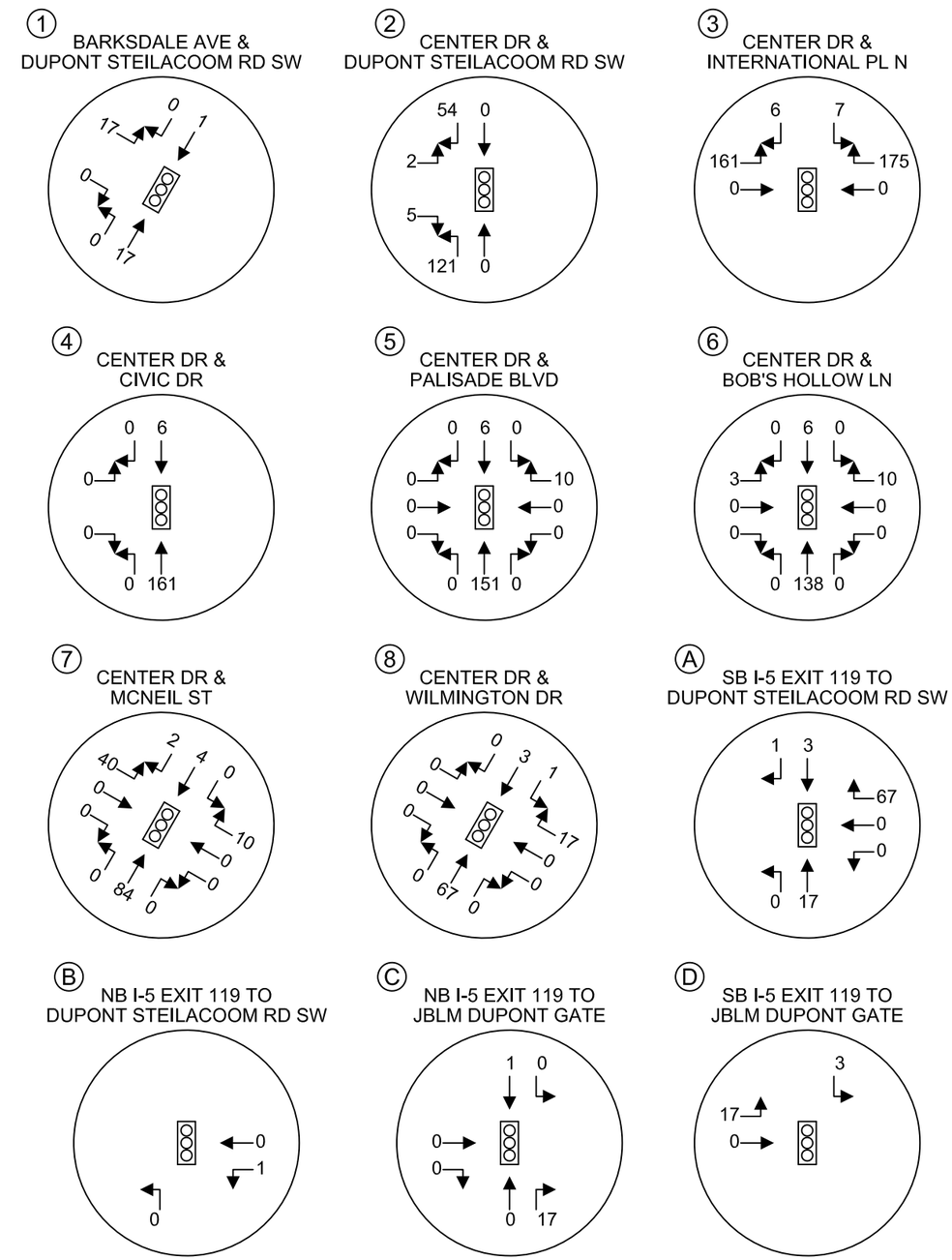
Development	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Village IV (1,2)	0	0	0	0	0	2	0	0	0	2	0	0
Williamson Pl. (3)	1	0	0	0	0	12	0	1	0	46	6	5
Patriot's Lndg. (1)	0	0	0	0	0	0	0	0	0	0	0	0
Civic Ctr. Phs. 2 (1)	0	0	0	0	0	1	0	0	0	2	0	0
Civic Ctr. Phs. 3 (1)	0	0	0	0	0	0	0	0	0	1	0	0
DuPont Corp. Ctr.	2	0	0	0	0	10	0	2	0	24	4	4
DuPont Ind. (1)	0	0	0	0	0	2	0	0	0	6	0	0
Barksdale Sta. (1)	2	0	0	0	0	16	0	5	0	16	5	2
PW Facility	0	0	0	0	0	0	0	0	0	4	0	0
Total	**5**	**0**	**0**	**0**	**0**	**43**	**0**	**8**	**0**	**101**	**15**	**11**

(1) – estimated trips; assignment not available or not provided in TIA
(2) – assignment revised to reflect modified trip generation for partial build-out
(3) – modified from original TIA to reflect scaled-back SEPA proposal
Barksdale Avenue considered the east-west street

APPENDIX

TRIP DISTRIBUTION & ASSIGNMENT
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT



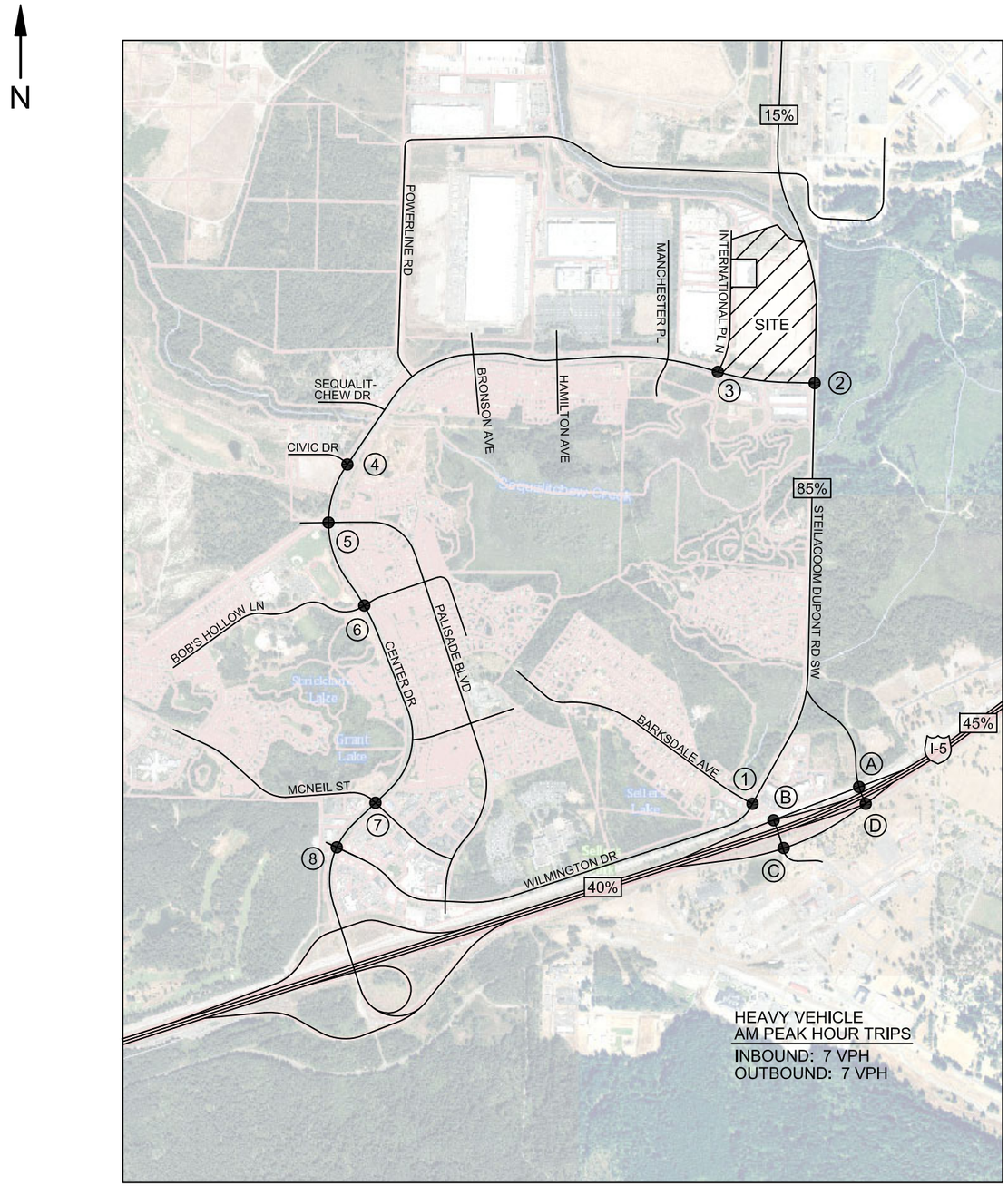


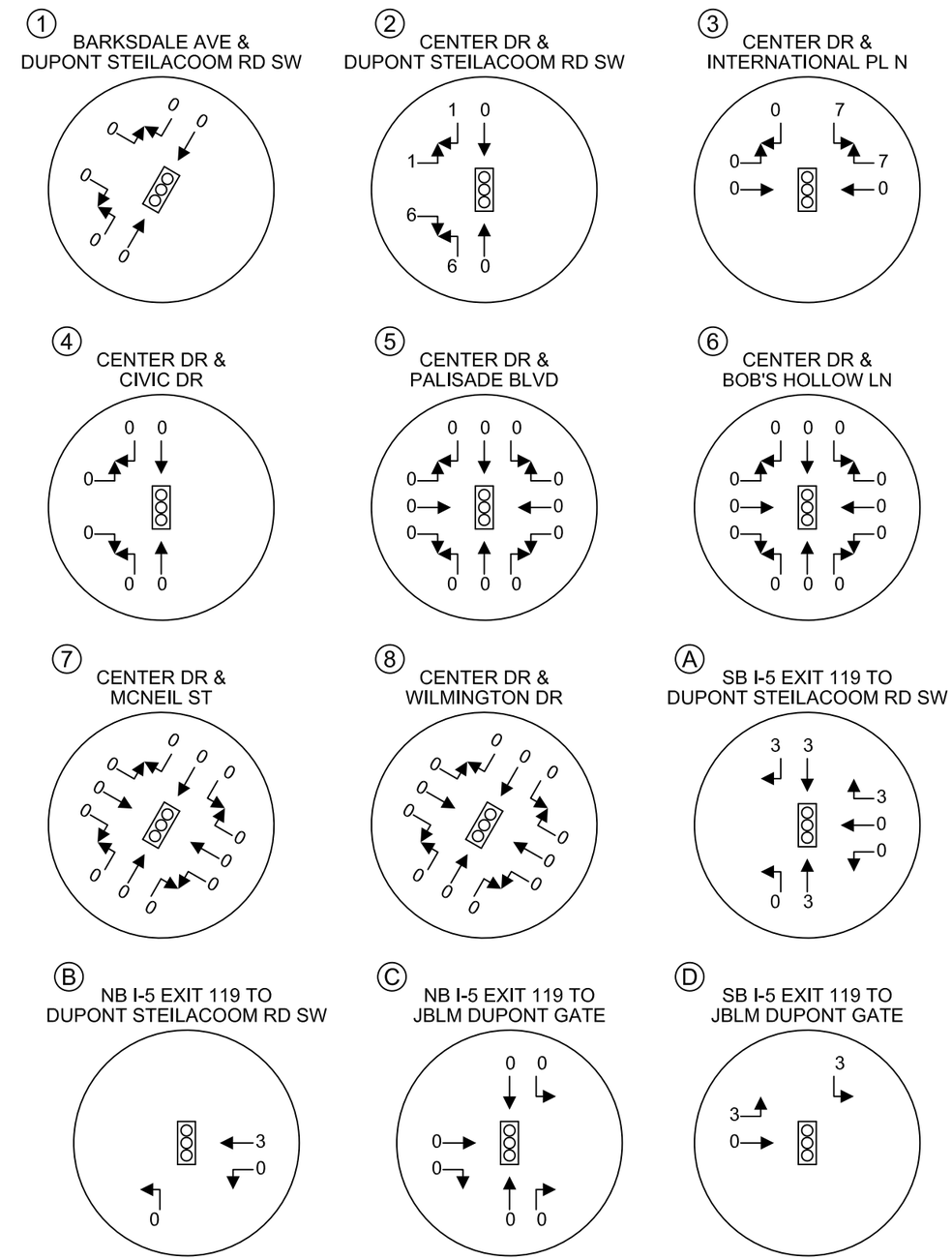
HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT
FIGURE D





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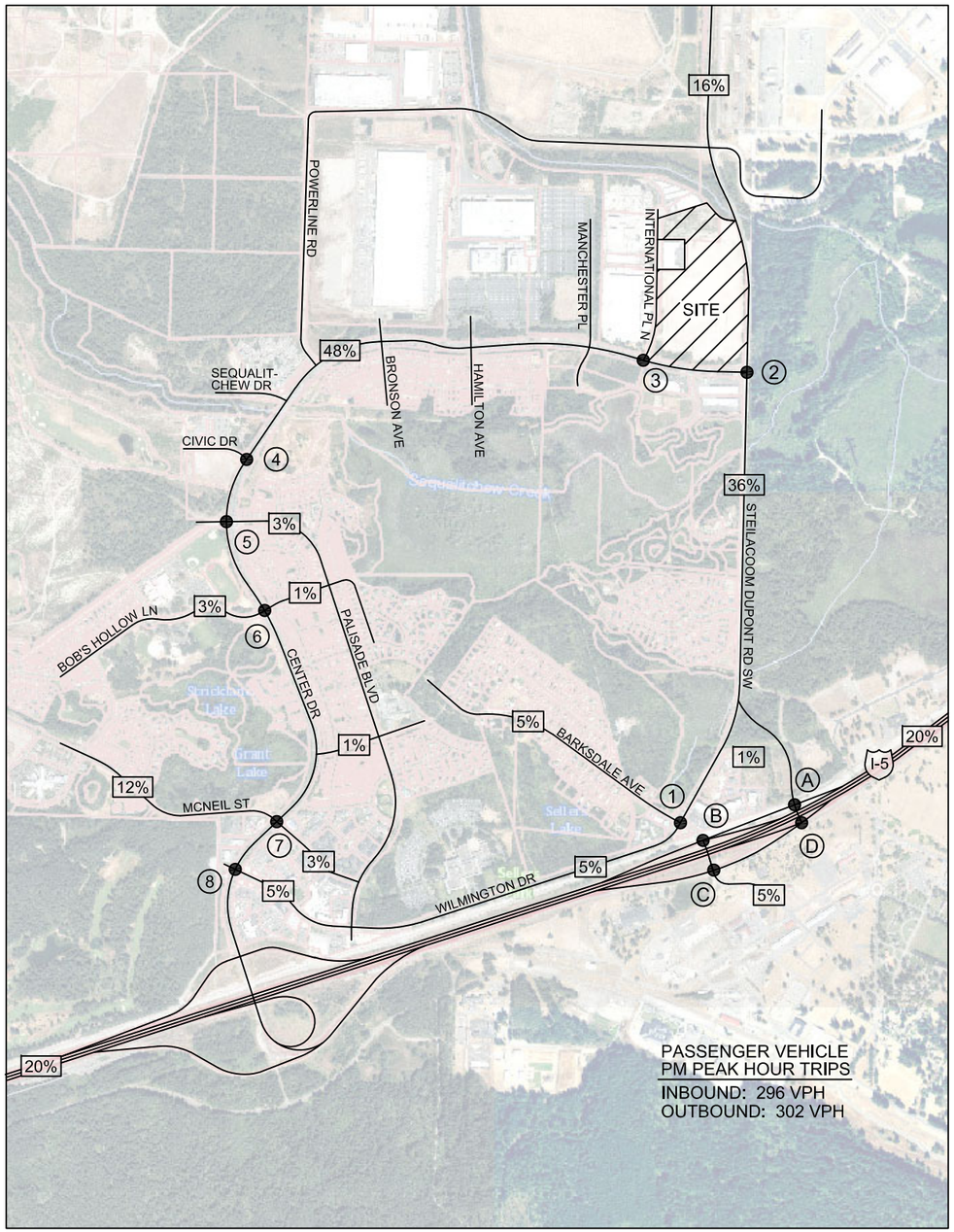
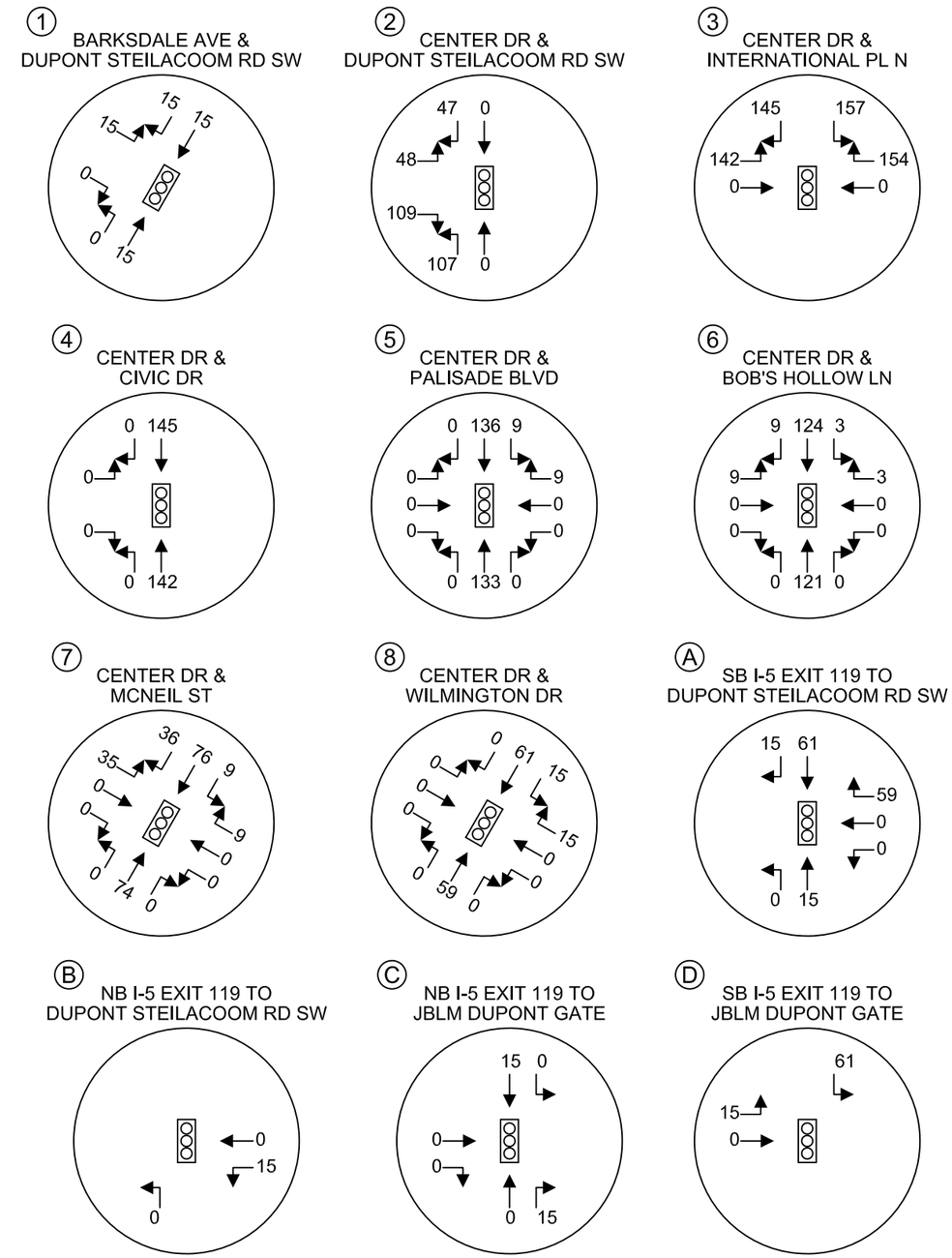
TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT
FIGURE E





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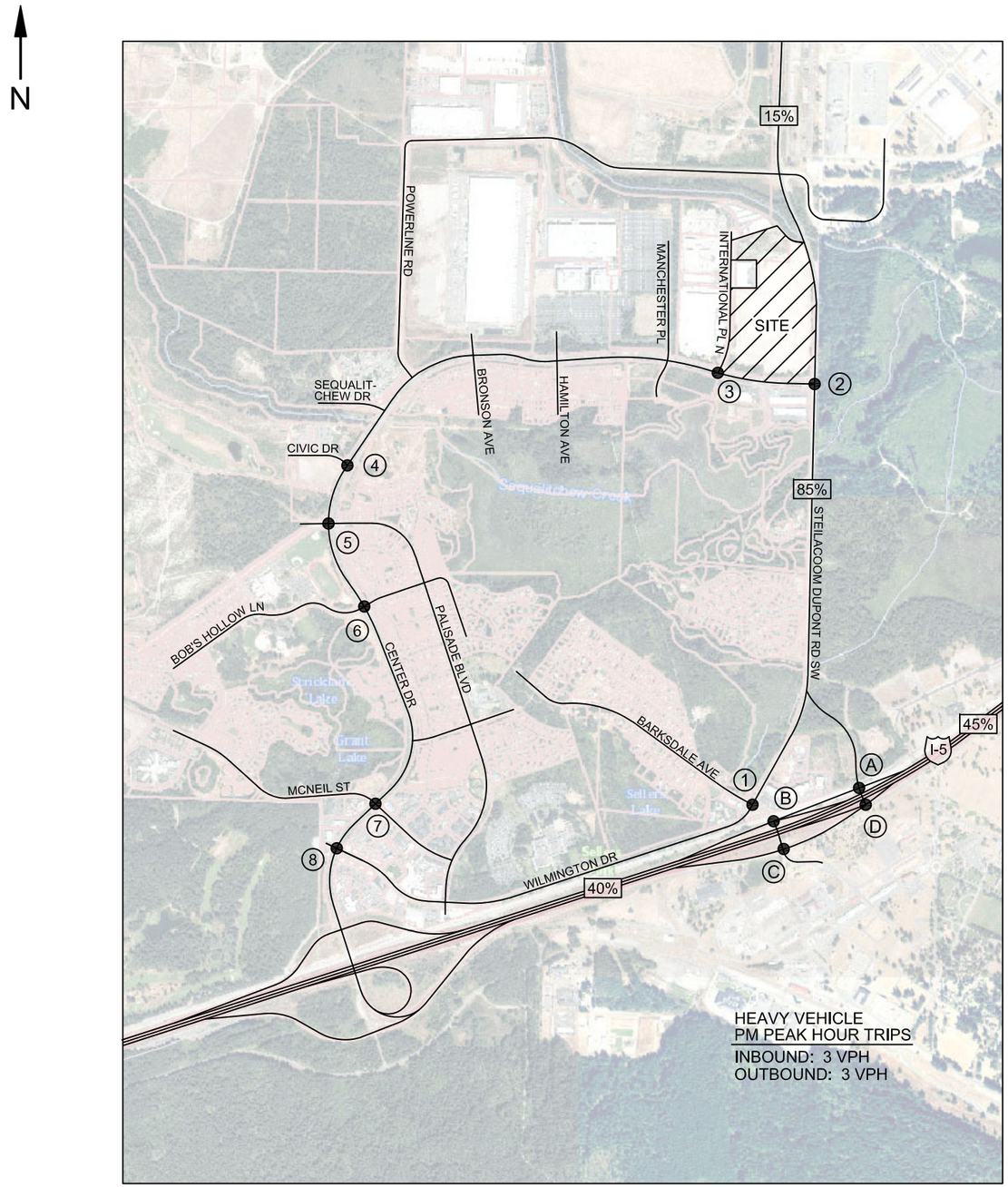
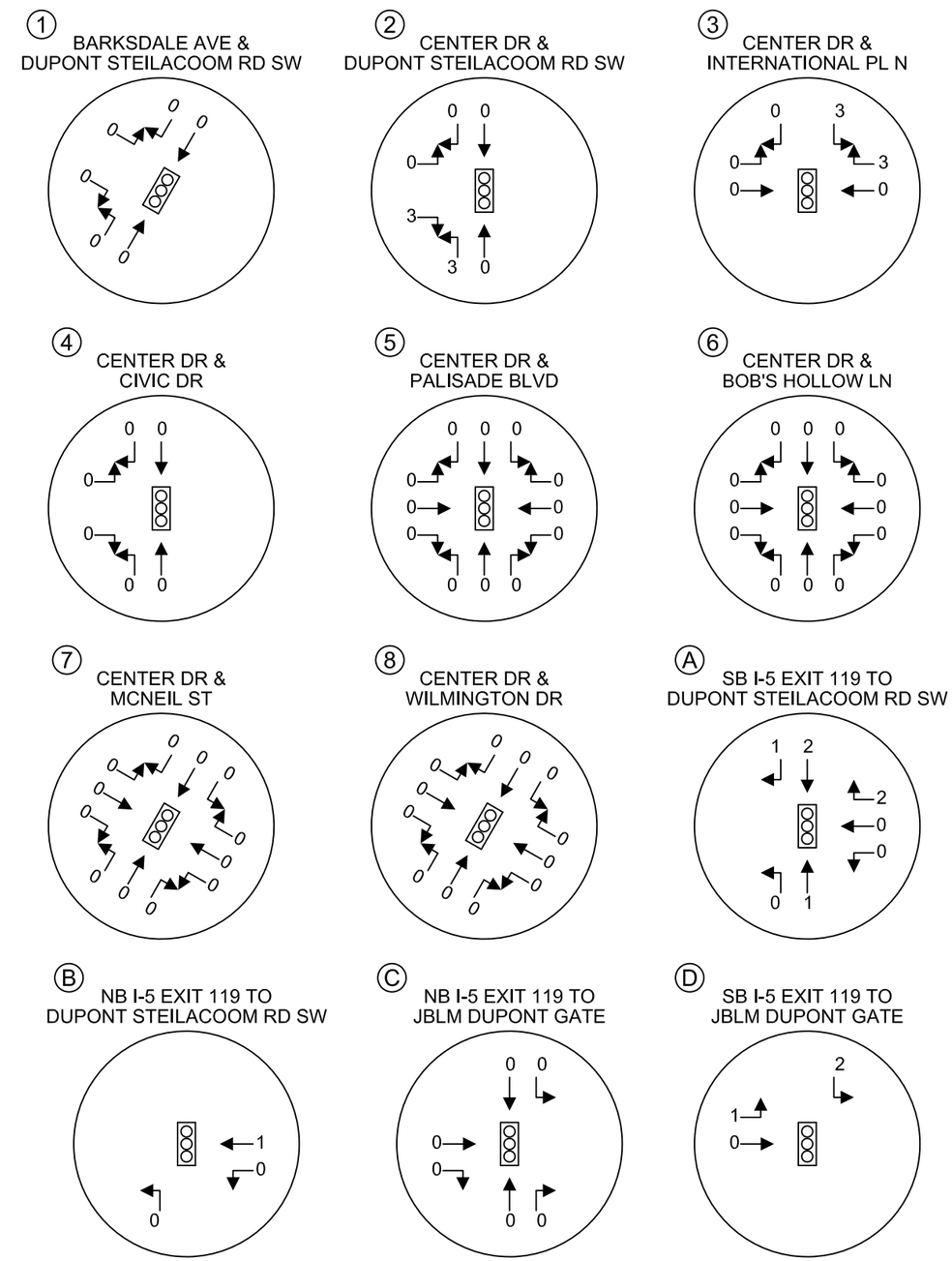
TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT
FIGURE F





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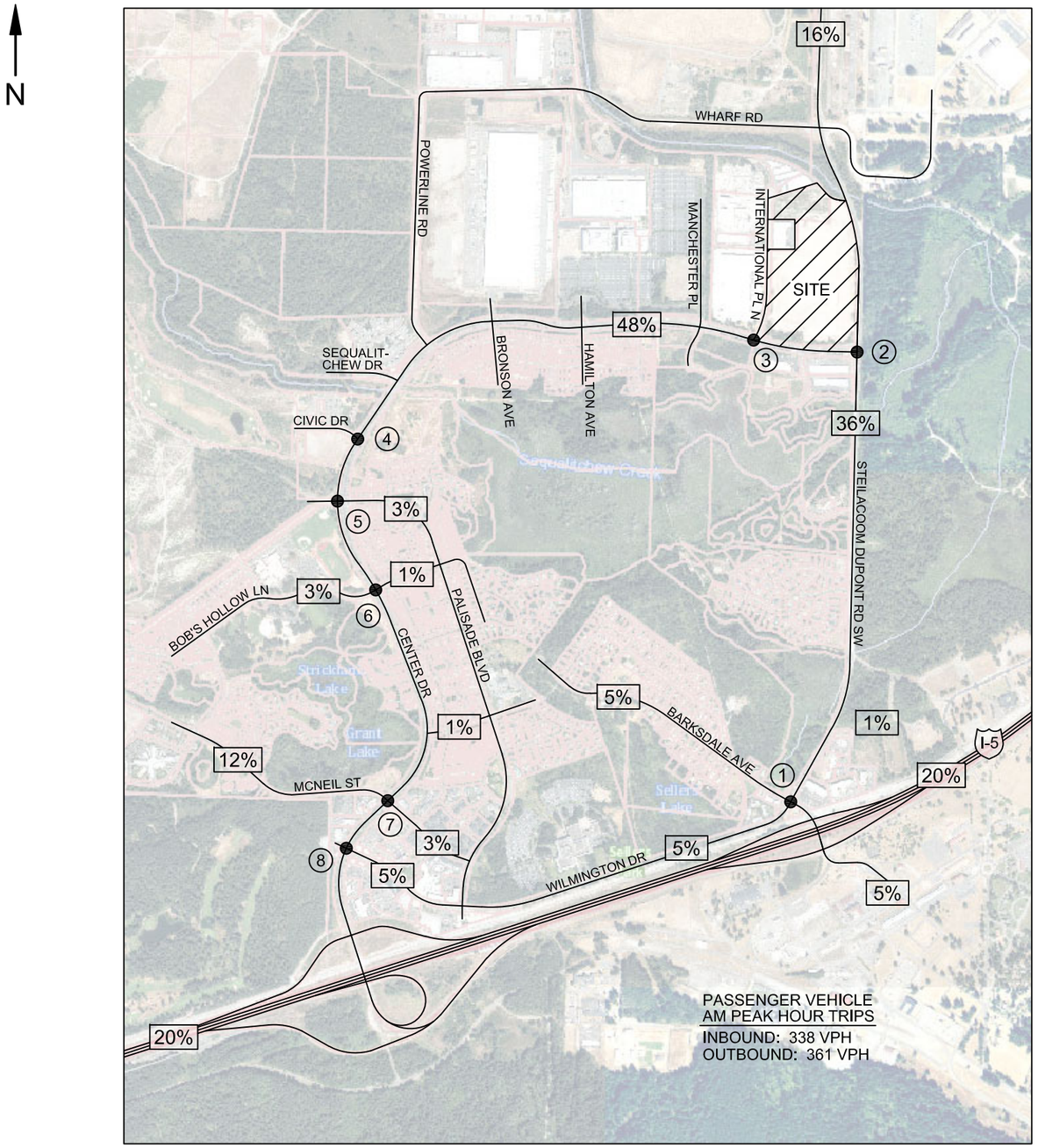
TRAFFIC AND CIVIL ENGINEERING

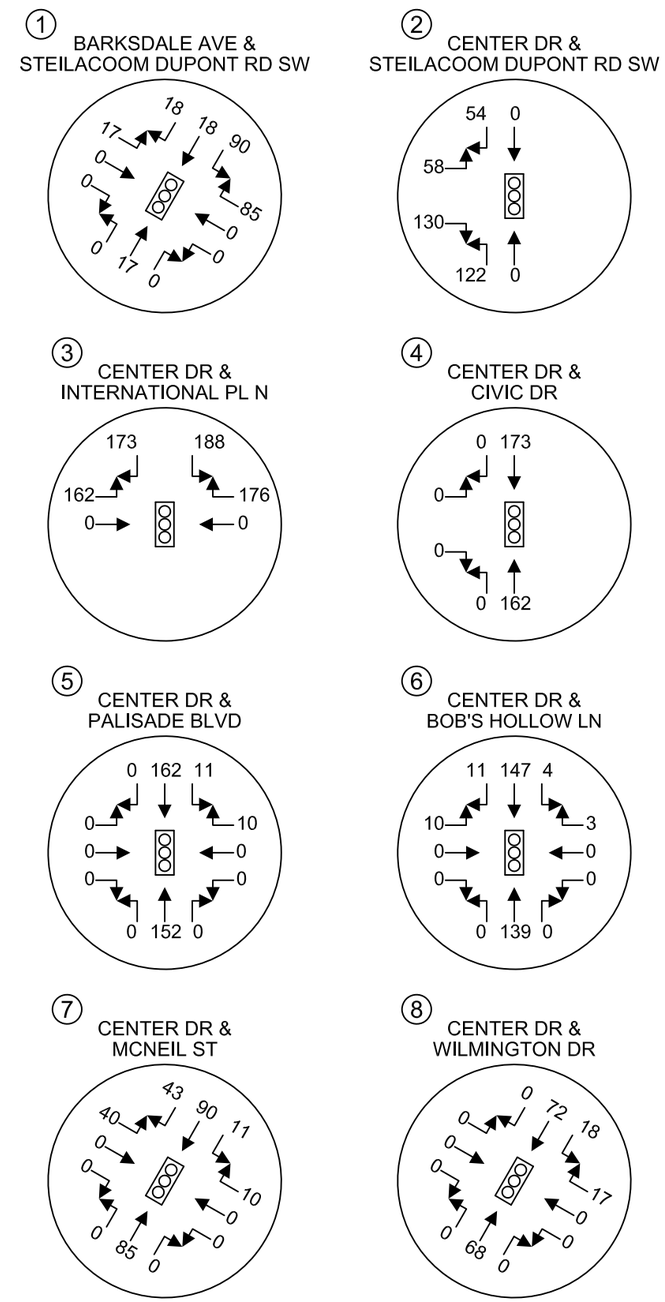
SNOW BLOSSOM FULFILLMENT CENTER

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES
SCENARIO 2: WITH I-5 EXIT 119 INTERCHANGE PROJECT
FIGURE G

APPENDIX

TRIP DISTRIBUTION & ASSIGNMENT
SCENARIO 3: PEAK SEASON VOLUMES





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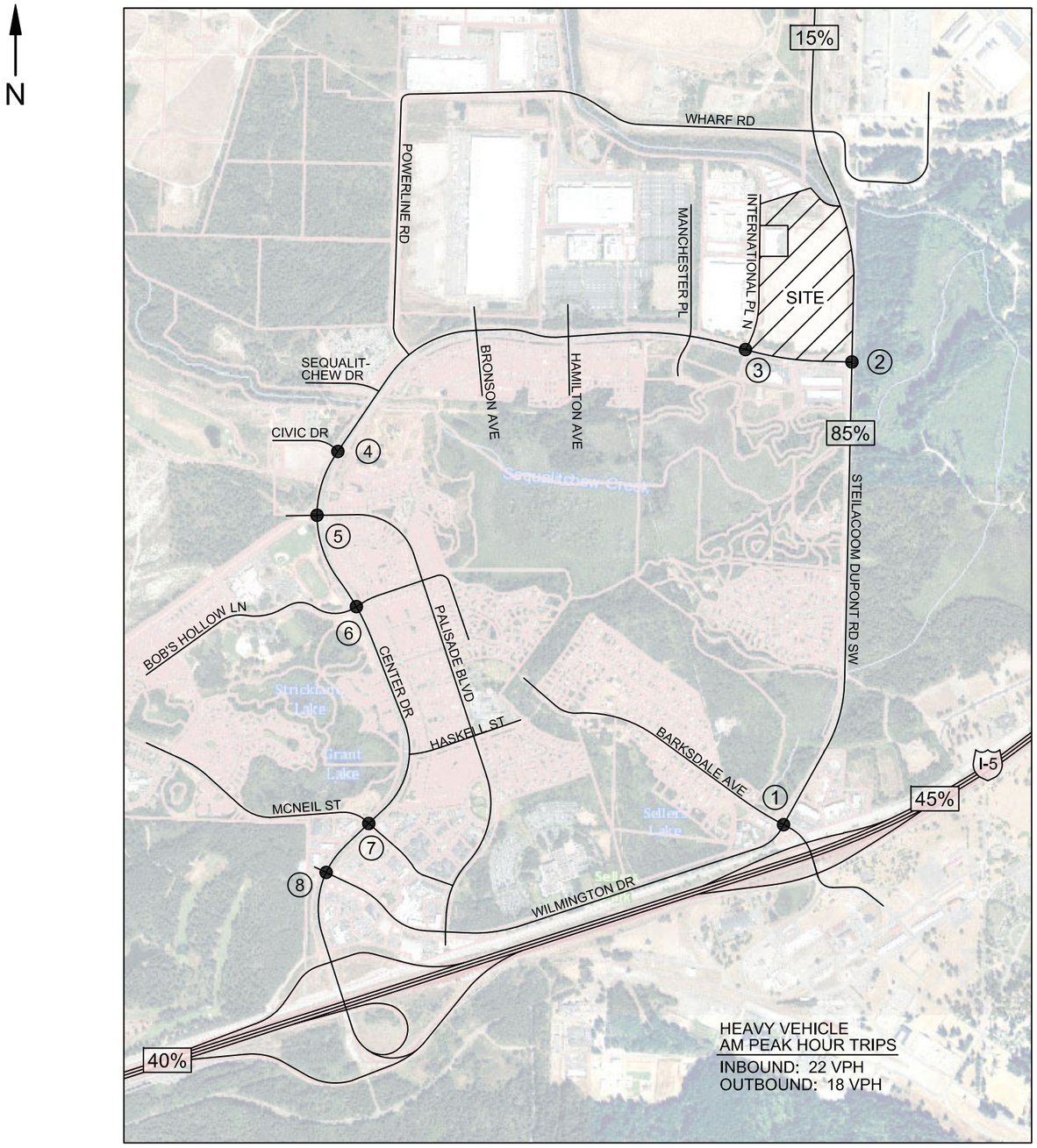
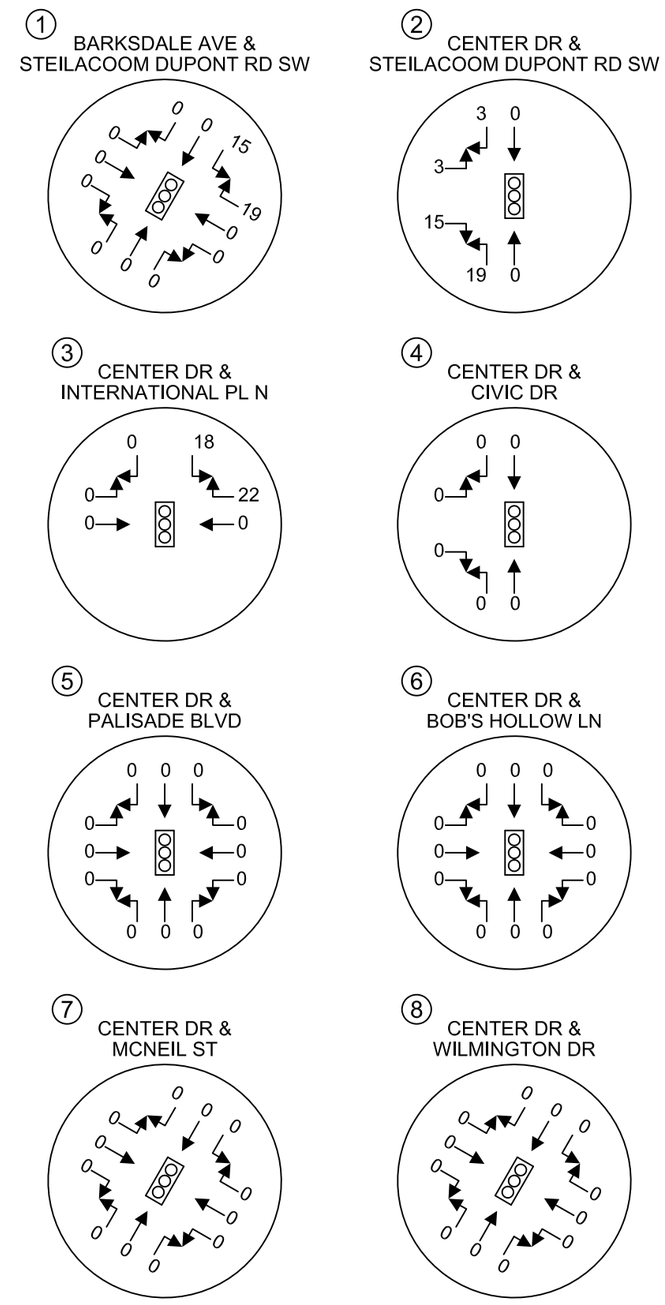
TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES
SCENARIO 3: PEAK SEASON VOLUMES
FIGURE H





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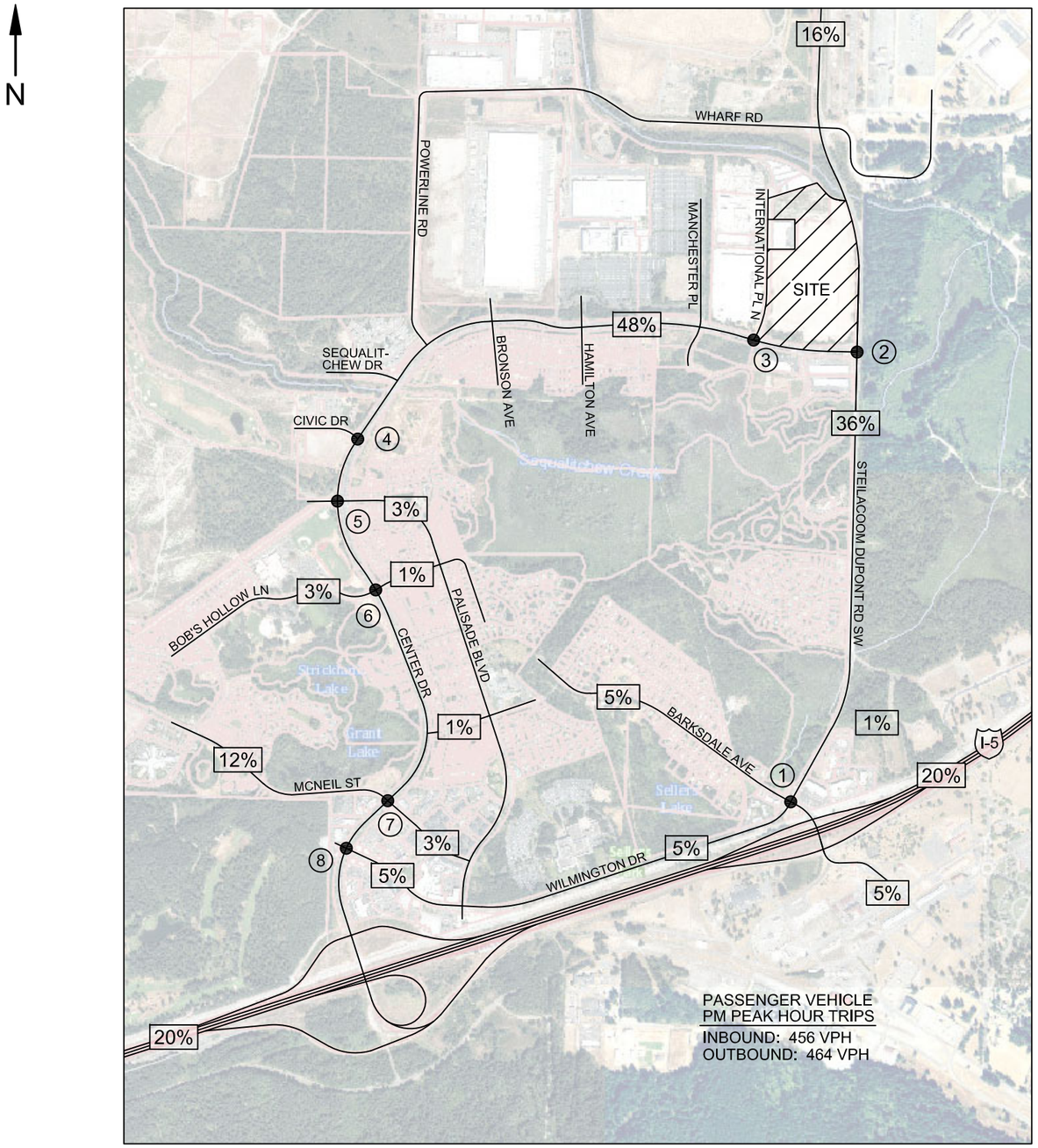
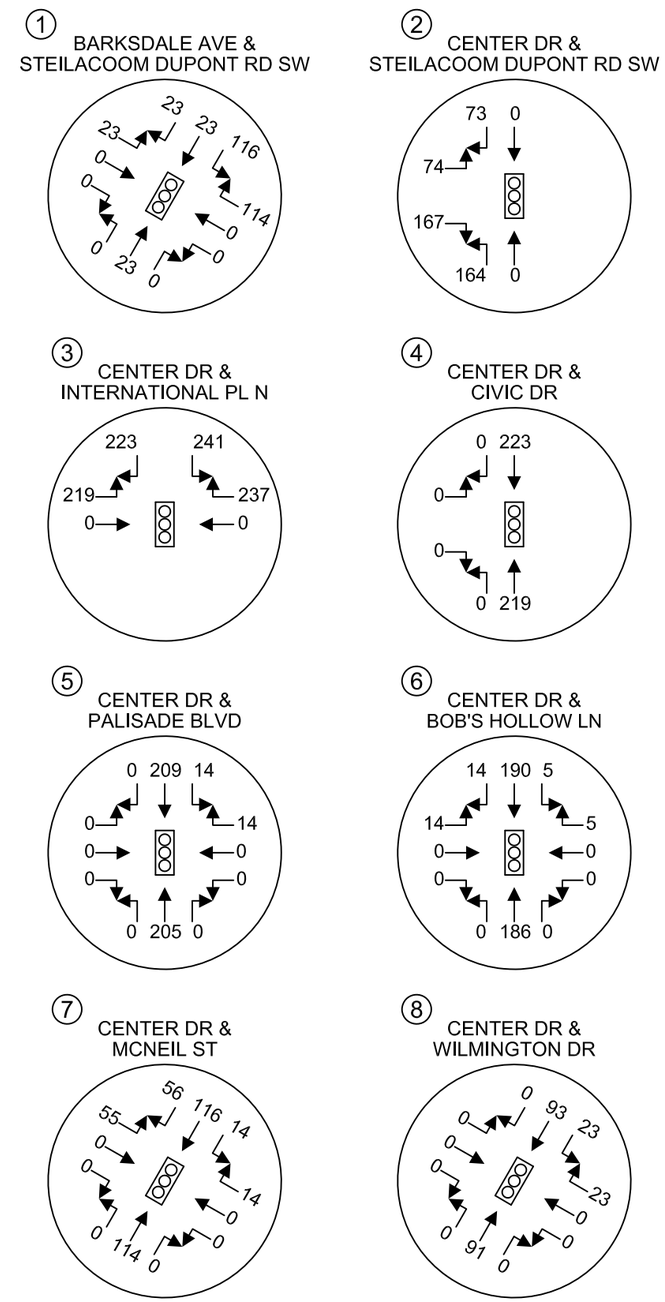
TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

AM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES
SCENARIO 3: PEAK SEASON VOLUMES
FIGURE I





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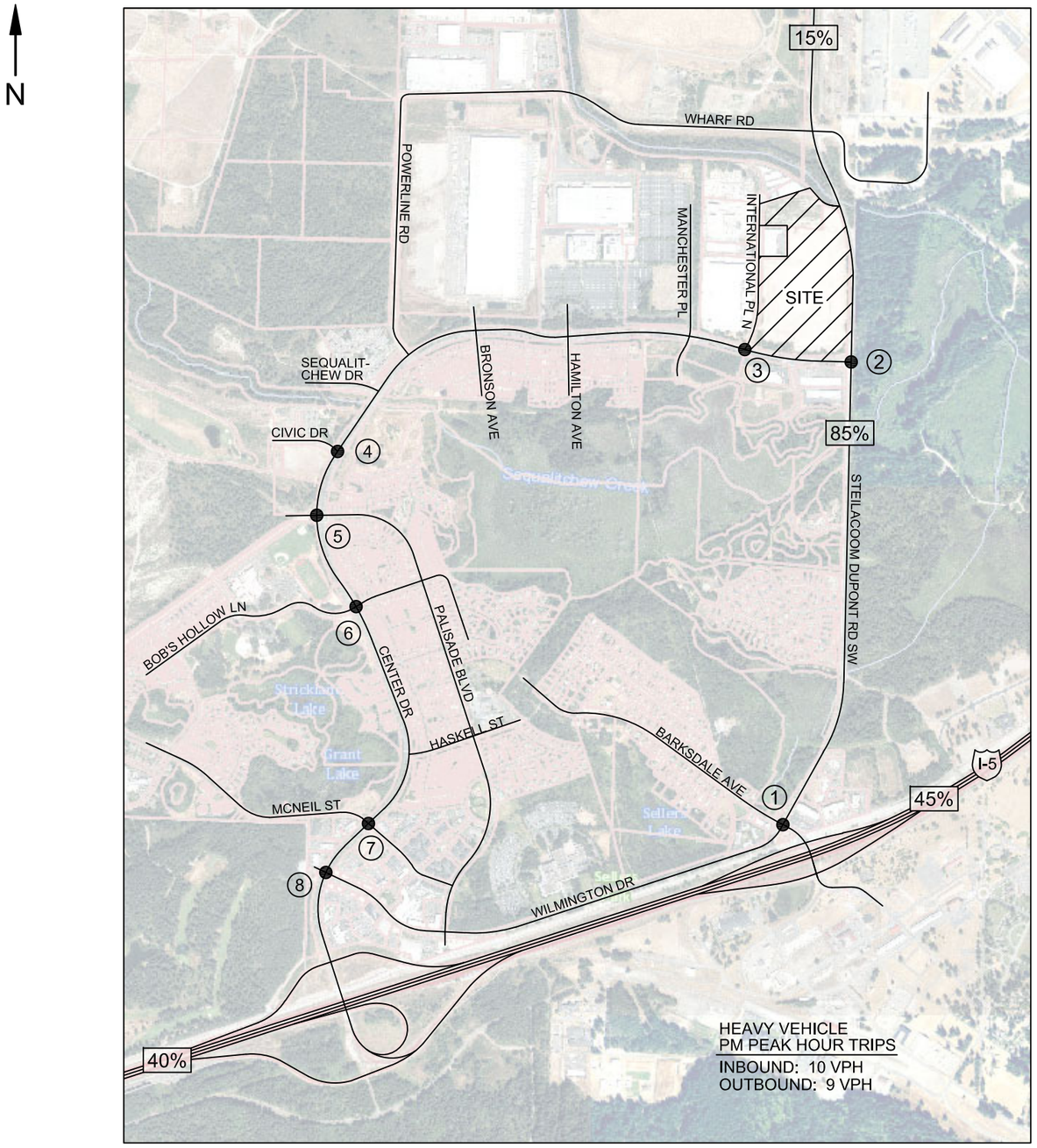
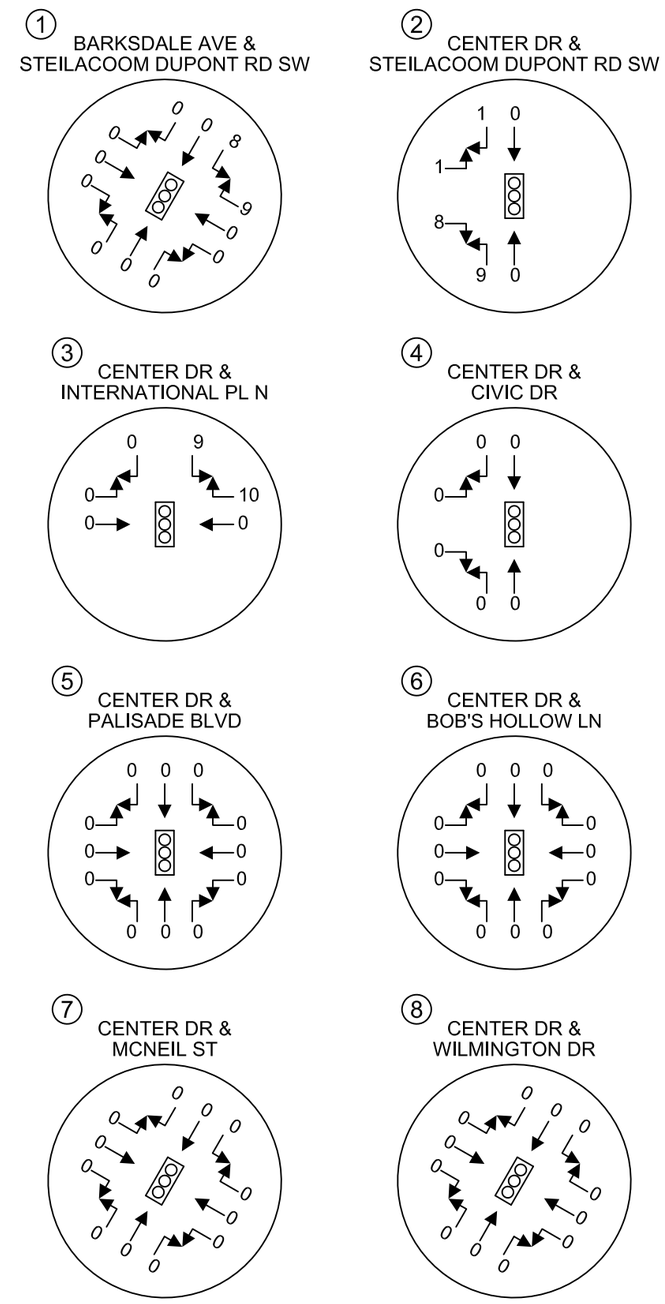
SNOW BLOSSOM FULFILLMENT CENTER

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - PASSENGER VEHICLES
SCENARIO 3: PEAK SEASON VOLUMES
FIGURE J





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TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

PM PEAK HOUR TRIP DISTRIBUTION & ASSIGNMENT - HEAVY VEHICLES
SCENARIO 3: PEAK SEASON VOLUMES
FIGURE K

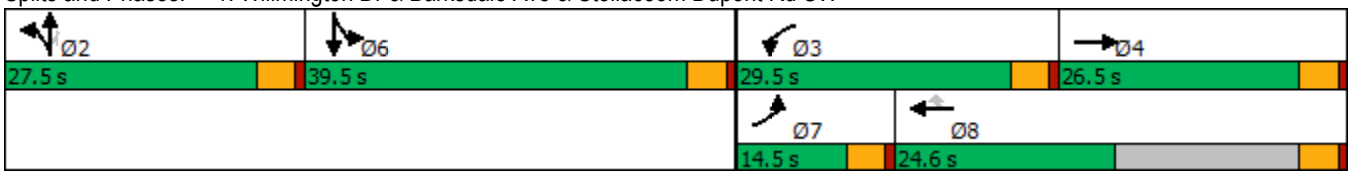
APPENDIX

LEVEL OF SERVICE

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	59	24	200	38	501	9	52	117	509	105	36
Future Volume (vph)	27	59	24	200	38	501	9	52	117	509	105	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99		0.97	0.99		0.97	0.99	0.99	
Frt		0.956				0.850			0.850		0.983	
Flt Protected	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (prot)	1719	1714	0	1752	1845	1568	1770	1863	1583	1633	1639	0
Flt Permitted	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (perm)	1702	1714	0	1737	1845	1519	1758	1863	1533	1618	1630	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				533			134		5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	29	63	26	213	40	533	10	55	124	541	112	38
Shared Lane Traffic (%)										36%		
Lane Group Flow (vph)	29	89	0	213	40	533	10	55	124	346	345	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	14.5	26.5		29.5	24.6	24.6	27.5	27.5	27.5	39.5	39.5	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	8.4	10.8		16.7	23.6	23.6	13.4	13.4	13.4	24.5	24.5	
Actuated g/C Ratio	0.11	0.14		0.22	0.32	0.32	0.18	0.18	0.18	0.33	0.33	
v/c Ratio	0.15	0.34		0.54	0.07	0.63	0.03	0.17	0.32	0.65	0.64	
Control Delay	42.9	35.3		37.6	24.7	6.7	37.3	37.4	9.1	32.5	31.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	42.9	35.3		37.6	24.7	6.7	37.3	37.4	9.1	32.5	31.8	
LOS	D	D		D	C	A	D	D	A	C	C	
Approach Delay		37.2			16.0			18.9			32.2	
Approach LOS		D			B			B			C	
Queue Length 50th (ft)	13	33		93	12	0	4	24	0	149	146	
Queue Length 95th (ft)	51	98		220	48	89	22	74	46	348	343	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	283	631		722	1025	1081	671	706	664	878	883	
Starvation Cap Reductn	0	0		0	0	17	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.14		0.30	0.04	0.50	0.01	0.08	0.19	0.39	0.39	

Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 74.8	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 24.0	Intersection LOS: C
Intersection Capacity Utilization 56.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	277	75	151	466	487	285
Future Volume (veh/h)	277	75	151	466	487	285
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1841	1841	1841	1856	1856
Adj Flow Rate, veh/h	308	83	168	518	541	317
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	4	4	3	3
Cap, veh/h	399	355	224	1093	718	595
Arrive On Green	0.23	0.23	0.13	0.59	0.39	0.39
Sat Flow, veh/h	1753	1560	1753	1841	1856	1538
Grp Volume(v), veh/h	308	83	168	518	541	317
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1856	1538
Q Serve(g_s), s	8.3	2.2	4.7	8.0	12.7	8.0
Cycle Q Clear(g_c), s	8.3	2.2	4.7	8.0	12.7	8.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	399	355	224	1093	718	595
V/C Ratio(X)	0.77	0.23	0.75	0.47	0.75	0.53
Avail Cap(c_a), veh/h	1392	1239	1392	2193	2210	1832
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	18.2	15.9	21.2	5.8	13.4	11.9
Incr Delay (d2), s/veh	3.2	0.3	5.0	0.3	1.6	0.7
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	2.1	1.9	1.6	4.2	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.5	16.2	26.2	6.1	15.0	12.7
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	391			686	858	
Approach Delay, s/veh	20.3			11.0	14.1	
Approach LOS	C			B	B	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.9		15.5	10.4	24.5
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		60.0		40.0	40.0	60.0
Max Q Clear Time (g_c+I1), s		10.0		10.3	6.7	14.7
Green Ext Time (p_c), s		3.3		1.2	0.4	4.8

Intersection Summary	
HCM 6th Ctrl Delay	14.3
HCM 6th LOS	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	360	475	13	11	0
Future Volume (vph)	3	360	475	13	11	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	
Frt			0.996			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3360	0	902	0
Flt Permitted	0.394				0.950	
Satd. Flow (perm)	732	3539	3360	0	899	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3			
Link Speed (mph)		35	35		25	
Link Distance (ft)		687	519		307	
Travel Time (s)		13.4	10.1		8.4	
Confl. Peds. (#/hr)	2			2	2	2
Confl. Bikes (#/hr)				1		1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	5%	75%	100%	0%
Adj. Flow (vph)	3	375	495	14	11	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	375	509	0	11	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	5	2	6		4	
Permitted Phases	2					
Total Split (s)	26.0	93.0	67.0		27.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	26.4	30.8	29.5		6.5	
Actuated g/C Ratio	0.81	0.94	0.90		0.20	
v/c Ratio	0.00	0.11	0.17		0.06	
Control Delay	1.7	1.0	2.6		16.4	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	1.7	1.0	2.6		16.4	
LOS	A	A	A		B	
Approach Delay		1.0	2.6		16.4	
Approach LOS		A	A		B	
Queue Length 50th (ft)	0	0	0		1	
Queue Length 95th (ft)	2	26	71		16	
Internal Link Dist (ft)		607	439		227	
Turn Bay Length (ft)	150					
Base Capacity (vph)	1337	3539	3360		679	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.00	0.11	0.15		0.02	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 32.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.17	
Intersection Signal Delay: 2.1	Intersection LOS: A
Intersection Capacity Utilization 26.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	1	8	17	318	311	7
Future Volume (veh/h)	1	8	17	318	311	7
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1737	1737	1856	1856	1841	1841
Adj Flow Rate, veh/h	1	9	19	349	342	8
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	11	11	3	3	4	4
Cap, veh/h	22	20	624	1916	1037	24
Arrive On Green	0.01	0.01	0.03	0.54	0.30	0.30
Sat Flow, veh/h	1654	1472	1767	3618	3583	81
Grp Volume(v), veh/h	1	9	19	349	171	179
Grp Sat Flow(s),veh/h/ln	1654	1472	1767	1763	1749	1823
Q Serve(g_s), s	0.0	0.1	0.1	1.0	1.5	1.6
Cycle Q Clear(g_c), s	0.0	0.1	0.1	1.0	1.5	1.6
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	22	20	624	1916	519	542
V/C Ratio(X)	0.04	0.45	0.03	0.18	0.33	0.33
Avail Cap(c_a), veh/h	407	362	2102	15009	5551	5788
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	9.9	9.9	3.8	2.3	5.6	5.6
Incr Delay (d2), s/veh	0.8	15.2	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.0	0.0	0.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.7	25.2	3.8	2.4	5.9	5.9
LnGrp LOS	B	C	A	A	A	A
Approach Vol, veh/h	10			368	350	
Approach Delay, s/veh	23.7			2.5	5.9	
Approach LOS	C			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		15.5		4.8	5.0	10.5
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		86.5		5.0	17.5	64.5
Max Q Clear Time (g_c+I1), s		3.0		2.1	2.1	3.6
Green Ext Time (p_c), s		2.5		0.0	0.0	2.1

Intersection Summary	
HCM 6th Ctrl Delay	4.4
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	21	0	35	0	313	14	23	287	0
Future Volume (veh/h)	0	0	0	21	0	35	0	313	14	23	287	0
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	0.98		0.98	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	1900	1900	1900	1870	1900	1870	1900	1870	1870	1826	1826	1900
Adj Flow Rate, veh/h	0	0	0	23	0	39	0	348	16	26	319	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	2	0	2	0	2	2	5	5	0
Cap, veh/h	0	136	0	373	0	111	7	1360	62	46	2045	0
Arrive On Green	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.39	0.39	0.03	0.59	0.00
Sat Flow, veh/h	0	1900	0	1416	0	1550	1810	3455	158	1739	3561	0
Grp Volume(v), veh/h	0	0	0	23	0	39	0	178	186	26	319	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1416	0	1550	1810	1777	1837	1739	1735	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	0.6	0.0	1.8	1.8	0.4	1.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	0.0	0.6	0.0	1.8	1.8	0.4	1.1	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.09	1.00		0.00
Lane Grp Cap(c), veh/h	0	136	0	373	0	111	7	699	723	46	2045	0
V/C Ratio(X)	0.00	0.00	0.00	0.06	0.00	0.35	0.00	0.26	0.26	0.57	0.16	0.00
Avail Cap(c_a), veh/h	0	2148	0	1872	0	1752	1364	4018	4153	1311	7844	0
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	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	11.6	0.0	11.7	0.0	5.4	5.4	12.8	2.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	1.9	0.0	0.2	0.2	10.6	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	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.3	0.3	0.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	11.7	0.0	13.6	0.0	5.6	5.6	23.4	2.5	0.0
LnGrp LOS	A	A	A	B	A	B	A	A	A	C	A	A
Approach Vol, veh/h		0			62			364			345	
Approach Delay, s/veh		0.0			12.9			5.6			4.1	
Approach LOS					B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	14.9		6.4	0.0	20.1		6.4
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.4	3.8		0.0	0.0	3.1		2.6
Green Ext Time (p_c), s	0.0	2.2		0.0	0.0	2.2		0.2

Intersection Summary	
HCM 6th Ctrl Delay	5.5
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	22	76	32	8	10	65	157	13	10	148	153
Future Volume (veh/h)	163	22	76	32	8	10	65	157	13	10	148	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.97	0.99		0.92
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	1856	1856	1856	1885	1885	1885	1885	1885	1885	1826	1826	1826
Adj Flow Rate, veh/h	206	28	96	41	10	13	82	199	16	13	187	194
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	1	1	1	1	1	1	5	5	5
Cap, veh/h	399	61	130	405	103	93	493	1151	92	521	477	391
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.09	0.34	0.34	0.02	0.27	0.27
Sat Flow, veh/h	846	200	429	861	340	306	1795	3351	267	1739	1735	1424
Grp Volume(v), veh/h	330	0	0	64	0	0	82	105	110	13	187	194
Grp Sat Flow(s),veh/h/ln	1476	0	0	1506	0	0	1795	1791	1827	1739	1735	1424
Q Serve(g_s), s	7.1	0.0	0.0	0.0	0.0	0.0	1.2	1.7	1.7	0.2	3.6	4.7
Cycle Q Clear(g_c), s	8.2	0.0	0.0	1.0	0.0	0.0	1.2	1.7	1.7	0.2	3.6	4.7
Prop In Lane	0.62		0.29	0.64		0.20	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	589	0	0	600	0	0	493	615	627	521	477	391
V/C Ratio(X)	0.56	0.00	0.00	0.11	0.00	0.00	0.17	0.17	0.17	0.02	0.39	0.50
Avail Cap(c_a), veh/h	1209	0	0	1197	0	0	1207	2615	2667	1333	2533	2079
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	0.0	0.0	10.3	0.0	0.0	8.9	9.4	9.4	10.3	12.1	12.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.5	1.0
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	2.4	0.0	0.0	0.4	0.0	0.0	0.4	0.5	0.5	0.1	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	0.0	10.4	0.0	0.0	9.1	9.5	9.6	10.3	12.6	13.5
LnGrp LOS	B	A	A	B	A	A	A	A	A	B	B	B
Approach Vol, veh/h		330			64			297			394	
Approach Delay, s/veh		13.6			10.4			9.4			13.0	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	18.7		16.9	8.2	15.9		16.9
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.2	3.7		10.2	3.2	6.7		3.0
Green Ext Time (p_c), s	0.0	1.3		2.1	0.1	2.6		0.3

Intersection Summary	
HCM 6th Ctrl Delay	12.0
HCM 6th LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	41	49	319	26	17	14	139	199	72	21	243	22
Future Volume (veh/h)	41	49	319	26	17	14	139	199	72	21	243	22
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1796	1796	1796	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	44	53	343	28	18	15	149	214	77	23	261	24
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	7	7	7	1	1	1	1	1	1
Cap, veh/h	311	317	655	340	177	476	237	755	262	62	644	59
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.13	0.29	0.29	0.03	0.19	0.19
Sat Flow, veh/h	563	1116	1566	610	625	1493	1795	2583	896	1795	3307	301
Grp Volume(v), veh/h	97	0	343	46	0	15	149	146	145	23	140	145
Grp Sat Flow(s),veh/h/ln	1679	0	1566	1235	0	1493	1795	1791	1689	1795	1791	1817
Q Serve(g_s), s	0.0	0.0	5.7	0.0	0.0	0.2	2.7	2.2	2.3	0.4	2.4	2.4
Cycle Q Clear(g_c), s	1.3	0.0	5.7	1.3	0.0	0.2	2.7	2.2	2.3	0.4	2.4	2.4
Prop In Lane	0.45		1.00	0.61		1.00	1.00		0.53	1.00		0.17
Lane Grp Cap(c), veh/h	628	0	655	518	0	476	237	523	493	62	349	354
V/C Ratio(X)	0.15	0.00	0.52	0.09	0.00	0.03	0.63	0.28	0.29	0.37	0.40	0.41
Avail Cap(c_a), veh/h	1568	0	1566	1193	0	1344	1036	3100	2923	1036	3100	3145
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	7.6	9.1	0.0	8.1	14.2	9.5	9.5	16.4	12.2	12.2
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.1	0.0	0.0	2.7	0.3	0.3	3.7	0.7	0.8
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	0.5	0.0	1.2	0.2	0.0	0.1	1.0	0.6	0.6	0.2	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	0.0	8.2	9.2	0.0	8.2	17.0	9.7	9.8	20.1	12.9	13.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	C	B	B
Approach Vol, veh/h		440			61			440			308	
Approach Delay, s/veh		8.5			8.9			12.2			13.5	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		14.3	5.7	14.6		14.3	9.1	11.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		30.0	20.0	60.0		30.0	20.0	60.0				
Max Q Clear Time (g_c+I1), s		3.3	2.4	4.3		7.7	4.7	4.4				
Green Ext Time (p_c), s		0.3	0.0	1.8		1.8	0.3	1.7				

Intersection Summary	
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	14	35	62	15	43	55	355	207	56	551	6
Future Volume (veh/h)	1	14	35	62	15	43	55	355	207	56	551	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	1	15	36	65	16	45	57	370	216	58	574	6
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	408	78	188	417	69	195	525	730	419	513	1224	13
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.06	0.34	0.34	0.06	0.34	0.34
Sat Flow, veh/h	1348	486	1167	1360	431	1212	1795	2171	1245	1795	3630	38
Grp Volume(v), veh/h	1	0	51	65	0	61	57	304	282	58	283	297
Grp Sat Flow(s),veh/h/ln	1348	0	1653	1360	0	1643	1795	1791	1625	1795	1791	1877
Q Serve(g_s), s	0.0	0.0	0.8	1.3	0.0	1.0	0.6	4.2	4.3	0.6	3.8	3.8
Cycle Q Clear(g_c), s	1.0	0.0	0.8	2.2	0.0	1.0	0.6	4.2	4.3	0.6	3.8	3.8
Prop In Lane	1.00		0.71	1.00		0.74	1.00		0.77	1.00		0.02
Lane Grp Cap(c), veh/h	408	0	266	417	0	265	525	602	547	513	604	633
V/C Ratio(X)	0.00	0.00	0.19	0.16	0.00	0.23	0.11	0.50	0.52	0.11	0.47	0.47
Avail Cap(c_a), veh/h	1506	0	1612	1525	0	1603	1581	3494	3171	1566	3494	3663
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.7	0.0	11.2	12.1	0.0	11.2	6.0	8.2	8.2	6.0	8.0	8.0
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.2	0.0	0.4	0.1	0.7	0.8	0.1	0.6	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	0.0	0.0	0.3	0.3	0.0	0.3	0.1	1.1	1.0	0.1	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	0.0	11.5	12.3	0.0	11.7	6.1	8.8	8.9	6.1	8.6	8.6
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		52			126			643			638	
Approach Delay, s/veh		11.5			12.0			8.6			8.4	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.5	14.8		9.5	6.4	14.9		9.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.6	6.3		3.0	2.6	5.8		4.2
Green Ext Time (p_c), s	0.1	4.1		0.2	0.1	3.8		0.5

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

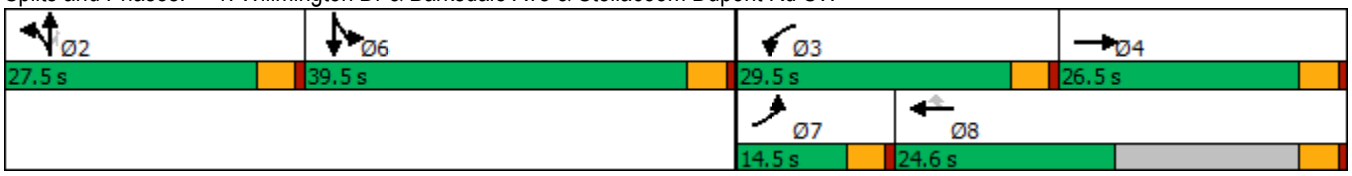
1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW

07/21/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	50	17	141	73	473	22	111	223	610	83	38
Future Volume (vph)	32	50	17	141	73	473	22	111	223	610	83	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.96	0.99	0.99	
Frt		0.961				0.850			0.850		0.984	
Flt Protected	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (prot)	1770	1772	0	1752	1845	1568	1787	1881	1599	1681	1679	0
Flt Permitted	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (perm)	1742	1772	0	1725	1845	1508	1769	1881	1537	1657	1663	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				488			230		5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	33	52	18	145	75	488	23	114	230	629	86	39
Shared Lane Traffic (%)										40%		
Lane Group Flow (vph)	33	70	0	145	75	488	23	114	230	377	377	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	14.5	26.5		29.5	24.6	24.6	27.5	27.5	27.5	39.5	39.5	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	7.7	9.5		12.5	16.7	16.7	12.6	12.6	12.6	24.5	24.5	
Actuated g/C Ratio	0.10	0.13		0.17	0.22	0.22	0.17	0.17	0.17	0.33	0.33	
v/c Ratio	0.18	0.30		0.50	0.18	0.68	0.08	0.36	0.51	0.69	0.69	
Control Delay	41.2	33.7		39.6	29.3	8.7	34.5	37.6	10.0	31.8	31.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	41.2	33.7		39.6	29.3	8.7	34.5	37.6	10.0	31.8	31.3	
LOS	D	C		D	C	A	C	D	A	C	C	
Approach Delay		36.1			17.2			20.1			31.6	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	14	25		61	29	0	9	48	0	152	150	
Queue Length 95th (ft)	53	77		155	79	90	38	126	68	354	350	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	257	575		637	991	1035	598	629	667	856	857	
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.12		0.23	0.08	0.47	0.04	0.18	0.34	0.44	0.44	

Intersection Summary		
Area Type:	Other	
Cycle Length: 123		
Actuated Cycle Length: 75.2		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.69		
Intersection Signal Delay: 24.4		Intersection LOS: C
Intersection Capacity Utilization 55.5%		ICU Level of Service B
Analysis Period (min) 15		

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	219	98	109	497	602	418
Future Volume (veh/h)	219	98	109	497	602	418
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1841	1841	1841	1885	1885
Adj Flow Rate, veh/h	238	107	118	540	654	454
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	1	1
Cap, veh/h	329	292	158	1163	869	720
Arrive On Green	0.19	0.19	0.09	0.63	0.46	0.46
Sat Flow, veh/h	1753	1560	1753	1841	1885	1561
Grp Volume(v), veh/h	238	107	118	540	654	454
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1885	1561
Q Serve(g_s), s	6.3	3.0	3.3	7.6	14.2	11.0
Cycle Q Clear(g_c), s	6.3	3.0	3.3	7.6	14.2	11.0
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	329	292	158	1163	869	720
V/C Ratio(X)	0.72	0.37	0.75	0.46	0.75	0.63
Avail Cap(c_a), veh/h	1410	1255	1410	2221	2274	1883
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	19.0	17.6	22.1	4.8	11.1	10.2
Incr Delay (d2), s/veh	3.0	0.8	6.9	0.3	1.3	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.1	1.4	1.3	4.2	2.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.0	18.4	29.0	5.1	12.4	11.1
LnGrp LOS	C	B	C	A	B	B
Approach Vol, veh/h	345			658	1108	
Approach Delay, s/veh	20.9			9.4	11.9	
Approach LOS	C			A	B	

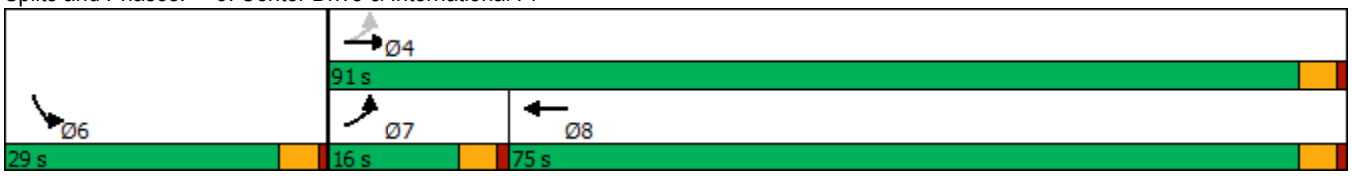
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		36.4		13.3	8.5	27.9
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		60.0		40.0	40.0	60.0
Max Q Clear Time (g_c+I1), s		9.6		8.3	5.3	16.2
Green Ext Time (p_c), s		3.5		1.1	0.3	6.7

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	235	589	6	13	1
Future Volume (vph)	1	235	589	6	13	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	
Frt			0.998		0.991	
Flt Protected	0.950				0.955	
Satd. Flow (prot)	1736	3471	3531	0	1761	0
Flt Permitted	0.349				0.955	
Satd. Flow (perm)	637	3471	3531	0	1757	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			1		1	
Link Speed (mph)		30	30		30	
Link Distance (ft)		687	519		294	
Travel Time (s)		15.6	11.8		6.7	
Confl. Peds. (#/hr)	1			1	1	1
Confl. Bikes (#/hr)				4		4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	1	261	654	7	14	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	261	661	0	15	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	7	4	8		6	
Permitted Phases	4					
Total Split (s)	16.0	91.0	75.0		29.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	31.4	36.3	35.2		7.9	
Actuated g/C Ratio	0.81	0.93	0.90		0.20	
v/c Ratio	0.00	0.08	0.21		0.04	
Control Delay	3.0	1.7	3.4		16.9	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	3.0	1.7	3.4		16.9	
LOS	A	A	A		B	
Approach Delay		1.7	3.4		16.9	
Approach LOS		A	A		B	
Queue Length 50th (ft)	0	0	0		2	
Queue Length 95th (ft)	2	34	128		20	
Internal Link Dist (ft)		607	439		214	
Turn Bay Length (ft)	150					
Base Capacity (vph)	897	3471	3453		1311	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.00	0.08	0.19		0.01	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 38.9	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.21	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 28.7%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	7	12	4	292	406	5
Future Volume (veh/h)	7	12	4	292	406	5
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	7	13	4	307	427	5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	47	42	581	1959	1189	14
Arrive On Green	0.03	0.03	0.01	0.55	0.33	0.33
Sat Flow, veh/h	1795	1598	1795	3676	3719	42
Grp Volume(v), veh/h	7	13	4	307	211	221
Grp Sat Flow(s),veh/h/ln	1795	1598	1795	1791	1791	1876
Q Serve(g_s), s	0.1	0.2	0.0	0.9	1.9	1.9
Cycle Q Clear(g_c), s	0.1	0.2	0.0	0.9	1.9	1.9
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	47	42	581	1959	587	615
V/C Ratio(X)	0.15	0.31	0.01	0.16	0.36	0.36
Avail Cap(c_a), veh/h	2001	1781	1891	14865	5734	6007
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	10.0	10.1	3.8	2.4	5.4	5.4
Incr Delay (d2), s/veh	1.4	4.1	0.0	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.5	14.2	3.8	2.4	5.8	5.8
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	20			311	432	
Approach Delay, s/veh	13.2			2.4	5.8	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		16.0		5.1	4.6	11.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		87.5		23.5	15.5	67.5
Max Q Clear Time (g_c+I1), s		2.9		2.2	2.0	3.9
Green Ext Time (p_c), s		2.1		0.0	0.0	2.7

Intersection Summary	
HCM 6th Ctrl Delay	4.6
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	23	1	22	8	282	32	32	466	4
Future Volume (veh/h)	0	0	7	23	1	22	8	282	32	32	466	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	1.00		0.97	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	1900	1900	1900	1885	1900	1885	1900	1885	1885	1885	1885	1900
Adj Flow Rate, veh/h	0	0	8	25	1	24	9	307	35	35	507	4
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, %	0	0	0	1	0	1	0	1	1	1	1	0
Cap, veh/h	0	0	105	352	3	104	18	1253	141	62	1501	12
Arrive On Green	0.00	0.00	0.07	0.07	0.07	0.07	0.01	0.39	0.39	0.03	0.41	0.41
Sat Flow, veh/h	0	0	1577	1272	51	1565	1810	3234	365	1795	3641	29
Grp Volume(v), veh/h	0	0	8	26	0	24	9	169	173	35	249	262
Grp Sat Flow(s),veh/h/ln	0	0	1577	1323	0	1565	1810	1791	1808	1795	1791	1879
Q Serve(g_s), s	0.0	0.0	0.1	0.5	0.0	0.4	0.1	1.7	1.7	0.5	2.5	2.5
Cycle Q Clear(g_c), s	0.0	0.0	0.1	0.6	0.0	0.4	0.1	1.7	1.7	0.5	2.5	2.5
Prop In Lane	0.00		1.00	0.96		1.00	1.00		0.20	1.00		0.02
Lane Grp Cap(c), veh/h	0	0	105	356	0	104	18	694	701	62	738	774
V/C Ratio(X)	0.00	0.00	0.08	0.07	0.00	0.23	0.51	0.24	0.25	0.57	0.34	0.34
Avail Cap(c_a), veh/h	0	0	1793	1882	0	1779	1372	4073	4112	1361	4073	4274
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	11.6	11.8	0.0	11.7	13.0	5.5	5.5	12.5	5.3	5.3
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.1	0.0	1.1	21.4	0.2	0.2	8.0	0.3	0.3
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	0.0	0.0	0.1	0.0	0.1	0.1	0.3	0.3	0.3	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	11.9	11.9	0.0	12.8	34.4	5.6	5.7	20.5	5.6	5.6
LnGrp LOS	A	A	B	B	A	B	C	A	A	C	A	A
Approach Vol, veh/h		8			50			351			546	
Approach Delay, s/veh		11.9			12.3			6.4			6.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	14.7		6.3	4.8	15.4		6.3
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.5	3.7		2.1	2.1	4.5		2.6
Green Ext Time (p_c), s	0.0	2.1		0.0	0.0	3.2		0.2

Intersection Summary	
HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	152	10	64	17	19	9	58	161	31	20	268	212
Future Volume (veh/h)	152	10	64	17	19	9	58	161	31	20	268	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	0.99		0.97	0.99		0.96
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	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	160	11	67	18	20	9	61	169	33	21	282	223
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	381	41	100	244	232	80	492	1030	196	613	571	434
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.08	0.35	0.35	0.03	0.30	0.30
Sat Flow, veh/h	884	168	412	434	960	330	1795	2983	568	1795	1898	1443
Grp Volume(v), veh/h	238	0	0	47	0	0	61	100	102	21	265	240
Grp Sat Flow(s),veh/h/ln	1465	0	0	1725	0	0	1795	1791	1760	1795	1791	1550
Q Serve(g_s), s	4.5	0.0	0.0	0.0	0.0	0.0	0.8	1.4	1.4	0.3	4.4	4.6
Cycle Q Clear(g_c), s	5.2	0.0	0.0	0.7	0.0	0.0	0.8	1.4	1.4	0.3	4.4	4.6
Prop In Lane	0.67		0.28	0.38		0.19	1.00		0.32	1.00		0.93
Lane Grp Cap(c), veh/h	522	0	0	555	0	0	492	618	608	613	538	466
V/C Ratio(X)	0.46	0.00	0.00	0.08	0.00	0.00	0.12	0.16	0.17	0.03	0.49	0.51
Avail Cap(c_a), veh/h	1375	0	0	1488	0	0	1355	2993	2942	1556	2993	2591
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.2	0.0	0.0	10.6	0.0	0.0	7.5	8.1	8.2	8.1	10.3	10.4
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	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	1.5	0.0	0.0	0.2	0.0	0.0	0.2	0.4	0.4	0.1	1.3	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.9	0.0	0.0	10.7	0.0	0.0	7.6	8.3	8.3	8.1	11.0	11.3
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	B	B
Approach Vol, veh/h		238			47			263			526	
Approach Delay, s/veh		12.9			10.7			8.1			11.0	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.7	17.0		13.2	7.3	15.4		13.2
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	3.4		7.2	2.8	6.6		2.7
Green Ext Time (p_c), s	0.0	1.2		1.5	0.1	3.5		0.2

Intersection Summary		
HCM 6th Ctrl Delay		10.7
HCM 6th LOS		B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	44	39	169	62	68	31	348	248	43	31	306	42
Future Volume (veh/h)	44	39	169	62	68	31	348	248	43	31	306	42
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1856	1856	1856	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	46	41	178	65	72	33	366	261	45	33	322	44
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, %	1	1	1	3	3	3	1	1	1	1	1	1
Cap, veh/h	90	58	1016	86	69	707	405	1067	181	71	517	70
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.23	0.35	0.35	0.04	0.16	0.16
Sat Flow, veh/h	27	139	1570	23	166	1546	1795	3047	517	1795	3152	426
Grp Volume(v), veh/h	87	0	178	137	0	33	366	152	154	33	181	185
Grp Sat Flow(s),veh/h/ln	166	0	1570	189	0	1546	1795	1791	1773	1795	1791	1787
Q Serve(g_s), s	1.0	0.0	3.2	1.0	0.0	0.8	13.9	4.2	4.3	1.3	6.6	6.7
Cycle Q Clear(g_c), s	29.1	0.0	3.2	29.1	0.0	0.8	13.9	4.2	4.3	1.3	6.6	6.7
Prop In Lane	0.53		1.00	0.47		1.00	1.00		0.29	1.00		0.24
Lane Grp Cap(c), veh/h	148	0	1016	155	0	707	405	627	621	71	294	293
V/C Ratio(X)	0.59	0.00	0.18	0.88	0.00	0.05	0.90	0.24	0.25	0.47	0.62	0.63
Avail Cap(c_a), veh/h	167	0	1035	173	0	726	514	1538	1523	514	1538	1535
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	5.0	22.8	0.0	10.5	26.3	16.1	16.2	32.8	27.2	27.2
Incr Delay (d2), s/veh	4.2	0.0	0.1	35.7	0.0	0.0	16.5	0.2	0.2	4.7	2.1	2.2
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	1.0	0.0	0.9	3.8	0.0	0.3	7.3	1.6	1.6	0.6	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	5.1	58.5	0.0	10.6	42.8	16.3	16.4	37.6	29.3	29.5
LnGrp LOS	C	A	A	E	A	B	D	B	B	D	C	C
Approach Vol, veh/h		265			170			672			399	
Approach Delay, s/veh		11.1			49.2			30.8			30.1	
Approach LOS		B			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.3	29.3		34.1	20.5	16.1		34.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.3	6.3		31.1	15.9	8.7		31.1
Green Ext Time (p_c), s	0.0	1.9		0.0	0.5	2.3		0.0

Intersection Summary	
HCM 6th Ctrl Delay	29.2
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	14	30	235	25	72	47	548	192	65	452	17
Future Volume (veh/h)	7	14	30	235	25	72	47	548	192	65	452	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	1.00		0.96	0.99		0.97	1.00		0.96
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	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	8	15	32	253	27	77	51	589	206	70	486	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	1	1	1	1	1	1	1	1	1
Cap, veh/h	460	154	328	522	121	346	487	924	322	383	1300	48
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.36	0.36	0.06	0.37	0.37
Sat Flow, veh/h	1269	530	1130	1366	417	1190	1795	2584	902	1795	3517	130
Grp Volume(v), veh/h	8	0	47	253	0	104	51	408	387	70	247	257
Grp Sat Flow(s),veh/h/ln	1269	0	1659	1366	0	1607	1795	1791	1694	1795	1791	1856
Q Serve(g_s), s	0.2	0.0	1.0	7.8	0.0	2.3	0.8	8.9	8.9	1.1	4.7	4.7
Cycle Q Clear(g_c), s	2.5	0.0	1.0	8.8	0.0	2.3	0.8	8.9	8.9	1.1	4.7	4.7
Prop In Lane	1.00		0.68	1.00		0.74	1.00		0.53	1.00		0.07
Lane Grp Cap(c), veh/h	460	0	482	522	0	467	487	641	606	383	662	686
V/C Ratio(X)	0.02	0.00	0.10	0.48	0.00	0.22	0.10	0.64	0.64	0.18	0.37	0.37
Avail Cap(c_a), veh/h	903	0	1062	999	0	1028	1160	2291	2168	1034	2291	2375
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	12.1	15.3	0.0	12.6	8.6	12.5	12.5	9.1	10.8	10.8
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.7	0.0	0.2	0.1	1.1	1.1	0.2	0.3	0.3
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	0.0	0.3	2.2	0.0	0.8	0.3	3.0	2.8	0.3	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	12.2	16.0	0.0	12.9	8.7	13.6	13.7	9.3	11.2	11.1
LnGrp LOS	B	A	B	B	A	B	A	B	B	A	B	B
Approach Vol, veh/h		55			357			846			574	
Approach Delay, s/veh		12.4			15.1			13.3			10.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	21.3		18.1	6.9	21.8		18.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.1	10.9		4.5	2.8	6.7		10.8
Green Ext Time (p_c), s	0.1	5.9		0.2	0.1	3.2		1.4

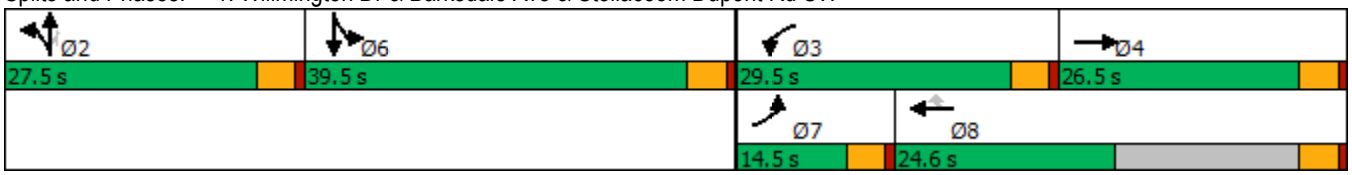
Intersection Summary		
HCM 6th Ctrl Delay		12.9
HCM 6th LOS		B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	61	25	208	40	643	9	71	122	580	118	45
Future Volume (vph)	40	61	25	208	40	643	9	71	122	580	118	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99		0.97	0.99		0.97	0.99	0.99	
Frt		0.956				0.850			0.850		0.982	
Flt Protected	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (prot)	1719	1714	0	1752	1845	1568	1770	1863	1583	1633	1636	0
Flt Permitted	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (perm)	1702	1714	0	1737	1845	1519	1759	1863	1533	1618	1628	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				684			134		6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	5%	5%	5%
Adj. Flow (vph)	43	65	27	221	43	684	10	76	130	617	126	48
Shared Lane Traffic (%)										36%		
Lane Group Flow (vph)	43	92	0	221	43	684	10	76	130	395	396	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	14.5	26.5		29.5	24.6	24.6	27.5	27.5	27.5	39.5	39.5	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	8.0	10.3		16.7	21.3	21.3	12.1	12.1	12.1	28.3	28.3	
Actuated g/C Ratio	0.10	0.12		0.20	0.26	0.26	0.15	0.15	0.15	0.34	0.34	
v/c Ratio	0.26	0.41		0.63	0.09	0.76	0.04	0.28	0.39	0.71	0.71	
Control Delay	46.3	39.1		42.6	28.2	9.0	38.9	41.0	10.9	35.0	34.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	46.3	39.1		42.6	28.2	9.0	38.9	41.0	10.9	35.0	34.3	
LOS	D	D		D	C	A	D	D	B	C	C	
Approach Delay		41.4			17.7			22.8			34.6	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	21	38		108	18	0	5	37	0	182	180	
Queue Length 95th (ft)	68	102		228	52	110	22	95	51	#434	#429	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	222	498		566	880	1082	526	554	550	739	744	
Starvation Cap Reductn	0	0		1	0	8	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.19	0.18		0.39	0.05	0.64	0.02	0.14	0.24	0.53	0.53	

Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 83.2	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 26.2	Intersection LOS: C
Intersection Capacity Utilization 65.4%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	322	115	258	517	522	357
Future Volume (veh/h)	322	115	258	517	522	357
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1841	1841	1841	1856	1856
Adj Flow Rate, veh/h	358	128	287	574	580	397
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	4	4	3	3
Cap, veh/h	425	379	342	1167	712	590
Arrive On Green	0.24	0.24	0.20	0.63	0.38	0.38
Sat Flow, veh/h	1753	1560	1753	1841	1856	1538
Grp Volume(v), veh/h	358	128	287	574	580	397
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1856	1538
Q Serve(g_s), s	14.2	4.9	11.5	12.1	20.4	15.6
Cycle Q Clear(g_c), s	14.2	4.9	11.5	12.1	20.4	15.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	425	379	342	1167	712	590
V/C Ratio(X)	0.84	0.34	0.84	0.49	0.81	0.67
Avail Cap(c_a), veh/h	1010	899	842	2577	1604	1329
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	26.3	22.8	28.2	7.1	20.1	18.6
Incr Delay (d2), s/veh	4.6	0.5	5.5	0.3	2.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	4.6	4.9	3.3	8.0	5.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.8	23.3	33.7	7.4	22.5	20.0
LnGrp LOS	C	C	C	A	C	B
Approach Vol, veh/h	486			861	977	
Approach Delay, s/veh	28.8			16.2	21.5	
Approach LOS	C			B	C	

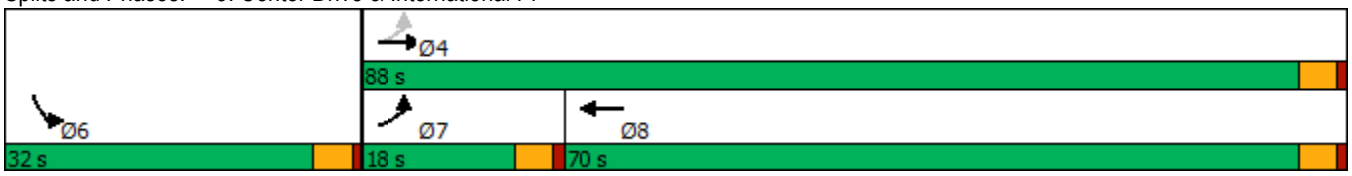
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		51.2		21.7	18.2	33.0
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		102.0		42.0	35.0	63.0
Max Q Clear Time (g_c+I1), s		14.1		16.2	13.5	22.4
Green Ext Time (p_c), s		3.8		1.5	0.8	5.5

Intersection Summary	
HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	470	579	14	11	0
Future Volume (vph)	3	470	579	14	11	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	
Frt			0.996			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3368	0	902	0
Flt Permitted	0.363				0.950	
Satd. Flow (perm)	675	3539	3368	0	899	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			3			
Link Speed (mph)		35	35		25	
Link Distance (ft)		687	519		294	
Travel Time (s)		15.6	11.8		6.7	
Confl. Peds. (#/hr)	2			2	2	2
Confl. Bikes (#/hr)				1		1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	5%	75%	100%	0%
Adj. Flow (vph)	3	490	603	15	11	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	3	490	618	0	11	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	7	4	8		6	
Permitted Phases	4					
Total Split (s)	18.0	88.0	70.0		32.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	31.0	36.0	35.0		8.2	
Actuated g/C Ratio	0.80	0.93	0.91		0.21	
v/c Ratio	0.00	0.15	0.20		0.06	
Control Delay	2.7	1.7	3.4		18.1	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	2.7	1.7	3.4		18.1	
LOS	A	A	A		B	
Approach Delay		1.7	3.4		18.1	
Approach LOS		A	A		B	
Queue Length 50th (ft)	0	0	0		1	
Queue Length 95th (ft)	3	62	121		17	
Internal Link Dist (ft)		607	439		214	
Turn Bay Length (ft)	150					
Base Capacity (vph)	1000	3539	3249		758	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.00	0.14	0.19		0.01	

Intersection Summary		
Area Type:	Other	
Cycle Length: 120		
Actuated Cycle Length: 38.6		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.20		
Intersection Signal Delay: 2.8		Intersection LOS: A
Intersection Capacity Utilization 29.2%		ICU Level of Service A
Analysis Period (min) 15		

Splits and Phases: 3: Center Drive & International Pl



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	43	131	447	356	40
Future Volume (veh/h)	15	43	131	447	356	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1737	1737	1856	1856	1841	1841
Adj Flow Rate, veh/h	16	47	144	491	391	44
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	11	11	3	3	4	4
Cap, veh/h	116	103	675	2078	935	104
Arrive On Green	0.07	0.07	0.12	0.59	0.30	0.30
Sat Flow, veh/h	1654	1472	1767	3618	3253	353
Grp Volume(v), veh/h	16	47	144	491	215	220
Grp Sat Flow(s),veh/h/ln	1654	1472	1767	1763	1749	1765
Q Serve(g_s), s	0.2	0.8	1.2	1.8	2.6	2.6
Cycle Q Clear(g_c), s	0.2	0.8	1.2	1.8	2.6	2.6
Prop In Lane	1.00	1.00	1.00			0.20
Lane Grp Cap(c), veh/h	116	103	675	2078	517	522
V/C Ratio(X)	0.14	0.46	0.21	0.24	0.42	0.42
Avail Cap(c_a), veh/h	313	278	1627	11539	4268	4308
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	11.5	11.8	4.2	2.6	7.5	7.5
Incr Delay (d2), s/veh	0.5	3.1	0.2	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.1	0.0	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	14.9	4.3	2.6	8.0	8.0
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	63			635	435	
Approach Delay, s/veh	14.2			3.0	8.0	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		20.1		6.4	7.8	12.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		86.5		5.0	17.5	64.5
Max Q Clear Time (g_c+I1), s		3.8		2.8	3.2	4.6
Green Ext Time (p_c), s		3.6		0.0	0.3	2.8

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	22	0	55	0	536	15	35	355	0
Future Volume (veh/h)	0	0	0	22	0	55	0	536	15	35	355	0
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		0.98	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	1900	1900	1900	1870	1900	1870	1900	1870	1870	1826	1826	1900
Adj Flow Rate, veh/h	0	0	0	24	0	61	0	596	17	39	394	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	2	0	2	0	2	2	5	5	0
Cap, veh/h	0	162	0	385	0	132	7	1349	38	65	2030	0
Arrive On Green	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.38	0.38	0.04	0.59	0.00
Sat Flow, veh/h	0	1900	0	1420	0	1549	1810	3525	100	1739	3561	0
Grp Volume(v), veh/h	0	0	0	24	0	61	0	300	313	39	394	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1420	0	1549	1810	1777	1849	1739	1735	0
Q Serve(g_s), s	0.0	0.0	0.0	0.4	0.0	1.0	0.0	3.4	3.4	0.6	1.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.4	0.0	1.0	0.0	3.4	3.4	0.6	1.5	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.05	1.00		0.00
Lane Grp Cap(c), veh/h	0	162	0	385	0	132	7	680	708	65	2030	0
V/C Ratio(X)	0.00	0.00	0.00	0.06	0.00	0.46	0.00	0.44	0.44	0.60	0.19	0.00
Avail Cap(c_a), veh/h	0	2087	0	1823	0	1702	1325	3904	4062	1274	7622	0
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	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	11.6	0.0	11.9	0.0	6.3	6.3	12.9	2.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	2.5	0.0	0.5	0.4	8.5	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	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.7	0.7	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	11.7	0.0	14.4	0.0	6.7	6.7	21.4	2.7	0.0
LnGrp LOS	A	A	A	B	A	B	A	A	A	C	A	A
Approach Vol, veh/h		0			85			613			433	
Approach Delay, s/veh		0.0			13.6			6.7			4.4	
Approach LOS					B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	15.0		6.8	0.0	20.5		6.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.6	5.4		0.0	0.0	3.5		3.0
Green Ext Time (p_c), s	0.1	4.0		0.0	0.0	2.8		0.3

Intersection Summary	
HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	205	23	79	33	8	11	68	338	14	10	196	173
Future Volume (veh/h)	205	23	79	33	8	11	68	338	14	10	196	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.97	1.00		0.92
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	1856	1856	1856	1885	1885	1885	1885	1885	1885	1826	1826	1826
Adj Flow Rate, veh/h	259	29	100	42	10	14	86	428	18	13	248	219
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	1	1	1	1	1	1	5	5	5
Cap, veh/h	445	49	127	414	103	105	450	1221	51	427	490	403
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.09	0.35	0.35	0.02	0.28	0.28
Sat Flow, veh/h	942	146	378	857	309	314	1795	3497	147	1739	1735	1426
Grp Volume(v), veh/h	388	0	0	66	0	0	86	219	227	13	248	219
Grp Sat Flow(s),veh/h/ln	1465	0	0	1480	0	0	1795	1791	1853	1739	1735	1426
Q Serve(g_s), s	9.8	0.0	0.0	0.0	0.0	0.0	1.4	4.2	4.2	0.2	5.5	6.0
Cycle Q Clear(g_c), s	11.0	0.0	0.0	1.2	0.0	0.0	1.4	4.2	4.2	0.2	5.5	6.0
Prop In Lane	0.67		0.26	0.64		0.21	1.00		0.08	1.00		1.00
Lane Grp Cap(c), veh/h	621	0	0	623	0	0	450	625	647	427	490	403
V/C Ratio(X)	0.63	0.00	0.00	0.11	0.00	0.00	0.19	0.35	0.35	0.03	0.51	0.54
Avail Cap(c_a), veh/h	1071	0	0	1059	0	0	1070	2321	2401	1143	2248	1848
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	10.6	0.0	0.0	9.9	11.2	11.2	11.4	13.9	14.1
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.1	0.0	0.0	0.2	0.3	0.3	0.0	0.8	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	3.3	0.0	0.0	0.4	0.0	0.0	0.5	1.4	1.4	0.1	1.9	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	0.0	0.0	10.7	0.0	0.0	10.1	11.5	11.5	11.4	14.7	15.2
LnGrp LOS	B	A	A	B	A	A	B	B	B	B	B	B
Approach Vol, veh/h		388			66			532			480	
Approach Delay, s/veh		14.8			10.7			11.3			14.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	20.8		20.0	8.6	17.7		20.0
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.2	6.2		13.0	3.4	8.0		3.2
Green Ext Time (p_c), s	0.0	2.8		2.4	0.2	3.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	78	61	404	27	22	26	168	332	75	27	284	29
Future Volume (veh/h)	78	61	404	27	22	26	168	332	75	27	284	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1796	1796	1796	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	84	66	434	29	24	28	181	357	81	29	305	31
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	7	7	7	1	1	1	1	1	1
Cap, veh/h	199	125	847	164	101	667	233	775	173	69	578	58
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.13	0.27	0.27	0.04	0.18	0.18
Sat Flow, veh/h	196	308	1570	112	248	1496	1795	2888	646	1795	3271	329
Grp Volume(v), veh/h	150	0	434	53	0	28	181	219	219	29	166	170
Grp Sat Flow(s),veh/h/ln	504	0	1570	360	0	1496	1795	1791	1743	1795	1791	1810
Q Serve(g_s), s	2.5	0.0	8.3	0.7	0.0	0.5	4.6	4.8	4.9	0.7	4.0	4.0
Cycle Q Clear(g_c), s	17.3	0.0	8.3	16.4	0.0	0.5	4.6	4.8	4.9	0.7	4.0	4.0
Prop In Lane	0.56		1.00	0.55		1.00	1.00		0.37	1.00		0.18
Lane Grp Cap(c), veh/h	324	0	847	265	0	667	233	480	467	69	316	320
V/C Ratio(X)	0.46	0.00	0.51	0.20	0.00	0.04	0.78	0.46	0.47	0.42	0.52	0.53
Avail Cap(c_a), veh/h	878	0	1407	667	0	1202	1734	2376	2312	438	1083	1095
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.1	0.0	7.0	10.7	0.0	7.4	19.8	14.4	14.4	22.1	17.6	17.6
Incr Delay (d2), s/veh	1.0	0.0	0.5	0.4	0.0	0.0	5.5	0.7	0.7	4.0	1.3	1.4
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	0.9	0.0	1.9	0.3	0.0	0.1	2.0	1.7	1.7	0.4	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.2	0.0	7.5	11.1	0.0	7.4	25.3	15.1	15.2	26.2	18.9	19.0
LnGrp LOS	B	A	A	B	A	A	C	B	B	C	B	B
Approach Vol, veh/h		584			81			619			365	
Approach Delay, s/veh		9.4			9.8			18.1			19.5	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2	3	4		6	7	8
Phs Duration (G+Y+Rc), s		24.9	6.4	17.4		24.9	10.8	13.0
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		36.0	11.5	62.5		36.0	45.5	28.5
Max Q Clear Time (g_c+I1), s		18.4	2.7	6.9		19.3	6.6	6.0
Green Ext Time (p_c), s		0.3	0.0	2.8		2.4	0.5	1.8

Intersection Summary	
HCM 6th Ctrl Delay	14.9
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	15	36	65	16	56	57	506	215	69	665	6
Future Volume (veh/h)	1	15	36	65	16	56	57	506	215	69	665	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	1	16	38	68	17	58	59	527	224	72	693	6
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	359	76	180	378	57	196	509	938	397	490	1437	12
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.06	0.39	0.39	0.07	0.40	0.40
Sat Flow, veh/h	1331	490	1163	1356	370	1263	1795	2432	1029	1795	3638	31
Grp Volume(v), veh/h	1	0	54	68	0	75	59	387	364	72	341	358
Grp Sat Flow(s),veh/h/ln	1331	0	1653	1356	0	1633	1795	1791	1671	1795	1791	1879
Q Serve(g_s), s	0.0	0.0	1.0	1.6	0.0	1.4	0.7	5.9	6.0	0.8	5.0	5.0
Cycle Q Clear(g_c), s	1.4	0.0	1.0	2.6	0.0	1.4	0.7	5.9	6.0	0.8	5.0	5.0
Prop In Lane	1.00		0.70	1.00		0.77	1.00		0.62	1.00		0.02
Lane Grp Cap(c), veh/h	359	0	256	378	0	253	509	690	644	490	707	742
V/C Ratio(X)	0.00	0.00	0.21	0.18	0.00	0.30	0.12	0.56	0.56	0.15	0.48	0.48
Avail Cap(c_a), veh/h	1298	0	1423	1335	0	1405	1427	3083	2876	1391	3083	3234
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	0.0	12.9	14.0	0.0	13.0	5.8	8.4	8.4	5.9	7.9	7.9
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.2	0.0	0.6	0.1	0.7	0.8	0.1	0.5	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	0.0	0.0	0.3	0.4	0.0	0.5	0.1	1.5	1.5	0.2	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	0.0	13.3	14.2	0.0	13.7	5.9	9.1	9.2	6.0	8.4	8.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		55			143			810			771	
Approach Delay, s/veh		13.3			13.9			8.9			8.2	
Approach LOS		B			B			A			A	

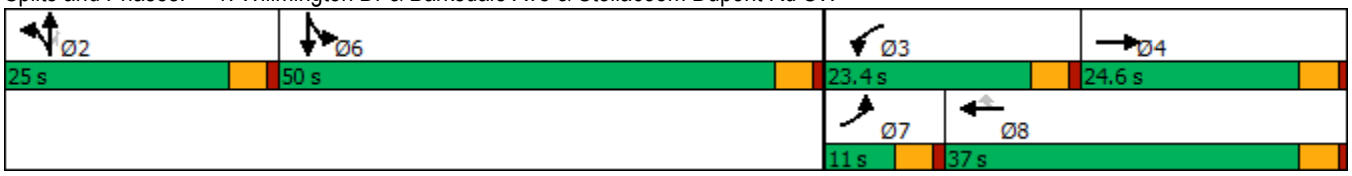
Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.0	17.9		9.9	6.7	18.3		9.9
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.8	8.0		3.4	2.7	7.0		4.6
Green Ext Time (p_c), s	0.1	5.5		0.3	0.1	4.7		0.6

Intersection Summary	
HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	52	18	147	76	535	23	123	232	736	101	51
Future Volume (vph)	38	52	18	147	76	535	23	123	232	736	101	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.96	0.99	0.99	
Frt		0.961				0.850			0.850		0.983	
Flt Protected	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (prot)	1770	1772	0	1752	1845	1568	1787	1881	1599	1681	1677	0
Flt Permitted	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (perm)	1742	1772	0	1725	1845	1508	1771	1881	1537	1657	1661	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				552			239		6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	2%	2%	2%	3%	3%	3%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	39	54	19	152	78	552	24	127	239	759	104	53
Shared Lane Traffic (%)										40%		
Lane Group Flow (vph)	39	73	0	152	78	552	24	127	239	455	461	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	11.0	24.6		23.4	37.0	37.0	25.0	25.0	25.0	50.0	50.0	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	7.0	9.9		13.4	18.7	18.7	13.6	13.6	13.6	30.5	30.5	
Actuated g/C Ratio	0.08	0.12		0.16	0.22	0.22	0.16	0.16	0.16	0.36	0.36	
v/c Ratio	0.26	0.33		0.54	0.19	0.72	0.08	0.42	0.53	0.74	0.75	
Control Delay	50.9	39.3		46.1	32.4	9.3	38.9	43.1	10.6	33.3	33.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	50.9	39.3		46.1	32.4	9.3	38.9	43.1	10.6	33.3	33.3	
LOS	D	D		D	C	A	D	D	B	C	C	
Approach Delay		43.3			18.8			22.9			33.3	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	20	30		73	35	0	11	62	0	207	208	
Queue Length 95th (ft)	67	88		180	89	102	41	152	73	443	447	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	153	484		441	797	965	488	514	594	1019	1019	
Starvation Cap Reductn	0	0		0	0	3	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.25	0.15		0.34	0.10	0.57	0.05	0.25	0.40	0.45	0.45	

Intersection Summary		
Area Type:	Other	
Cycle Length: 123		
Actuated Cycle Length: 83.6		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 0.75		
Intersection Signal Delay: 26.8		Intersection LOS: C
Intersection Capacity Utilization 60.2%		ICU Level of Service B
Analysis Period (min) 15		

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	292	195	145	526	651	471
Future Volume (veh/h)	292	195	145	526	651	471
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1841	1841	1841	1885	1885
Adj Flow Rate, veh/h	317	212	158	572	708	512
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	4	1	1
Cap, veh/h	395	352	203	1181	879	728
Arrive On Green	0.23	0.23	0.12	0.64	0.47	0.47
Sat Flow, veh/h	1753	1560	1753	1841	1885	1561
Grp Volume(v), veh/h	317	212	158	572	708	512
Grp Sat Flow(s),veh/h/ln	1753	1560	1753	1841	1885	1561
Q Serve(g_s), s	11.6	8.2	5.9	10.9	21.7	17.6
Cycle Q Clear(g_c), s	11.6	8.2	5.9	10.9	21.7	17.6
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	395	352	203	1181	879	728
V/C Ratio(X)	0.80	0.60	0.78	0.48	0.81	0.70
Avail Cap(c_a), veh/h	1036	922	612	2830	2129	1763
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	24.8	23.5	29.1	6.3	15.4	14.3
Incr Delay (d2), s/veh	3.8	1.7	6.3	0.3	1.8	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	7.2	2.6	2.7	7.8	5.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.6	25.1	35.4	6.6	17.2	15.6
LnGrp LOS	C	C	D	A	B	B
Approach Vol, veh/h	529			730	1220	
Approach Delay, s/veh	27.2			12.8	16.5	
Approach LOS	C			B	B	

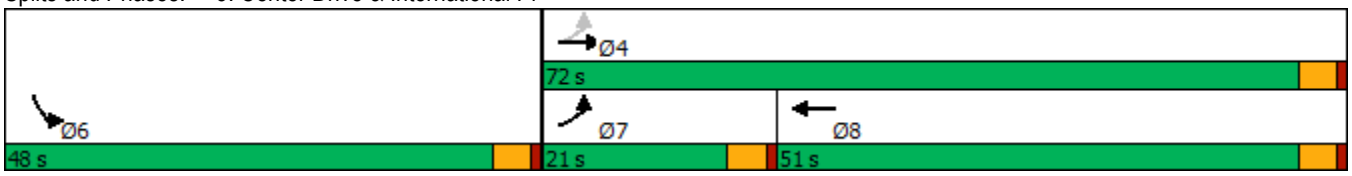
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		48.4		19.3	11.8	36.6
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		104.0		40.0	23.6	76.4
Max Q Clear Time (g_c+I1), s		12.9		13.6	7.9	23.7
Green Ext Time (p_c), s		3.8		1.7	0.3	7.9

Intersection Summary	
HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	1	336	696	6	14	1
Future Volume (vph)	1	336	696	6	14	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		1.00		1.00	
Frt			0.999		0.992	
Flt Protected	0.950				0.955	
Satd. Flow (prot)	1736	3471	3535	0	1763	0
Flt Permitted	0.309				0.955	
Satd. Flow (perm)	564	3471	3535	0	1760	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			1		1	
Link Speed (mph)		35	35		25	
Link Distance (ft)		687	519		294	
Travel Time (s)		13.4	10.1		8.0	
Confl. Peds. (#/hr)	1			1	1	1
Confl. Bikes (#/hr)				4		4
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%
Adj. Flow (vph)	1	373	773	7	16	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1	373	780	0	17	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	7	4	8		6	
Permitted Phases	4					
Total Split (s)	21.0	72.0	51.0		48.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	32.2	37.0	36.0		8.0	
Actuated g/C Ratio	0.81	0.93	0.91		0.20	
v/c Ratio	0.00	0.12	0.24		0.05	
Control Delay	3.0	1.7	3.5		17.3	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	3.0	1.7	3.5		17.3	
LOS	A	A	A		B	
Approach Delay		1.7	3.5		17.3	
Approach LOS		A	A		B	
Queue Length 50th (ft)	0	0	0		2	
Queue Length 95th (ft)	2	47	154		22	
Internal Link Dist (ft)		607	439		214	
Turn Bay Length (ft)	150					
Base Capacity (vph)	1027	3368	3243		1604	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.00	0.11	0.24		0.01	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 39.7	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.24	
Intersection Signal Delay: 3.1	Intersection LOS: A
Intersection Capacity Utilization 31.6%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	110	28	359	557	11
Future Volume (veh/h)	34	110	28	359	557	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	116	29	378	586	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	223	199	512	1975	1268	26
Arrive On Green	0.12	0.12	0.04	0.55	0.35	0.35
Sat Flow, veh/h	1795	1598	1795	3676	3681	73
Grp Volume(v), veh/h	36	116	29	378	292	306
Grp Sat Flow(s),veh/h/ln	1795	1598	1795	1791	1791	1870
Q Serve(g_s), s	0.5	1.9	0.2	1.5	3.5	3.5
Cycle Q Clear(g_c), s	0.5	1.9	0.2	1.5	3.5	3.5
Prop In Lane	1.00	1.00	1.00			0.04
Lane Grp Cap(c), veh/h	223	199	512	1975	633	661
V/C Ratio(X)	0.16	0.58	0.06	0.19	0.46	0.46
Avail Cap(c_a), veh/h	1520	1352	1449	11288	4354	4545
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	10.9	11.5	4.7	3.1	6.9	6.9
Incr Delay (d2), s/veh	0.3	2.7	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	1.8	0.0	0.1	0.8	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.2	14.2	4.7	3.2	7.5	7.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	152			407	598	
Approach Delay, s/veh	13.5			3.3	7.5	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		19.8		8.0	5.5	14.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		87.5		23.5	15.5	67.5
Max Q Clear Time (g_c+I1), s		3.5		3.9	2.2	5.5
Green Ext Time (p_c), s		2.7		0.4	0.0	3.9

Intersection Summary	
HCM 6th Ctrl Delay	6.8
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	24	1	29	8	366	33	50	701	4
Future Volume (veh/h)	0	0	7	24	1	29	8	366	33	50	701	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	1.00		0.97	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	1900	1900	1900	1885	1900	1885	1900	1885	1885	1885	1885	1900
Adj Flow Rate, veh/h	0	0	8	26	1	32	9	398	36	54	762	4
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, %	0	0	0	1	0	1	0	1	1	1	1	0
Cap, veh/h	0	0	114	350	4	113	17	1281	115	88	1556	8
Arrive On Green	0.00	0.00	0.07	0.07	0.07	0.07	0.01	0.39	0.39	0.05	0.43	0.43
Sat Flow, veh/h	0	0	1576	1283	49	1564	1810	3315	298	1795	3653	19
Grp Volume(v), veh/h	0	0	8	27	0	32	9	214	220	54	374	392
Grp Sat Flow(s),veh/h/ln	0	0	1576	1332	0	1564	1810	1791	1822	1795	1791	1881
Q Serve(g_s), s	0.0	0.0	0.1	0.5	0.0	0.5	0.1	2.3	2.3	0.8	4.1	4.1
Cycle Q Clear(g_c), s	0.0	0.0	0.1	0.6	0.0	0.5	0.1	2.3	2.3	0.8	4.1	4.1
Prop In Lane	0.00		1.00	0.96		1.00	1.00		0.16	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	114	354	0	113	17	692	704	88	763	801
V/C Ratio(X)	0.00	0.00	0.07	0.08	0.00	0.28	0.51	0.31	0.31	0.61	0.49	0.49
Avail Cap(c_a), veh/h	0	0	1725	1812	0	1711	1320	3919	3988	1310	3919	4117
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	11.9	12.2	0.0	12.0	13.5	5.9	5.9	12.8	5.7	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.1	0.0	1.4	21.5	0.3	0.3	6.7	0.5	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	0.0	0.0	0.0	0.1	0.0	0.2	0.1	0.4	0.4	0.4	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	12.1	12.2	0.0	13.4	35.0	6.1	6.1	19.4	6.2	6.2
LnGrp LOS	A	A	B	B	A	B	C	A	A	B	A	A
Approach Vol, veh/h		8			59			443			820	
Approach Delay, s/veh		12.1			12.9			6.7			7.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.8	15.1		6.5	4.8	16.2		6.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.8	4.3		2.1	2.1	6.1		2.6
Green Ext Time (p_c), s	0.1	2.7		0.0	0.0	5.3		0.2

Intersection Summary	
HCM 6th Ctrl Delay	7.2
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	10	67	18	20	10	60	221	32	22	457	258
Future Volume (veh/h)	178	10	67	18	20	10	60	221	32	22	457	258
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	187	11	71	19	21	11	63	233	34	23	481	272
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	378	33	98	228	229	95	423	1259	181	617	789	443
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.07	0.40	0.40	0.03	0.36	0.36
Sat Flow, veh/h	945	129	385	458	899	373	1795	3129	449	1795	2176	1223
Grp Volume(v), veh/h	269	0	0	51	0	0	63	132	135	23	395	358
Grp Sat Flow(s),veh/h/ln	1459	0	0	1731	0	0	1795	1791	1788	1795	1791	1607
Q Serve(g_s), s	6.4	0.0	0.0	0.0	0.0	0.0	0.9	2.1	2.2	0.3	8.0	8.1
Cycle Q Clear(g_c), s	7.4	0.0	0.0	1.0	0.0	0.0	0.9	2.1	2.2	0.3	8.0	8.1
Prop In Lane	0.70		0.26	0.37		0.22	1.00		0.25	1.00		0.76
Lane Grp Cap(c), veh/h	509	0	0	552	0	0	423	721	719	617	650	583
V/C Ratio(X)	0.53	0.00	0.00	0.09	0.00	0.00	0.15	0.18	0.19	0.04	0.61	0.61
Avail Cap(c_a), veh/h	1116	0	0	1217	0	0	1104	2431	2426	1370	2431	2182
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.9	0.0	0.0	12.6	0.0	0.0	8.1	8.5	8.5	8.2	11.5	11.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.1	0.0	0.9	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	2.3	0.0	0.0	0.4	0.0	0.0	0.3	0.6	0.6	0.1	2.6	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	0.0	0.0	12.7	0.0	0.0	8.3	8.6	8.7	8.2	12.4	12.6
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	B	B
Approach Vol, veh/h		269			51			330			776	
Approach Delay, s/veh		15.8			12.7			8.6			12.4	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	22.4		15.7	7.8	20.6		15.7
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.3	4.2		9.4	2.9	10.1		3.0
Green Ext Time (p_c), s	0.0	1.6		1.7	0.1	5.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	57	47	221	65	81	39	442	293	45	43	447	82
Future Volume (veh/h)	57	47	221	65	81	39	442	293	45	43	447	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1856	1856	1856	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	60	49	233	68	85	41	465	308	47	45	471	86
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, %	1	1	1	3	3	3	1	1	1	1	1	1
Cap, veh/h	88	49	901	82	73	519	513	1403	211	93	654	118
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.29	0.45	0.45	0.05	0.22	0.22
Sat Flow, veh/h	0	171	1566	0	256	1542	1795	3108	468	1795	3008	545
Grp Volume(v), veh/h	109	0	233	153	0	41	465	176	179	45	279	278
Grp Sat Flow(s),veh/h/ln	171	0	1566	256	0	1542	1795	1791	1785	1795	1791	1763
Q Serve(g_s), s	0.0	0.0	4.8	0.0	0.0	1.2	15.8	3.8	3.9	1.5	9.2	9.3
Cycle Q Clear(g_c), s	18.0	0.0	4.8	18.0	0.0	1.2	15.8	3.8	3.9	1.5	9.2	9.3
Prop In Lane	0.55		1.00	0.44		1.00	1.00		0.26	1.00		0.31
Lane Grp Cap(c), veh/h	137	0	901	155	0	519	513	808	806	93	389	383
V/C Ratio(X)	0.80	0.00	0.26	0.99	0.00	0.08	0.91	0.22	0.22	0.48	0.72	0.73
Avail Cap(c_a), veh/h	137	0	901	155	0	519	552	907	904	181	537	528
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.0	0.0	6.9	23.7	0.0	14.4	21.8	10.6	10.6	29.2	23.0	23.1
Incr Delay (d2), s/veh	27.4	0.0	0.2	68.6	0.0	0.1	17.9	0.1	0.1	3.9	2.8	3.1
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	2.7	0.0	1.3	5.2	0.0	0.4	8.5	1.3	1.3	0.7	3.8	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	0.0	7.0	92.4	0.0	14.4	39.7	10.7	10.7	33.1	25.8	26.2
LnGrp LOS	D	A	A	F	A	B	D	B	B	C	C	C
Approach Vol, veh/h		342			194			820			602	
Approach Delay, s/veh		21.2			75.9			27.2			26.5	
Approach LOS		C			E			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	7.8	33.1		22.5	22.6	18.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	6.4	32.1		18.0	19.5	19.0				
Max Q Clear Time (g_c+I1), s		20.0	3.5	5.9		20.0	17.8	11.3				
Green Ext Time (p_c), s		0.0	0.0	2.0		0.0	0.3	2.0				

Intersection Summary	
HCM 6th Ctrl Delay	30.7
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	15	31	244	26	83	49	677	200	79	633	18
Future Volume (veh/h)	7	15	31	244	26	83	49	677	200	79	633	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	1.00		0.96	1.00		0.97	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	8	16	33	262	28	89	53	728	215	85	681	19
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	421	155	319	494	109	347	430	1073	317	358	1466	41
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.05	0.40	0.40	0.07	0.41	0.41
Sat Flow, veh/h	1254	543	1119	1363	383	1217	1795	2708	800	1795	3555	99
Grp Volume(v), veh/h	8	0	49	262	0	117	53	481	462	85	343	357
Grp Sat Flow(s),veh/h/ln	1254	0	1661	1363	0	1600	1795	1791	1716	1795	1791	1863
Q Serve(g_s), s	0.3	0.0	1.2	9.4	0.0	3.0	0.9	11.9	11.9	1.4	7.5	7.5
Cycle Q Clear(g_c), s	3.3	0.0	1.2	10.6	0.0	3.0	0.9	11.9	11.9	1.4	7.5	7.5
Prop In Lane	1.00		0.67	1.00		0.76	1.00		0.47	1.00		0.05
Lane Grp Cap(c), veh/h	421	0	474	494	0	457	430	710	680	358	738	768
V/C Ratio(X)	0.02	0.00	0.10	0.53	0.00	0.26	0.12	0.68	0.68	0.24	0.46	0.46
Avail Cap(c_a), veh/h	764	0	928	866	0	893	1007	2001	1917	907	2001	2081
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	0.0	14.1	18.0	0.0	14.8	8.9	13.4	13.4	9.7	11.5	11.5
Incr Delay (d2), s/veh	0.0	0.0	0.1	0.9	0.0	0.3	0.1	1.1	1.2	0.3	0.5	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	0.1	0.0	0.4	2.8	0.0	1.0	0.3	4.1	4.0	0.5	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.1	0.0	14.2	18.9	0.0	15.1	9.0	14.5	14.6	10.0	11.9	11.9
LnGrp LOS	B	A	B	B	A	B	A	B	B	B	B	B
Approach Vol, veh/h		57			379			996			785	
Approach Delay, s/veh		14.5			17.7			14.3			11.7	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.1	25.8		19.8	7.2	26.6		19.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.4	13.9		5.3	2.9	9.5		12.6
Green Ext Time (p_c), s	0.2	7.4		0.2	0.1	4.8		1.4

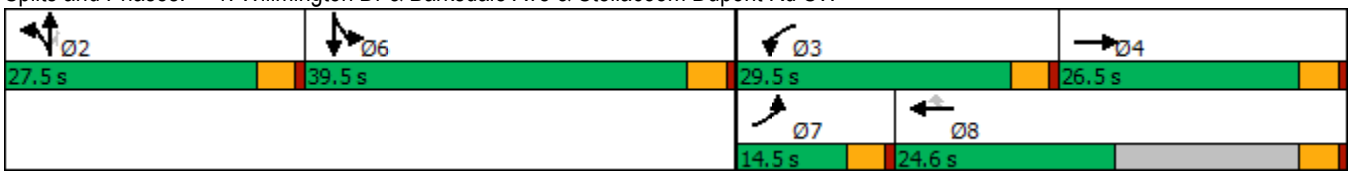
Intersection Summary	
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	61	25	208	40	733	9	88	122	589	119	46
Future Volume (vph)	57	61	25	208	40	733	9	88	122	589	119	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.99	0.99		0.99		0.97	0.99		0.97	0.99	0.99	
Frt		0.956				0.850			0.850		0.982	
Flt Protected	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (prot)	1719	1714	0	1752	1845	1553	1770	1863	1583	1618	1628	0
Flt Permitted	0.950			0.950			0.950			0.950	0.973	
Satd. Flow (perm)	1702	1714	0	1737	1845	1504	1759	1863	1533	1603	1619	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				780			134		6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	3		3	3		3	3		3	3		3
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	5%	5%	5%	3%	3%	4%	2%	2%	2%	6%	5%	5%
Adj. Flow (vph)	61	65	27	221	43	780	10	94	130	627	127	49
Shared Lane Traffic (%)										36%		
Lane Group Flow (vph)	61	92	0	221	43	780	10	94	130	401	402	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	14.5	26.5		29.5	24.6	24.6	27.5	27.5	27.5	39.5	39.5	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	8.6	10.3		16.8	18.4	18.4	12.2	12.2	12.2	29.2	29.2	
Actuated g/C Ratio	0.10	0.12		0.20	0.22	0.22	0.14	0.14	0.14	0.35	0.35	
v/c Ratio	0.35	0.41		0.64	0.11	0.83	0.04	0.35	0.39	0.72	0.71	
Control Delay	48.0	39.7		43.3	29.9	11.5	39.0	42.5	10.9	35.4	34.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	48.0	39.7		43.3	29.9	11.5	39.0	42.5	10.9	35.4	34.5	
LOS	D	D		D	C	B	D	D	B	D	C	
Approach Delay		43.0			19.0			24.8			35.0	
Approach LOS		D			B			C			C	
Queue Length 50th (ft)	31	39		111	19	0	5	48	0	187	184	
Queue Length 95th (ft)	88	102		228	52	127	22	114	51	#448	#441	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	218	490		557	865	1119	517	544	543	720	727	
Starvation Cap Reductn	0	0		1	0	6	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.28	0.19		0.40	0.05	0.70	0.02	0.17	0.24	0.56	0.55	

Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 84.4	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.83	
Intersection Signal Delay: 27.0	Intersection LOS: C
Intersection Capacity Utilization 71.0%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	325	126	385	517	522	412
Future Volume (veh/h)	325	126	385	517	522	412
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1826	1826	1841	1856	1856
Adj Flow Rate, veh/h	361	140	428	574	580	458
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	5	5	4	3	3
Cap, veh/h	410	362	469	1244	679	562
Arrive On Green	0.23	0.23	0.27	0.68	0.37	0.37
Sat Flow, veh/h	1753	1547	1739	1841	1856	1537
Grp Volume(v), veh/h	361	140	428	574	580	458
Grp Sat Flow(s),veh/h/ln	1753	1547	1739	1841	1856	1537
Q Serve(g_s), s	19.8	7.6	23.7	14.6	28.7	26.8
Cycle Q Clear(g_c), s	19.8	7.6	23.7	14.6	28.7	26.8
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	410	362	469	1244	679	562
V/C Ratio(X)	0.88	0.39	0.91	0.46	0.85	0.81
Avail Cap(c_a), veh/h	705	622	699	1244	1119	927
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	36.8	32.1	35.2	7.6	29.1	28.5
Incr Delay (d2), s/veh	6.8	0.7	12.0	0.3	3.6	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.0	0.1	11.0	4.6	12.5	9.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.6	32.8	47.2	7.9	32.7	31.5
LnGrp LOS	D	C	D	A	C	C
Approach Vol, veh/h	501			1002	1038	
Approach Delay, s/veh	40.5			24.6	32.2	
Approach LOS	D			C	C	

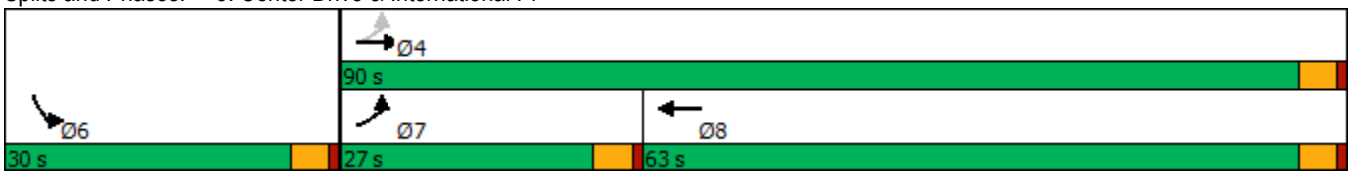
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		72.2		27.3	30.8	41.4
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		60.0		40.0	40.0	60.0
Max Q Clear Time (g_c+I1), s		16.6		21.8	25.7	30.7
Green Ext Time (p_c), s		3.8		1.5	1.1	5.7

Intersection Summary	
HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	164	470	579	196	25	6
Future Volume (vph)	164	470	579	196	25	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Ped Bike Factor	1.00		0.99		0.99	
Frt			0.962		0.975	
Flt Protected	0.950				0.961	
Satd. Flow (prot)	1770	3539	3247	0	1103	0
Flt Permitted	0.237				0.961	
Satd. Flow (perm)	441	3539	3247	0	1099	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			54		6	
Link Speed (mph)		35	35		25	
Link Distance (ft)		687	519		294	
Travel Time (s)		13.4	10.1		8.0	
Confl. Peds. (#/hr)	2			2	2	2
Confl. Bikes (#/hr)				1		1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	2%	5%	10%	75%	0%
Adj. Flow (vph)	171	490	603	204	26	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	171	490	807	0	32	0
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	7	4	8		6	
Permitted Phases	4					
Total Split (s)	27.0	90.0	63.0		30.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Act Effct Green (s)	38.4	41.9	22.6		8.3	
Actuated g/C Ratio	0.79	0.87	0.47		0.17	
v/c Ratio	0.26	0.16	0.52		0.16	
Control Delay	4.0	2.6	12.3		19.6	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	4.0	2.6	12.3		19.6	
LOS	A	A	B		B	
Approach Delay		3.0	12.3		19.6	
Approach LOS		A	B		B	
Queue Length 50th (ft)	0	0	48		5	
Queue Length 95th (ft)	51	63	204		30	
Internal Link Dist (ft)		607	439		214	
Turn Bay Length (ft)	150					
Base Capacity (vph)	1015	3539	3112		628	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.17	0.14	0.26		0.05	

Intersection Summary	
Area Type: Other	
Cycle Length: 120	
Actuated Cycle Length: 48.4	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.52	
Intersection Signal Delay: 8.3	Intersection LOS: A
Intersection Capacity Utilization 47.5%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 3: Center Drive & International Pl



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	43	131	608	362	40
Future Volume (veh/h)	15	43	131	608	362	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1737	1737	1856	1856	1841	1841
Adj Flow Rate, veh/h	16	47	144	668	398	44
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	11	11	3	3	4	4
Cap, veh/h	116	103	673	2083	944	104
Arrive On Green	0.07	0.07	0.12	0.59	0.30	0.30
Sat Flow, veh/h	1654	1472	1767	3618	3259	348
Grp Volume(v), veh/h	16	47	144	668	219	223
Grp Sat Flow(s),veh/h/ln	1654	1472	1767	1763	1749	1767
Q Serve(g_s), s	0.2	0.8	1.2	2.5	2.7	2.7
Cycle Q Clear(g_c), s	0.2	0.8	1.2	2.5	2.7	2.7
Prop In Lane	1.00	1.00	1.00			0.20
Lane Grp Cap(c), veh/h	116	103	673	2083	521	527
V/C Ratio(X)	0.14	0.46	0.21	0.32	0.42	0.42
Avail Cap(c_a), veh/h	312	277	1621	11490	4250	4293
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	11.6	11.9	4.2	2.7	7.5	7.5
Incr Delay (d2), s/veh	0.5	3.1	0.2	0.1	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.1	0.0	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.1	15.0	4.3	2.8	8.0	8.0
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	63			812	442	
Approach Delay, s/veh	14.3			3.1	8.0	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		20.2		6.4	7.8	12.4
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		86.5		5.0	17.5	64.5
Max Q Clear Time (g_c+I1), s		4.5		2.8	3.2	4.7
Green Ext Time (p_c), s		5.2		0.0	0.3	2.8

Intersection Summary	
HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	22	0	65	0	687	15	35	361	0
Future Volume (veh/h)	0	0	0	22	0	65	0	687	15	35	361	0
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		0.98	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	1900	1900	1900	1870	1900	1870	1900	1870	1870	1826	1826	1900
Adj Flow Rate, veh/h	0	0	0	24	0	72	0	763	17	39	401	0
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	0	0	0	2	0	2	0	2	2	5	5	0
Cap, veh/h	0	169	0	368	0	138	6	1498	33	64	2115	0
Arrive On Green	0.00	0.00	0.00	0.09	0.00	0.09	0.00	0.42	0.42	0.04	0.61	0.00
Sat Flow, veh/h	0	1900	0	1421	0	1548	1810	3551	79	1739	3561	0
Grp Volume(v), veh/h	0	0	0	24	0	72	0	382	398	39	401	0
Grp Sat Flow(s),veh/h/ln	0	1900	0	1421	0	1548	1810	1777	1854	1739	1735	0
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	1.3	0.0	4.7	4.7	0.7	1.5	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.5	0.0	1.3	0.0	4.7	4.7	0.7	1.5	0.0
Prop In Lane	0.00		0.00	1.00		1.00	1.00		0.04	1.00		0.00
Lane Grp Cap(c), veh/h	0	169	0	368	0	138	6	750	782	64	2115	0
V/C Ratio(X)	0.00	0.00	0.00	0.07	0.00	0.52	0.00	0.51	0.51	0.61	0.19	0.00
Avail Cap(c_a), veh/h	0	1909	0	1669	0	1555	1212	3571	3725	1165	6972	0
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	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	12.6	0.0	13.0	0.0	6.4	6.4	14.2	2.6	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.1	0.0	3.0	0.0	0.5	0.5	8.8	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	0.0	0.0	0.0	0.1	0.0	0.5	0.0	0.9	1.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	0.0	12.7	0.0	16.0	0.0	6.9	6.9	23.0	2.6	0.0
LnGrp LOS	A	A	A	B	A	B	A	A	A	C	A	A
Approach Vol, veh/h		0			96			780			440	
Approach Delay, s/veh		0.0			15.2			6.9			4.4	
Approach LOS					B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.6	17.1		7.2	0.0	22.7		7.2
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.7	6.7		0.0	0.0	3.5		3.3
Green Ext Time (p_c), s	0.1	5.5		0.0	0.0	2.9		0.3

Intersection Summary	
HCM 6th Ctrl Delay	6.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	23	79	33	8	21	68	476	14	10	202	173
Future Volume (veh/h)	208	23	79	33	8	21	68	476	14	10	202	173
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	0.98		0.97	1.00		0.92
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	1856	1856	1856	1885	1885	1885	1885	1885	1885	1826	1826	1826
Adj Flow Rate, veh/h	263	29	100	42	10	27	86	603	18	13	256	219
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	3	3	3	1	1	1	1	1	1	5	5	5
Cap, veh/h	448	48	126	358	101	177	447	1240	37	358	496	400
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.09	0.35	0.35	0.02	0.28	0.28
Sat Flow, veh/h	946	142	372	711	298	524	1795	3547	106	1739	1751	1414
Grp Volume(v), veh/h	392	0	0	79	0	0	86	304	317	13	253	222
Grp Sat Flow(s),veh/h/ln	1460	0	0	1533	0	0	1795	1791	1862	1739	1735	1430
Q Serve(g_s), s	9.8	0.0	0.0	0.0	0.0	0.0	1.5	6.2	6.2	0.2	5.7	6.1
Cycle Q Clear(g_c), s	11.2	0.0	0.0	1.5	0.0	0.0	1.5	6.2	6.2	0.2	5.7	6.1
Prop In Lane	0.67		0.26	0.53		0.34	1.00		0.06	1.00		0.99
Lane Grp Cap(c), veh/h	621	0	0	635	0	0	447	626	651	358	491	405
V/C Ratio(X)	0.63	0.00	0.00	0.12	0.00	0.00	0.19	0.49	0.49	0.04	0.52	0.55
Avail Cap(c_a), veh/h	1056	0	0	1067	0	0	1060	2298	2390	1067	2226	1835
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.8	0.0	0.0	10.7	0.0	0.0	10.0	11.9	11.9	11.5	14.1	14.2
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.1	0.0	0.0	0.2	0.6	0.6	0.0	0.8	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	3.3	0.0	0.0	0.5	0.0	0.0	0.5	2.1	2.1	0.1	2.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	0.0	0.0	10.8	0.0	0.0	10.2	12.5	12.5	11.6	14.9	15.4
LnGrp LOS	B	A	A	B	A	A	B	B	B	B	B	B
Approach Vol, veh/h		392			79			707			488	
Approach Delay, s/veh		14.9			10.8			12.2			15.0	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.5	20.9		20.3	8.6	17.8		20.3
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.2	8.2		13.2	3.5	8.1		3.5
Green Ext Time (p_c), s	0.0	4.1		2.4	0.2	3.3		0.4

Intersection Summary	
HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	118	61	404	27	22	36	168	416	75	27	288	31
Future Volume (veh/h)	118	61	404	27	22	36	168	416	75	27	288	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1796	1796	1796	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	127	66	434	29	24	39	181	447	81	29	310	33
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	7	7	7	1	1	1	1	1	1
Cap, veh/h	131	43	826	122	65	651	233	812	146	73	586	62
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.13	0.27	0.27	0.04	0.18	0.18
Sat Flow, veh/h	0	109	1570	0	165	1496	1795	3015	542	1795	3254	343
Grp Volume(v), veh/h	193	0	434	53	0	39	181	264	264	29	169	174
Grp Sat Flow(s),veh/h/ln	109	0	1570	165	0	1496	1795	1791	1766	1795	1791	1807
Q Serve(g_s), s	0.0	0.0	8.3	0.0	0.0	0.7	4.5	5.8	5.9	0.7	3.9	4.0
Cycle Q Clear(g_c), s	18.0	0.0	8.3	18.0	0.0	0.7	4.5	5.8	5.9	0.7	3.9	4.0
Prop In Lane	0.66		1.00	0.55		1.00	1.00		0.31	1.00		0.19
Lane Grp Cap(c), veh/h	174	0	826	187	0	651	233	483	476	73	323	325
V/C Ratio(X)	1.11	0.00	0.53	0.28	0.00	0.06	0.78	0.55	0.55	0.40	0.52	0.53
Avail Cap(c_a), veh/h	174	0	826	187	0	651	374	883	870	236	745	752
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	7.1	11.6	0.0	7.5	19.2	14.3	14.3	21.4	16.9	17.0
Incr Delay (d2), s/veh	101.2	0.0	0.6	0.8	0.0	0.0	5.5	1.0	1.0	3.5	1.3	1.4
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	6.6	0.0	1.9	0.3	0.0	0.2	2.0	2.0	2.0	0.3	1.5	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.7	0.0	7.8	12.4	0.0	7.5	24.7	15.3	15.3	24.9	18.3	18.3
LnGrp LOS	F	A	A	B	A	A	C	B	B	C	B	B
Approach Vol, veh/h		627			92			709			372	
Approach Delay, s/veh		42.2			10.3			17.7			18.8	
Approach LOS		D			B			B			B	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	6.3	16.8		22.5	10.4	12.7				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	6.0	22.5		18.0	9.5	19.0				
Max Q Clear Time (g_c+I1), s		20.0	2.7	7.9		20.0	6.5	6.0				
Green Ext Time (p_c), s		0.0	0.0	2.7		0.0	0.1	1.5				

Intersection Summary	
HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	15	36	65	16	73	57	573	215	70	668	6
Future Volume (veh/h)	1	15	36	65	16	73	57	573	215	70	668	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	1	16	38	68	17	76	59	597	224	73	696	6
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	331	75	179	366	46	204	516	1028	385	474	1513	13
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.06	0.41	0.41	0.07	0.42	0.42
Sat Flow, veh/h	1310	490	1163	1356	296	1324	1795	2531	948	1795	3638	31
Grp Volume(v), veh/h	1	0	54	68	0	93	59	422	399	73	343	359
Grp Sat Flow(s),veh/h/ln	1310	0	1652	1356	0	1620	1795	1791	1688	1795	1791	1879
Q Serve(g_s), s	0.0	0.0	1.0	1.7	0.0	1.9	0.7	6.7	6.7	0.8	5.1	5.1
Cycle Q Clear(g_c), s	1.9	0.0	1.0	2.7	0.0	1.9	0.7	6.7	6.7	0.8	5.1	5.1
Prop In Lane	1.00		0.70	1.00		0.82	1.00		0.56	1.00		0.02
Lane Grp Cap(c), veh/h	331	0	254	366	0	249	516	727	685	474	745	781
V/C Ratio(X)	0.00	0.00	0.21	0.19	0.00	0.37	0.11	0.58	0.58	0.15	0.46	0.46
Avail Cap(c_a), veh/h	1202	0	1353	1269	0	1327	1385	2934	2765	1326	2934	3077
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	0.0	13.6	14.8	0.0	13.9	5.7	8.5	8.5	5.9	7.7	7.7
Incr Delay (d2), s/veh	0.0	0.0	0.4	0.2	0.0	0.9	0.1	0.7	0.8	0.1	0.4	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	0.0	0.0	0.4	0.5	0.0	0.7	0.2	1.8	1.7	0.2	1.3	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.8	0.0	14.0	15.0	0.0	14.8	5.8	9.2	9.2	6.1	8.2	8.1
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		55			161			880			775	
Approach Delay, s/veh		14.0			14.9			9.0			8.0	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.1	19.4		10.1	6.8	19.7		10.1
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	2.8	8.7		3.9	2.7	7.1		4.7
Green Ext Time (p_c), s	0.1	6.1		0.3	0.1	4.8		0.7

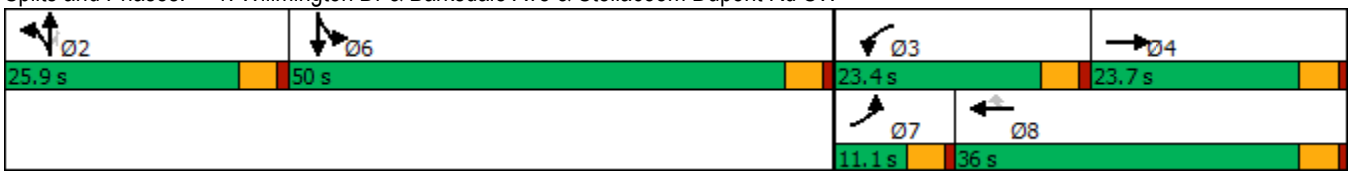
Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	52	18	147	76	612	23	138	232	815	101	66
Future Volume (vph)	53	52	18	147	76	612	23	138	232	815	101	66
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	125		125	100		75	0		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00
Ped Bike Factor	0.98	0.99		0.98		0.96	0.99		0.96	0.99	0.99	
Frt		0.961				0.850			0.850		0.980	
Flt Protected	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (prot)	1770	1772	0	1752	1845	1553	1787	1881	1599	1665	1659	0
Flt Permitted	0.950			0.950			0.950			0.950	0.968	
Satd. Flow (perm)	1742	1772	0	1725	1845	1494	1772	1881	1537	1641	1644	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				631			239		7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		355			383			251			690	
Travel Time (s)		8.1			8.7			5.7			15.7	
Confl. Peds. (#/hr)	5		5	5		5	5		5	5		5
Confl. Bikes (#/hr)			1			1			1			1
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 (%)	2%	2%	2%	3%	3%	4%	1%	1%	1%	3%	2%	2%
Adj. Flow (vph)	55	54	19	152	78	631	24	142	239	840	104	68
Shared Lane Traffic (%)										40%		
Lane Group Flow (vph)	55	73	0	152	78	631	24	142	239	504	508	0
Turn Type	Prot	NA		Prot	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	7	4		3	8		2	2		6	6	
Permitted Phases						8			2			
Total Split (s)	11.1	23.7		23.4	36.0	36.0	25.9	25.9	25.9	50.0	50.0	
Total Lost Time (s)	4.5	4.5		4.5	4.6	4.6	4.5	4.5	4.5	4.5	4.5	
Act Effct Green (s)	7.1	10.2		13.6	16.6	16.6	14.3	14.3	14.3	34.8	34.8	
Actuated g/C Ratio	0.08	0.11		0.15	0.19	0.19	0.16	0.16	0.16	0.39	0.39	
v/c Ratio	0.39	0.34		0.57	0.23	0.80	0.08	0.47	0.53	0.78	0.78	
Control Delay	57.2	41.5		49.7	36.2	11.6	40.3	45.8	10.6	35.3	35.2	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	57.2	41.5		49.7	36.2	11.6	40.3	45.8	10.6	35.3	35.2	
LOS	E	D		D	D	B	D	D	B	D	D	
Approach Delay		48.2			20.6			24.7			35.2	
Approach LOS		D			C			C			D	
Queue Length 50th (ft)	31	34		82	39	0	12	77	0	252	251	
Queue Length 95th (ft)	#101	88		184	90	115	42	168	72	#560	#562	
Internal Link Dist (ft)		275			303			171			610	
Turn Bay Length (ft)	75			125		125	100		75			
Base Capacity (vph)	145	432		411	720	968	475	500	584	942	941	
Starvation Cap Reductn	0	0		0	0	4	0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.38	0.17		0.37	0.11	0.65	0.05	0.28	0.41	0.54	0.54	

Intersection Summary	
Area Type: Other	
Cycle Length: 123	
Actuated Cycle Length: 89	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.80	
Intersection Signal Delay: 28.9	Intersection LOS: C
Intersection Capacity Utilization 64.1%	ICU Level of Service C
Analysis Period (min) 15	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Wilimington Dr & Barksdale Ave & Steilacoom Dupont Rd SW



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	340	307	255	526	651	518
Future Volume (veh/h)	340	307	255	526	651	518
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.98
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	1841	1826	1826	1841	1885	1885
Adj Flow Rate, veh/h	370	334	277	572	708	563
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	5	5	4	1	1
Cap, veh/h	437	386	316	1214	825	683
Arrive On Green	0.25	0.25	0.18	0.66	0.44	0.44
Sat Flow, veh/h	1753	1547	1739	1841	1885	1561
Grp Volume(v), veh/h	370	334	277	572	708	563
Grp Sat Flow(s),veh/h/ln	1753	1547	1739	1841	1885	1561
Q Serve(g_s), s	19.9	20.5	15.3	15.2	33.5	31.4
Cycle Q Clear(g_c), s	19.9	20.5	15.3	15.2	33.5	31.4
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	437	386	316	1214	825	683
V/C Ratio(X)	0.85	0.87	0.88	0.47	0.86	0.82
Avail Cap(c_a), veh/h	708	625	562	1934	1295	1072
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	35.3	35.6	39.4	8.3	25.1	24.5
Incr Delay (d2), s/veh	5.3	7.2	7.6	0.3	3.6	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	16.8	6.9	4.9	14.3	11.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.6	42.8	47.0	8.6	28.7	27.6
LnGrp LOS	D	D	D	A	C	C
Approach Vol, veh/h	704			849	1271	
Approach Delay, s/veh	41.7			21.1	28.2	
Approach LOS	D			C	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		70.3		28.7	22.0	48.3
Change Period (Y+Rc), s		5.0		4.0	4.0	5.0
Max Green Setting (Gmax), s		104.0		40.0	32.0	68.0
Max Q Clear Time (g_c+I1), s		17.2		22.5	17.3	35.5
Green Ext Time (p_c), s		3.8		2.2	0.7	7.8

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	143	336	696	163	174	146
Future Volume (veh/h)	143	336	696	163	174	146
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	0.98
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	1841	1841	1870	1856	1856	1870
Adj Flow Rate, veh/h	159	373	773	181	193	162
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	4	4	2	3	3	2
Cap, veh/h	386	1988	1131	265	236	198
Arrive On Green	0.09	0.57	0.40	0.40	0.26	0.26
Sat Flow, veh/h	1753	3589	2935	665	900	755
Grp Volume(v), veh/h	159	373	483	471	356	0
Grp Sat Flow(s),veh/h/ln	1753	1749	1777	1730	1660	0
Q Serve(g_s), s	2.5	2.7	11.9	11.9	10.7	0.0
Cycle Q Clear(g_c), s	2.5	2.7	11.9	11.9	10.7	0.0
Prop In Lane	1.00			0.38	0.54	0.46
Lane Grp Cap(c), veh/h	386	1988	707	689	435	0
V/C Ratio(X)	0.41	0.19	0.68	0.68	0.82	0.00
Avail Cap(c_a), veh/h	815	4521	1559	1519	1331	0
HCM Platoon Ratio	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	0.00
Uniform Delay (d), s/veh	9.2	5.5	13.2	13.2	18.4	0.0
Incr Delay (d2), s/veh	0.7	0.0	1.2	1.2	3.9	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	0.8	0.7	4.0	3.9	4.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.9	5.6	14.4	14.4	22.2	0.0
LnGrp LOS	A	A	B	B	C	A
Approach Vol, veh/h		532	954		356	
Approach Delay, s/veh		6.9	14.4		22.2	
Approach LOS		A	B		C	

Timer - Assigned Phs		4		6	7	8
Phs Duration (G+Y+Rc), s		34.6		18.4	9.0	25.6
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		68.5		42.5	17.5	46.5
Max Q Clear Time (g_c+I1), s		4.7		12.7	4.5	13.9
Green Ext Time (p_c), s		2.6		1.2	0.3	7.1

Intersection Summary	
HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	34	110	28	501	702	11
Future Volume (veh/h)	34	110	28	501	702	11
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			0.97
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	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	36	116	29	527	739	12
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	1	1	1	1	1
Cap, veh/h	213	190	478	2099	1452	24
Arrive On Green	0.12	0.12	0.04	0.59	0.40	0.40
Sat Flow, veh/h	1795	1598	1795	3676	3699	59
Grp Volume(v), veh/h	36	116	29	527	367	384
Grp Sat Flow(s),veh/h/ln	1795	1598	1795	1791	1791	1873
Q Serve(g_s), s	0.5	2.1	0.2	2.2	4.7	4.7
Cycle Q Clear(g_c), s	0.5	2.1	0.2	2.2	4.7	4.7
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	213	190	478	2099	721	754
V/C Ratio(X)	0.17	0.61	0.06	0.25	0.51	0.51
Avail Cap(c_a), veh/h	1384	1232	1327	10282	3966	4147
HCM Platoon Ratio	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
Uniform Delay (d), s/veh	12.1	12.8	4.6	3.1	6.8	6.8
Incr Delay (d2), s/veh	0.4	3.2	0.1	0.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	2.0	0.0	0.1	1.0	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.4	15.9	4.6	3.1	7.4	7.4
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	152			556	751	
Approach Delay, s/veh	15.1			3.2	7.4	
Approach LOS	B			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		22.4		8.1	5.6	16.8
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		87.5		23.5	15.5	67.5
Max Q Clear Time (g_c+I1), s		4.2		4.1	2.2	6.7
Green Ext Time (p_c), s		3.9		0.4	0.0	5.2

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	7	24	1	38	8	499	33	59	837	4
Future Volume (veh/h)	0	0	7	24	1	38	8	499	33	59	837	4
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	0.99		0.98	1.00		0.97	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	1885	1900	1885	1900	1885	1885	1885	1885	1900
Adj Flow Rate, veh/h	0	0	8	26	1	41	9	542	36	64	910	4
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, %	0	0	0	1	0	1	0	1	1	1	1	0
Cap, veh/h	0	0	119	330	4	119	17	1445	96	99	1719	8
Arrive On Green	0.00	0.00	0.08	0.08	0.08	0.08	0.01	0.42	0.42	0.05	0.47	0.47
Sat Flow, veh/h	0	0	1575	1289	50	1562	1810	3403	226	1795	3657	16
Grp Volume(v), veh/h	0	0	8	27	0	41	9	285	293	64	446	468
Grp Sat Flow(s),veh/h/ln	0	0	1575	1338	0	1562	1810	1791	1838	1795	1791	1882
Q Serve(g_s), s	0.0	0.0	0.1	0.5	0.0	0.8	0.2	3.3	3.3	1.1	5.3	5.3
Cycle Q Clear(g_c), s	0.0	0.0	0.1	0.7	0.0	0.8	0.2	3.3	3.3	1.1	5.3	5.3
Prop In Lane	0.00		1.00	0.96		1.00	1.00		0.12	1.00		0.01
Lane Grp Cap(c), veh/h	0	0	119	334	0	119	17	761	781	99	842	885
V/C Ratio(X)	0.00	0.00	0.07	0.08	0.00	0.35	0.52	0.37	0.38	0.65	0.53	0.53
Avail Cap(c_a), veh/h	0	0	1555	1635	0	1543	1192	3538	3630	1182	3538	3717
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	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	13.0	13.4	0.0	13.3	15.0	6.0	6.0	14.1	5.7	5.7
Incr Delay (d2), s/veh	0.0	0.0	0.2	0.1	0.0	1.7	21.7	0.3	0.3	7.0	0.5	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	0.0	0.0	0.0	0.2	0.0	0.3	0.2	0.6	0.7	0.5	0.9	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	13.3	13.5	0.0	15.0	36.7	6.3	6.3	21.0	6.2	6.2
LnGrp LOS	A	A	B	B	A	B	D	A	A	C	A	A
Approach Vol, veh/h		8			68			587			978	
Approach Delay, s/veh		13.3			14.4			6.7			7.2	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	17.4		6.8	4.8	18.8		6.8
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.1	5.3		2.1	2.2	7.3		2.8
Green Ext Time (p_c), s	0.1	3.8		0.0	0.0	6.8		0.2

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	10	67	18	20	13	60	342	32	25	581	267
Future Volume (veh/h)	187	10	67	18	20	13	60	342	32	25	581	267
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		0.97	1.00		0.96
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	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	197	11	71	19	21	14	63	360	34	26	612	281
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	374	28	95	209	214	113	388	1419	133	570	932	428
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.07	0.43	0.43	0.04	0.40	0.40
Sat Flow, veh/h	977	110	371	430	839	444	1795	3300	310	1795	2353	1080
Grp Volume(v), veh/h	279	0	0	54	0	0	63	194	200	26	466	427
Grp Sat Flow(s),veh/h/ln	1457	0	0	1714	0	0	1795	1791	1818	1795	1791	1642
Q Serve(g_s), s	7.4	0.0	0.0	0.0	0.0	0.0	1.0	3.4	3.5	0.4	10.4	10.4
Cycle Q Clear(g_c), s	8.6	0.0	0.0	1.1	0.0	0.0	1.0	3.4	3.5	0.4	10.4	10.4
Prop In Lane	0.71		0.25	0.35		0.26	1.00		0.17	1.00		0.66
Lane Grp Cap(c), veh/h	496	0	0	536	0	0	388	770	782	570	709	650
V/C Ratio(X)	0.56	0.00	0.00	0.10	0.00	0.00	0.16	0.25	0.26	0.05	0.66	0.66
Avail Cap(c_a), veh/h	1003	0	0	1093	0	0	992	2186	2219	1235	2186	2004
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	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.7	0.0	0.0	14.1	0.0	0.0	8.5	9.0	9.0	8.1	12.1	12.1
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.1	0.0	0.0	0.2	0.2	0.2	0.0	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	2.7	0.0	0.0	0.4	0.0	0.0	0.3	1.1	1.1	0.1	3.4	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	0.0	14.2	0.0	0.0	8.7	9.1	9.1	8.1	13.2	13.3
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	B	B
Approach Vol, veh/h		279			54			457			919	
Approach Delay, s/veh		17.7			14.2			9.1			13.1	
Approach LOS		B			B			A			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	25.7		17.0	8.1	24.1		17.0				
Change Period (Y+Rc), s	4.6	4.6		4.5	4.6	4.6		4.5				
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0				
Max Q Clear Time (g_c+I1), s	2.4	5.5		10.6	3.0	12.4		3.1				
Green Ext Time (p_c), s	0.0	2.4		1.7	0.1	7.0		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			12.8									
HCM 6th LOS			B									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	92	47	221	65	81	48	442	367	45	52	523	118
Future Volume (veh/h)	92	47	221	65	81	48	442	367	45	52	523	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	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	1885	1885	1885	1856	1856	1856	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	97	49	233	68	85	51	465	386	47	55	551	124
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, %	1	1	1	3	3	3	1	1	1	1	1	1
Cap, veh/h	90	29	877	78	70	509	508	1499	181	103	698	156
Arrive On Green	0.27	0.27	0.27	0.27	0.27	0.27	0.28	0.47	0.47	0.06	0.24	0.24
Sat Flow, veh/h	0	106	1566	0	256	1541	1795	3206	387	1795	2886	647
Grp Volume(v), veh/h	146	0	233	153	0	51	465	214	219	55	341	334
Grp Sat Flow(s),veh/h/ln	106	0	1566	256	0	1541	1795	1791	1802	1795	1791	1741
Q Serve(g_s), s	0.0	0.0	5.2	0.0	0.0	1.5	16.6	4.8	4.9	2.0	11.8	11.9
Cycle Q Clear(g_c), s	18.0	0.0	5.2	18.0	0.0	1.5	16.6	4.8	4.9	2.0	11.8	11.9
Prop In Lane	0.66		1.00	0.44		1.00	1.00		0.21	1.00		0.37
Lane Grp Cap(c), veh/h	119	0	877	148	0	509	508	837	843	103	433	421
V/C Ratio(X)	1.23	0.00	0.27	1.03	0.00	0.10	0.91	0.26	0.26	0.53	0.79	0.79
Avail Cap(c_a), veh/h	119	0	877	148	0	509	528	867	872	173	513	499
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	0.0	7.7	25.3	0.0	15.4	23.0	10.7	10.7	30.4	23.5	23.6
Incr Delay (d2), s/veh	155.6	0.0	0.2	83.3	0.0	0.1	20.2	0.2	0.2	4.2	6.8	7.3
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	7.0	0.0	1.4	5.8	0.0	0.5	9.2	1.7	1.7	0.9	5.4	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	184.5	0.0	7.9	108.6	0.0	15.5	43.2	10.8	10.9	34.6	30.3	30.9
LnGrp LOS	F	A	A	F	A	B	D	B	B	C	C	C
Approach Vol, veh/h		379			204			898			730	
Approach Delay, s/veh		75.9			85.3			27.6			30.9	
Approach LOS		E			F			C			C	

Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	8.3	35.5		22.5	23.3	20.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	6.4	32.1		18.0	19.5	19.0				
Max Q Clear Time (g_c+I1), s		20.0	4.0	6.9		20.0	18.6	13.9				
Green Ext Time (p_c), s		0.0	0.0	2.5		0.0	0.2	1.8				

Intersection Summary	
HCM 6th Ctrl Delay	42.3
HCM 6th LOS	D

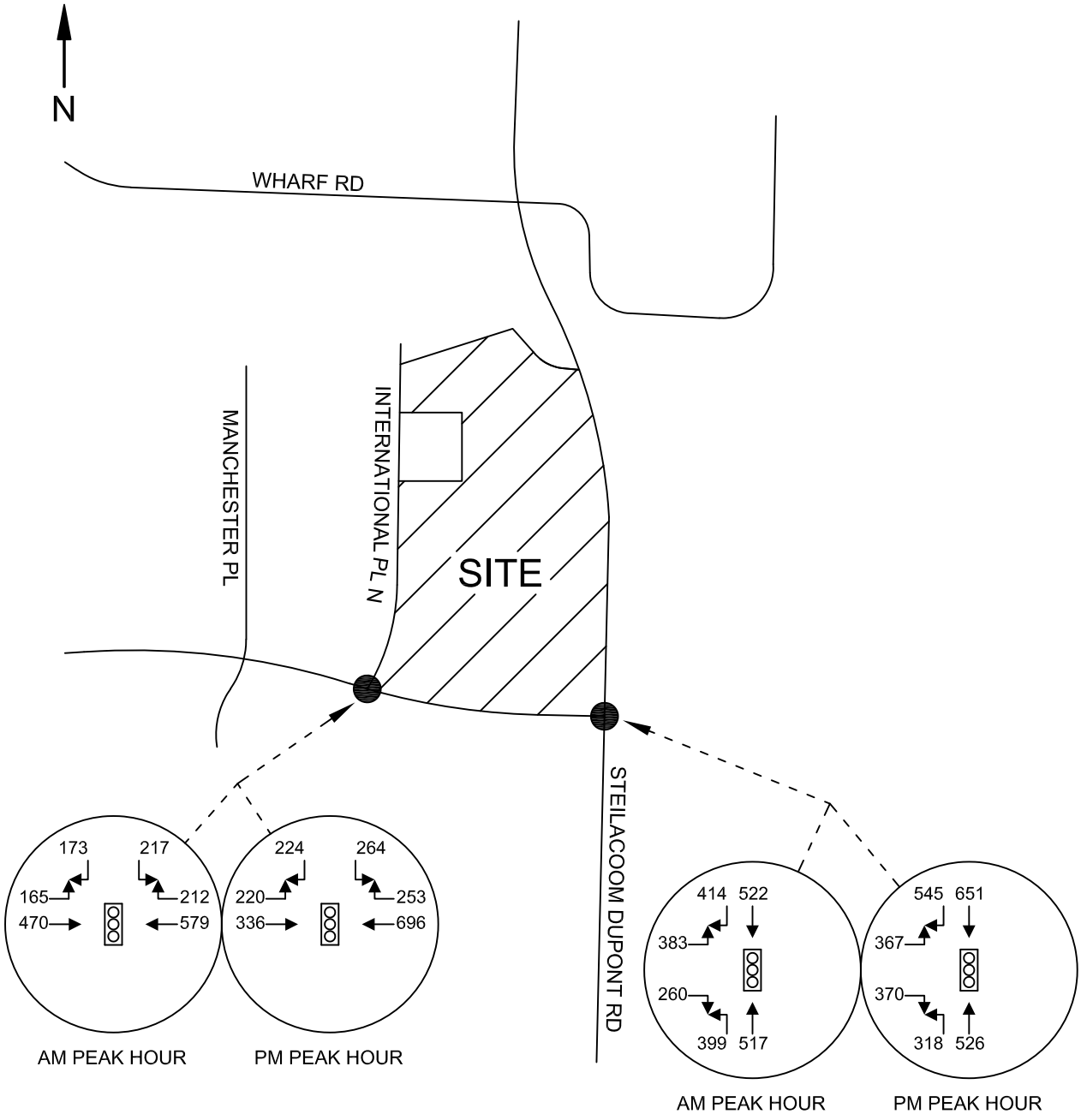
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	15	31	244	26	98	49	736	200	94	694	18
Future Volume (veh/h)	7	15	31	244	26	98	49	736	200	94	694	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	1.00		0.96	1.00		0.97	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	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	8	16	33	262	28	105	53	791	215	101	746	19
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	1	1	1	1	1	1	1	1	1
Cap, veh/h	393	153	315	480	94	353	415	1139	310	351	1540	39
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.05	0.41	0.41	0.07	0.43	0.43
Sat Flow, veh/h	1237	542	1119	1363	335	1255	1795	2766	752	1795	3565	91
Grp Volume(v), veh/h	8	0	49	262	0	133	53	512	494	101	375	390
Grp Sat Flow(s),veh/h/ln	1237	0	1661	1363	0	1590	1795	1791	1727	1795	1791	1865
Q Serve(g_s), s	0.3	0.0	1.2	10.0	0.0	3.7	0.9	13.4	13.4	1.8	8.6	8.6
Cycle Q Clear(g_c), s	4.0	0.0	1.2	11.3	0.0	3.7	0.9	13.4	13.4	1.8	8.6	8.6
Prop In Lane	1.00		0.67	1.00		0.79	1.00		0.44	1.00		0.05
Lane Grp Cap(c), veh/h	393	0	467	480	0	447	415	738	711	351	774	806
V/C Ratio(X)	0.02	0.00	0.10	0.55	0.00	0.30	0.13	0.69	0.69	0.29	0.48	0.48
Avail Cap(c_a), veh/h	696	0	875	814	0	837	955	1886	1818	856	1886	1964
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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.6	0.0	15.2	19.3	0.0	16.1	9.0	13.8	13.8	10.0	11.6	11.6
Incr Delay (d2), s/veh	0.0	0.0	0.1	1.0	0.0	0.4	0.1	1.2	1.2	0.4	0.5	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	0.1	0.0	0.5	3.1	0.0	1.3	0.3	4.7	4.5	0.6	2.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.7	0.0	15.3	20.3	0.0	16.4	9.2	15.0	15.0	10.5	12.1	12.1
LnGrp LOS	B	A	B	C	A	B	A	B	B	B	B	B
Approach Vol, veh/h		57			395			1059			866	
Approach Delay, s/veh		15.6			19.0			14.7			11.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.5	28.0		20.5	7.3	29.1		20.5
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5
Max Green Setting (Gmax), s	20.0	60.0		30.0	20.0	60.0		30.0
Max Q Clear Time (g_c+I1), s	3.8	15.4		6.0	2.9	10.6		13.3
Green Ext Time (p_c), s	0.2	8.0		0.2	0.1	5.3		1.5

Intersection Summary			
HCM 6th Ctrl Delay			14.4
HCM 6th LOS			B

APPENDIX

QUEUING ANALYSIS



HEATH & ASSOCIATES

TRAFFIC AND CIVIL ENGINEERING

SNOW BLOSSOM FULFILLMENT CENTER

FORECAST 2022 PEAK HOUR VOLUMES - PEAK SEASON QUEUING

FIGURE L

Intersection: 3: Center Drive & Steilacoom-Dupont Rd

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	479	105	275	1318	1054	250
Average Queue (ft)	290	47	267	854	776	226
95th Queue (ft)	438	88	303	1540	1258	320
Link Distance (ft)	1070	1070		1274	1004	
Upstream Blk Time (%)				14	23	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			250			225
Storage Blk Time (%)			40	1	37	2
Queuing Penalty (veh)			227	4	168	9

Intersection: 4: Center Drive & International Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	117	101	38	151	208	104
Average Queue (ft)	52	22	9	42	77	38
95th Queue (ft)	92	66	32	106	150	89
Link Distance (ft)		919	919	1070	1070	319
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	200					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 408

Intersection: 3: Center Drive & Steilacoom-Dupont Rd

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	657	389	275	1333	1035	250
Average Queue (ft)	419	139	270	1157	672	214
95th Queue (ft)	725	339	296	1660	1152	326
Link Distance (ft)	1070	1070		1274	1004	
Upstream Blk Time (%)				46	11	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			250			225
Storage Blk Time (%)			54	0	33	0
Queuing Penalty (veh)			306	2	149	2

Intersection: 4: Center Drive & International Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	152	153	140	256	279	316
Average Queue (ft)	69	71	58	116	152	176
95th Queue (ft)	124	129	112	222	261	290
Link Distance (ft)		919	919	1070	1070	319
Upstream Blk Time (%)						1
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	200					
Storage Blk Time (%)	0					
Queuing Penalty (veh)	1					

Network Summary

Network wide Queuing Penalty: 460

Intersection: 3: Center Drive & Steilacoom-Dupont Rd

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	503	335	274	592	1048	250
Average Queue (ft)	283	154	221	225	978	227
95th Queue (ft)	433	270	308	467	1240	318
Link Distance (ft)	1070	1070		1274	1004	
Upstream Blk Time (%)					39	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)			250			225
Storage Blk Time (%)			10	2	36	1
Queuing Penalty (veh)			56	5	201	8

Intersection: 4: Center Drive & International Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	140	123	109	245	275	319
Average Queue (ft)	66	49	49	123	156	157
95th Queue (ft)	113	102	95	214	254	280
Link Distance (ft)		919	919	1070	1070	319
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	200					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Network Summary

Network wide Queuing Penalty: 270

Intersection: 3: Center Drive & Steilacoom-Dupont Rd

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	L	T	T	R
Maximum Queue (ft)	494	330	275	1107	1049	250
Average Queue (ft)	301	182	255	446	980	229
95th Queue (ft)	458	299	311	954	1229	315
Link Distance (ft)	1070	1070		1274	1004	
Upstream Blk Time (%)				1	42	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			250			225
Storage Blk Time (%)			26	2	39	2
Queuing Penalty (veh)			151	6	233	15

Intersection: 4: Center Drive & International Place

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	196	132	124	264	308	365
Average Queue (ft)	95	46	48	142	180	297
95th Queue (ft)	157	97	101	246	290	410
Link Distance (ft)		919	919	1070	1070	319
Upstream Blk Time (%)						39
Queuing Penalty (veh)						0
Storage Bay Dist (ft)	200					
Storage Blk Time (%)	0					
Queuing Penalty (veh)	1					

Network Summary

Network wide Queuing Penalty: 406

Soundview Consultants LLC
Environmental Assessment • Planning • Land Use Solutions
2907 Harborview Dr., Suite D, Gig Harbor, WA 98335
Phone: (253) 514-8952 Fax: (253) 514-8954

Technical Memorandum

To:	**Bjorn Brynestad, Panattoni Development Company, Inc.**	**File Number: 1144.0025**
From:	**Ben Wright, Soundview Consultants LLC**	**Date: July 27, 2020**
Re:	**Non-Wetland and Fish and Wildlife Habitat Assessment – International Place North adjacent to 3250 International Place North, Dupont, Washington 98327**	

Dear Mr. Brynestad,

Soundview Consultants LLC (SVC) conducted a wetland and fish and wildlife habitat assessment of an approximately 5.34-acre site located north-adjacent to 3250 International Place North in the City of Dupont, Washington (Figure 1). The site consists of one parcel located in the Southwest ¼ of Section 24, Township 19 North, Range 01 East, W.M. (Pierce County Tax Parcel Number 3000390282). This assessment was conducted to support proposed commercial development of the subject property. SVC investigated the site to evaluate if any potentially-regulated wetlands, streams, or other fish and wildlife habitat are located on or adjacent to the subject property. This Technical Memorandum has been prepared to document the results of this assessment.

Figure 1. Subject Property Location.

Background Data

Prior to the site investigation, staff conducted background research using Pierce County Geographic Information System (GIS) data, Washington Department of Fish and Wildlife (WDFW) Priority Habitat and Species (PHS) and SalmonScape mapping tools, U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI), Washington Department of Natural Resources (DNR) water typing system, and Natural Resource Conservation Service (NRCS) soil survey (Attachment B). All determinations were made using observable vegetation, hydrology, and soils in conjunction with data from the U.S. Geological Survey (USGS) topographic maps, USFWS, local precipitation data, and various orthophotographic resources.

The Pierce County Stream and Wetland Inventory map (Attachment B1) and the USFWS NWI map (Attachment B2) identify a potential stream and associated wetlands approximately 100 feet north and east of the subject property. The DNR Stream Typing map (Attachment B3) identifies this potential stream as a Type F (fish-bearing) water, and the WDFW SalmonScape map (Attachment B4) and PHS map (Attachment B5) identify the documented presence of resident coastal cutthroat trout (*Oncorhynchus clarkia*) and the presumed presence of Coho salmon (*Oncorhynchus kisutch*) within this stream. The WDFW PHS map also identifies the presence of potential breeding areas for big brown bat (*Eptesicus fuscus*), little brown bat (*Myotis lucifugus*), and Yuma myotis (*Myotis yumanensis*) within the township but not necessarily on the subject property. In addition, the DNR Rare Plant and Wetland Inventory (Attachment B6) identifies the potential occurrence of Thompson's chaenactis (*Chaenactis thompsonii*), a state-listed sensitive plant species, approximately 295 feet offsite to the north of the subject property.

The NRCS soil survey map (Attachment B7) identifies one soil series on the subject property: Spanaway gravelly sandy loam (41A), which is considered a non-hydric soil. No other wetlands, streams, or priority habitats or species are documented within 300 feet of the subject property.

Precipitation

Precipitation data was obtained from the National Oceanic and Atmospheric Administration (NOAA) weather station at the Olympia Regional Airport Station in order to acquire percent of normal precipitation during and preceding the June 11, 2020 site investigation. A summary of data collected is provided in Table 1 below.

Table 1. Precipitation Summary[1].

Site Visit Date	Day Of	Day Before	1 Week Prior	2 Weeks Prior	30 Days Prior (Observed/Normal)	Year to Date (Observed/Normal)[2]	Percent of Normal[3]
6/11/2020	0.14	0.05	1.24	1.47	3.10/2.22	27.81/25.05	140/111

1. Precipitation levels provided in inches. Data obtained from NOAA (http://w2.weather.gov/climate/xmacis.php?wfo=sew) for Olympia Airport.
2. Year-to-date precipitation is for the calendar year from January 1 to the onsite date.
3. Percent of normal is shown for the last 30 days and calendar year to date.

Precipitation levels during the June 2020 site investigation were slightly above the statistical normal for the prior 30 days (140 percent of normal) and within normal range for the 2020 calendar year (111 percent of normal). This data suggests that hydrologic conditions encountered during the site investigation were relatively normal. However, 1.24 inches of precipitation (221 percent of normal) was recorded in the week leading up to the site investigation, which may have caused temporarily

wetter than normal hydrologic conditions. Such conditions were considered in making professional wetland determinations.

Methods

A site investigation was performed during June of 2020 by qualified SVC staff. The investigation consisted of walk-through survey of the subject property and accessible areas within 300 feet of the subject property for potentially-regulated wetlands, waterbodies, fish and wildlife habitat, and/or priority habitat species as specified in Dupont Municipal Code (DMC) Chapter 25.105 – Critical Areas.

Wetlands, streams, and select fish and wildlife habitats and species are regulated features per DMC Chapter 25.105.050 and subject to restricted uses/activities under the same title. Wetland absence was determined in accordance with DMC 25.105.050(1)(i) and as outlined in the U.S. Army Corps of Engineers' (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and modified according to the guidelines established in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, Version 2.0* (USACE, 2010) and *Field Indicators of Hydric Soils in the United States* (NRCS, 2018). Test pits were excavated at the most likely locations (i.e. topographic depressions and hydrophytic plant communities) throughout the subject property to confirm wetland absence. To mark the points where data was collected (DP-1 through DP-3), pink surveyor's flagging was alpha-numerically labeled and tied to 3-foot lath or vegetation at the sample location (Attachment A). The ordinary high water mark (OHW) of the offsite stream was estimated using publicly available LiDAR maps and offsite field observations made from the right-of-way.

The fish and wildlife habitat assessment was conducted during the same site visit by a qualified fish and wildlife biologist. The experienced biologist made visual observations using stationary and walking survey methods for both aquatic and upland habitats noting any special habitat features or signs of fish and wildlife activity.

Results

The 5.34-acre property is located in an urban industrial setting and consists of a mostly vacant gravel lot with sparse vegetation due to prior clearing and grading activities. The site is bounded by industrial development to the northwest; International Place road to the west with industrial development beyond; industrial development to the south and east; and a vacant lot and undeveloped forested area to the northeast with Dupont-Steilacoom Road beyond. Vegetation on the subject property consists of Douglas fir (*Pseudotsuga menziesii*) saplings, black cottonwood (*Populus balsamifera*) saplings, non-native invasive Scotch broom (*Cytisus scoparius*), non-native invasive butterfly bush (*Buddleja davidii*), common St. Johnswort (*Hypericum perforatum*), foxglove (*Digitalis purpurea*), and common sheep sorrel (*Rumex acetosella*). Topography on the site slopes down gently approximately 10 feet from north to south with elevations ranging from approximately 220 to 230 feet above mean sea level (Attachment B8).

No potentially-regulated wetlands and/or fish and wildlife habitat were identified on the subject property; however, one stream was identified approximately 95 feet offsite to the northeast. Three formal data plots, DP-1 through DP-3 (shown in Attachment A), and additional test pits confirm wetland absence on the subject property. Photographs at the data plot locations and general site conditions are included in Attachment C and copies of the completed data forms are provided in Attachment D.

Lack of Onsite Wetlands

Three formal data plots (DP-1 through DP-3) were collected at representative locations throughout the subject property which confirm non-wetland conditions onsite due to the lack of all three wetland criteria (predominance of hydrophytic vegetation, hydric soils, and wetland hydrology) according to current wetland delineation methodology. None of the data plots met hydrophytic vegetation or wetland hydrology criteria. Lack of hydrophytic vegetation and wetland hydrology at a time when precipitation levels were relatively normal (with temporarily wetter hydrologic conditions due to the 1.24 inches of precipitation observed the week leading up to the site visit) indicate that the area does not hold water long enough during the growing season to support wetland conditions. Data plots DP-1 and DP-2 did meet technical hydric soil criteria through indicator S5 (Sandy Redox). However, the entire subject property was observed to be highly disturbed, and review of historical aerial photographs confirm that the property was likely cleared and graded in 2007. This prior clearing and grading activity resulted in the placement of fill material which can typically contain unnatural redoximorphic concentrations or depleted matrices. As not all three required wetland criteria were observed, no wetlands were identified on the subject property.

Offsite Type F Stream

One stream was identified approximately 95 feet offsite to the northeast of the subject property. This stream contained a well-defined channel and sorting of substrate. The stream is a perennial stream with adequate structure and hydrology to support multiple salmonid species. The offsite stream is recognized by DNR as a Type F (fish-bearing) stream, and WDFW documents the presence of cutthroat trout as well as modeled presence of coho salmon in the stream. Per DMC 25.105.050(2)(g)(i), all streams require a standard buffer width of 100 feet. Per DMC 25.105.050(2)(g)(v), an additional 15-foot building setback is required from the edge of all critical area buffers. The associated stream buffer and associated building setback minimally projects onto the northeast portion of the subject property.

Proposed Project

The proposed project consists of a parking lot associated with the large industrial warehouse development to the south (Pierce County Tax Parcel Number 3000390011). The previously mentioned 15-foot building setback line associated with the offsite stream projects minimally onsite as required under DMC 25.105.050(2)(g)(v), a small portion of the proposed impervious surface area will be located within the required 15 foot building setback, which this development per DMC 25.10.020.065 does not meet the definition of a building, *"Building" means any structure used or intended for supporting or sheltering any use or occupancy.* Thus, this development of impervious surface within the building setback is expected to be allowed. All other proposed development will remain entirely outside of the 100-foot stream buffer and associated building setback.

Conclusions

No potentially-regulated wetlands, fish and wildlife habitat, or other regulated critical areas were identified on the subject property during the site investigation; however, one stream was identified approximately 95 feet offsite to the northeast. The 100-foot protective buffer and 15-foot building setback associated with this offsite Type F stream only project slightly onto the subject property. A small portion of the proposed impervious surface area will be located within the 15-foot building setback line associated with the offsite stream as allowed per Dupont Municipal Code. All other

proposed development will remain entirely outside of the 100-foot stream buffer and associated building setback.

If you have any further questions, please contact me at your earliest convenience.

Sincerely,

July 27, 2020

Ben Wright
Environmental Planner / Fisheries Biologist

Date

References

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Attachment A – Existing Conditions and Proposed Plan Exhibits

INTERNATIONAL PLACE - EXISTING CONDITIONS

Soundview Consultants LLC
Environmental Assessment • Planning • Land Use Solutions
2907 Harborview Dr., Suite D, Gig Harbor, WA 98335
Phone: (253) 514-8952 Fax: (253) 514-8954
www.soundviewconsultants.com

INTERNATIONAL PLACE

ADJACENT TO:
3250 INTERNATIONAL PL N
DUPONT, WA 98327

PIERCE COUNTY PARCEL NUMBERS:
3000390282

DATE:	6/30/2020
JOB:	1144.0025
BY:	DLS
SCALE:	1 " = 75 '
FIGURE NO.	1

INTERNATIONAL PLACE - PRELIMINARY PROPOSED SITE PLAN

Soundview Consultants LLC
Environmental Assessment • Planning • Land Use Solutions
2907 Harborview Dr., Suite D, Gig Harbor, WA 98335
Phone: (253) 514-8952 Fax: (253) 514-8954
www.soundviewconsultants.com

INTERNATIONAL PLACE

ADJACENT TO:
3250 INTERNATIONAL PL N
DUPONT, WA 98327

PIERCE COUNTY PARCEL NUMBERS:
3000390282

DATE:	6/30/2020
JOB:	1144.0025
BY:	DLS
SCALE:	1 " = 75 '
FIGURE NO.	2

Attachment B – Background Information

This attachment includes a Pierce County Stream and Wetland Inventory (B1); USFWS NWI map (B2); DNR Stream Typing map (B3); WDFW SalmonScape map (B4); WDFW PHS map (B5); DNR Rare Plant and Wetland Inventory (B6); NRCS Soil Survey map (B7); and USGS Contours map (B8).

Attachment B1 – Pierce County Stream and Wetland Inventory

5/29/2020, 6:06:04 PM

Pierce Parcels _Query result

Pierce_Wetlands

Pierce - Streams

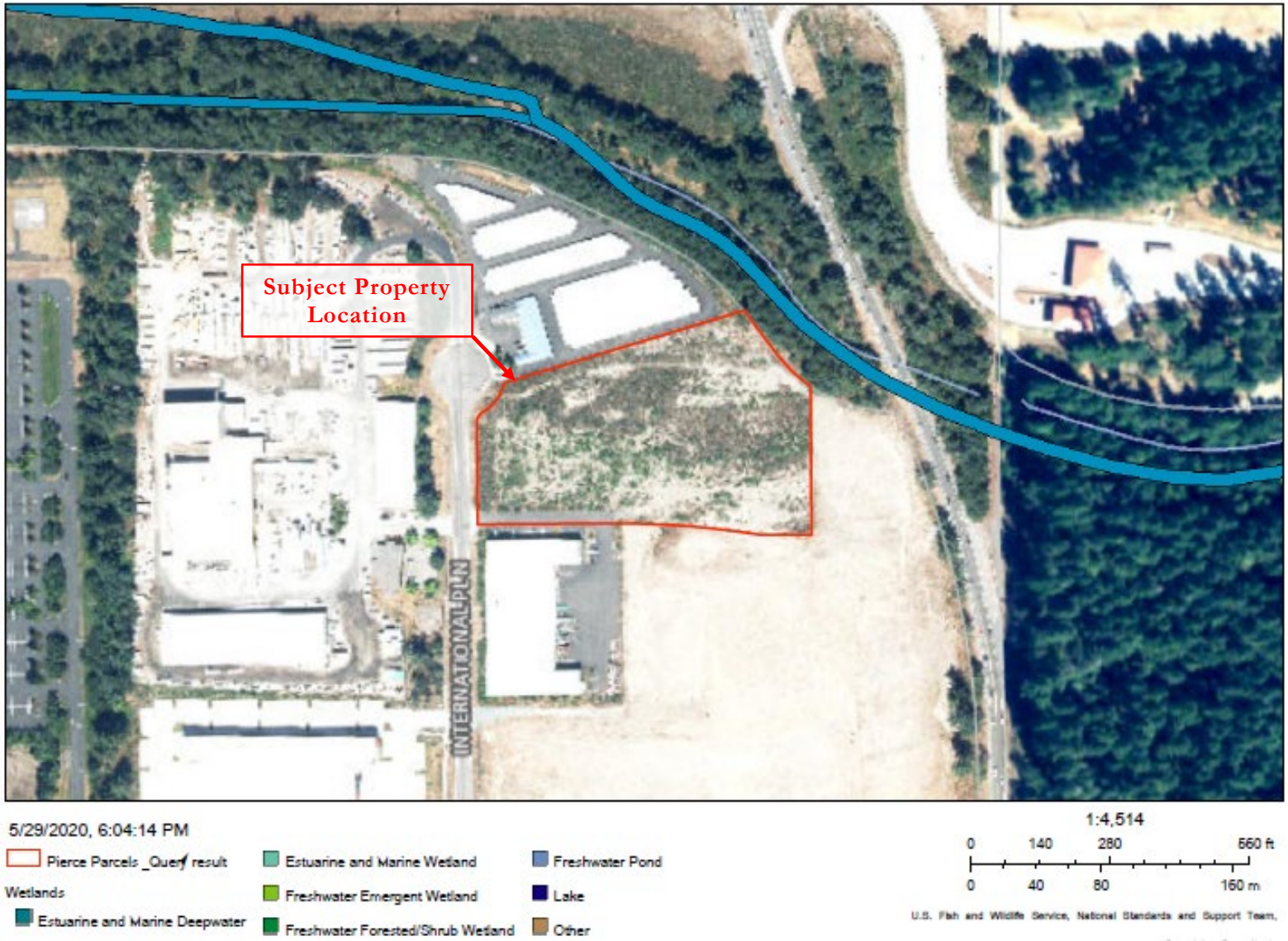
1:4,514

0 140 280 560 ft

0 40 80 160 m

Pierce County WA, Source: Esri, DigitalGlobe, GeoEye, Earthstar

Attachment B2 – USFWS NWI Map



Attachment B3 – DNR Stream Typing Map

5/29/2020, 5:53:10 PM

Pierce Parcels _Query result

Streams

Type S

Type F

Type N, Np, Ns

U, unknown

X, non-typed per WAC 222-16

Stream Names

1:4,514

0 140 280 560 ft

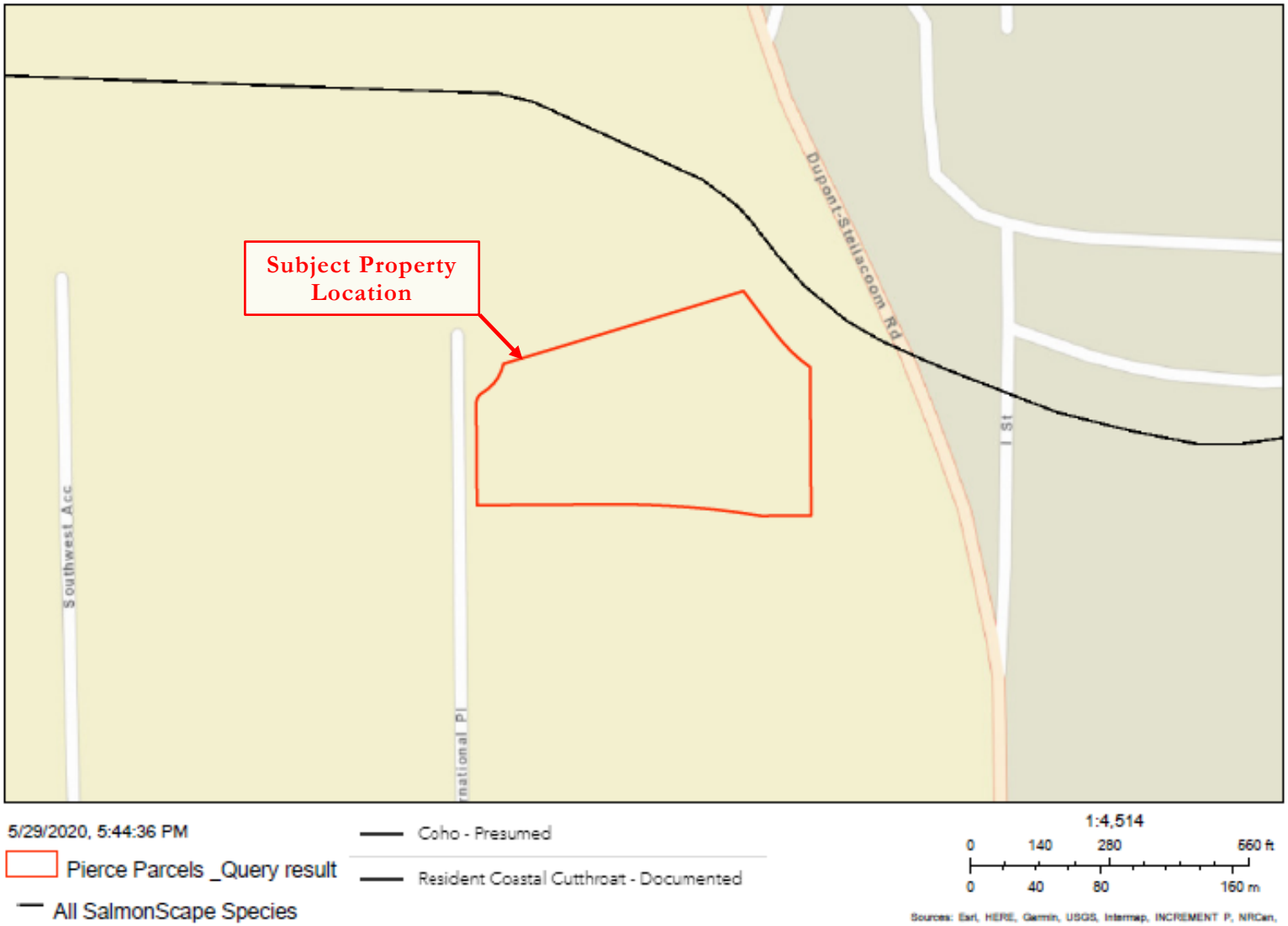
0 40 80 160 m

Pierce County WA, Source: Esri, DigitalGlobe, GeoEye, Earthstar

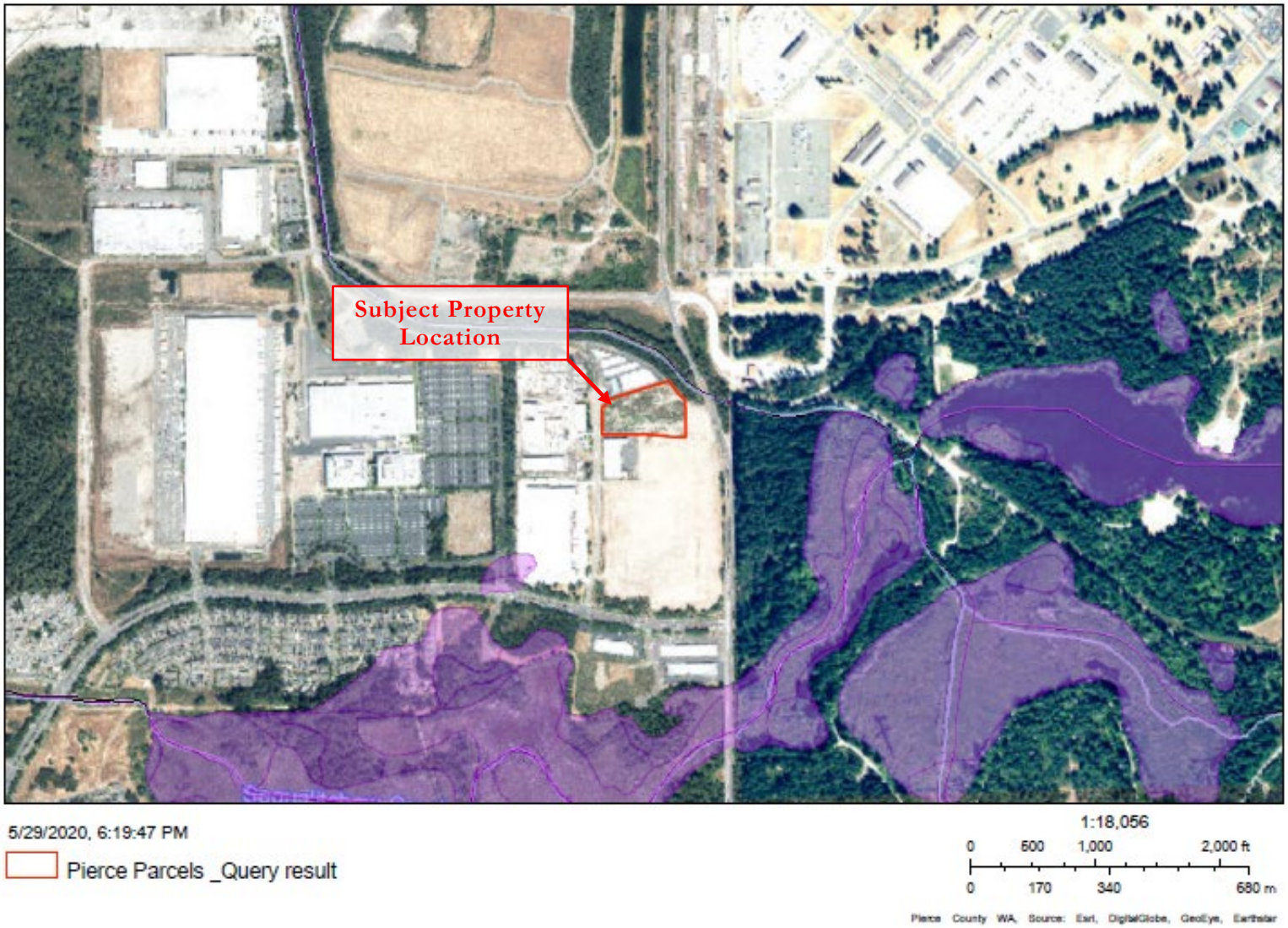
Soundview Consultants

Pierce County WA | Pierce County Spatial Services | City of Tacoma | Tacoma IT-GIS | WDFW | Washington Department of Ecology, Washington Department of Natural Resources | These data were collected by WDFW staff with contributions from the North Olympic

Attachment B4 – WDFW SalmonScape Map



Attachment B5 – WDFW PHS Map



Priority Habitats and Species on the Web

Report Date: 07/24/2020

PHS Species/Habitats Overview:

Occurence Name	Federal Status	State Status	Generalized Location
Resident Coastal Cutthroat	N/A	N/A	No
Coho	N/A	N/A	No
Big brown bat	N/A	N/A	Yes
Little Brown Bat	N/A	N/A	Yes
Yuma myotis	N/A	N/A	Yes

PHS Species/Habitats Details:

Resident Coastal Cutthroat	
Scientific Name	*Oncorhynchus clarki*
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1226157471128, Fish Name: Cutthroat Trout, Run Time: Unknown or not Applicable, Life History: Unknown
Source Record	48769
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Coho	
Scientific Name	*Oncorhynchus kisutch*
Priority Area	Occurrence/Migration
Accuracy	NA
Notes	LLID: 1226157471128, Fish Name: Coho Salmon, Run Time: Unknown or not Applicable, Life History: Anadromous
Source Record	48770
Source Dataset	SWIFD
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	N
SGCN	N
Display Resolution	AS MAPPED
More Info	http://wdfw.wa.gov/wlm/diversty/soc/soc.htm
Geometry Type	Lines

Big brown bat	
Scientific Name	*Eptesicus fuscus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Little Brown Bat	
Scientific Name	*Myotis lucifugus*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Yuma myotis	
Scientific Name	*Myotis yumanensis*
Notes	This polygon mask represents one or more records of the above species or habitat occurrence. Contact PHS Data Release (360-902-2543) for obtaining information about masked sensitive species and habitats.
Federal Status	N/A
State Status	N/A
PHS Listing Status	PHS Listed Occurrence
Sensitive	Y
SGCN	N
Display Resolution	TOWNSHIP
ManagementRecommendations	http://wdfw.wa.gov/publications/pub.php?id=00605

Attachment B6 – DNR Rare Plant and Wetland Inventory

Rare Plants and Nonvascular Species: NOT LISTED

FEDERAL STATUS	NOT LISTED
STATE STATUS	SENSITIVE
GLOBAL RANK CODE	G3
GLOBAL RANK DESCRIPTION	VULNERABLE
STATE RANK CODE	S3
STATE RANK DESCRIPTION	VULNERABLE
ELEMENT OCCURRENCE RANK CODE	D
ELEMENT OCCURRENCE RANK DESCRIPTION	POOR
LAST OBSERVED DATE	1991-09-30
ELEMENT_OCCURRENCE_ID	5,378

5/29/2020, 5:54:42 PM

Pierce Parcels _Query result

DNR - Rare Plants & Nonvascular Species

Chaenactis thompsonii
Thompson's chaenactis

1:4,514

0 140 280 560 ft

0 40 80 160 m

Pierce County WA, Source: Esri, DigitalGlobe, GeoEye, Earthstar

Attachment B7 – NRCS Soil Survey Map

5/29/2020, 6:08:09 PM

41A: Spanaway gravelly sandy loam

1:4,514

0 140 280 560 ft

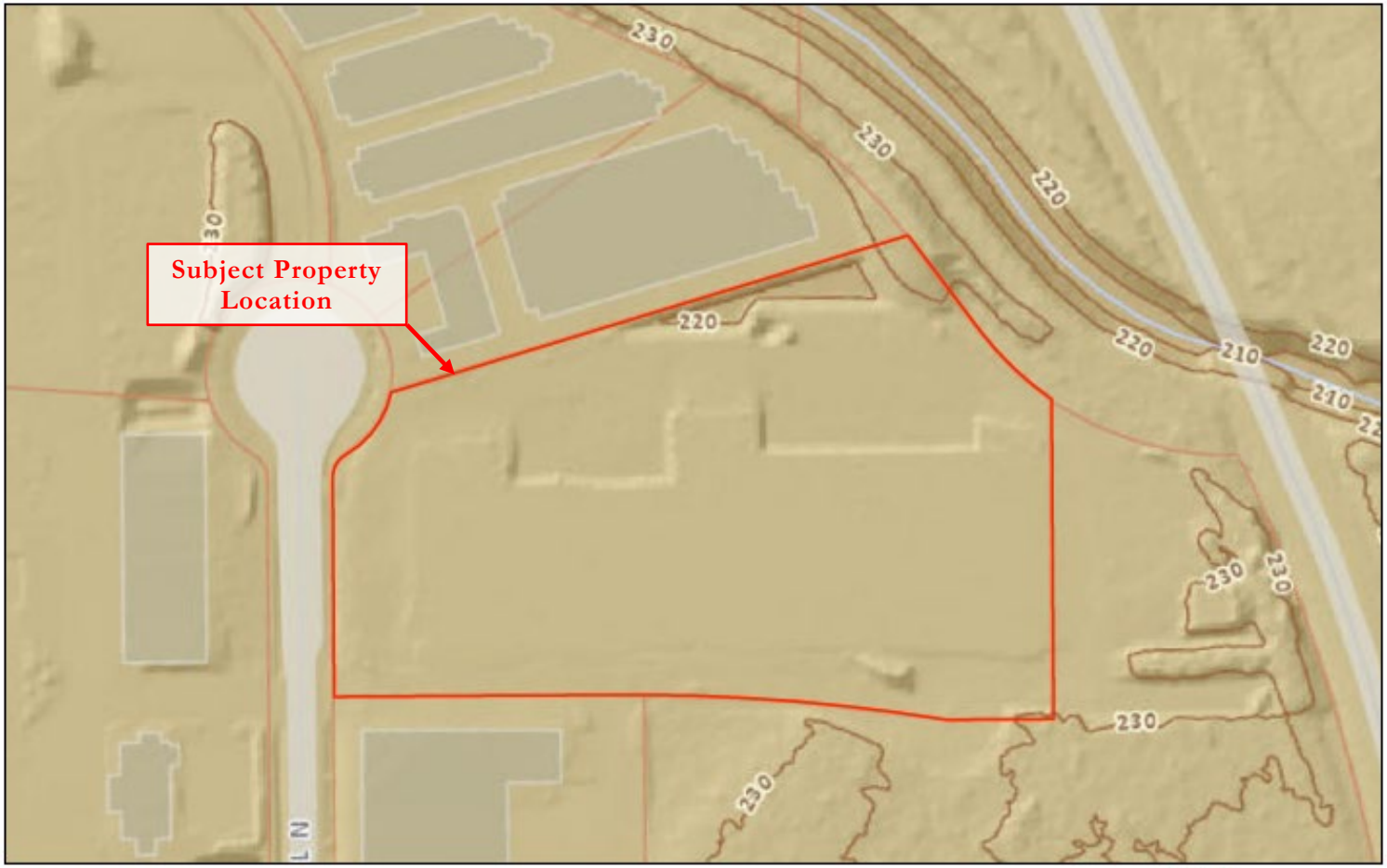
0 40 80 160 m

Pierce County WA, Source: Earl, DigitalGlobe, GeoEye, Earthstar

Pierce Parcels _Query result

USA Soils Map Units

Attachment B8 – USGS Contours Map



5/29/2020, 5:49:58 PM

Pierce Parcels _Query result

1:2,257

0 70 140 280 ft

0 20 40 80 m

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan,

Attachment C – Site Photographs

Typical Upland Conditions on the Subject Property

Typical Upland Conditions on the Subject Property

Offsite Type F Stream

Offsite Type F Stream

Data Plot DP-1 Soil Profile

Data Plot DP-1 Soil Pit

Data Plot DP-1 Surrounding Area

Data Plot DP-2 Soil Profile

Data Plot DP-2 Soil Pit

Data Plot DP-2 Surrounding Area

Data Plot DP-3 Soil Profile

Data Plot DP-3 Soil Pit

Data Plot DP-3 Surrounding Area

Attachment D – Non-Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: International Place City/County: Dupont/Pierce Sampling Date: 6/11/2020

Applicant/Owner: Panattoni Development Company, Inc. State: WA Sampling Point: DP-1

Investigator(s): Jacob Layman, Ben Wright Section, Township, Range: 24 / 19N / 1E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A2 Lat: 47.113444 Long: -122.62519992 Datum: WGS 84

Soil Map Unit Name: Spanaway gravelly sandy loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks:
Not all three wetland criteria met; only hydric soil present due to the prior placement of fill material. Data collected in detention pond on the northern portion of the subject property.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	15	Yes	FACU
2. Populus balsamifera	1	No	FAC
3.			
4.			
	16	= Total Cover	

Sapling/Shrub Stratum (Plot size: 30 ft)			
1. Cytisus scoparius	30	Yes	UPL
2. Spiraea douglasii	1	No	FACW
3.			
4.			
5.			
	31	= Total Cover	

Herb Stratum (Plot size: 10 ft)			
1. Hypericum perforatum	15	Yes	FACU
2. Rumex acetosella	5	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	20	= Total Cover	

Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 80

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:
No hydrophytic vegetation indicators met.
Prevalence Index test not warranted due to lack of wetland hydrology.

SOIL

Sampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	5Y 4/1	100	-	-	-	-	Sand	Sand
4 - 10	5Y 3/1	90	2.5Y 6/6	10	C	M	Sand	Sand with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ---

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soil criteria met through indicator S5 (Sandy Redox). However, prior clearing and grading activities likely resulted in the placement of fill material which can typically contain unnatural redoximorphic features or depleted matrices.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): None
Water Table Present?	Yes ☐	No ☒	Depth (inches): None
Saturation Present? (includes capillary fringe)	Yes ☐	No ☒	Depth (inches): None

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: International Place City/County: Dupont/Pierce Sampling Date: 6/11/2020

Applicant/Owner: Panattoni Development Company, Inc. State: WA Sampling Point: DP-2

Investigator(s): Jacob Layman, Ben Wright Section, Township, Range: 24 / 19N / 1E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): A2 Lat: 47.112760 Long: -122.62487635 Datum: WGS 84

Soil Map Unit Name: Spanaway gravelly sandy loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☒ No ☐	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks:
Not all three wetland criteria met; only hydric soil present due to the prior placement of fill material. Data collected on the eastern portion of the subject property.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	40	Yes	FAC
2. Pseudotsuga menziesii	5	No	FACU
3. Arbutus mensiesii	1	No	UPL
4.			
	46	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1. Buddleja davidii	15	Yes	FACU
2. Cytisus scoparius	5	Yes	UPL
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 10 ft)			
1. Arctostaphylos uva-ursi	50	Yes	FACU
2. Hypericum perforatum	5	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	55	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 45

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:
No hydrophytic vegetation indicators met.
Prevalence Index test not warranted due to lack of wetland hydrology.

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 15	10YR 3/1	98	10YR 5/6	2	C	M	Sand	Sand

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ---

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soil criteria met through indicator S5 (Sandy Redox). However, prior clearing and grading activities likely resulted in the placement of fill material which can typically contain unnatural redoximorphic features or depleted matrices.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ☐	No ☒	Depth (inches): None
Water Table Present?	Yes ☐	No ☒	Depth (inches): None
Saturation Present? (includes capillary fringe)	Yes ☐	No ☒	Depth (inches): None

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: International Place City/County: Dupont/Pierce Sampling Date: 6/11/2020

Applicant/Owner: Panattoni Development Company, Inc. State: WA Sampling Point: DP-3

Investigator(s): Jacob Layman, Ben Wright Section, Township, Range: 24 / 19N / 1E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): A2 Lat: 47.112791 Long: -122.62601533 Datum: WGS 84

Soil Map Unit Name: Spanaway gravelly sandy loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒
Hydric Soil Present?	Yes ☐ No ☒	
Wetland Hydrology Present?	Yes ☐ No ☒	

Remarks:
No wetland criteria met. Data collected on the western portion of the subject property.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. Pseudotsuga menziesii	20	Yes	FACU
2. Populus balsamifera	15	Yes	FAC
3. Arbutus mensiesii	15	Yes	UPL
4.			
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size: 30 ft)			
1. Buddleja davidii	25	Yes	FACU
2. Cytisus scoparius	10	Yes	UPL
3.			
4.			
5.			
	35	= Total Cover	
Herb Stratum (Plot size: 10 ft)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	0	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 100

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Rapid Test for Hydrophytic Vegetation
- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Wetland Non-Vascular Plants[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks:
No hydrophytic vegetation indicators met.
Prevalence Index test not warranted due to lack of wetland hydrology.

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 3/2	100	-	-	-	-	SaLo	Sandy loam with gravel
3 - 11	10YR 3/4	100	-	-	-	-	SaLo	Sandy loam with gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None

Depth (inches): ---

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): None

Water Table Present? Yes ☐ No ☒ Depth (inches): None

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): None

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators observed.

Attachment E – Qualifications

All field inspections, jurisdictional wetland determinations, habitat assessments, and supporting documentation, including this ***Non-Wetland and Fish and Wildlife Habitat Assessment Technical Memorandum*** prepared for the ***International Place*** project site, were prepared by, or under the direction of, Ben Wright of SVC. The site inspections were performed by Jake Layman and Ben Wright, and report preparation was completed by Kyla Caddey and Kelly Kramer.

Ben Wright

Environmental Planner/Fisheries Biologist
Professional Experience: 18 years

Ben Wright is an Environmental Scientist with a varied background in lake ecology, stream ecology, fisheries biology, water quality and climate science. Ben has 13 years of experience at the federal level providing technical assistance for both the development of infrastructure projects and management of aquatic resources. He has experience developing biological assessments, water quality monitoring plans, and fisheries management plans. Ben has an additional 10 years of experience working on long-term ecological monitoring programs related to lakes, streams, water quality and climate.

Ben earned a Bachelor of Science degree in Genetics and Cell Biology with an emphasis in aquatic ecology from Washington State University and has a graduate certificate in Fisheries Management from Oregon State University. Ben's expertise includes endangered species monitoring, assessments and permitting, and NEPA documentation across disciplines gained during his work on federal highway projects. Ben also has experience in fish population assessments, utilizing genetic analysis, spawning escapement and movement studies. Ben has received formal training from the Washington State Department of Ecology in the Using the Revised 2014 Wetland Rating System for Western Washington, How to Determine the Ordinary High Water Mark, Navigating SEPA, How to Conduct a Forage Fish Survey and Puget Sound Costal Processes, Shoreline Modifications and Beach Restoration.

Jake Layman

Environmental Scientist
Professional Experience: 10+ years

Jake Layman is an Environmental Scientist with a varied background in fisheries, wildlife, and aquatic invertebrate biology and stream and lake ecology. Jakes's expertise includes endangered species monitoring, lake limnology assessments, water chemistry profiles, off-channel habitat characterization, laboratory management, and terrestrial and aquatic amphibian identification with associated habitat assessments. Jake also has experience in fish population assessments, stream typing, spawning escapement, environmental disaster recovery, and amphibian toxicology research. Jake has over 10 years of experience at the federal and state level conducting ecological monitoring surveys throughout eastern and western Washington. He worked with the National Park Service to conduct environmental compliance monitoring on park construction projects, infrastructure maintenance projects, and federal highways projects. This position also included environmental spill response, fish exclusion surveys in support of construction, and effectiveness monitoring on Engineered Log Jam (ELJ) projects. Jake has worked with the Washington State Department of Fish and Wildlife (WDFW) to assess and inventory fish passage barriers and monitor culvert removal projects throughout Western Washington. While working for WDFW, Jake managed the daily operation for the intensive habitat study, on off-channel wetlands, for the Chehalis Aquatic Resources Protection Plan (ASRP).

Jake earned Bachelor's degrees in both Biology, with an Ecology specialization, and Geography, with a Natural Resource Management specialization, from Central Washington University. In addition, Jake also has a Minor in Environmental Studies and a Certificate in Geographic Information Systems (GIS) and Cartography form Central Washington University. Jake has received 40-hour wetland delineation training (Western Mtns, Valleys, & Coast and Arid West Regional Supplement), Jake has received training from the Washington State Department of Ecology in Environmental Negotiations; Navigating SEPA; Conducting Forage Fish Surveys; Puget Sound Coastal Processes, Shoreline Modifications, and Beach Restoration; Using the Marine Shoreline Design Guidelines for Marine Shoreline Stabilization; How to Determine the Ordinary High Water Mark; and Using the Revised Washington State Wetland Rating System (2014) in Western Washington.

Kyla Caddey

Environmental Scientist & Certified Ecologist
Professional Experience: 6 years

Kyla Caddey is an Environmental Scientist with a diverse background in riparian habitat restoration, stream and wetland ecology, wildlife ecology and conservation, and wildlife and natural resource assessments and monitoring. Kyla has advanced expertise in report preparation, grant writing, environmental education, data compilation and statistical analysis. Kyla has field experience performing in-depth studies in both the Pacific Northwest and Central American ecosystems. She currently performs wetland, stream, and shoreline delineations and fish and wildlife habitat assessments; conducts environmental code analysis; and prepares environmental assessment and mitigation reports, biological evaluations, and permit applications to support clients through the regulatory and planning process for various land use projects.

Kyla earned a Bachelor of Science degree in Environmental Science and Resource Management from the University of Washington, Seattle with a focus in Wildlife Conservation and a minor in Quantitative Science. Ms. Caddey is a Certified Ecologist through the Ecological Society of America. She has received 40-hour wetland delineation training (Western Mtns, Valleys, & Coast and Arid West Regional Supplement), is a Pierce County Qualified Wetland Specialist and Wildlife Biologist, and is a USFWS-approved Mazama pocket gopher survey biologist. Kyla has been formally trained through the Washington State Department of Ecology, Coastal Training Program, and the Washington Native Plant Society in winter twig and grass, sedge, and rush identification for Western WA; Using the Credit-Debit Method in Estimating Wetland Mitigation Needs; How to Determine the Ordinary High Water Mark; Using Field Indicators for Hydric Soils; How to Administer Development Permits in Washington Shorelines; Puget Sound Coastal Processes; and Forage Fish Survey Techniques. Additionally, she has received formal training in preparing WSDOT Biological Assessments.