City of Enumclaw

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HEARING EXAMINER STAFF REPORT
SUNTOP PUD DIVISIONS 4 AND 5- PRELIMINARY PLAT

PROJECT NUMBER: 16-314

To: Offices of Sharon Rice, City of Enumclaw Hearing Examiner

From: Dan Catron, Associate Planner

Subject: Staff Report for Suntop PUD, Divisions 4 and 5, Preliminary Plats

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I. SUMMARY OF REQUEST:

Description of Proposal: The applicants, Ken Krueger and Rykels Engineering Group on behalf of Mrs. Frances Holdener, are requesting preliminary plat approval of two portions of the Suntop PUD. The Suntop PUD was granted conditional approval by the City Council in November 2014 (Ordinances 2551 and 2552). The original approval included preliminary plat approval for 116 single-family lots, seven future development and two park tracts (Parcels A through I) on 105 acres. The PUD included environmental mitigation measures applicable to the entire 105 acre PUD property. The original Suntop PUD contemplated full buildout at 286 single-family dwellings, 80 low-density multifamily units, 140 high-density multifamily units, and 84,000 sq. ft. of commercial/retail space.

The Division 4 preliminary plat proposes to subdivide PUD Parcel I, consisting of approximately 19.2 acres, into 96 single-family residential lots. This property lies east of the area currently being developed as Suntop PUD Division 1. Proposed lot sizes range from 4,955 sf to 11,905 sf in size. Lot sizes around the north and east perimeter of this phase have been increased as required by Condition #8 of the July 30, 2014, MDNS.

The Division 5 preliminary plat proposes to subdivide PUD Parcels D and E, consisting of approximately 50.92 acres, into 79 single-family residential lots, plus approximately 15 acres (Parcels A and B) zoned for future commercial use, and 7.6 acres (Parcel C) reserved for development of up to 113 residential units. Parcel E was originally intended to be developed with 113 multi-family units, however proposed R4 zoning was not approved and the parcel was re-zoned for single-family residential. Parcel E is combined with Parcel D and is now proposed to be developed with a total of 79 single-family dwelling units. The combined plats (Divisions 4 and 5) propose a total of 175 residential lots.

The proposals include associated roadway improvements, a five-acre park, and a stormwater disposal system being constructed in conjunction with Division 1 of the Suntop PUD. The project is located immediately east of the Suntop Farms subdivisions, and on the north side of Warner

Avenue, east of Watson Street. The project site is: Division 4- King County Assessor's Parcel #302007-9111; Division 5- King County Assessor's Parcel #302007-9011.

II. GENERAL INFORMATION:

A. Application:	Master Permit #16-314, originally submitted on August 3, 2016, resubmitted on September 15, 2016, and deemed complete on September 29, 2016. *Attachment A, Application*.
B. Applicant:	Ken Krueger and Andy Rykels on behalf of Mrs. Frances Holdener
C. Section, Township/:	Portions of Section 25 and Section 30, Township 20 N, Range 6 E, Willamette Meridian.
D. Acreage:	69 Acres
E. Zoning:	Planned Unit Development (PUD) Highway Community Business (HCB)
F. Lots/Square Footage:	Division 4: 96 single-family detached residential lots. Sizes of the lots range from 4,955 to 11,905 square feet (sf). The average lot size is 6,725 sf, with a gross density of 5 dwelling units per acre. Division 5: 79 single-family detached residential lots plus 3 parcels reserved for future development, and 1 parcel reserved for a park site. Sizes of the lots range from 5,000 to 7,684 square feet (sf). The average lot size is 5,954 sf, with a gross density of 3.05 dwelling units per acre including the areas dedicated for storm drainage, wetland, and buffers, but excluding Parcels A, B, C, and F.
G. Proposed Use:	Single family residential lots, plus areas intended for future commercial development.
F. Water/Sewage/: Natural Gas	The subject property is served by the City of Enumclaw.
F. Power:	The subject property is served by Puget Sound Energy.
G. Fire District:	The subject property is served by King County Fire District #28.
H. School District:	The subject property is served by Enumclaw School District #216.
I. Staff Contact:	Dan Catron, Associate Planner Community Development Department (360) 615-5725

III. HISTORY / BACKGROUND:

The City established the current PUD provisions in 1992 with the adoption of Ordinance 1765. This ordinance included a basic "area plan" for the 151-acre Holdener and Feris properties. The

first two phases implementing the PUD zoning were titled Elk Meadows and Suntop Farms. The third phase is called the "Suntop PUD", and includes the area of the proposed Division 4 and 5 subdivisions. A 116-lot preliminary plat (plus 6 future development tracts, 1 park, and 1 stormwater tract) was approved on November 24, 2014 (Ordinance 2551, *Attachment S*). This plat is known as Division 1 of the Suntop PUD, is currently under construction, and has applied for Final Plat approval for a portion of the lots. Further phasing of Division 1 will follow. In conjunction with the adoption of Ordinance 2551, the City Council also adopted Ordinance 2552 (*Attachment T*) which rezoned portions of the 105-acre Suntop PUD property from *Planned Unit Development* (PUD) to *Highway and Community Business* (HCB), and **denied** a proposed rezone from *PUD* to *Multifamily* (R4). The current plats are Divisions 4 and 5 of the Suntop PUD.

The proposed Divisions 4 and 5 were outlined in the 2014 PUD approval. The MDNS issued for the PUD identifies full build-out as 286 single-family dwellings, 80 low-density multi-family dwellings, 140 high-density multi-family dwellings (total 506 dwelling units), and approximately 84,000 sq. ft. of retail space. Divisions 4 and 5 are located immediately adjacent to the Suntop PUD, Division 1 project, and would utilize combined neighborhood park facilities. The stormwater system for the Division 4 plat would be integrated with the Division 1 plat. Division 5 would utilize a separate storm-drain pond.

IV. ENVIRONMENTAL DETERMINATION:

After reviewing an updated environmental checklist and traffic impact analysis, the Environmental Official issued an addendum to the July 30, 2014, Mitigated Determination of Non-Significance (MDNS) issued for the PUD. The Environmental Official then adopted the MDNS and Addendum on October 31, 2016, as addressing the probable environmental impacts of the Division 4 and 5 subdivisions. *Attachment H- Mitigated Determination of Non-Significance*.

Primary environmental issues identified in the MDNS include potential impacts to traffic circulation, potential salmon habitat, wetlands, stormwater drainage, schools, parks, and fire protection services. Mitigation measures are specified to mitigate potential impacts including physical buffers, construction of a stormwater detention system, and payment of fees to mitigate incremental impacts to public services and facilities.

V. PUBLIC NOTICE:

A Notice of Application/Public Hearing was mailed to interested parties and property owners within 300 feet of the exterior boundaries of the site, published in the *Enumclaw Courier-Herald*, posted on the site, and posted on the City's website on November 9, 2016, pursuant to EMC 15.30.030 *Provisions Relevant to All Permits – Method of Publication*. The Notice of Application noted the addendum and adoption of the MDNS issued for the Suntop PUD on July 30, 2014. *Attachment G- Notice of Application.*

VI. AGENCIES CONTACTED:

Agencies were notified of the preliminary plat application via the Notice of Application/ SEPA adoption process on October 31, 2016. No agency comments have been received.

VII. NATURAL ENVIRONMENT:

Site Location and Description: The subject property consists of vacant pasture land. The site is rectangular in shape and mostly flat. The soils on the project site are designated Buckley loam, Shalcar Muck, and Sultan silt loam. These soils are generally poorly drained with low permeability.

Critical areas on the site include a 2-acre wetland (Wetland A) located in the northwest quadrant of Division 5. A fifty-foot buffer has been provided around the wetland, and the proposed storm drain pond will be constructed adjacent to the wetland. In addition, a 75-foot buffer is proposed on either side of "Ditch A" which conveys runoff from a spring on the site and forms the headwater of Clear Creek north of Highway 410.

VIII. NEIGHBORHOOD CHARACTERISTICS:

Surrounding Zoning: The full PUD site borders on and is located south of SR 410/Roosevelt Ave East, and borders and is located north of Warner Avenue. Zoning north of SR 410/Roosevelt Ave E is *Light Industrial*, but the land is largely precluded from development by agricultural preserve contracts with King County. Properties to the northeast and northwest are zoned *Highway and Community Business* and are developed with commercial uses. The northeast side of the property is adjacent to single-family residential properties located in unincorporated county. These properties are mostly developed, and are zoned *Urban Reserve* by King County. Properties to the southeast are also zoned *Urban Reserve* but are undeveloped. The properties zoned *Urban Reserve* are expected to be annexed into the City in the future and would most likely be zoned R-2 which has a minimum lot size of 8.400 SF. Properties to the south of Warner Avenue are outside of the City boundary and Urban Growth Area (UGA), and are zoned *Agriculture* by King County.

Neighborhood Characteristics and Adjacent Land Use: There are commercial buildings and uses to the northwest and northeast of the site closest to SR 410. To the west of Division 5 there are existing apartments, and areas to the southwest are developed or being developed with single family homes in the PUD areas of Elk Meadows and Suntop Divisions 1 & 2. To the east and south east are single family homes and vacant pasture land that are outside of City limits but within the City's urban growth area. Properties south of the property across Warner Avenue and beyond are pasture areas outside of the City limits and UGA in unincorporated King County. Existing land uses, zoning and lot sizes for the subject and adjacent properties are as follows:

Current Zoning and Land Use:

Location	***Land Use***	***Zoning***
Subject Parcels	vacant agriculture	PUD
North	Agriculture, Light Industrial, Commercial	LI, HCB
East	Single Family Residential, vacant	Urban Reserve (King Co. zoning)
South	Agriculture, SFR	A-35 (King Co. zoning)
West	SFR	PUD (Elk Meadows and Suntop Farms)

IX. SUBDIVISION DESIGN FEATURES AND PUD ZONE REQUIREMENTS:

The PUD zone allows a variety of uses and requires adoption of property specific development standards including density, dimensions, height and architectural design. It includes the following overall goals and intent (EMC 18.34.040):

- *Encourage commercial and office uses that serve the surrounding neighborhood and provide employment opportunities without negatively impacting the viability of the downtown area.*
- *Limit and discourage development of strip-type, highway-oriented commercial uses that create traffic and congestion because they require numerous individual curb cuts and generate higher traffic volumes.*
- *Permit uses that promote small scale buildings in a manner that maintains the visual character and architectural scale of existing development within the area.*
- *Minimize visual and functional conflicts between residential and non-residential uses within and abutting the district;*
- *Encourage consolidation of curb cuts for vehicular access and promote more efficient and economical parking facilities*
- *Encourage uses that minimize noise and congestion*
- *Encourage safe and convenient pedestrian/bicycle access*
- *Retain view corridors to Mount Rainier and Mount Peak when appropriate*

The applicant proposes to create 175 single family residential lots plus four (4) future development and park tracts (Parcels A, B, C, and F). The 175 single family lots range in size from 5,000 SF to 11,900 SF in Division 4, and 5,000 SF to 8,000 SF in Division 5; with an average lot size of 6,725 SF in Division 4 and 5,954 SF in Division 5. The future development tracts will require subsequent permit approvals and additional stormwater review prior to development, including subdivision permits if applicable.

The proposed subdivision and development standards contained in the Suntop PUD Residential Design Guidelines, dated August 2014, were reviewed and approved by the City's Design Review Board on September 4, 2014, and found to be consistent with the intent and requirements of the PUD zone. The PUD zone limits the maximum impervious surface on individual lots to 80%, maximum building coverage to 50% and requires a minimum pervious surface of 20%.

The applicant has asked that a requirement of the Design Guidelines that "corner lots shall be a minimum of 8' wider than the adjacent interior lot" be waived for Lots 12, 22, 57, 58, 65, and 66 of Division 4. The applicant notes that the intent was to have corner lots in the 50 foot wide lot blocks provided with an extra 8 feet in width to accommodate a 13' side yard setback. The applicant notes that the cited lots are 65 and 75 feet in width and meet the intent of the design guidelines. Staff has no objection to waiving the requirement for additional width for these specified lots.

The PUD proposes one large stormwater detention pond to collect, treat and discharge stormwater runoff from all new impervious surfaces on the south half of the site. Stormwater on future development tracts on the north half of the site will be handled individually on each parcel consistent with the requirements of the applicable Stormwater Management Manual in

place at the time of application. A separate stormwater system and detention pond is proposed for Division 5.

All street improvements required pursuant to Enumclaw Municipal Code will be required of this subdivision. Street improvements will include curb, gutters and sidewalks, and planter strips with approved street trees. Street lighting and signage pursuant to the Manual on Uniform Traffic Control Devices (MUTCD) will also be required per City Code. Street sections that vary from City standard may be proposed with the PUD application as allowed by EMC 18.34.040.C.6. In order to reduce storm water runoff, stabilize soil, improve property values, and enhance the general aesthetics and welfare of the community, street trees and ground cover will be required in planting strips per EMC 12.21 *Street Trees*.

Both preliminary plats are adjacent to the City boundary. Adjacent developed properties within the urban growth boundary are single family homes on larger lots. Per the approval of the PUD (Condition #8 of the 7/30/14 MDNS), lots adjacent to the city boundary should have a minimum size of 8,400 square feet to create a transition to the adjacent residential areas with larger lots.

Per the requirements of EMC 18.34 *Planned Unit Development* and EMC 17.12 *Subdivisions*, the project is subject to the following development standards:

Item	***Standard***
Minimum Lot Size:	5,000 sq. ft.. Minimum 8,400 sq.ft. required adjacent to City boundary.
Lot size distribution	Bungalow (5,000- 5,999 s.f) max 44% of lots Village (6,000- 6,999 s.f) min 40% of lots Estate (> 7,000 s.f.) min 16% of lots
Maximum Building Height:	30 feet / 2 stories
Minimum Front Yard Setback:	20 feet; Porch or stoop: 15 feet; Garage: 23 feet
Minimum Side Yard Setback:	< 60' frontage: Five (5) feet each side > 60' frontage: 15' total, 10' one side
Minimum Rear Yard Setback:	20 feet
Minimum Lot Width:	50 feet; Corner lots at least 8 feet wider
Maximum Building Coverage:	50%
Maximum Impervious Coverage	80%
Minimum Pervious Surface	20%

X. TRANSPORTATION PLANS

The area street network serving the proposed Suntop development consists of Watson Street on the west side, Roosevelt Avenue/ Highway 410 on the north, 284th Avenue (Farman Street) on the east, and 456th Street (Warner Avenue) on the south. The PUD also proposes a Type 5-Residential Collector street (Suntop Blvd.) to run north-south between Highway 410 and SE 456th Street, near the center of the PUD site. The proposed project is expected to have a mild impact to traffic delays in the local area over the next six-year period.

The Street Design Standard for the local access roads within the plat are proposed to be a Type 7 - Local Two Lane within a 45' wide right-of-way street with a 26' wide paved section with 4'

wide sidewalks and 5' wide planter strips on both sides. Cooper Lane, because it is a through street, is proposed to be developed as a Type 6 Local Street with a 32' paved section, 3.5' planter strip, and 5' concrete sidewalks on both sides. Suntop Boulevard will run north-south through the site and is proposed to be a Type 5 Residential Collector with a 65' right-of-way, 32' face-of-curb (F/C) centered street, 8.5' planter strip, and 5' sidewalk widths throughout.

The applicant's traffic study addendum (Heath and Associates Trip Generation Comparison memo dated October 6, 2016, *Attachment M*) contemplates a total of 293 single family dwelling units, 113 Multi-family units, and 84,000 sq. ft. of commercial space. Expected traffic generated from the project is estimated at 7,127 new average daily vehicle trips with peak volumes occurring during the AM (359 new trips) and PM (675 new trips). The traffic study concluded that the incremental impacts stemming from development of the Division 4 and 5 plats would be adequately mitigated by the payment of traffic impact fees as required by EMC 19.24.070. The City of Enumclaw currently collects a transportation fee of $2,937 per single family unit at the time of building permit issuance. The development will be required to pay impact fees based on the fees in effect at the time of building permit application.

XI. PUBLIC SERVICES

Parks and Recreation Space: In order to mitigate the impact new development creates on parks and recreation facilities, the City requires subdivisions to dedicate land or pay into an environmental impact mitigation fund dedicated to purchasing or improving park and recreational facilities. This requirement is established as a condition of preliminary plat approval. The base formula by which to calculate fees is 2.0 x (no. of units) x 2.52 person per household / 1,000 = acres, per EMC 17.16.050(C)- *Environmental Impact Mitigation Fees Established.* Applying the formula to the total Suntop PUD development (506 units) yields a sum of 2.55 acres of required park land. The applicant is proposing 5.10 acres of park and recreation space, plus a multi-use pathway along Warner Avenue- above the minimum dedication requirement.

At the time of building permit application, a Parks Impact Fee will also be assessed on each single family home to help offset the cost of providing City parks. EMC 19.24.080 *Park Impact Fee Component Formula* currently requires a park impact fee of $1,209 per single family dwelling unit. Impact fees are collected at the time of building permit issuance. The impact fee due for each lot will be the fee in effect at the time a complete building permit is submitted for the lot.

Because the developer is providing parks and open space areas in excess of what would normally be required within the municipal code, the applicant can submit for an impact fee credit against their park impacts fee pursuant to EMC section 19.24.130.

Fire Protection: The subject property is served by King County Fire District #28. In their letter of received November 22, 2016, (*Attachment O- Letter from Enumclaw Fire Department*) the District requested mitigation fees of $2,383.13 per dwelling unit to address impacts of the project on Fire District services.

Schools: The subject property is served by the Enumclaw School District #216. There is currently available permanent capacity at the Elementary, Middle, and High School levels, however the District expects capacity levels to enter a capacity deficit by 2021 as other

developments are constructed within the school district. In December 2015, the applicant and the School District approved and recorded a mitigation agreement that will mitigate impacts to the school district from the PUD development. The agreement provides for a payment of $1,097 per unit due at the time of building permit issuance. Staff notes, however, that the mitigation fee amount should change if/when the City adopts a formal impact fee ordinance.

XII. UTILITIES:

Stormwater: A stormwater drainage collection system will be installed for the development and roadway drainage. The proposed development must comply with the Department of Ecology 2012 Stormwater Management Manual for Western Washington. A consolidated drainage plan for the full Suntop PUD development has been reviewed and approved by the City Engineer.

Water: Water utility service will be supplied by the City of Enumclaw. There is sufficient water supply available in the City's system to serve the two proposed plats. Service laterals will need to be stubbed out to the individual lots created by the subdivisions. *Attachment Q*.

Sanitary Sewer: Sanitary sewer utility service will be supplied by the City of Enumclaw. There is sufficient sewer conveyance and treatment capacity in the City's sewer system to serve the two proposed plats. Service laterals will need to be stubbed out to the individual lots created by the subdivision. *Attachment R.*

Other Utilities: All pipe and wire utility service connections shall be underground; no new poles or overhead wires are allowed.

Natural gas service will be supplied by the City of Enumclaw. Gas utility lines will be installed in a joint trench along with phone, electric, and cable, with service laterals provided to each lot.

Residential fire sprinkler systems, if used, must be separate from the domestic water service (flow through systems are not allowed). A separate meter will be required in addition to the water service meter and a separate water line run from the fire system meter to the structure.

XIII. COMPREHENSIVE PLAN:

The Comprehensive Plan designation for the subject property is *Planned Unit Development*. The PUD designation is implemented by the PUD zone, or alternatively, "by a combination of the *Highway and Community Business* (HCB), *Neighborhood Business* (NB), and Residential R-4, R-3, and R-2 zones that achieve the goal of a walkable mixed use neighborhood consisting of residential, commercial, office and open space uses." (Enumclaw Comprehensive Plan, p.27). The proposed plats are required to be consistent with the terms of the Suntop PUD as set forth in Ordinance 2551.

XIV. PUBLIC CONCERNS:

No public comments have been received in response to the Notice of Application.

XV. STATUTES / CODES:

Subdivision Review Criteria: In reviewing a preliminary plat application, Enumclaw Municipal Code (EMC) Section 17.12.070 *Subdivisions – Additional Criteria* indicates that the Hearing Examiner consider eight factors (if applicable to the site) when making its recommendation to City Council, and that the City Council shall consider the same factors in making their decision to approve, approve with conditions, or disapprove the proposal.

These eight factors (A-H) include:

A. Public Use and Interest. The Hearing Examiner and City Council shall inquire into the public use and interest proposed to be served by the establishment of the subdivision. Appropriate provisions shall be made for, but not limited to, public health, safety and general welfare and for such open space, drainage-ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary waste, parks and recreation, playgrounds, schools and school grounds, and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school, and shall consider all relevant facts to determine whether the public use and interest will be served by the subdivision and dedication. If the plat provides for the above-mentioned, and conforms to all these development regulations (EMC Titles 15 through19), then it shall be approved.

As proposed, the plat is consistent with the above listed criteria. Water and sewer certificates of availability have been issued, and all utilities are physically available to the proposed subdivisions. The developer will provide street, sewer and stormwater infrastructure, and open space as required by the City. Pedestrian routes to schools are provided via sidewalks and paved pathways along Warner Avenue and Semanski Streets from the project site to Southwood and Sunrise Elementary Schools, Enumclaw Middle School, and Enumclaw High School. The proposed plat helps the City meet the requirements of the Growth Management Act by encouraging compact urban growth within the City Limits.

B. Storm Waters and Flood Control. The Hearing Examiner and City Council shall consider the physical characteristics of a proposed subdivision site, and may disapprove a proposed plat because of flood inundation or swamp conditions.

The subject property is a relatively flat parcel surrounded by similar properties that have been used for pasture. A master stormwater treatment and disposal plan has been developed for the entire PUD. The applicant has provided a revised storm drainage analysis which shows that the ponds (as constructed) will have adequate capacity to handle all phases of the Suntop PUD. A temporary erosion control plan utilizing best management practices shall be submitted for review and approval by the City Engineer, and implemented prior to commencement of excavation, grading or filling.

C. Natural Element Retention. Due regard shall be shown for preservation of outstanding natural or cultural features such as scenic spots, watercourses, historic sites, etc.

This site contains drainage ditches historically used for drainage of the area. The ditches provide potential habitat resources for critical salmonid species, however there is no upstream

habitat for spawning. The Suntop PUD approval set forth specific management recommendations for these ditches, including buffers to be planted with native vegetation.

The Suntop PUD site also contains three (3) identified wetland areas. Buffers and management recommendations for the wetlands were established by Ordinance 2551. The proposed Division 4 and 5 plats include the buffers required by the original PUD approval.

The Department of Archeology and Historic Preservation has noted that the site presents no special characteristics that might indicate an elevated liklihood of encountering archeological artifacts. A condition of approval is recommended that, if archeological artifacts are encountered during construction, would direct the developer to immediately halt work and consult with the Washington Department of Archeology and Historic Preservation.

D. Hazardous Geologic Conditions. In areas with slopes equal to or greater than 15 percent, a detailed soils engineering report will be required prior to the approval of any preliminary plat. Special consideration for grading, fills or excavations shall be made by the Hearing Examiner and shall be in accordance with the Uniform Building Code.

There are no slopes equal to or greater than 15% on this site.

E. Tree Cutting Plan. Landscaping, planting or tree cutting plans shall be prepared by landscape architect and submitted to the administrator prior to the approval on slopes 15 percent or steeper. In addition, tree cutting plans shall be required for developments in which trees over six inches in caliper are to be cut.

The only trees on the site are within the proposed park area. Park development plans have been submitted showing tree removal and retention. 2 trees are proposed to be removed and 11 trees are proposed to be retained. No tree removal plan has been requested.

F. Water Retention Basins. The use of water retention basins to minimize surface runoff or erosion damage potential may be required.

The proposed development is required to comply with the 2012 Storm Water Management Manual for Western Washington, and best management practices for temporary erosion control will be utilized during grading and construction. The completed project will incorporate stormwater retention basins constructed as part of the Suntop PUD development.

G. Land Adjacent to Public Waters. When subdivisions are proposed in a shoreline area, open space may be provided to and along the water's edge with provision for access from a public right-of-way or other adjoining public land, if necessary to mitigate adverse impacts caused by the subdivision.

This site is not located near or adjacent to a shoreline (lake, stream, etc.) area or a public water body.

H. School and Park Sites. Where a proposed school or park site lies within a proposed subdivision as indicated in the comprehensive plan, or other plans or policies, the site may be required to be reserved or dedicated by the subdivider.

No proposed school or park sites lie within the proposed subdivision as indicated in the comprehensive plan.

Additional criteria for review: Subdivisions within the City of Enumclaw are subject to the requirements set forth in EMC Title 17 *Subdivisions,* which sets general provisions, application, preliminary and final plat requirements, design principles and development standards. Developments within the *PUD* zoning district are subject to the development standards and use restrictions set forth in the PUD approval.

XVI. FINDINGS OF FACT AND CONCLUSIONS:

Staff recommends the Hearing Examiner adopt following Findings of Fact and Conclusions:

Findings of Fact:

1. Preliminary Plat Application #16-314 proposes two subdivisions: Suntop PUD Division 4 proposes to subdivide 19.2 acres into 96 single-family residential lots; Division 5 proposes to divide 50.92 acres, into 79 single-family residential lots, plus approximately 15 acres (Parcels A and B) zoned for future commercial use, and 7.6 acres (Parcel C) reserved for future development of up to 113 residential units. The project site is located immediately east of the ongoing development of the Elk Meadows and Suntop Farms subdivisions, along the north side of SE 456th Street (Warner Avenue) between Cooper Lane and 284th Avenue SE. The site is King County Assessor's Parcel #s 302007-9111 and 302007-9011.

2. The project site is designated *Planned Unit Development* on the City's Comprehensive Plan Land Use Map, and is within the *Planned Unit Development* (PUD) zoning district.

3. Proposed lot sizes range from 5,000 to 11,905 sq. ft. Proposed gross project density is 5 dwelling units per acre for Division 4, and 3.05 dwelling units per acre for Division 5.

4. Surrounding zoning and land uses include:
   East- *Urban Reserve* (UR) zoning (King County); Single-family residential development and vacant.
   South- *Agriculture* (A35) zoning (King County); undeveloped pasture land
   West- *Planned Unit Development* (PUD) zoning; Elk Meadows and Suntop Farms subdivisions
   North- *Highway Community Business* (HCB) zoning; existing commercial development

5. A Notice of Application/ Notice of Hearing was issued on November 9, 2016, pursuant to EMC 15.30.030 and RCW 36.70B.110, for a hearing before the City of Enumclaw Hearing Examiner on December 1, 2016.

6. Environmental review under the State Environmental Policy Act (SEPA) was performed and a Mitigated Determination of Non-Significance was issued for the Suntop PUD on July 30, 2014. An addendum was issued on October 31, 2016, identifying specific traffic impacts from the proposed subdivisions. The MDNS for the Suntop PUD was adopted on October 31, 2016, as adequately identifying the potential environmental impacts of the proposed subdivisions. The SEPA review noted potential impacts with regard to traffic, park services, fire protection services, school facilities, wetlands, and wildlife habitat. Mitigation measures including buffers and impact fees are included as recommended conditions of approval.

7. Single Family Residential development is a primary permitted use in the PUD zoning district.

8. Wetlands and potential fish and wildlife habitat are found on the Division 5 site. Mitigation is provided in the form of resource avoidance and the provision of buffers.

9. The applicant, Frances Holdener, has entered into an agreement with the Enumclaw School District dated December 22, 2015, (King County Recorder's # 20151229000356) whereby it is agreed that the developer will pay money to the School District to mitigate for impacts that the proposed development will have on school district operations. The agreement cites a payment of $1,097 for each new single-family building lot.

Conclusions:

Based on the above findings of fact, Staff suggests that the following conclusions can be made:

A. The proposed residential subdivision is an allowed use, and the proposed lot sizes and density comply with the development standards of the PUD zone.

B. The proposed project, as conditioned, will not result in any significant impact on the environment.

C. Appropriate provisions are made in the subdivision for, but not limited to, public health, safety and general welfare and for such open space, drainageways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary waste, parks and recreation, playgrounds, schools and school grounds, and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school.

D. The public use and interest will be served by the proposed subdivision and associated dedications.

E. The request furthers the City's Land Use goals to encourage compact development of vacant or underutilized land to limit pressure for expanding the city's boundaries and maximize use of vacant or underutilized space within the city limits. The request furthers the City's Housing goal to ensure that housing is compatible in size and quality, design and intensity with surrounding land uses, traffic patterns, public facilities and environmentally sensitive features through specific site and building design measures.

XVII. RECOMMENDATION:

Based on the submitted materials, the City recommends that the Hearing Examiner hold the public hearing, review the information, prepare written findings and conclusions, and make a recommendation to the Enumclaw City Council for the approval of Preliminary Plat #16314, Suntop PUD Divisions 4 and 5, subject to the following conditions:

1) All applicable mitigation measures specified in the MDNS, issued July 30, 2014, as supplemented by the Addendum dated October 31, 2016, shall be met.

2) Prior to approval and recording of the final map for the subdivision, all streets, drainage systems, utilities, and other required improvements shall be installed. All work shall be completed in accordance with site development permits issued by the City.

3) All utility lines including gas, phone, electric, and cable shall be installed in a joint trench within the street rights-of-way. Service laterals shall be provided to each lot.

4) Water and sewer service shall be provided for the subdivision. Service laterals shall be provided to each lot.

5) Prior to Final Plat approval, the recording number of the applicant's agreement with the Enumclaw School District shall be shown on the face of the plat; provided, however, that if the City adopts school impact fees by ordinance prior to the issuance of building permits for the project, the mitigation amounts provided for in the ordinance shall control.

6) Prior to the issuance of building permits for any new residence in the subdivision, the applicant shall pay a King County Fire District #28 mitigation fee in the amount of $2,383.13 per dwelling unit as noted in the letter from the District dated November 22, 2016. A note to this effect shall be placed on the face of the final plat.

7) Prior to the issuance of building permits for any new residence in the subdivision, the applicant shall pay a Parks Impact Fee pursuant to EMC 19.24.080. The impact fee due for each lot will be the fee in effect at the time a complete building permit is submitted for the lot. However, prior to Final Plat approval the applicant may apply to City Council for a credit against impact fees for providing neighborhood park land area above and beyond the minimum requirements per EMC 19.24.130.

8) Prior to the issuance of building permits for any new residence in the subdivision, the applicant shall pay a Transportation Impact Fee pursuant to EMC 19.24.070. The impact fee due for each lot will be the fee in effect at the time a complete building permit is submitted for the lot. A note to this effect shall be placed on the face of the final plat.

9) During grading and site development, if artifacts or other resources of possible archeological, cultural, or historic significance are encountered, work shall be immediately halted within the area and a large enough perimeter established in order to maintain the integrity of the site. The City, the State Archeological and Historic Preservation Office (DAHP) and the Muckleshoot Tribe, as relevant, shall be immediately consulted. If cultural artifacts are, in fact, found to be present on the site, the developer shall work with DAHP and the Muckleshoot Tribe to develop an

appropriate resource protection plan. A note to this effect shall be placed on the face of the final plat.

10) All development on Divisions 4 and 5 shall be in conformance with the Design Guidelines approved by the City's Design Review Board on September 4, 2014.

11) Prior to Final Plat Approval, a detailed landscaping, planting, and street tree plan shall be submitted for review and approval (EMC 17.12.070), and shall be consistent with EMC Chapter 19.08 *Landscaping regulations*.

12) Prior to or concurrent with Final plat approval, all on-site streams, wetlands and buffers shall be permanently protected in critical area management tracts protected by easement in perpetuity. The management tracts will be owned by the City and maintained by the Suntop PUD Homeowners Association. The boundaries shall be marked during construction to prevent disturbance per EMC 19.02.210.C and permanently marked per EMC 19.02.21.D prior to Final Plat approval. Signage shall be shown on final landscape plans submitted with plat construction plans.

13) The 90 foot crossing of Ditch A by Suntop Boulevard shall be accomplished by a new bottomless culvert designed to avoid direct impacts to the existing channel and shall meet WDFW fish passage requirements.

14) A Hydraulic Permit Approval (HPA) and, if necessary, Section 404 permit shall be required prior to any work below the ordinary high water mark of any stream, specifically Ditch "A" or the SR 410 Ditch.

15) Building setbacks of 15 feet from the edge of buffers shall be shown on the face of the final plat as required by EMC 19.02.220.B.1.

16) Prior to Final Plat approval, both Phase 1 and Phase 2 park and recreation space areas (in the amount of 5.10 acres) shall be constructed in accordance with approved plans and dedicated to the City with the Final Plat Approval. Detailed construction drawings shall be submitted with the final plat construction drawings. The applicant may provide bonds or cash security for construction of the park prior to final plat.

17) A foundation soils report by a licensed Washington State geotechnical engineer will be required at the time of building permit submittal. The report shall address groundwater conditions.

18) Unless otherwise allowed under a development agreement approved by the City Council, development of any one of Parcels A, B, C, D and E shall only be allowed if Suntop Boulevard north of Division 1 and the intersection with SR 410 are constructed concurrent with the parcel(s) development. . This should be a plat condition specific to Parcels A-E shown on the face of the plat. Additional right-of-way shall be dedicated if required from Parcels A and B to accommodate the final design of Suntop Boulevard/SR410 roundabout intersection called for in the City's adopted Comprehensive Plan and SR410 Channelization Plan. Half street improvements to Roosevelt Avenue East shall be constructed at the time of and as part of the development of Parcels A and B.

PREPARED BY:

Dan Catron, Associate Planner

ATTACHMENTS:

A. Application received August 3, 2016
B. Project Narrative dated July 2016
C. Suntop PUD- Original Project Narrative dated October 2013
D. Staff Review comments dated August 30, 2016
E. Applicant Responses to Review Comments dated September 15, 2016
F. Revised Preliminary Plat Map(s) received September 15, 2016
G. Notice of Application/ Public Hearing issued November 9, 2016
H. SEPA Determination of Non-Significance for the original PUD issued July 30, 2014
I. Revised SEPA Initial Study Checklist received August 3, 2016
J. SEPA Addendum dated October 31, 2016
K. SEPA Adoption of Existing Environmental Document dated October 31, 2016
L. Original Transportation Impact Analysis, Heath & Associates (October 2013)
M. Trip Generation Comparison, Heath and Associates, dated October 6, 2016
N. Critical Areas Analysis- Fisheries dated January 17, 2014
O. Critical Areas Analysis- Wetlands dated October 3, 2013
P. Comments from Enumclaw City Engineer dated November 23, 2016
Q. Certificate of Water Availability
R. Certificate of Sewer Availability
S. Ordinance No. 2551
T. Ordinance No. 2552
U. Enumclaw School District Mitigation Agreement dated December 22, 2015
V. Lot Line Adjustment #15-01
W. Plat Certificate and map
X. Letter from Enumclaw Fire Department received November 22, 2016

ORIGINAL

City of Enumclaw

COMMUNITY DEVELOPMENT
1309 Myrtle Avenue
Enumclaw, WA 98022
360-825-3593 FAX 360-825-7232

APPLICATION # 16-314

PRELIMINARY PLAT APPLICATION (6/08/09)

(Note: a plat is a division of land into five or more lots)

Staff use only: completeness checklist

PLAT NAME: SUNTOP PUD DIVISIONS 4 and 5

	Name	Mailing Address	Phone	FAX
Property Owner	FRANCES HOLDEN	360-825-4415		
	1009 WARNER AVE	ENUMCLAW 98022		
Surveyor or Engineer	RVKELS ENGINEERING		253-951-4217	
	3207 NW FAIRWAY HTS DRIVE	BEND OR 97701		

Acreage of original tract to be subdivided: 42.95 (DIV 4 19.21, DIV 5 23.74)

Number of proposed lots: 177 (96 DIV 4 + 81 DIV 5)

Proposed method of sewage disposal: CITY

Proposed source of water supply: CITY

Parcel number (APN): 302007-9111 Zoning: PUD
302007-9011

Please attach: $3800 + (177 \times 50/\text{unit}) \; 8850 + \$350 = \$13,000$

1) Filing fee of $3800; plus $50 per lot; plus public notification fees; plus $350 for environmental checklist. (The City Engineer may require an additional hourly review fee. Also be advised that the City charges impact fees for school, transportation, and other facilities at time of building permit issuance.)

2) A preliminary plat map (or set of maps), 18" x 24" with a 3" border on the left side, sealed by a professional land surveyor licensed in the State of Washington, with sufficient bearings, lengths, ties to sectional controls, and similar data to determine location on the ground. The map(s) must cover the plat itself and the surrounding 100 feet, and must include:

a) Vicinity map.
b) Date, scale of 1"=50' or 100', name of plat, and north arrow.
c) Existing and proposed streets, alleys, lots, easements, section and city limit lines, and lands to be dedicated to the public or the community.
d) The purpose and conditions of any proposed public or community dedications of land.
e) Street names and acreage of proposed public rights-of-way.
f) Proposed profiles and grades of each proposed street.
g) Adjoining lots with assessor's parcel number, owner's name, and instrument or deed number.

PW Rec 8159 8-3-16
00337579

h) Existing and proposed underground facilities (including sewer, water, and gas lines) and drainage facilities.
i) Existing contours (shown solid) and proposed contours (shown dotted) at intervals of five feet, National Geodetic Vertical Datum of 1929.
j) Consecutive lot numbers and square footage of all lots.
k) Plans of proposed utility extensions and improvements, if applicable.
l) A plan indicating trees over six inches in diameter, if any, and whether they will be cut.
m) Legal description.
n) Existing structures.
o) Location of any critical areas, such as wetlands or slopes in excess of 15 percent.
p) Location of frequently flooded areas, if any.
q) Outstanding natural or cultural features, such as scenic spots, historic sites, ravines, or watercourses.
r) Other features that would affect the building potential of the proposed lots.
s) Land surveyor's certification per RCW 58.17.250.
t) (If the subdivision is located at the juncture of any two Zone Groups as defined in EMC 19.08.050): A landscape plan drawn to scale by a licensed architect or landscape architect showing the buffer required by EMC 19.08.050, and the amount, type, and location of all proposed plant materials and irrigation plans, if any.

3) Copies of documents establishing any existing easements. SEE TITLE ✓

4) Computerized evidence of closure of all proposed lots and streets. TBD

5) Current title report. ✓

6) Copy of proposed protective covenants, if applicable. ✓

7) Environmental checklist. ✓

8) Number of copies: 5 copies of the application and all attachments, plus one reproducible 8-1/2x11-inch or 11x17-inch version of the plat map.

I certify that:
1. The information in this application and attachments thereto is true and correct to the best of my knowledge.
2. I have an ownership interest in the land to be platted.
3. My ownership interest is (circle one) owner / contract purchaser / option purchaser.
4. I am authorized to file this application on behalf of all other persons with ownership interest.
5. I authorize the City to place one or more large signs saying "NOTICE OF LAND USE ACTION" on the subject property.

Frances M. Haldeman — 8-3-16
Signature of property owner — date

Laurel N. Kuja — 8-1-2016
Signature of Agent if different than owner — date

This application form was updated on 6/8/09. To verify whether it is still current, call (360) 825-3593.

Project Narrative
Suntop PUD Divisions 4 and 5
July 2016

This application is for the preliminary plat approval of Suntop PUD Divisions 4 and 5. The Suntop PUD Master Plan Preliminary Plat was approved in by the City of Enumclaw in 2014. That approval provided for the subdivision of Suntop Farm into 116 single family lots 7 parcels for future development and a future public park. This application is for the preliminary platting of Parcel H into 96 single family lots and Parcels D & E into 81 single family lots.

SUNTOP DIVISION 4 – 96 lots
Division 4 includes the land east of Suntop PUD Division 1 (now to be called Suntop Division 3). The original site plan has been revised to provide for 8,400 sf lots along the east and north boundaries as agreed in mitigation conditions of the original approval. The original layout provided for a standard 100 foot deep lot. We have modified the street layout to make the 8,400 sf perimeter lots deeper. This parcel included 110 lots in the original plan, 96 in the revised plan for a net reduction of 14 units.

SUNTOP DIVISION 5 – 81 lots
Division 5 includes Suntop PUD parcels "D and E". The connection of Suntop Drive to SR 410 will be a requirement of this phase as will dedication and construction of a portion of the remainder of Martin Holdener Park. This phase will include a detention pond in the north west corner of the site and will drain into Drainage District 5 "Ditch A". The maintenance road surrounding the detention pond encroaches slightly into the prescribed buffers for which we have provided extra buffer depth in other areas adjacent to the minimum buffers to provide compensation i.e. buffer averaging.

The original proposal included 60 sf detached lots on Parcel D and 113 mf units on Parcel E for a total of 173 units. Parcel E was changed from multi-family to single family detached during the approval process for the PUD in response to comments received from the adjacent Suntop 1 neighborhood. The revised plan reflects a net reduction of 92 units on these two parcels.

Overall the number of units has been reduced by 14 lots in Division 4 and 92 units in Division 5 or a total of 106 units.

LOT SIZE GRADATION MATRIX
In order to provide for a mix of housing sizes and types within the project it was agreed in the master plan approval that there would be a variation of lot size. The gradation provided for the following breakdown: no more than 44% < 6,000 sf, 40% 6,000 to 7,000 sf and no less than 16% > 7,000 sf. The proposed plan includes 78 lots of less than 6,000 sf, 63 lots between 6,000 to 7,000sf and 36 lots greater that 7,000 sf as shown in the following table:

	Division 4	Division 5	Total	Percentage
<6,000 sf	30	48	78	44%
6,000to 7,000 sf	35	28	63	36%
>7,000 sf	31	5	36	20%
TOTAL	96	81	177	100%

SEPA CHECKLIST

The SEPA checklist submitted for the overall project has been edited to reflect the revised proposal as discussed in our presubmittal meetings. In general, the number of units has been substantially reduced thereby reducing traffic impacts and impervious area. There were no wetlands or sensitive areas within Division 4. There are wetlands and sensitive areas within proposed Division 5 that were identified in studies completed for the project and they will be considered accordance with city ordinance. In general, Wetland A, located within Parcel E is to have 50 foot buffers and Ditches A and B which abut all parcels within the north end of Suntop PUD shall have 75 foot buffers.

CHANGE IN UNIT COUNT

Original Unit Count:	Revised Unit Count:
Division 1 (now Div 3) – 116 units	Division 3 SFD – 116 units
Division 2 (now Div 4) – 110 units	Division 4 SFD – 96 units
Parcel C – R4 MF – 113 units max	PUD zoning - # Units TBD 113 max
Parcel D – PUD SFD – 60 units max	Division 5 SFD - 81
Parcel E – R4 MF – 113 units max	Combined with D
Total Units (Max) – 512	293 – 406 Units

SCHOOL MITIGATION

The property owner entered into a voluntary school mitigation agreement with the Enumclaw School District for Division 3 of the project, offering to pay $1,097.00 per single family unit. The agreement, as prepared by the district provided for the pro rata adjustment of the total mitigation based upon the number of units added to or deleted from the project (paragraph 3, page 3). The agreement included the legal description of the full project (105 acres). We are offering the same per unit amount for the units included herein. A copy of the agreement is included in this submittal package.

MARTIN HOLDENER PARK

The second half of the 5.02 acre park site will be dedicated with Division 5. The unit count for Division 3, 4 and 5 totals 293 units (Division 3 - 116 units, Division 4 - 96 units and Division 5- 81 units). There is the future potential for PUD Parcel C to include up to 113 units. The required park dedication per city ordinance is:

Minimum: (2 x 293 Units x 2.52)/ 1000 = 1.477 Acres
Excess Dedication: 3.543 Acres

Maximum: (2 x 406 Units x 2.52)/1000 = 2.046 Acres
Excess Dedication: 2.974 Acres

The conceptual design for park improvements has been approved by council and is included herein. The south half will be completed in conjunction with Division 3 and the north half in conjunction with Division 5. The total cost of park improvements is estimated to be between $500,000 and $600,000. The proponent and developer of Division 3 expect to either have park mitigation fees waived as a part of the approval, via a "Development Agreement" or reimbursement for excess park dedication as provided by city ordinance.

Suntop PUD
City of Enumclaw, Washington

October 2013

PROJECT SUMMARY

Suntop Farm is a 105 acre property in the southeast section of the City of Enumclaw. The property was acquired by the current owners, the Holdener family, over a number of years, starting in the 1930's. Initially an 80 acre farm, their holdings were expanded by 20 acres in the late 1940's and an additional 20 acres in 1974. A portion of the property was sold and a new family home constructed on part of the property within the last ten years leaving the current 105 acre total. The land was utilized for many years as a dairy farm and more recently as pasture and cropland. Use of the property as a dairy farm is no longer economically feasible due to economic and environmental constraints. The property is located within the City limits of Enumclaw and its urban growth boundary. The property was annexed to the city in 1988 and was included in the "Holdener Farm Area PUD" zoning adopted in 1992 in City of Enumclaw Ordinance 1765. The property is comprised of three existing parcels, King County Auditor file numbers: 3020007-9012 (82.17 acres), 302007-9011 (17.24 acres) and 302007-9111 (5.61 acres), totaling 105.02 acres.

PUD zoning allows for development of a property into a variety of future uses and allows for more flexibility than that realized using current city zoning classifications. As discussed in future sections of this summary, there currently exists large inventories of land zoned for R-1 and R-2 uses and it is felt there is not a need for more large lot developments. PUD zoning also allows the proponent to include a mix of residential densities and unit types as well as a commercial component that will result in more jobs for the city and retail and office opportunities along the highway 410 corridor.

LAND USE

The initial phase of the project, Division 1, includes 116 single family residential lots and further divides the overall property into seven future development parcels including a five acre public park site. Parcel areas and future uses are summarized in the following table. A site plan is included as Appendix A.

Parcel	Land Use	Acres	Max Units
Division 1	SF Residential – Div 1	32.44	116
Parcel A	HCB	7.18	
Parcel B	HCB	7.62	
Parcel C	R4 - Multi Family	7.56	113
Parcel D	SF Residential – Div 3	10.68	60
Parcel E	R4 - Multi Family	13.21/7.54*	113
Parcel F	City Park	5.10	
Parcel G	Suntop Drive ROW North	2.04	
Parcel H	SF Residential – Div 2	19.21	110
	TOTAL	105.04	512

*-Useable Acres

PHASING

It is anticipated that the project will be constructed over a number of years, with home construction taking place to match demand in the residential marketplace. Commercial uses will be developed along the Highway 410 corridor as demand warrants. The commercial tracts proposed are the largest available vacant tracts along the corridor.

Individual project permit applications will be made for each future project on a tract by tract basis.

PHASING SCHEDULE

	Parcel	Units	Construction Year	Occupancy Year
Division 1a		62	2014	2015
Division 1b		25	2015	2016
Division 1c		29	2015	2016
Division 2a	Parcel H	55	2016	2017
Division 2b	Parcel H	55	2017	2018
Division 3	Parcel D	60	2018	2019
R4 - MF	Parcel E	113	2016	2017
HCB	Parcel A	0	tbd	tbd
HCB	Parcel B	0	tbd	tbd
R4 - MF	Parcel C	113	tbd	tbd
Park Dedication – Ph 1	Parcel F	0	2014	
City Park Construction	Parcel F	0		2015
Park Dedication – Ph 2	Parcel F	0	2016	
City Park Construction	Parcel F	0		2017
Suntop Drive North	Parcel G	0	tbd	tbd

PHASING – DIVISION 1

Division 1 Phase 1 - Division 1 of the proposal includes 116 lots for detached single family residences. It is anticipated that Division may be constructed in 2 or three phases if the economy and business plan of the end user determines that construction of the full division is not feasible. Phase 1, as depicted in the site plan, includes 32.14 acres and 116 individual lots. This phase further includes construction of the detention pond for all of Division 1 as well as all of Division 2 (which includes all of the project area within Drainage District Number 6), frontage improvements on Warner Avenue from the western boundary to Suntop Drive including the dedication of additional Warner Avenue right of way and construction of a recreational trail, the western 2/3 of Suntop Drive as well as dedication of the full right of way for Suntop Drive. Also included in Division 1 Phase 1 is the connection of Peterson Drive East and Sigrist Drive East to Suntop Farms Division 2. Sanitary Sewer service will be extended from Suntop Farms Division 2

into the project. All residences in Division 1 and Division 2 will be subject to the latecomer's agreement for the Elk Meadows sewer lift station. It is anticipated that Division 1 Phase 1 will be constructed and recorded in 2014 with initial home occupancy in 2015.

Division 1 – Phase 2 – Division 1 Phase 2, abutting the northerly boundary of Phase 1 includes 25 lots. Included in this phase is the construction of Bondgard Drive east and the westerly 2/3 of Suntop Drive abutting the phase. Sanitary Sewer and water systems will connect to existing Suntop Farms Division 1 systems as well as an existing water main on Warner Avenue. Storm drainage will connect to the system constructed in Division 1, Phase 1. It is anticipated that Division 1 Phase 2 will be constructed in 2015.

Division 1 – Phase 3 – Division 1 Phase 3 abuts Phase 1 on its eastern boundary. Phase 3 includes 29 lots. Infrastructure improvements will include frontage improvements on Warner Avenue including dedication of additional right of way and construction of a recreational trail and the easterly remaining portion of Suntop Drive. It is anticipated that Division 1 Phase 3 will be constructed in 2015.

Future City Park – Approximately half (2.52 acres – 5.05 total) of the future 5 acre "Suntop Park" will be dedicated to the city and improvements constructed as a part of this proposal. One acre of the park site will be dedicated to the city in conjunction with Phase 1c A park improvement plan will be formulated with the City which shall include the actual park design as well as schedule and funding. The value of the property in excess of the dedication requirements shall be credited against mitigation fees.

PHASING – FUTURE PHASES

Parcel H - Division 2 – Single Family Residential -This phase will follow upon the completion of Division 1, it is anticipated that Division 2 will be constructed in 2016 or 2017. A preliminary plat application shall be processed through the City of Enumclaw delineating the final lot configuration and utility plans. This parcel abuts Division 1 on the east and includes the remaining portion of the project located within Drainage District 6. There will be a latecomer's agreement for storm drainage facilities provided for this phase by the pond constructed with Division 1.

Parcel E – Future Development Parcel – R4 Multi Family – this parcel may be developed at any time in the future. Street and utility connections abut Suntop Farms Division 1 on the north.

Parcel D – Future Development Parcel – Single Family – this parcel may be developed at any time following Parcel H Division 2 if traffic studies indicate an acceptable level of service without the connection.

Parcels A & B – HCB - Highway & Community Business, Parcel C - R4 Multi Family - Development of Parcels A and B zoned Highway and Community Business, & Parcel C zoned R4 Multi Family will mandate the construction of the connection of Suntop drive to SR 410.

TRAFFIC IMPACTS

The proposed project will result in additional vehicle traffic within the City of Enumclaw. A study of the projected impacts was completed by Heath & Associates Traffic Engineers and is included with the application package. In summary, there are at present four intersections within the city that have a level of service (LOS) of D or lower; Porter and 432nd in the north end of the city, Semanski & Warner, Blake & 410 and Watson & 410. (See Table 5, page 18) The Watson & 410 intersection is scheduled to receive an upgrade to a stoplight in 2015, the intersection of Semanski & Warner is planned to have a roundabout installed at a later date subject to budget becoming available, and the intersection of Porter & 432nd has also been identified for future improvements in a WSDOT corridor study, again subject to budget becoming available. It is assumed that the City will use some of the traffic mitigation fees paid by the project to improve these deficient intersections.

Division 1 (116 units) and Division 2 (110 units) were studied in the initial phase of the study. Intersections projected for the 2018 horizon for project completion include Blake & 410 maintaining a "D", Porter & 432nd eastbound D to D and westbound D to E. Semanski & Warner is currently an F and will see wait times increased unless the proposed roundabout is completed. LOS is improved to A with completion of the roundabout.

Developing Parcels D (60 units) and E (80 units) were also studied, both with and without the connection of Suntop Drive to SR 410. The only failing LOS is again the Semanski & Warner intersection. Connection of Suntop Drive to SR 410 results in a redistribution of traffic loads and undoubtedly lessens through traffic from using Bondgard Avenue to access Watson Street.

PARK AND OPEN SPACE DEDICATION REQUIREMENTS

Residential projects in the city are required to provide open space for recreation uses or pay a fee in lieu of providing facilities. The amount of land required is calculated using the following formula: (2 x Number of Dwellings x persons/Dwelling)/1000 = X Acres. In this case the calculation is:

(2 x 512 dwellings x 2.52persons/dwelling)/1000 = 2.58 Acres

The proposed dedication of the park site of 5.10 Acres exceeds the required area by 2.5 acres. The applicant is proposing to dedicate approximately one half of the park site with Division 1 and the balance at a later date. Approximately one acre of the site will be improved in conjunction with Division One.

DEVELOPMENT AGREEMENT

The applicant proposing that a Development Agreement be negotiated with the City would address a number of issues related to the project including Latecomers Agreements, administration and development of Design guidelines, Homeowners and Owners Associations, Suntop Farm Public Park (Dedication, Improvements, Improvement Schedule and Maintenance), Offsite street improvements and the intersection of Suntop Drive with SR 410 as well as SR 410 improvements on the project frontage.

Homeowners Associations

It is anticipated that there will be a number of associations related to ownership and maintenance of common areas for the project. It is anticipated that there will be a Suntop PUD Master Association for the entire project, a Suntop PUD Homeowners Association for the single family detached home neighborhoods, a separate association for a for sale multifamily project (parcel E) and perhaps a commercial association for parcels A, B and C.

Division 2 Latecomers Agreement for Pro Rata Share of Detention Facilities
Division 2 of Suntop PUD is anticipated to include roughly 110 single family lots on 19.15 acres more or less immediately to the east of Division 1. Detention facilities adequate to serve Division 2 will be constructed as part of Division 1 as will additional street frontage on Warner Avenue. A latecomers agreement will be prepared that will obligate the developer of Division 2 to pay an amount to be determined per unit to the developer of Division 1 (if different).

Latecomers Agreement for Suntop Drive
The future intersection of Suntop Drive and SR 410 will be a major expense. Although it is not a necessary connection for initial stages of the project, it will be important that budget is available for the work when the time comes for the connection to be made. It is anticipated that there will be an escrow fund established as part of the development agreement to reserve a certain amount per unit for the connection from Division 1 on.

BUILDABLE LANDS INVENTORY – Residential
The proponent completed an inventory of undeveloped land within the city limits and urban growth area using the King County IMAP and city zoning maps to determine which zones and residential unit types are represented. It is apparent that the larger lot sizes included within the R1 and R2 zones are very well represented and provide an adequate basis for future projects. There is a very limited inventory of smaller lot (R3) and multi-family (R4) opportunities.

Zone	Inside City Limits	Urban Growth Area	Total Acres	Units/ Acre	Total Units	Minimum Lot Size
R1	101	129	229	2	461	15,000 sf
R2	407	242	644	3.5	2,271	8,400 sf
R3	19	0	19	2.5	93	6,200 sf
R4	17	0	17	15	256	15 du/acre
PUD	118	0	118	varies		none
MHP	13	0	13	7	92	7 du/acre

Residential zones R-1, R-2, R-3, R-4 and PUD from Enumclaw Municipal Code

PROJECTS IN THE PIPELINE
The following table includes a list of residential projects in various stages of permitting through the City Department of Community Development.

Project	Zoning	Number of Units	Project Area (Acres)	Status
McHugh Plat	R2	17	4.70	unknown
Meadow Park	R2	24	9.98	PPlat – on hold
Liberty Meadows	R3	48	9.85	Design Review/Ready to Build
Semanski Farm	R2	37	9.81	PPlat – on hold
Elk Meadows 3	PUD	12	2.07	On Hold
Suntop Farms Div 2	PUD	51	10.32	Shovel Ready/For Sale
Total		189		

DEMOGRAPHICS OF THE CITY OF ENUMCLAW

The demand for new housing and housing type is driven by a number of factors with job growth, demographics and price being the most important. The type of households located in the city has evolved over the years as has much of the country. There are a number of interesting statistics from the 2010 federal census that illustrate these changes which are summarized in the table included as Attachment 2.

Enumclaw included 9,598 households at the time of the census. Of these, 72% (6,884) were "Family" households which were defined as persons living with related others. Twenty eight percent (28%) or 2,714 were non family households which was defined as persons living alone or with unrelated others. The percentage of households with children under 18 was 36% or 3,485.

CITY OF Enumclaw

August 30, 2016

Ken Krueger
3207 West Lake Sammamish Pkwy NE
Sammamish, WA 98052

RE: Suntop Planned Unit Development, Divisions 4 and 5
Land Use Application No. 16-314

Dear Mr. Krueger,

The City of Enumclaw is in receipt of your application for preliminary plat approval for the Suntop PUD, Divisions 4 and 5 submitted on August 3, 2016. The City has reviewed the submitted materials and deems the application incomplete pending resolution of the following items:

1. Please show the boundary lines, accurate to scale, of the original tract(s) to be subdivided with heavy solid lines. Staff understands these to be Lot A and Lot C of Lot Line Adjustment 15-01. Please provide labels for these original tracts on the plat map.
2. Per the Suntop PUD Residential Design Guidelines (adopted November 2014), corner lots shall be a minimum of 8 feet wider than the adjacent interior lot. This requirement does not appear to be met for Lots 12, 22, 32, 38, 57, 58, 65, and 66 of Division 4; and Lots 21, 24, 31, 34, 35, 38, 43, 46, 47, and 62 of Division 5.
3. The south property line is missing from Lots 2, 3, and 4 of Division 4. Also, the bearing is missing from the plat boundary in this location.
4. Is there an extension of the Warner Avenue Trail to the south of Lots 1-4 of Division 4?
5. Bearings and distances appear to be missing from the area in the NW corner of the Division 5 project, around Wetland A and the storm drain tract.
6. The preliminary plat maps submitted with the application show a 'Parcel C' to be zoned R4. R4 zoning was denied for this property in 2014 (Ord. 2552).
7. On Sheet PP3 showing Suntop Blvd North Street and Utility Plan, the labels for Parcel A and Parcel B are transposed in comparison to the plat map.
8. Detailed line and curve data does not appear to be provided for either plat (i.e references to "L1", "C1", etc.). Please provide on maps.
9. Frances Lane N., as shown on the composite map, is shown as Frances Ave East on the preliminary plat map. Suggest naming the north-south portion as "Franks Lane N." to be

consistent with Phase 3. Frances Ave East running east-west should be named "Frances Drive East".

10. Please provide an updated traffic impact analysis (or at least a narrative revision with updated numbers for critical metrics). The analysis provided is nearly 3 years old and includes elements that are no longer part of the project. You may contact Rand Black, the City's Transportation Engineer, to discuss what metrics would be most important/appropriate to update.

If you have any questions or need any additional assistance, please feel free to contact me at 360-615-5725.

Sincerely,

Dan Catron, AICP
Associate Planner

cc: Mrs. Francis Holdener
Rykels Engineering

REG **RYKELS ENGINEERING GROUP, INC.**
CONSULTING ENGINEERS, CIVIL, MUNICIPAL AND LAND DEVELOPMENT

DATE RECEIVED
SEP 15 2016
CITY OF ENUMCLAW

September 15, 2016

Dan Catron, Associate Planner
Department of Community Development
1309 Myrtle Ave
Enumclaw, WA 98022

RE: Review Comments for Suntop Planned Unit Development, Division 1, No. 13-305

Dear Mr. Catron:

Attached per your direction is one copy of the revised plans for the referenced project, in addition, this letter addresses the specific plan check comments as follows:

1. *Please show the boundary lines, accurate to scale, of the original tract(s) to be subdivided with heavy solid lines. Staff understands these to be Lot A and Lot C of Lot Line Adjustment 15-01. Please provide labels for these original tracts on the plat map.* Response: The boundaries of Lots A and C have been darkened for clarification. A key map showing the original lots was added to PP-1.

2. *Per the Suntop PUD Residential Design Guidelines (adopted November 2014), corner lots shall be a minimum of 8 feet wider than the adjacent interior lot. This requirement does not appear to be met for Lots 12, 22, 32, 38, 57, 58, 65, and 66 of Division 4; and Lots 21, 24, 31 , 34, 35, 38, 43, 46, 47, and 62 of Division 5.* Response: Division 4: The lot layout for lots 32-38 was revised to meet the corner lot criteria. We would ask that you consider letting us leave the corner lots 12 & 22, 57 & 58 and 65 & 66 as shown. All the lots within these blocks are 75 and 65 feet in width respectively. The original intent was to have the corner lots in the 50 foot wide lot blocks have an additional 8 feet of width to accommodate the 13' side yard setback. As the 4 lots in question exceed the 58 foot width, we would argue that they meet the intent of the design guidelines.

   The lot layout for Division 5 was revised as requested. A total of two lots were eliminated from this division, the new lot total for Division 5 is 79 lots. All lots now meet the corner lot criteria.

3. *The south property line is missing from Lots 2, 3, and 4 of Division 4. Also, the bearing is missing from the plat boundary in this location.* Response: The requested information was added to the plan sheets 4-1 & -2

4. *Is there an extension of the Warner Avenue Trail to the south of Lots 1-4 of Division 4?* Response: The plan was clarified to show the trail extending southerly to the shoulder of Warner Avenue. The property to the east is not part of the subdivision.

3206 NW Fairway Hts Dr, Bend, OR 97701
Ph 253-951-4217 email: rykelsengineering@gmail.com

5. Bearings and distances appear to be missing from the area in the NW comer of the Division 5 project, around Wetland A and the storm drain tract. Response: The bearings and distances were added to Division 5 for clarity.

6. The preliminary plat maps submitted with the application show a 'Parcel C' to be zoned R4. R4 zoning was denied for this property in 2014 (Ord. 2552). Response: The R-4 zoning designation was removed from the plan.

7. On Sheet PP3 showing Suntop Blvd North Street and Utility Plan, the labels for Parcel A and Parcel B are transposed in comparison to the plat map. Response: The transpositions were corrected.

8. Detailed line and curve data does not appear to be provided for either plat (i.e references to "L1", "Cl", etc.). Please provide on maps. Response: The line and curve data was added to a table on the plans.

9. Frances Lane N., as shown on the composite map, is shown as Frances Ave East on the preliminary plat map. Suggest naming the north-south portion as "Franks Lane N." to be consistent with Phase 3. Frances Ave East running east-west should be named "Frances Drive East". Response: The street name was corrected as requested.

10. Please provide an updated traffic impact analysis (or at least a narrative revision with updated numbers for critical metrics). The anal ysis provided is nearly 3 years old and includes elements that are no longer part of the project. You may contact Rand Black, the City's Transportation Engineer, to discuss what metrics would be most important/appropriate to update. Response: The updated traffic information will be provided by separate cover by Heath Traffic Engineers.

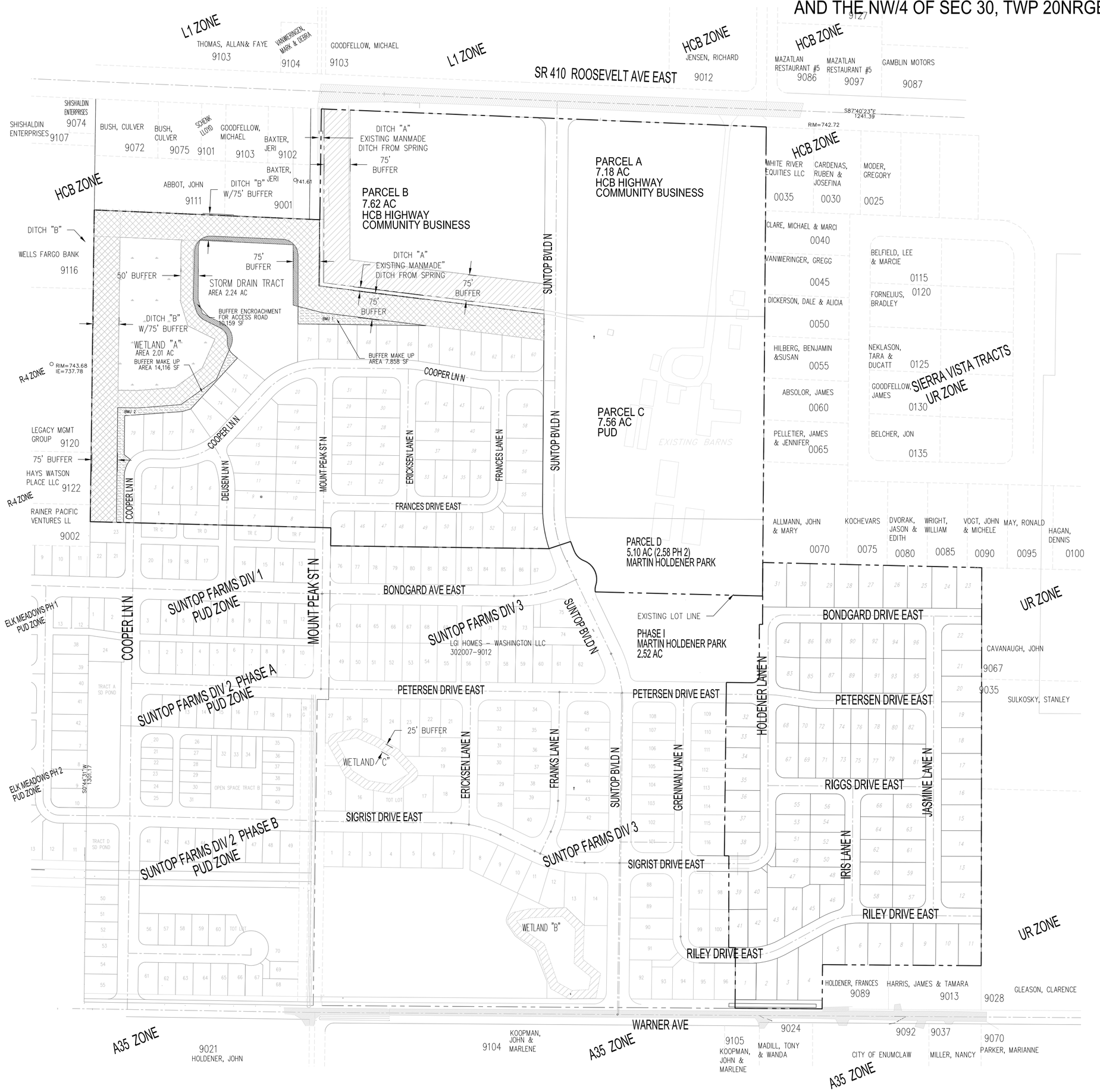
Please let us know if you need additional information. Thank you for your help with this complicated project.

Sincerely,

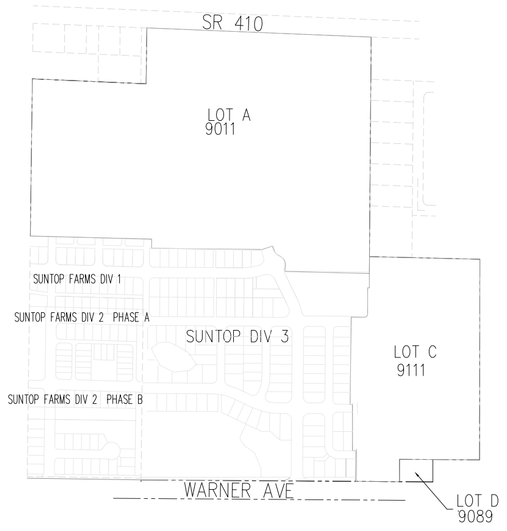
Andy J. Rykels, P.E.
Rykels Engineering Group, Inc.

SUNTOP PLANNED UNIT DEVELOPMENT, SUBDIVISIONS 4 & 5

PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E
AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA



SUNTOP PUD DIVISIONS 4 & 5 PRELIMINARY PLAT MAP



EXISTING PARCELS

ADJACENT OWNERS IN SUBDIVISION

SUNTOP FARMS DIVISION 1

LOT #	OWNER
1	B & R LAND INC
2	MOLEN PATRICIA L+BILL A
3	TINIUS MARY FRANCES
4	B & R LAND INC
5	B & R LAND INC
6	B & R LAND INC
7	EVANS CHRISTOPHER D
8	B & R LAND INC
9	B & R LAND INC
10	B & R LAND INC
11	KNECHT LEONARD D+KIMBERLY R
12	SHAW KARLENE G
13	TOPP RONALD L
14	B & R LAND INC
15	B & R LAND INC
16	FOX DANA
17	B & R LAND INC
18	B & R LAND INC
19	B & R LAND INC
20	HAGEN DANIEL+KARYN HOLYK
21	MCKEIGHEN KEVIN E+KIMBERLY
22	B & R LAND INC
23	JORDAN SCOTT+SHELBY
24	GREENWOOD MICHAEL D
TRACT C	HANSEN ANGELA J
TRACT D	SCHATZ TRACY M
TRACT E	ORWIG PHILLIP M+BEVERLY M
TRACT F	WILSON DANIEL R+LOIS E

SUNTOP FARMS DIVISION 1

LOT #	OWNER
1	UNION BANK NA
2	UNION BANK NA
3	UNION BANK NA
4	UNION BANK NA
5	UNION BANK NA
6	UNION BANK NA
7	UNION BANK NA
8	UNION BANK NA
9	UNION BANK NA
10	THOMAS KIM
11	MARLOW JOANNA K+CHAD A
12	BOWMAN TIMOTHY S+SHAUNA
13	ELLER SHARON+RICHARD C ET A
14	MANN STEPHANIE D
15	CRUSEN ALISON+JARED R
16	GOSSAGE AMANDA
17	JUNGWIRTH JARED+ZIMMERMAN C
18	LAUSH NICKOLAS PAUL+CORTNIE
19	RAMSEY COLLEEN
20	CITY OF ENUMCLAW

ELK MEADOWS PHASE 1

LOT #	OWNER
6	AHRPTHREE LLC
7	THOMPSON VENETA G
8	AABY DAVID+ALLISON
9	KUFFLER RYAN+ELANA BRASSARD
10	WINBORN LINDSEY
11	HUBBARD SALLY ANN+CHARLES
12	WEST DENNIS+TINA
13	GRONEWOLD DARREN J
15	MURPHY LAURA R+KEVIN P
15	GAMBLIN TYSON A+SOPHIA
16	HOLDEN LISA
23	ROCK PHILIP B+ADRIENNE L
24	CALHOUN MARY J
25	FARLEY MERRI K
30	DOUGLAS BRANDI L+ANDREW J
31	GURULE VICTOR RAYMOND JR+LE
38	LAND HOLDING ASSOCIATES
39	LAND HOLDING ASSOCIATES L L
40	LAND HOLDING ASSOCIATES L L
41	MURPHY JENELLE+THOMAS

SHEET INDEX

PRELIMINARY PLAT MAP AND DATA SHEET	P1
PRELIMINARY PLAT MAP (18"X24")	P2
SUNTOP BVLD PLAN AND PROFILE	P3–1
PRELIMINARY LOT LAYOUT DIVISION 4	P4–1
SITE AND UTILITY PLAN DIVISION 4	P4–2
ROADWAY AND SEWER PROFILES DIV 4	P4–3,4&5
PRELIMINARY LOT LAYOUT DIVISION 5	P5–1
SITE AND UTILITY PLAN DIVISION 5	P5–2
DIVISION 5 STORM DRAIN DETENTION POND	P5–3
ROADWAY AND SEWER PROFILES DIV 5	P–5&6

PROJECT DATA

1. EXISTING PARCEL AREAS: LOT C (DIVISION 4) 19.21 AC, LOT A (DIVISION 5) 50.92 AC
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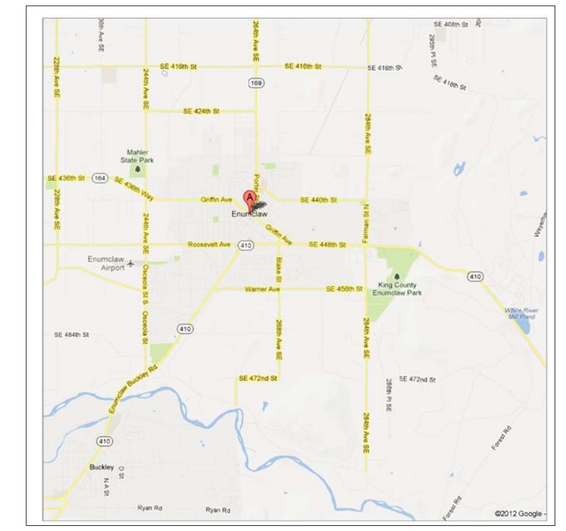
3. PROPOSED LAND USE: PUD, MIXED USE
4. NUMBER OF LOTS : DIVISION 4: 96 LOTS
   DIVISION 5: 79 RESIDENTIAL LOTS; 175 RESIDENTIAL LOTS AND
   DIVISION 5: PARCELS A,B,C & D – DESIGNATED FOR FUTURE PUD DEVELOPMENT
5. COUNTY PARCEL NUMBERS: 302007–9011, & –9111
6. APPROXIMATE AREA SMALLEST LOT: 4,900 SqFt
8. SCS SOILS TYPE: BUCKLEY LOAM, SHALCAR MUCK, SULTAN SILT LOAM
9. SOURCE OF WATER SUPPLY: CITY OF ENUMCLAW
10. SOURCE OF SEWAGE DISPOSAL: CITY OF ENUMCLAW
11. EXISTING GROUND COVER: GRASSY PASTURE W/ SOME GROVES OF TREES

PROPERTY OWNER/APPLICANT:	AGENT/REPRESENTATIVE:
MRS FRANCES HOLDENER	KEN KRUEGER PH 425–753–2985
1009 WARNER AVE	3207 W LK SAMMAMISH PARKWAY NE
ENUMCLAW, WA 98023	REDMOND, WA 98052



LOCATION MAP

LEGAL DESCRIPTIONS

LOT "A"
THOSE PORTIONS OF GOVERNMENT LOTS 1 AND 2 OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., AND THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 25, TOWNSHIP 20 NORTH, RANGE 6 EAST,W.M., DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M. IN KING COUNTY, WASHINGTON:
THENCE SOUTH 00° 44' 15" WEST ALONG THE WEST LINE OF SAID SECTION 7, FOR 50.02 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH 87° 40' 38" EAST PARALLEL WITH THE NORTH LINE OF GOVERNMENT LOT 1, FOR 1278.42 FEET;
THENCE SOUTH 00° 27' 23" WEST FOR 1346.18 FEET;
THENCE NORTH 88° 39' 16" WEST FOR 479.98 FEET TO THE BEGINNING POINT OF A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 20° 22' 58" FROM WHICH THE RADIUS POINT BEARS NORTH 84° 24' 44" EAST;
THENCE RIGHT ALONG SAID CURVE FOR AN ARC LENGTH OF 19.57 FEET TO A POINT OF REVERSE CURVATURE,
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 80° 54' 40" FOR AN ARC LENGTH OF 84.73 FEET TO A POINT OF REVERSE CURVATURE,
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 42° 10' 11" FOR AN ARC LENGTH OF 40.48 FEET,
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 302.50 FEET AND A CENTRAL ANGLE OF 05° 31' 57" FOR AN ARC LENGTH OF 29.21 FEET;
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THENCE NORTH 00° 44' 15" EAST FOR 318.26 FEET,
TO THE TRUE POINT OF BEGINNING,

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

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THAT PORTION OF GOVERNMENT LOT 2, AND THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M. DESCRIBED AS FOLLOWS:

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THENCE NORTH 00° 05' 38" EAST FOR 147.52 FEET;
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SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

N
200 0 200 400
SCALE 1" = 200 FT

ANDREW J. RYKELS
STATE OF WASHINGTON
19822
REGISTERED
PROFESSIONAL ENGINEER
7/21/2016

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts DR, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

NO. REVISIONS DATE

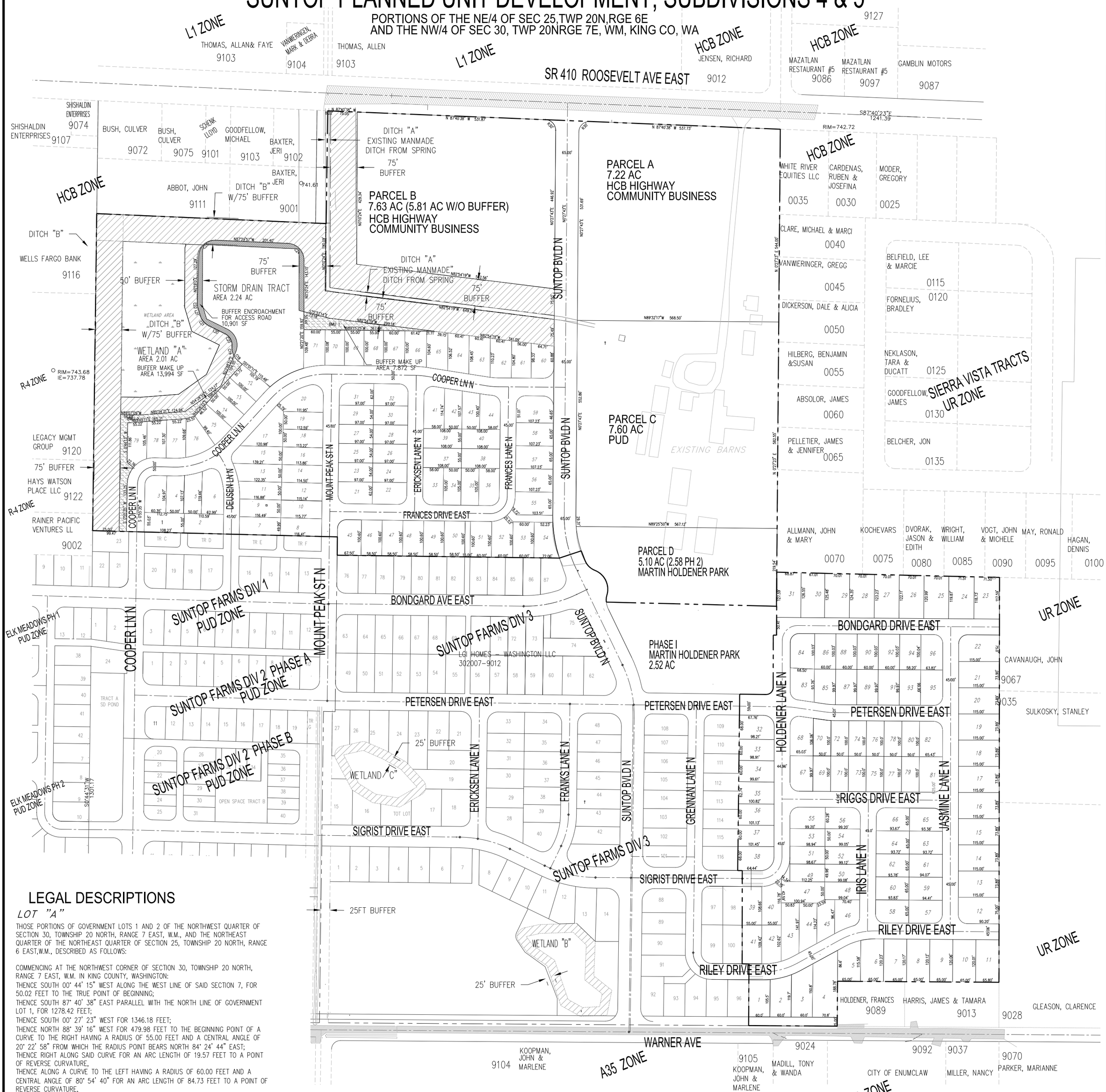
PRELIMINARY PLAT MAP & DATA SHEET
SUNTOP P.U.D., DIVISIONS 4 & 5, ENUMCLAW, WA

CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PKWY NE, REDMOND, WA 98052
PH 425–753–2985 knk3207@msn.com

A RYKELS
DESIGNED BY
07/21/2016
DATE
007–121
PROJECT NO.
SHEET PP 1

SUNTOP PLANNED UNIT DEVELOPMENT, SUBDIVISIONS 4 & 5

PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E
AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA



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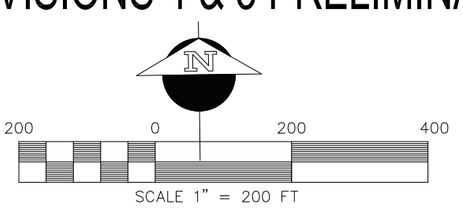
SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

SUNTOP PUD DIVISIONS 4 & 5 PRELIMINARY PLAT MAP



LOCATION MAP

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MRS FRANCES HOLDENER	KEN KRUEGER PH 425-753-2985
1009 WARNER AVE	3207 W LK SAMMAMISH PARKWAY NE
ENUMCLAW, WA 98023	REDMOND, WA 98052

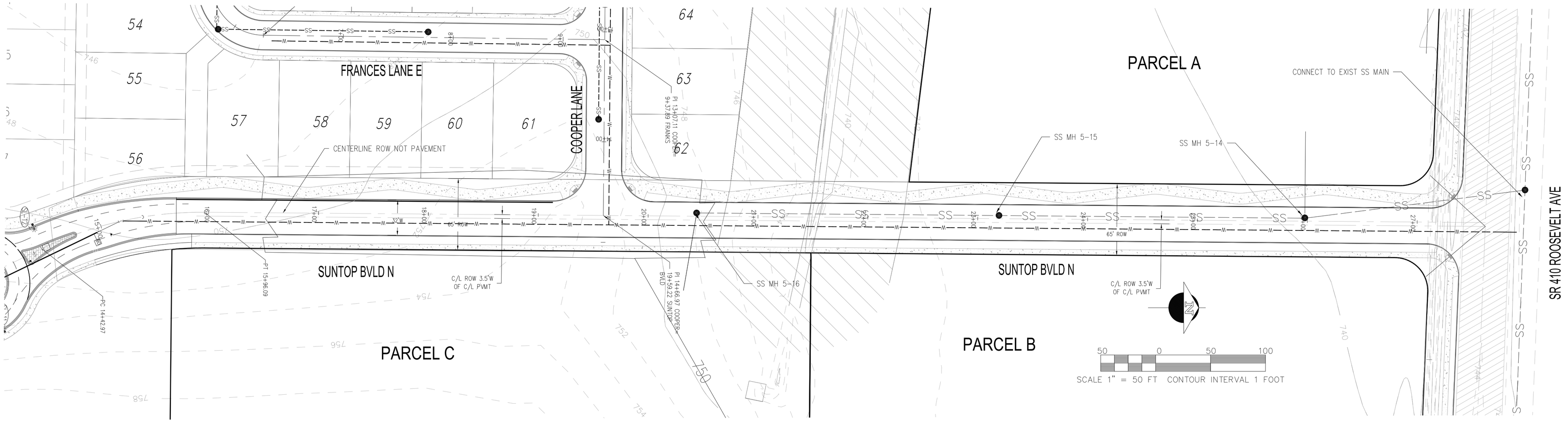
ANDREW J. RYKELS — STATE OF WASHINGTON — 19998 — REGISTERED PROFESSIONAL ENGINEER

7/22/2016

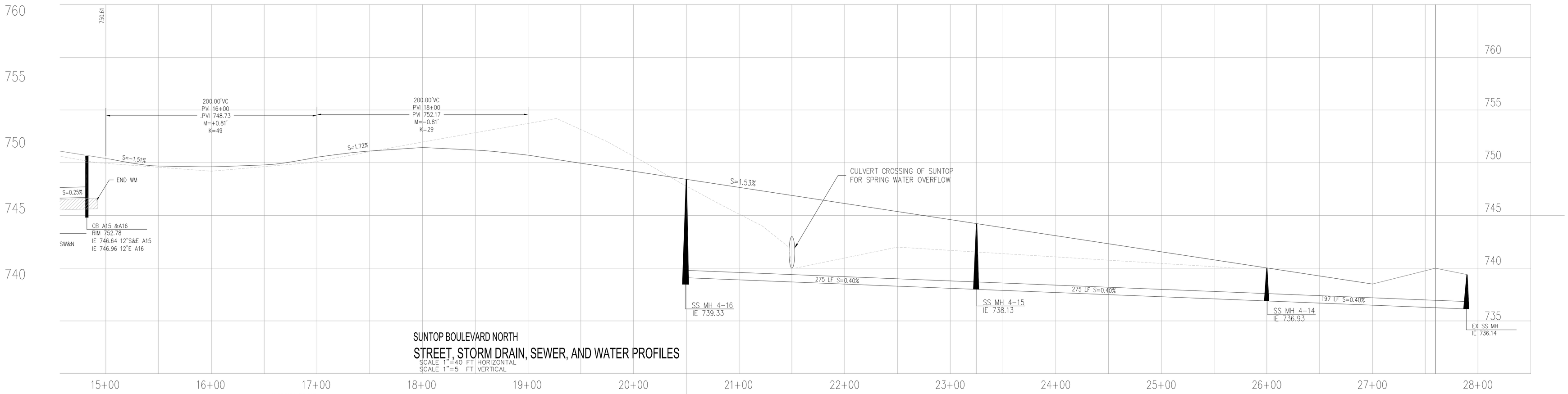
PRELIMINARY PLAT AND PUD PLAN
SUNTOP PUD, DIVISIONS 4&5, PRELIMINARY PLAT, ENUMCLAW, WA
CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97703 253-951-4217 rykelsengineering@gmail.com

SUNTOP P.U.D. PHASE 1, ENUMCLAW, WA



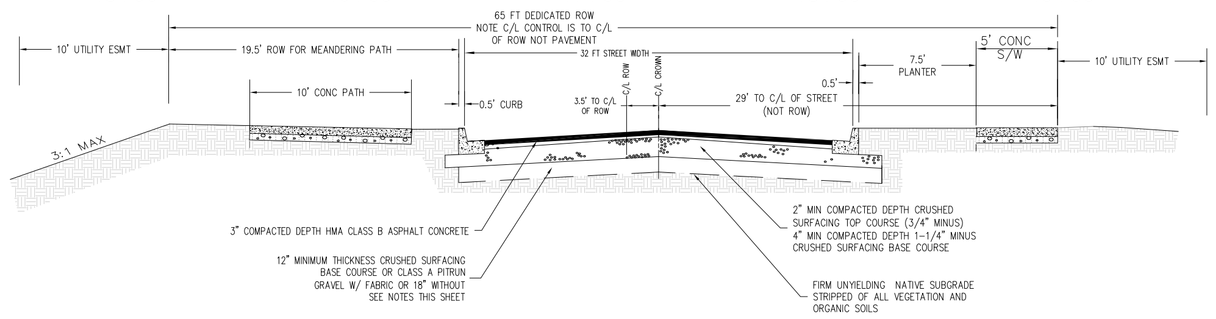
SUNTOP BVLD NORTH STREET AND UTILITY IMPROVEMENT PLAN



SUNTOP BOULEVARD NORTH

STREET, STORM DRAIN, SEWER, AND WATER PROFILES

SCALE 1"=40 FT HORIZONTAL
SCALE 1"=5 FT VERTICAL



SUNTOP DRIVE STREET SECTION

Call 2 Working Days Before You Dig
DIAL 811
Utilities Underground Location Center
(ID,MT,ND,OR,WA)

CAUTION
THE LOCATION OF EXISTING UTILITIES SHOWN IS APPROXIMATE AND MAY NOT BE ACCURATE OR ALL INCLUSIVE. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE EXISTENCE, LOCATION AND ELEVATION OF UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO BEGINNING CONSTRUCTION

This approval is for design concept only. The plans appear to be in conformity with the City of Enumclaw design standards for construction. This approval should not be construed as authorizing construction not in accordance with applicable City Standards. The owner and/or owners representatives shall be responsible for compliance with all applicable standards. The City reserves the right to require revisions to approved plans and/or construction and modifications to assure compliance with the City of Enumclaw design standards for construction at any time that it is discovered that the proposed construction does not otherwise meet with applicable construction standards. The owner is required to provide designs and plans in accordance with applicable City standards and assure that construction is accomplished in accordance with those standards. The owner and/or developer, as the case may be, may be requires to make necessary approved field revision to correct any errors or omissions found to exist on the approved plans.

APPROVED FOR CONSTRUCTION

Lindsey Winborn, P.E.
City Engineer
City of Enumclaw

Date Approved

Plans reviewed by:

Plans reviewed by:

ANDREW L. RYKELS — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

7/21/2016

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts DR, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

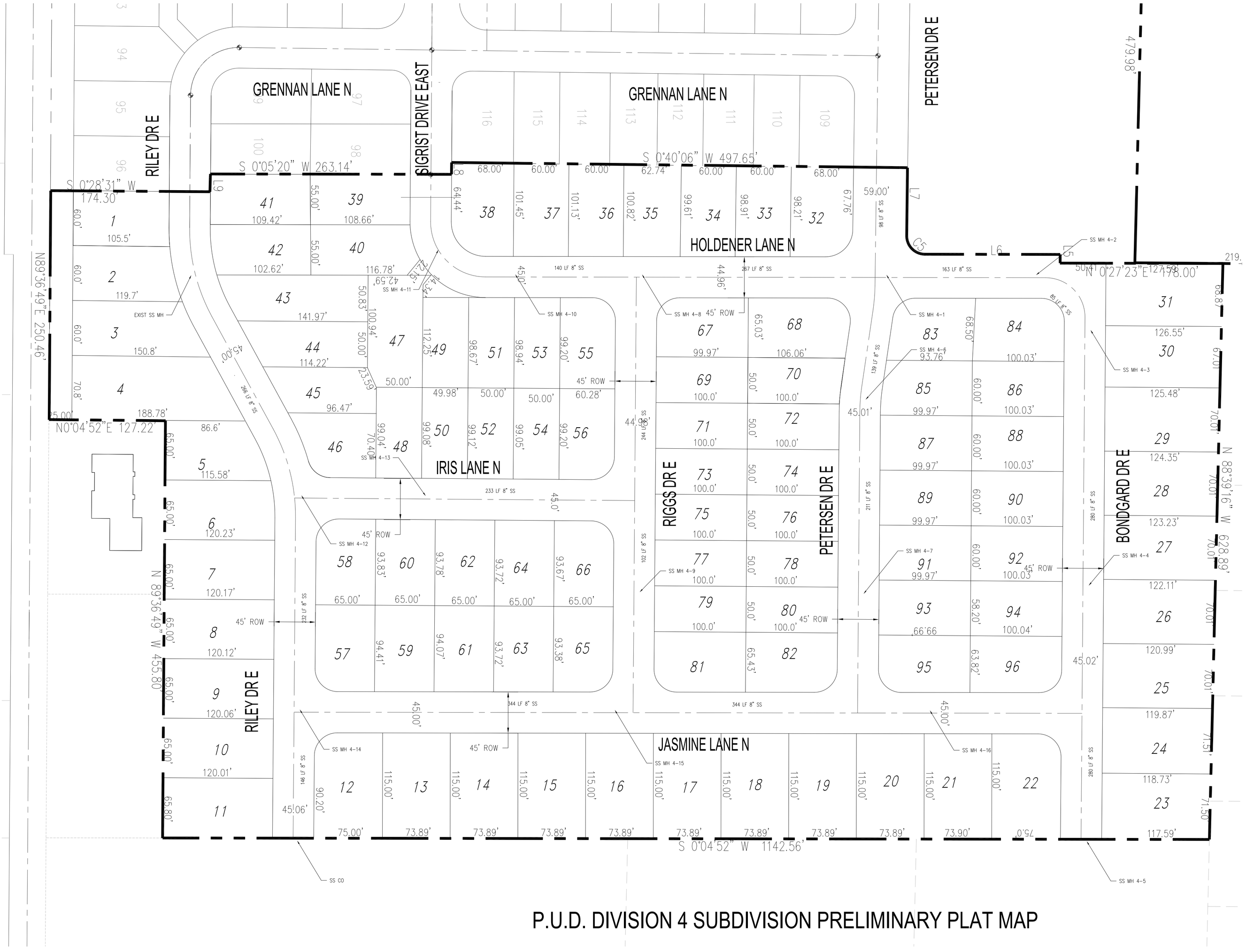
NO.	REVISIONS	DATE

SUNTOP BVLD NORTH STREET AND UTILITY PLAN
SUNTOP P.U.D., DIVISION 5, ENUMCLAW, WA

CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PKWY NE, REDMOND, WA 98052
PH 425-753-2985 knk3207@msn.com

A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 3

SUNTOP P.U.D. DIVISION 4, ENUMCLAW, WA



PRELIMINARY LOT AREAS

LOT #	AREA	LOT #	AREA	LOT #	AREA
1	6,292	34	6,138	67	6,337
2	6,668	35	6,238	68	7,043
3	8,068	36	6,018	69	5,000
4	11,905	37	6,051	70	5,000
5	6,725	38	6,293	71	5,000
6	7,753	39	5,993	72	5,000
7	7,813	40	6,174	73	5,000
8	7,810	41	5,997	74	5,000
9	7,806	42	5,911	75	5,000
10	7,803	43	7,799	76	5,000
11	7,896	44	6,405	77	5,000
12	8,454	45	5,410	78	5,000
13	8,498	46	5,602	79	5,000
14	8,498	47	7,507	80	5,000
15	8,498	48	4,955	81	6,437
16	8,498	49	5,546	82	6,380
17	8,498	50	4,955	83	6,074
18	8,498	51	4,953	84	6,637
19	8,498	52	4,955	85	5,869
20	8,498	53	4,954	86	6,000
21	8,498	54	4,955	87	6,000
22	8,529	55	5,853	88	6,000
23	8,448	56	5,848	89	6,000
24	8,530	57	6,011	90	6,000
25	8,431	58	5,966	91	6,000
26	8,508	59	6,126	92	6,000
27	8,585	60	6,090	93	6,000
28	8,666	61	6,103	94	6,000
29	8,746	62	6,090	95	6,096
30	8,442	63	6,081	96	6,039
31	8,753	64	6,090		
32	6,375	65	5,926		
33	6,097	66	5,953		

LINE AND CURVE TABLES

LINE	BEARING	HORIZ DISTANCE
L5	N88°14'10"W	7.67'
L6	S0°05'38"W	147.52'
L7	N89°32'18"W	74.71'

CURVE	RADIUS	ARC	DELTA
C5	20.00'	31.54'	90°22'04"

N

60 0 60

BOUNDARY AND TOPO SURVEY BY HOLMVIG, DEWITT, GALLIAN & ASSOC
SCALE 1" = 60 FT CONTOUR INTERVAL 1 FOOT
ENUMCLAW, WA PH 360-825-6963

VERTICAL DATUM
KING COUNTY BENCHMARK HP-76
KING COUNTY STANDARD CONCRETE MONUMENT WITH 3" BRASS DISK, 1' DOWN LOCATED ON THE EAST SIDE OF THE INTERSECTION OF 284TH AVE SE & SE 456TH STREET.
ELEV=778.72 NGVD 1929

P.U.D. DIVISION 4 SUBDIVISION PRELIMINARY PLAT MAP

Call 2 Working Days Before You Dig
DIAL 811
Utilities Underground Location Center
(ID,MT,ND,OR,WA)

CAUTION
THE LOCATION OF EXISTING UTILITIES SHOWN IS APPROXIMATE AND MAY NOT BE ACCURATE OR ALL INCLUSIVE. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY THE EXISTENCE, LOCATION AND ELEVATION OF UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO BEGINNING CONSTRUCTION

This approval is for design concept only. The plans appear to be in conformity with the City of Enumclaw design standards for construction. This approval should not be construed as authorizing construction not in accordance with applicable City Standards. The owner and/or owners representatives shall be responsible for compliance with all applicable standards. The City reserves the right to require revisions to approved plans and/or construction and modifications to assure compliance with the City of Enumclaw design standards for construction at any time that it is discovered that the proposed construction does not otherwise meet with applicable construction standards. The owner is required to provide designs and plans in accordance with applicable City standards and assure that construction is accomplished in accordance with those standards. The owner and/or developer, as the case may be, may be requires to make necessary approved field revision to correct any errors or omissions found to exist on the approved plans.

APPROVED FOR CONSTRUCTION

Lindsey Winborn, P.E.
City Engineer
City of Enumclaw

Date Approved

Plans reviewed by:

Plans reviewed by:

ANDREW J. RYKELS
STATE OF WASHINGTON
19811
REGISTERED PROFESSIONAL ENGINEER
7/22/2016

NO. REVISIONS DATE

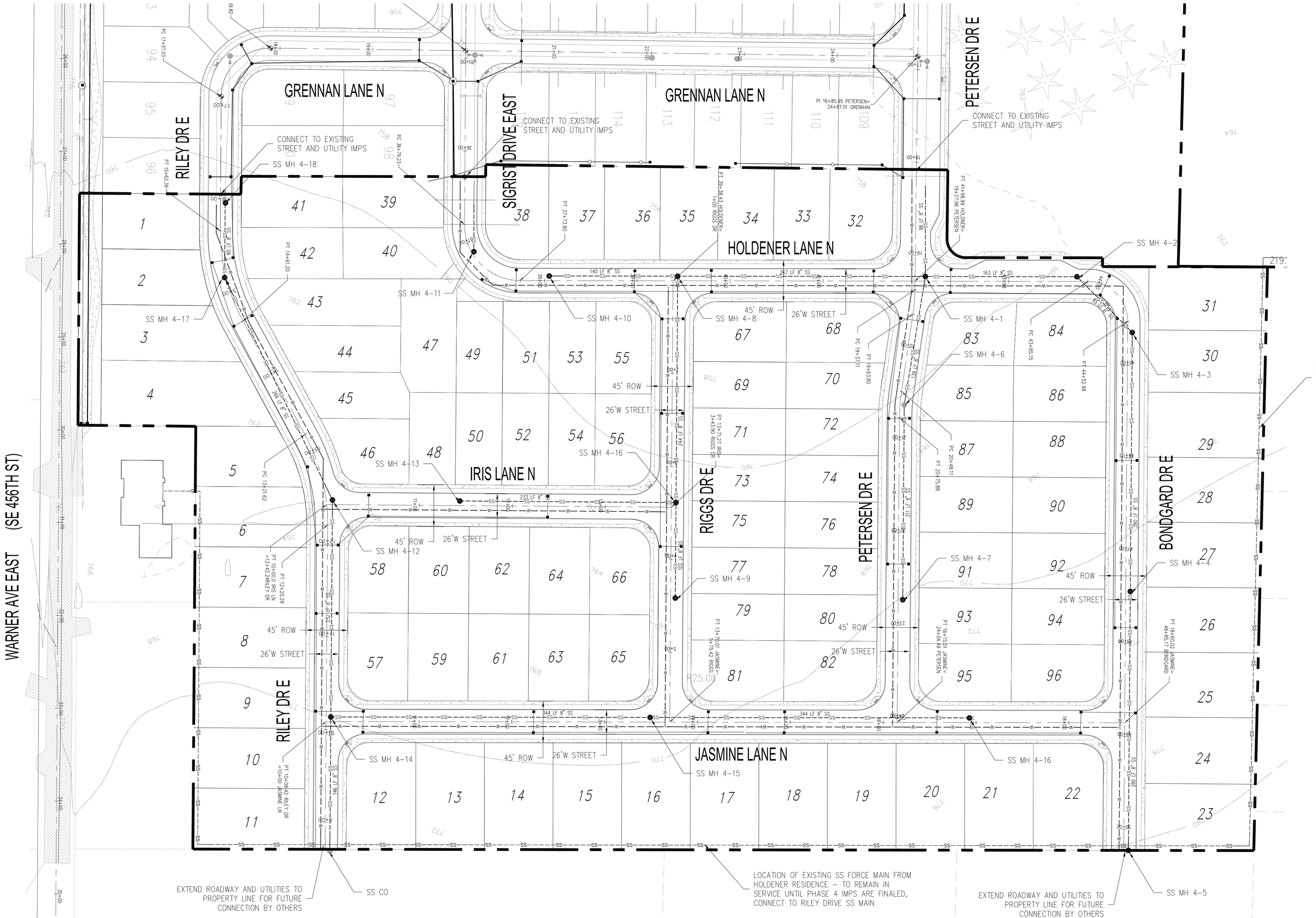
RYKELS ENGINEERING GROUP, INC.
Consulting Engineers - Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts DR, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

SUBDIVISION LOT LAYOUT
SUNTOP P.U.D., DIVISION 4, ENUMCLAW, WA

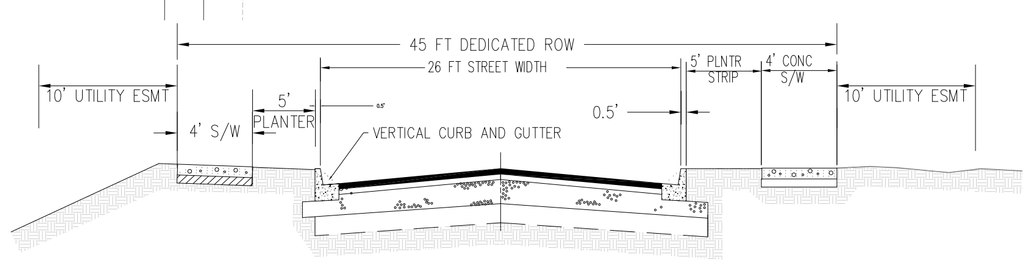
CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PKWY NE, REDMOND, WA 98052
PH 425-753-2985 knk3207@msn.com

A RYKELS
DESIGNED BY
07/26/2016
DATE
007-121
PROJECT NO.
SHEET PP 4-1

SUNTOP P.U.D. DIVISION 4, ENUMCLAW, WA



P.U.D. DIVISION 4 SUBDIVISION STREET AND UTILITY IMPROVEMENT PLAN



TYPE 7 LOCAL STREET SECTION
TYPICAL ALL ROADS DIVISION 4

Call 2 Working Days Before You Dig
DIAL 811
Utilities Underground Location Center
(ID,MT,ND,OR,WA)

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APPROVED FOR CONSTRUCTION

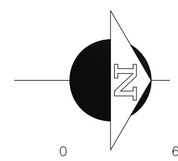
Lindsey Winborn, P.E.
City Engineer
City of Enumclaw

Date Approved

Plans reviewed by:

Plans reviewed by:

7/22/2016



60 0 60

BOUNDARY AND TOPO SURVEY BY HOLMVIG, DEWITT, GALLIAN & ASSOC
SCALE 1" = 60 FT CONTOUR INTERVAL 1 FOOT
ENUMCLAW, WA PH 360-825-6963

VERTICAL DATUM
KING COUNTY BENCHMARK HP-76
KING COUNTY STANDARD CONCRETE MONUMENT WITH 3" BRASS DISK, 1' DOWN LOCATED ON THE EAST SIDE OF THE INTERSECTION OF 284TH AVE SE & SE 456TH STREET.
ELEV=778.72 NGVD 1929

NO. REVISIONS DATE

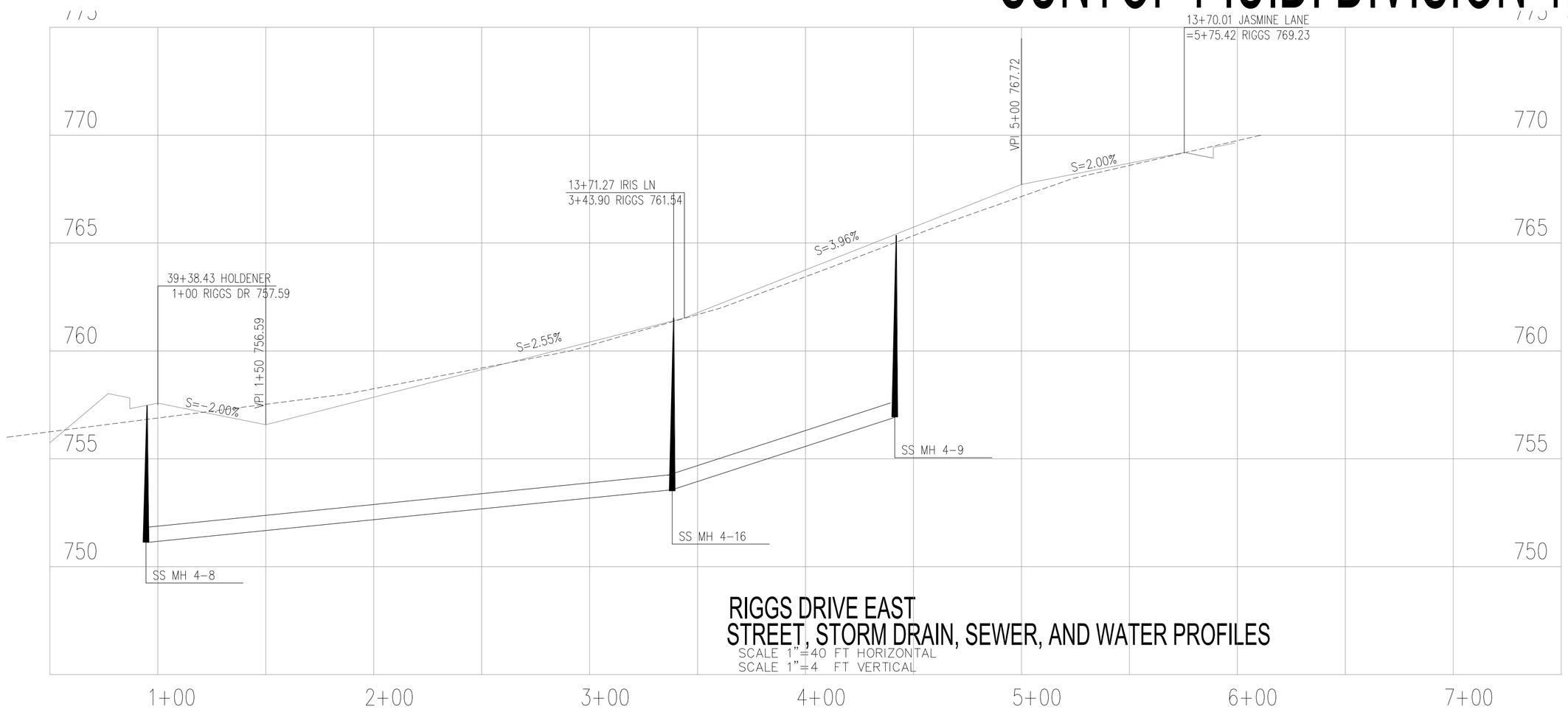
RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts DR, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

SUBDIVISION SITE AND UTILITY PLAN
SUNTOP P.U.D., DIVISION 4, ENUMCLAW, WA

CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PKWY NE, REDMOND, WA 98052
PH 425-753-2985 knk3207@msn.com

A RYKELS DESIGNED BY
07/26/2016 DATE
007-121 PROJECT NO.
SHEET PP 4-2

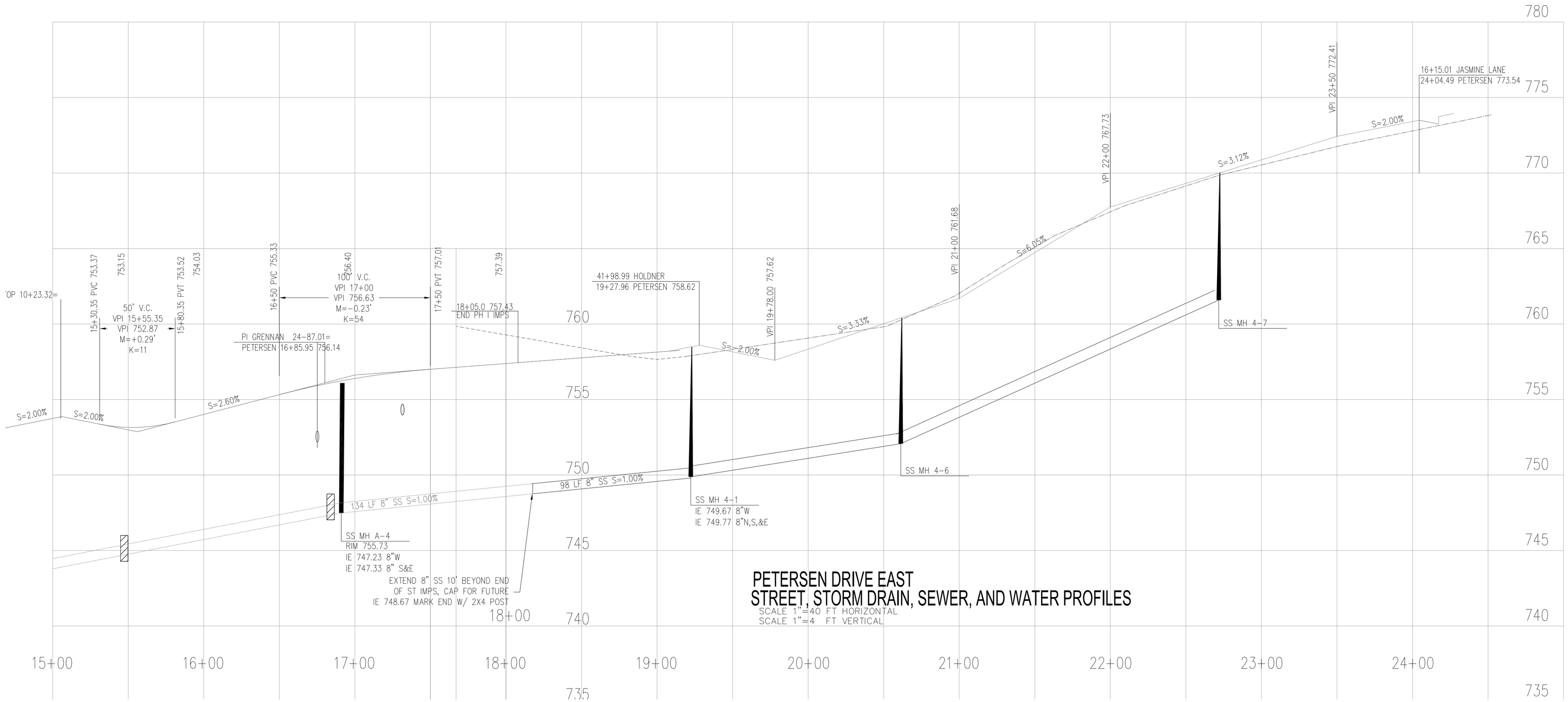
SUNTOP P.U.D. DIVISION 4, ENUMCLAW, WA



RIGGS DRIVE EAST
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=4 FT VERTICAL

SANITARY SEWER SCHEDULE

PETERSEN DR E						
4-1			758.75	749.67	749.77	8.98
	139	1.500%				
4-6			760.31	751.86	751.96	8.35
	211	4.500%				
4-7			769.99	761.45	761.55	8.44
RIGGS DR E						
4-8			757.30	750.84	750.94	6.36
	244	1.000%				
4-16			761.34	753.38	753.48	7.86
	102	3.500%				
4-9			765.42	757.05	757.15	8.27



PETERSEN DRIVE EAST
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=4 FT VERTICAL

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

NO. REVISIONS DATE

SUBDIVISION STREET AND SEWER PROFILE
SUNTOP P.U.D., DIVISION 4, ENUMCLAW, WA

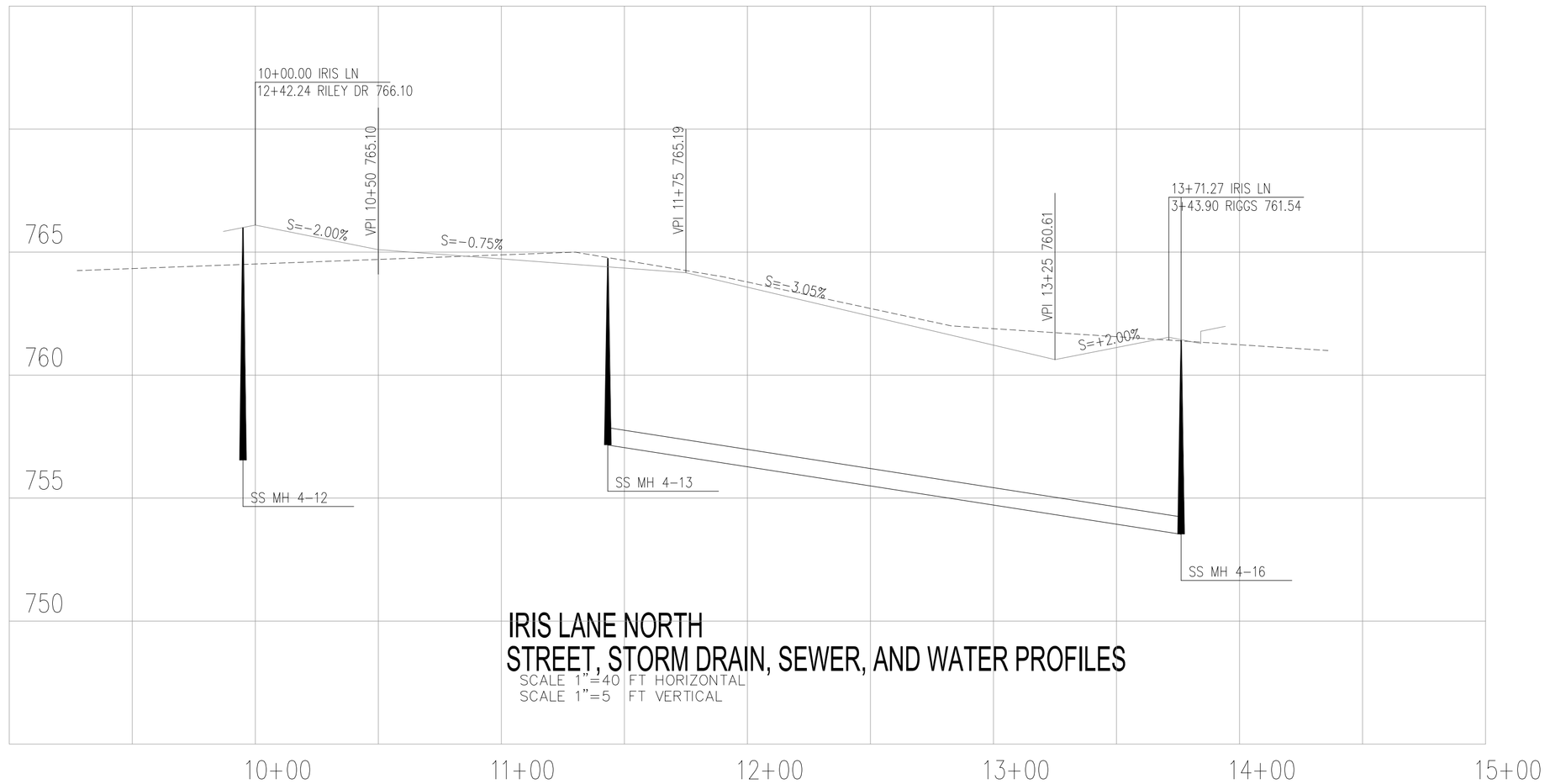
SUNTOP FARMS, C/O KEN KRUEGER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985 EMAIL: knk3207@msn.com

A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 4-3

ANDREW J. RYKELS
19...
REGISTERED PROFESSIONAL ENGINEER

7/21/2016

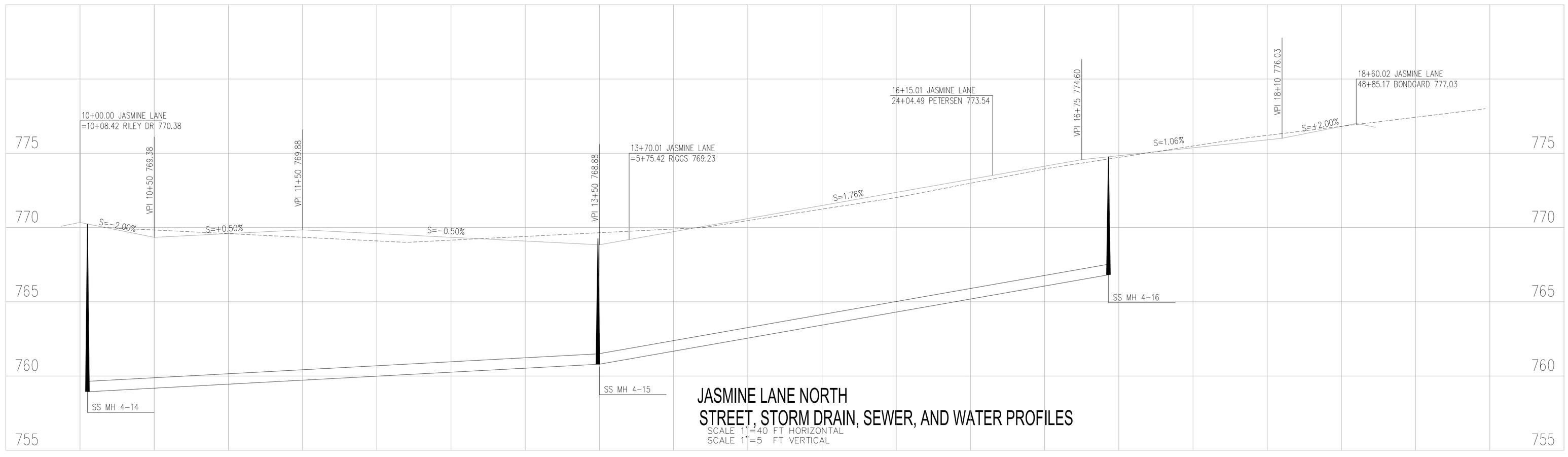
SUNTOP P.U.D. DIVISION 4, ENUMCLAW, WA



IRIS LANE NORTH
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=5 FT VERTICAL

SANITARY SEWER SCHEDULE

IRIS LANE N						
4-16			761.34	753.38	753.48	7.86
	233	1.500%				
4-13			764.67	756.97	757.07	7.60
JASMINE LANE N						
4-14			770.10	758.70	758.80	11.30
	344	0.400%				
4-15			768.75	760.18	760.28	8.47
	344	1.850%				
4-16			774.69	766.64	766.74	7.95



JASMINE LANE NORTH
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=5 FT VERTICAL

7/21/2016

DATE | NO. | REVISIONS

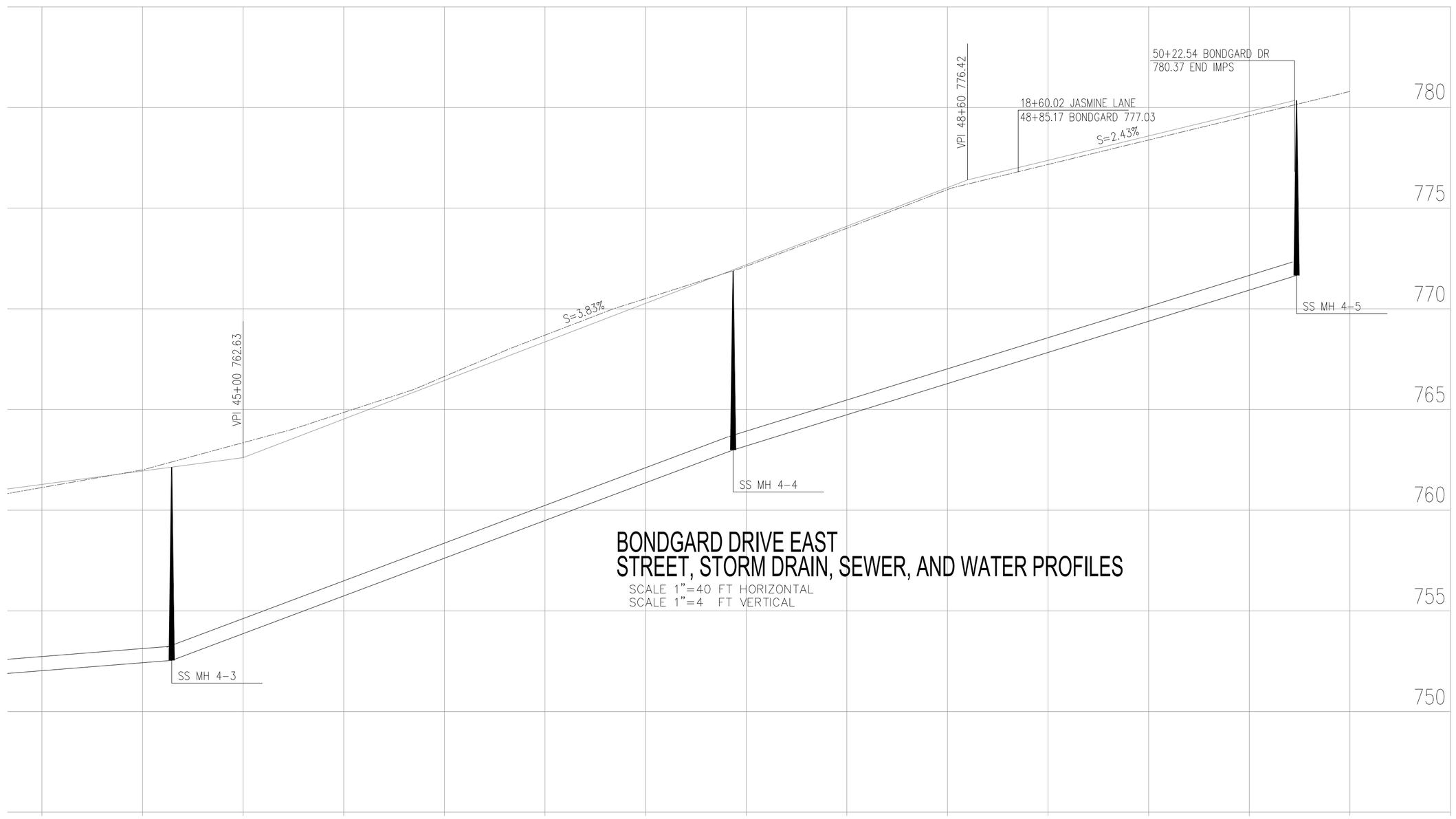
RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

SUBDIVISION STREET AND SEWER PROFILE
SUNTOP P.U.D., DIVISION 4, ENUMCLAW, WA

SUNTOP FARMS, C/O KEN KRUEGER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985 EMAIL: knk3207@msn.com

A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 4-4

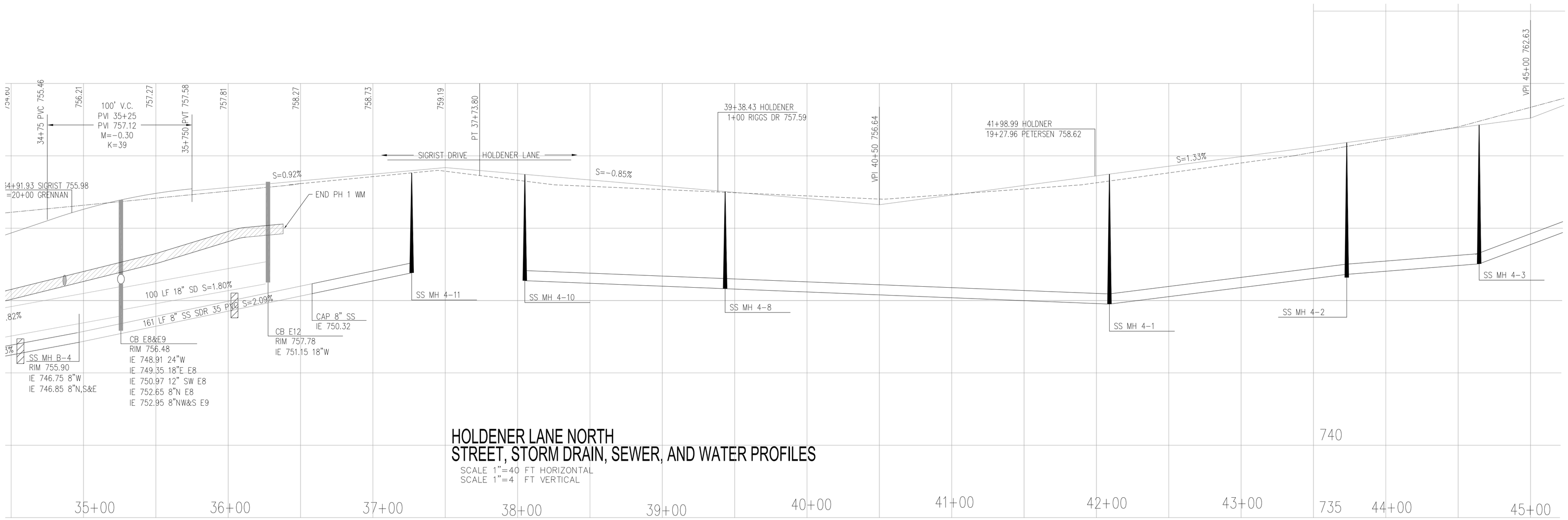
SUNTOP P.U.D. DIVISION 4, ENUMCLAW, WA



BONDGARD DRIVE EAST
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=4 FT VERTICAL

SANITARY SEWER SCHEDULE

SS MH #	LENGTH	SLOPE	RIM	IE OUT	IE IN	DEPTH
HOLDENER LN N						
4-1			758.75	749.67	749.77	8.98
	163	1.000%				
4-2			760.83	751.40	751.50	9.33
	85	1.000%				
4-3			762.05	752.35	752.45	9.60
4-1			758.75	749.67	749.77	8.98
	267	0.400%				
4-8			757.30	750.84	750.94	6.36
	140	0.400%				
4-10			758.62	751.50	751.60	7.02
BONDGARD DR E						
4-3			762.05	752.35	752.45	9.60
	280	3.750%				
4-4			771.96	762.95	763.05	8.91
	280	3.000%				
4-5			780.27	771.45	771.55	8.72



HOLDENER LANE NORTH
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=4 FT VERTICAL

ANDREW J. RYKELS
EXPIRES 12/31/2016
PROFESSIONAL ENGINEER
7/21/2016

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

NO. REVISIONS DATE

SUBDIVISION STREET AND SEWER PROFILE
SUNTOP P.U.D., DIVISION 4, ENUMCLAW, WA

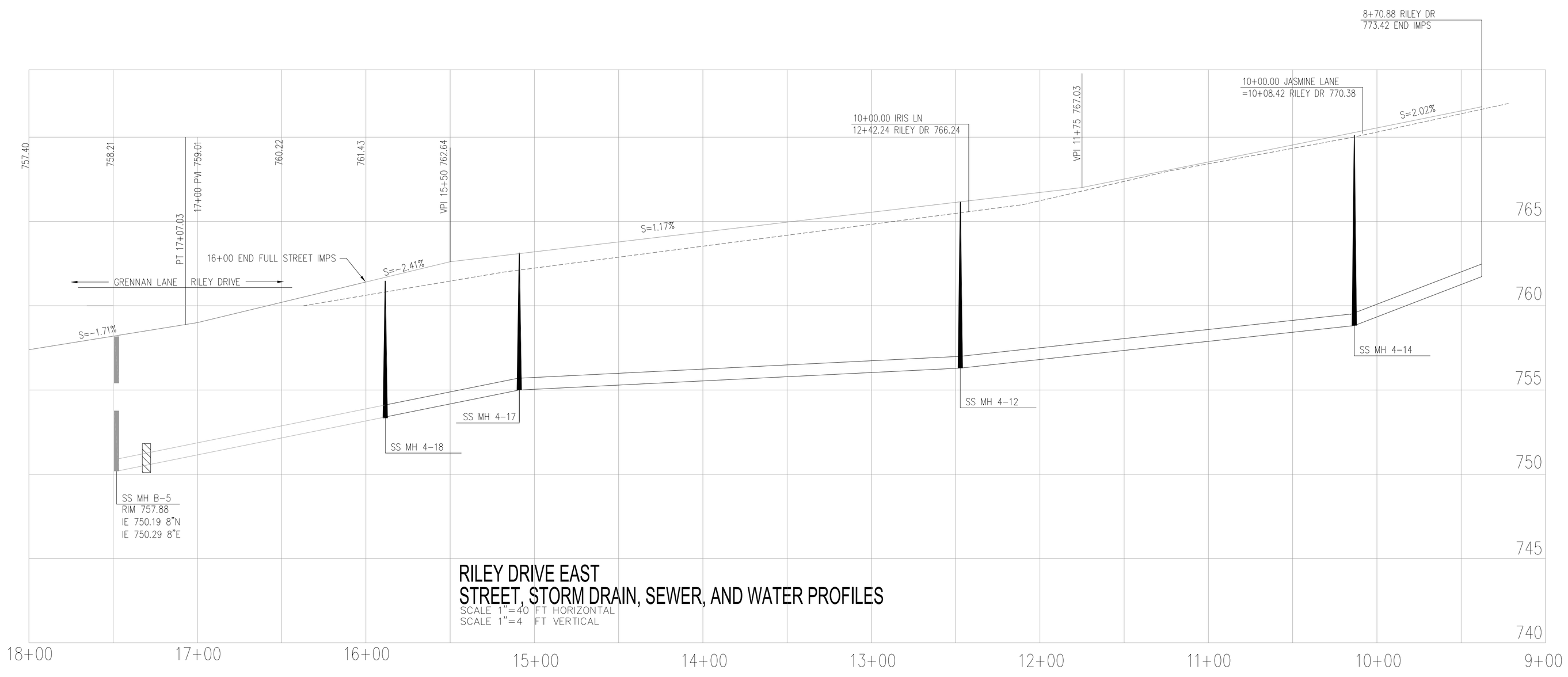
SUNTOP FARMS, C/O KEN KRUEGER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985 EMAIL: knk3207@msn.com

A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 4-5

SUNTOP P.U.D. DIVISION 4, ENUMCLAW, WA

SANITARY SEWER SCHEDULE

RILEY DR E						
4-18			761.70	753.50	753.60	8.10
	80	2.020%				
4-17			763.00	755.12	755.22	7.78
	266	0.400%				
4-12			766.10	756.28	756.38	9.72
	232	1.000%				
4-14			770.10	758.70	758.80	11.30
	146	2.000%				
CO			773.20	761.72	761.82	11.38



RILEY DRIVE EAST
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=4 FT VERTICAL

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
32106 NW Fairway Hts DrR, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

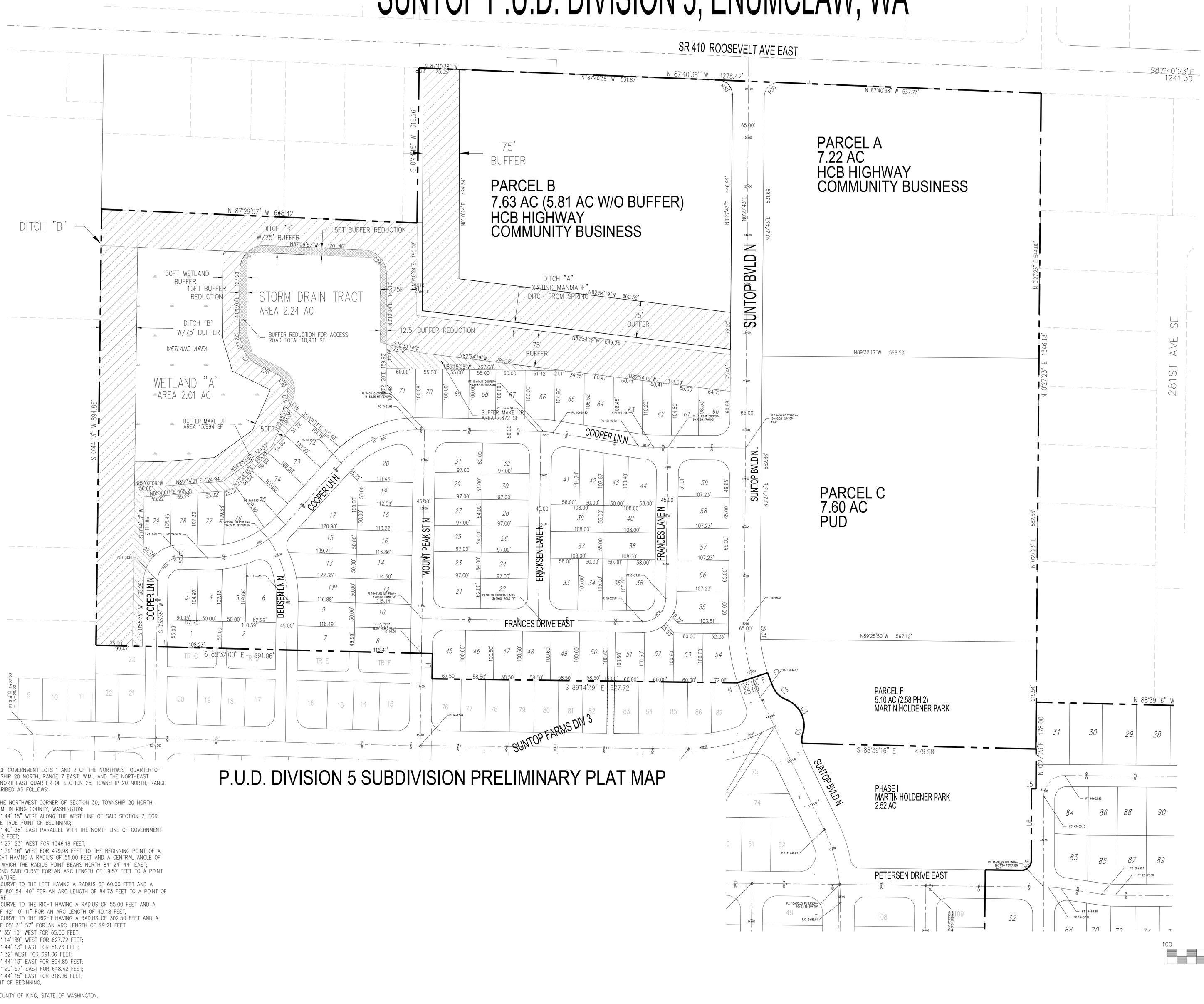
NO. REVISIONS DATE

SUBDIVISION STREET AND SEWER PROFILE
SUNTOP P.U.D., DIVISION 4, ENUMCLAW, WA

SUNTOP FARMS, C/O KEN KRUEGER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985 EMAIL: knk3207@msn.com

A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 4-6

SUNTOP P.U.D. DIVISION 5, ENUMCLAW, WA



PRELIMINARY LOT AREAS

LOT #	AREA	LOT #	AREA
1	6,186	41	6,711
2	6,116	42	5,558
3	6,251	43	5,199
4	5,273	44	5,509
5	5,622	45	6,638
6	7,377	46	5,884
7	5,807	47	5,884
8	5,804	48	5,884
9	5,836	49	5,884
10	5,773	50	5,884
11	5,946	51	6,060
12	5,741	52	6,477
13	6,486	53	6,036
14	5,709	54	6,004
15	6,859	55	7,076
16	5,677	56	6,901
17	8,045	57	6,879
18	5,645	58	6,860
19	5,613	59	7,684
20	7,573	60	5,887
21	5,880	61	5,649
22	5,880	62	6,486
23	5,238	63	6,564
24	5,238	64	6,449
25	5,238	65	6,305
26	5,238	66	6,167
27	5,238	67	6,000
28	5,238	68	5,500
29	5,238	69	5,500
30	5,238	70	5,500
31	5,880	71	5,462
32	5,880	72	5,000
33	5,956	73	5,000
34	5,250	74	5,000
35	5,250	75	5,752
36	5,956	76	6,051
37	5,940	77	6,017
38	5,940	78	5,780
39	5,940	79	6,356
40	5,940		

LINE AND CURVE TABLES

LINE	BEARING	HORIZ DISTANCE
L1	S00°44'13"W	51.76'
L20	N63°41'57"W	49.99'
L21	N16°41'57"W	21.50'

CURVE	RADIUS	ARC	DELTA
C1	302.50'	29.21'	5°31'57"
C2	55.00'	40.48'	42°10'11"
C3	60.00'	84.73'	80°54'40"
C4	55.00'	19.57'	20°22'58"
C18	50.00'	19.02'	21°47'43"
C19	50.00'	29.16'	33°24'54"
C20	35.00'	41.47'	67°53'14"
C21	50.00'	41.03'	47°01'01"
C22	50.00'	14.84'	17°00'19"
C23	50.00'	80.45'	92°11'20"
C24	50.00'	76.51	87°40'26"

LOT "A"

THOSE PORTIONS OF GOVERNMENT LOTS 1 AND 2 OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., AND THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 25, TOWNSHIP 20 NORTH, RANGE 6 EAST,W.M., DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M. IN KING COUNTY, WASHINGTON;
THENCE SOUTH 00° 44' 15" WEST ALONG THE WEST LINE OF SAID SECTION 7, FOR 50.02 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH 87° 40' 38" EAST PARALLEL WITH THE NORTH LINE OF GOVERNMENT LOT 1, FOR 1278.42 FEET;
THENCE SOUTH 00° 27' 23" WEST FOR 1346.18 FEET;
THENCE NORTH 88° 39' 16" WEST FOR 479.98 FEET TO THE BEGINNING POINT OF A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 20° 22' 58" FROM WHICH THE RADIUS POINT BEARS NORTH 84° 24' 44" EAST;
THENCE RIGHT ALONG SAID CURVE FOR AN ARC LENGTH OF 19.57 FEET TO A POINT OF REVERSE CURVATURE;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 80° 54' 40" FOR AN ARC LENGTH OF 84.73 FEET TO A POINT OF REVERSE CURVATURE;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 42° 10' 11" FOR AN ARC LENGTH OF 40.48 FEET,
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 302.50 FEET AND A CENTRAL ANGLE OF 05° 31' 57" FOR AN ARC LENGTH OF 29.21 FEET;
THENCE SOUTH 71° 35' 10" WEST FOR 65.00 FEET;
THENCE NORTH 89° 14' 39" WEST FOR 627.72 FEET;
THENCE NORTH 00° 44' 13" EAST FOR 51.76 FEET;
THENCE NORTH 88° 32' WEST FOR 691.06 FEET;
THENCE NORTH 00° 44' 13" EAST FOR 894.85 FEET;
THENCE SOUTH 87° 29' 57" EAST FOR 648.42 FEET;
THENCE NORTH 00° 44' 15" EAST FOR 318.26 FEET,
TO THE TRUE POINT OF BEGINNING,

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

P.U.D. DIVISION 5 SUBDIVISION PRELIMINARY PLAT MAP

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts DR, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

NO. REVISIONS DATE

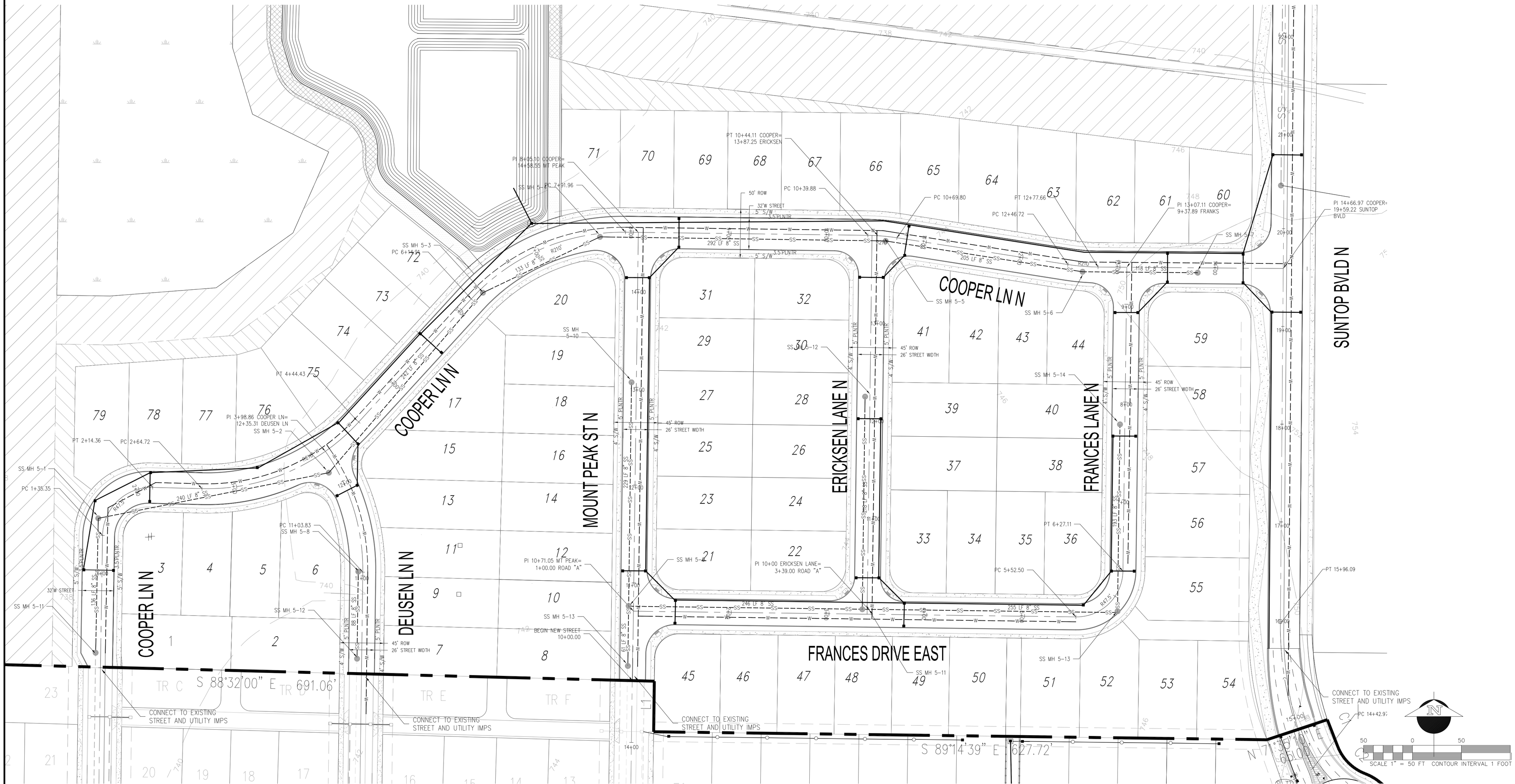
SUBDIVISION LOT LAYOUT
SUNTOP P.U.D., DIVISION 5, ENUMCLAW, WA

CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PKWY NE, REDMOND, WA 98052
PH 425-753-2985 knk3207@msn.com

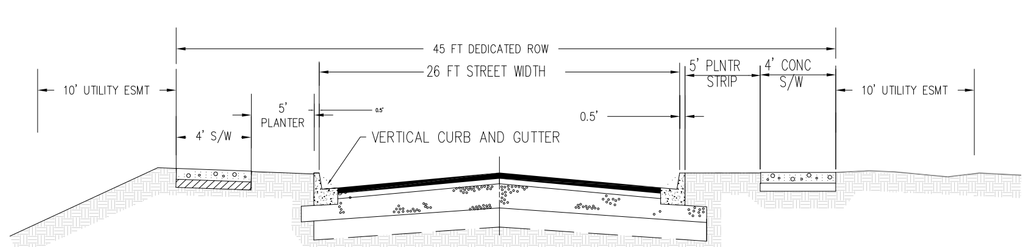
A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 5-1

ANDREW J. RYKELS — STATE OF WASHINGTON — 18000 — REGISTERED PROFESSIONAL ENGINEER
7/21/2016

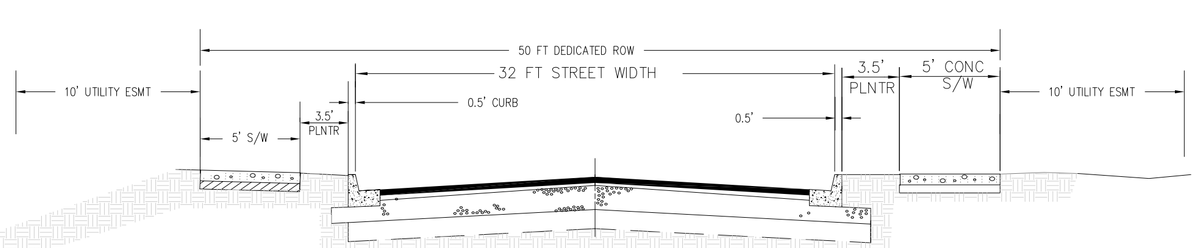
SUNTOP P.U.D. DIVISION 5, ENUMCLAW, WA



P.U.D. DIVISION 5 SUBDIVISION STREET AND UTILITY IMPROVEMENT PLAN



TYPE 7 LOCAL STREET SECTION
TYPICAL ALL ROADS BUT COOPER



TYPE 6 LOCAL STREET SECTION
TYPICAL SECTION COOPER ROAD

ANDREW J. KNIKE
STATE OF WASHINGTON
18911
REGISTERED PROFESSIONAL ENGINEER
7/21/2016

SUBDIVISION SITE AND UTILITY PLAN SOUTH LOTS
SUNTOP P.U.D., DIVISION 5, ENUMCLAW, WA

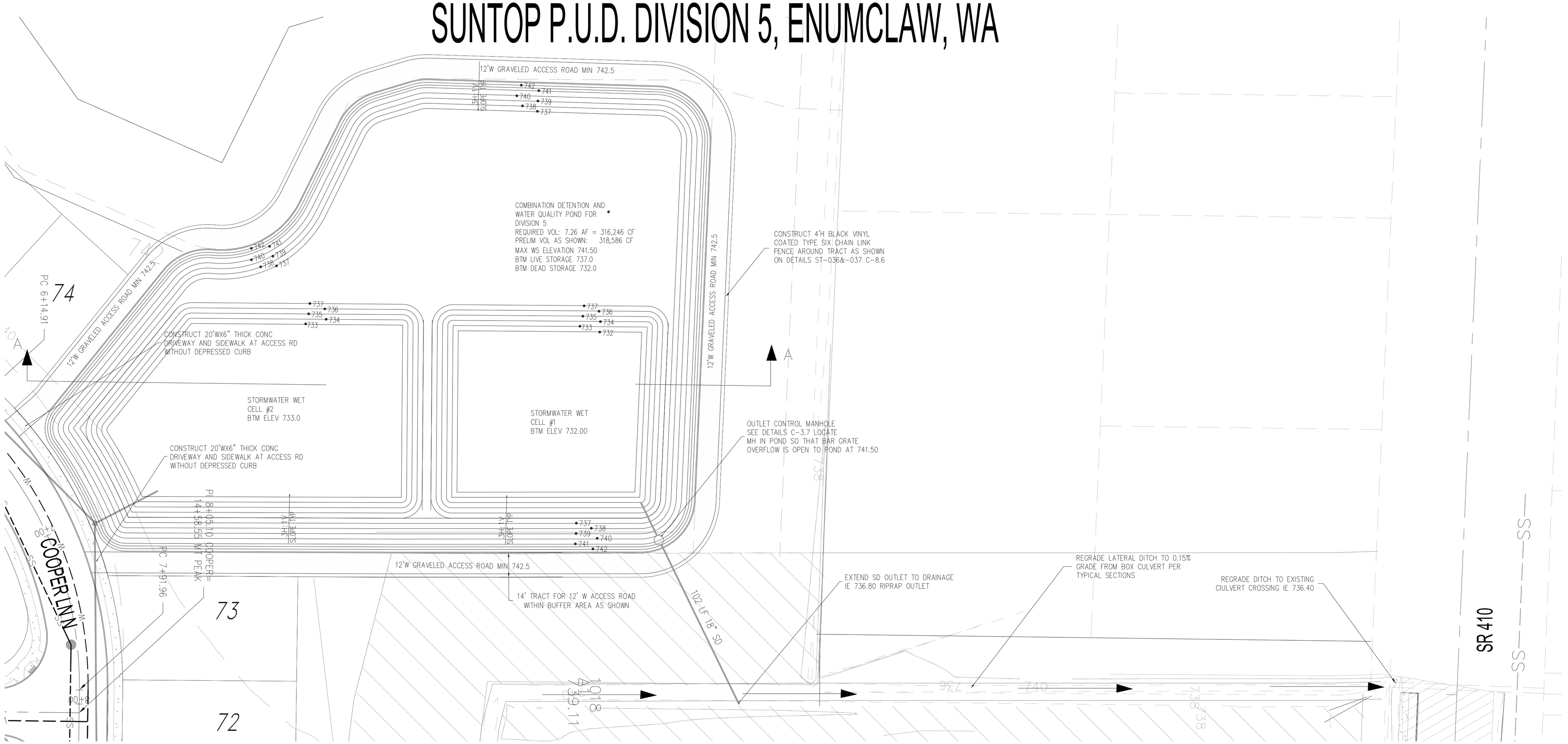
CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PKWY NE, REDMOND, WA 98052
PH 425-753-2985 knk3207@msn.com

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr., Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

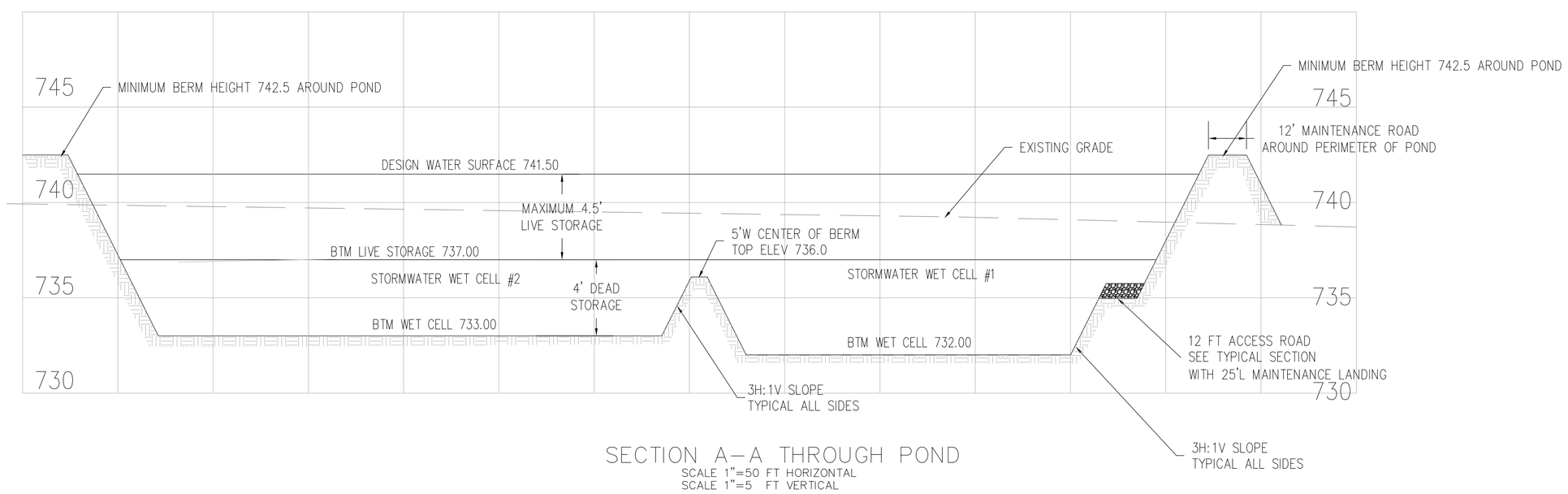
NO.	REVISIONS	DATE

A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 5-2

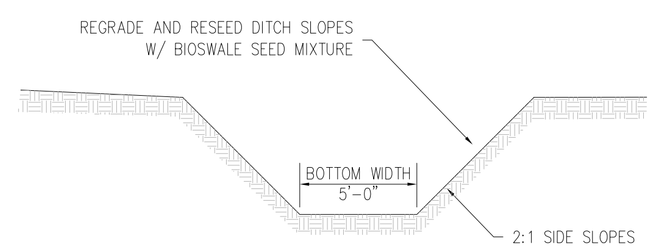
SUNTOP P.U.D. DIVISION 5, ENUMCLAW, WA



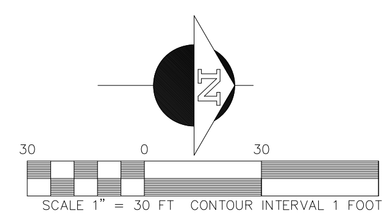
P.U.D. DIVISION 5 SUBDIVISION DETENTION AND WATER QUALITY PLAN



SECTION A–A THROUGH POND
SCALE 1"=50 FT HORIZONTAL
SCALE 1"=5 FT VERTICAL



TYPICAL SECTION FOR REGRADED DRAINAGE DITCH



7/22/2016

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
32106 NW Fairway Hts Dr, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

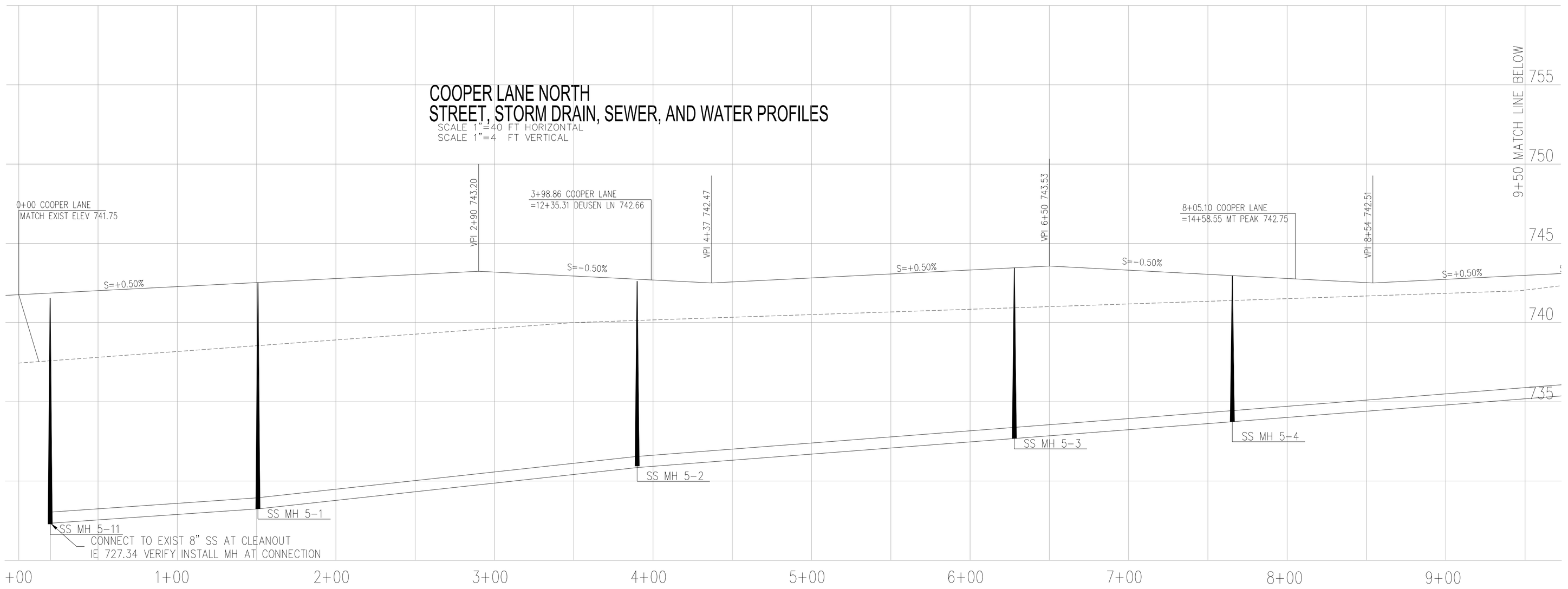
NO.	REVISIONS	DATE

STORM DRAIN DETENTION AND WATER QUALITY POND
SUNTOP P.U.D., DIVISION 5, ENUMCLAW, WA

CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PKWY NE, REDMOND, WA 98052
PH 425-753-2985 knk3207@msn.com

A RYKELS
DESIGNED BY
07/22/2016
DATE
007-121
PROJECT NO.
SHEET PP 5-3

SUNTOP P.U.D. DIVISION 5, ENUMCLAW, WA



SANITARY SEWER SCHEDULE

COOPER LANE SS

SS MH #	LENGTH	SLOPE	RIM	IE OUT	IE IN	DEPTH
EX CO			741.8	727.34	727.34	14.41
	136	0.500%				
5-1			742.40	728.02	728.12	14.28
	240	1.000%				
5-2			742.30	730.52	730.62	11.68
	242	0.750%				
5-3			743.32	732.44	732.54	10.79
	133	0.750%				
5-4			742.85	733.53	733.63	9.22
	292	0.750%				
5-5			743.51	735.82	735.92	7.59
	205	2.500%				
5-6			748.67	741.05	741.15	7.52
	118	2.500%				
5-7			751.62	744.10	744.20	7.42

DEUSEN LANE SS

EX CO			742.8	735.00	735.00	7.80
	89	0.400%				
5-8			742.1	735.36	735.46	6.66

MOUNT PEAK SS

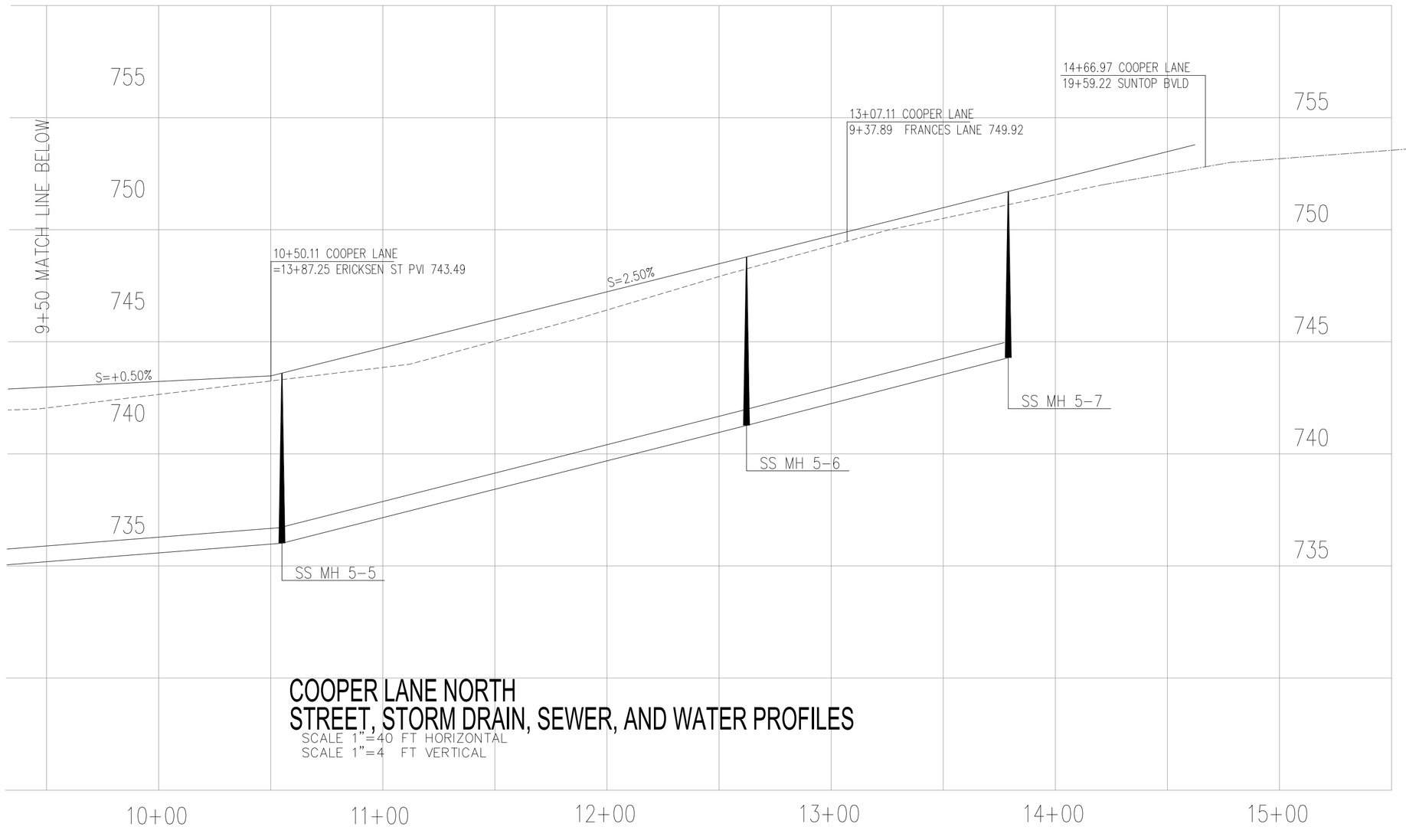
EX CO			745.3	735.00	735.00	10.25
	61	0.400%				
5-9			745.0	735.24	735.34	9.66
	229	0.400%				
5-10			742.8	736.26	736.36	6.42

FRANCES LANE SS

5-9			745.0	735.24	735.34	9.66
	246	0.500%				
5-11			745.1	736.57	736.67	8.43
	255	0.500%				
5-13			746.3	737.95	738.05	8.25
	193	0.500%				
5-14			747.4	739.01	739.11	8.25

ERICKSEN LANE SS

5-11			745.1	736.57	736.67	8.43
	218	0.400%				
5-12			744.0	737.55	737.65	6.30



RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

NO	REVISIONS	DATE

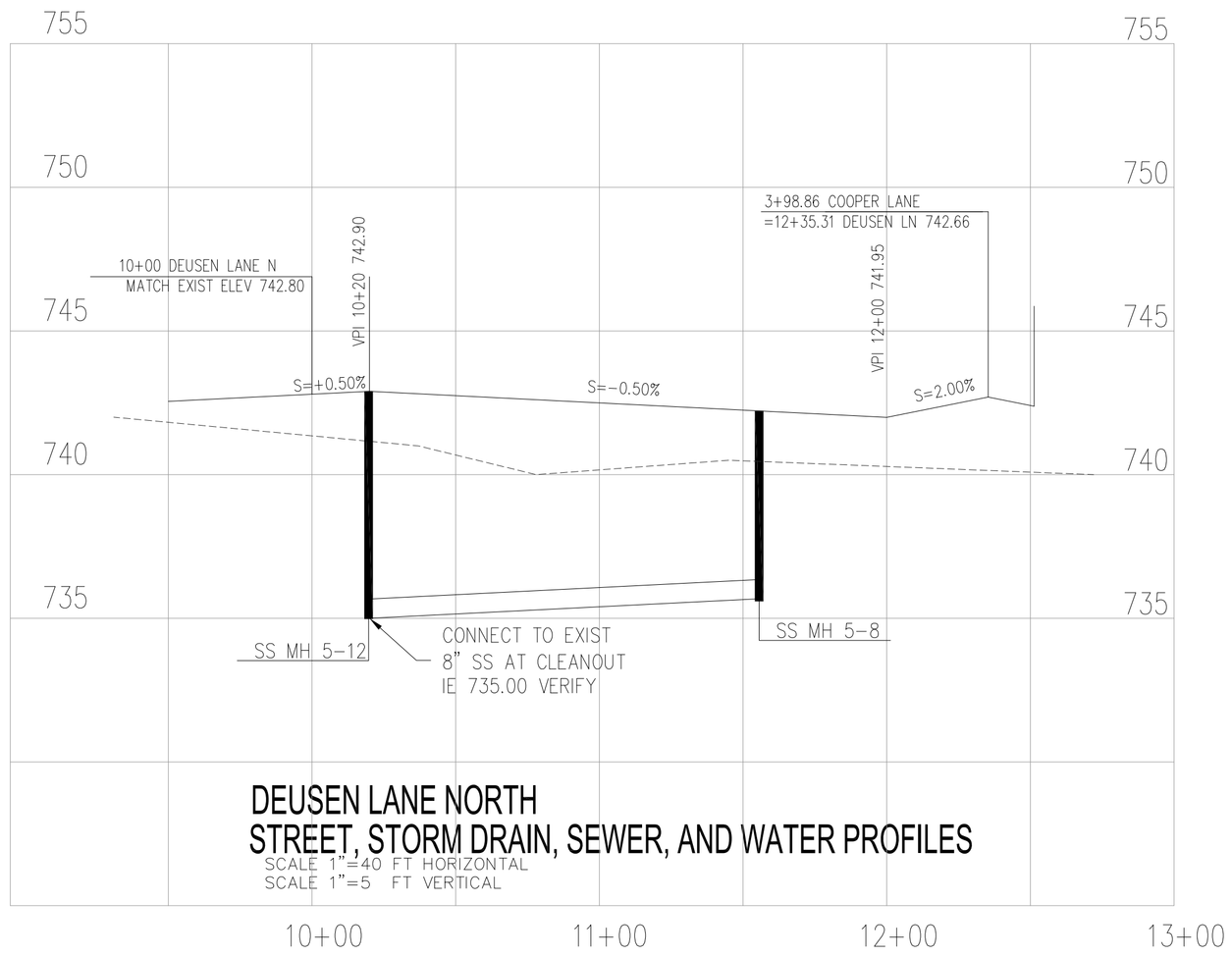
SUBDIVISION STREET AND SEWER PROFILE
SUNTOP P.U.D., DIVISION 5, ENUMCLAW, WA

SUNTOP FARMS, C/O KEN KRUEGER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985 EMAIL: knk3207@msn.com

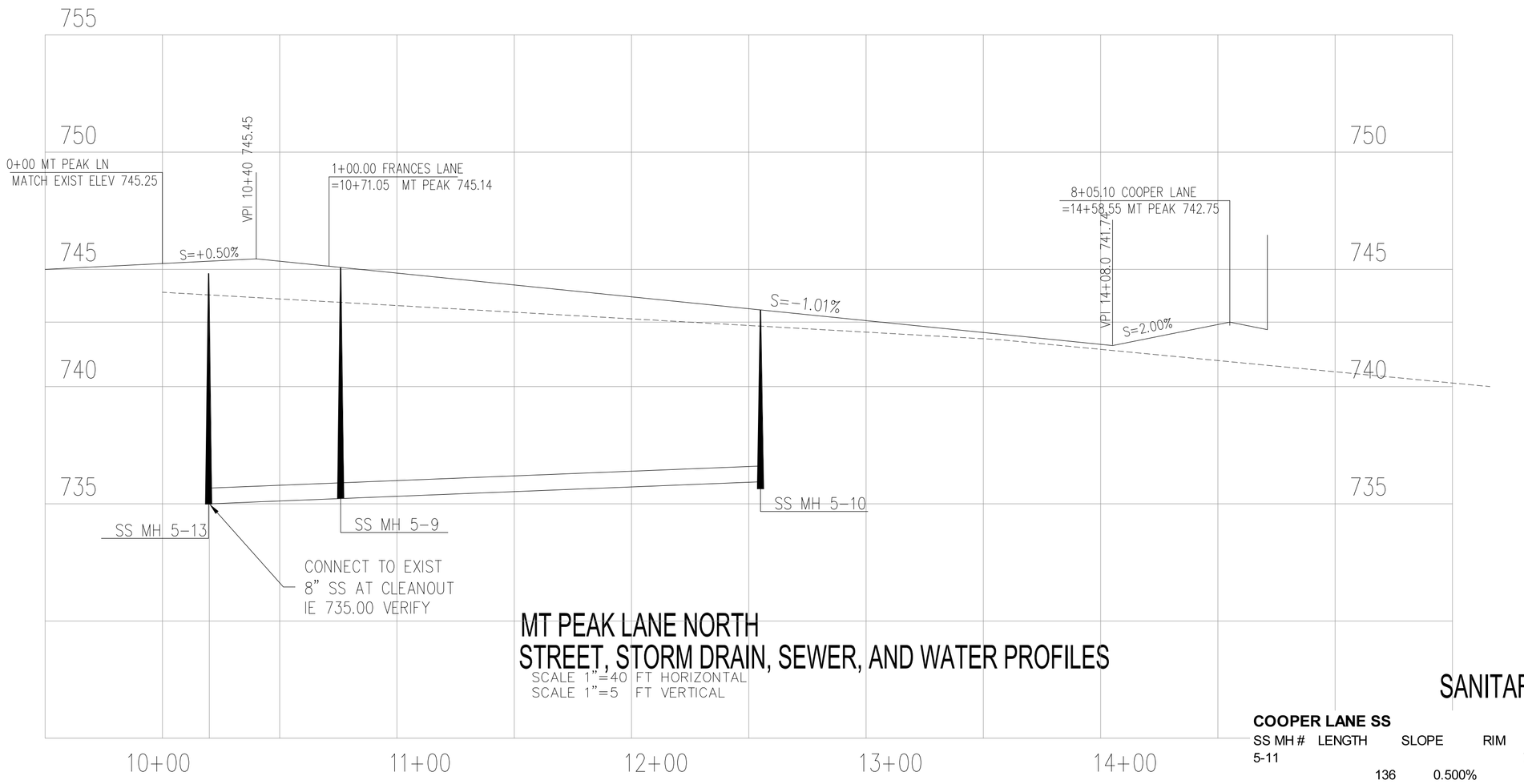
A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 5-4

STATE OF WASHINGTON
19985
REGISTERED
PROFESSIONAL ENGINEER
7/21/2016

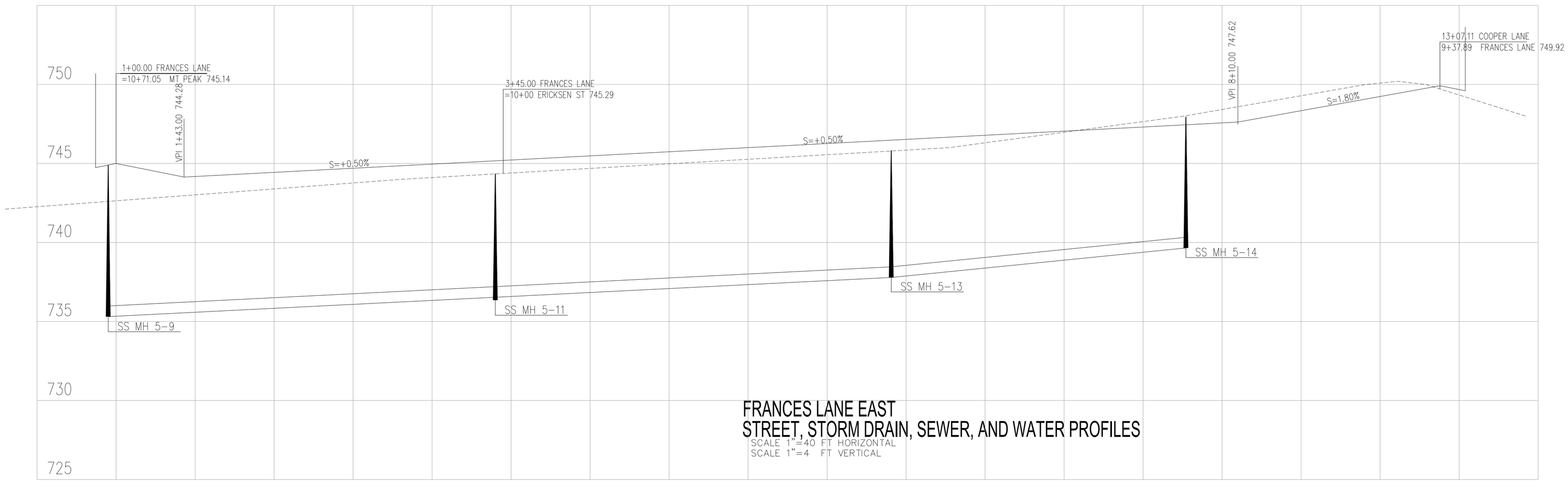
SUNTOP P.U.D. DIVISION 5, ENUMCLAW, WA



DEUSEN LANE NORTH
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=5 FT VERTICAL



MT PEAK LANE NORTH
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=5 FT VERTICAL



FRANCES LANE EAST
STREET, STORM DRAIN, SEWER, AND WATER PROFILES
SCALE 1"=40 FT HORIZONTAL
SCALE 1"=4 FT VERTICAL

SANITARY SEWER SCHEDULE

SS MH #	LENGTH	SLOPE	RIM	IE OUT	IE IN	DEPTH
COOPER LANE SS						
5-11			741.8	727.34	727.34	14.41
	136	0.500%				
5-1			742.40	728.02	728.12	14.28
	240	1.000%				
5-2			742.30	730.52	730.62	11.68
	242	0.750%				
5-3			743.32	732.44	732.54	10.79
	133	0.750%				
5-4			742.85	733.53	733.63	9.22
	292	0.750%				
5-5			743.51	735.82	735.92	7.59
	205	2.500%				
5-6			748.67	741.05	741.15	7.52
	118	2.500%				
5-7			751.62	744.10	744.20	7.42
DEUSEN LANE SS						
5-12			742.8	735.00	735.00	7.80
	89	0.400%				
5-8			742.1	735.36	735.46	6.66
MOUNT PEAK SS						
5-13			745.3	735.00	735.00	10.25
	61	0.400%				
5-9			745.0	735.24	735.34	9.66
	229	0.400%				
5-10			742.8	736.26	736.36	6.42
FRANCES LANE SS						
5-9			745.0	735.24	735.34	9.66
	246	0.500%				
5-11			745.1	736.57	736.67	8.43
	255	0.500%				
5-13			746.3	737.95	738.05	8.25
	193	0.500%				
5-14			747.4	739.01	739.11	8.25
ERICKSEN LANE SS						
5-11			745.1	736.57	736.67	8.43
	218	0.400%				
5-12			744.0	737.55	737.65	6.30

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

NO. REVISIONS DATE

SUBDIVISION STREET AND SEWER PROFILE
SUNTOP P.U.D., DIVISION 5, ENUMCLAW, WA

SUNTOP FARMS, C/O KEN KRUEGER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985 EMAIL: knk3207@msn.com

A RYKELS
DESIGNED BY
07/21/2016
DATE
007-121
PROJECT NO.
SHEET PP 5-5

STATE OF WASHINGTON
19985
REGISTERED
PROFESSIONAL ENGINEER
7/21/2016

City of Enumclaw

Department of Community Development
1309 Myrtle Ave, Enumclaw, WA 98022
Phone: (360) 825-3593 Fax: (360) 825-7232

NOTICE OF APPLICATION/ NOTICE OF PUBLIC HEARING FOR SUNTOP PHASE 4 AND 5 RESIDENTIAL SUBDIVISIONS

Project #16314

Notice is hereby given that the City of Enumclaw has received an application from Ken Krueger and Rykels Engineering Group on behalf of Mrs. Frances Holdener for preliminary plat approval to subdivide approximately 69 acres into 177 single-family residential lots plus 4 tracts totaling 25 acres reserved for future development and parks. The subject property is located in the southwest quadrant of the intersection of State Highway 410 and 284th Avenue SE, directly east of Suntop Farms Divisions 1 and 2, in the City of Enumclaw, Washington. Portions of SEC. 25 and SEC. 30, T20N, R06E, WM. The project site is: Division 4- King County Assessor's Parcel #302007-9111; Division 5- King County Assessor's Parcel #302007-9011.

Dates:	This application was originally submitted on:	August 3, 2016
	This application was deemed complete on:	September 29, 2016
	Date of this Notice:	November 9, 2016

Environmental Review: These projects are part of the Suntop Farms Planned Unit Development (PUD) that was approved by the City of Enumclaw via Ordinance 2551 in November 2014. The environmental impacts of the larger 105 acre PUD project site were analyzed at that time in an environmental review pursuant to the State Environmental Policy Act (SEPA). A Mitigated Determination of Non-Significance (MDNS) was issued for the PUD project on July 30, 2014. The mitigation measures incorporated in that document will be incorporated as conditions of approval for these preliminary plat projects. An addendum has been issued which addresses the specific traffic generation expected for the preliminary subdivisions. The City is adopting the MDNS issued for the Suntop Farms PUD, together with the addendum, as adequately addressing the environmental impacts of the proposed preliminary plats.

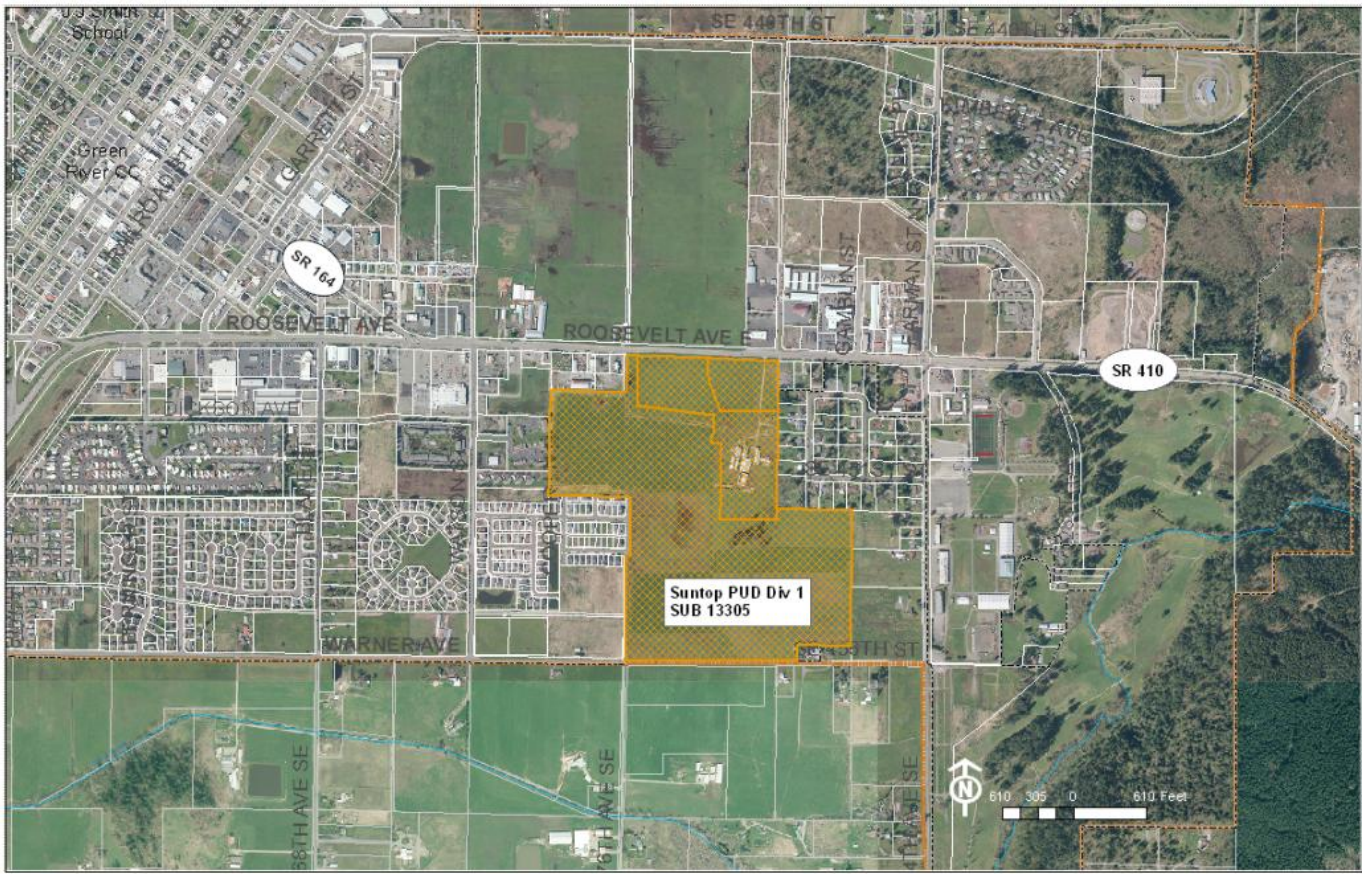
Other Permits Required: Preliminary and Final Plat Approval, City approval of grading and site development plans; a General Permit to Discharge Stormwater Associated with Construction Activity is required from the state Department of Ecology; and building permits for each new dwelling.

Comment Period: The public is invited to comment on this application beginning on November 2, 2016, and ending 15 days later at 4:30 PM on **November 17, 2016**. All persons are welcome to comment on the application, receive notice of and participate in any hearings, and request a copy of the decision once made. The application will be processed as a Type IV permit procedure, and the decision of the Hearing Examiner will be forwarded to the Enumclaw City Council as a recommendation for final action. Information regarding this application may be requested at:

City of Enumclaw Community Development Department
Attn: Dan Catron, Associate Planner
1309 Myrtle Avenue
Enumclaw, WA 98022
(360) 615-5725

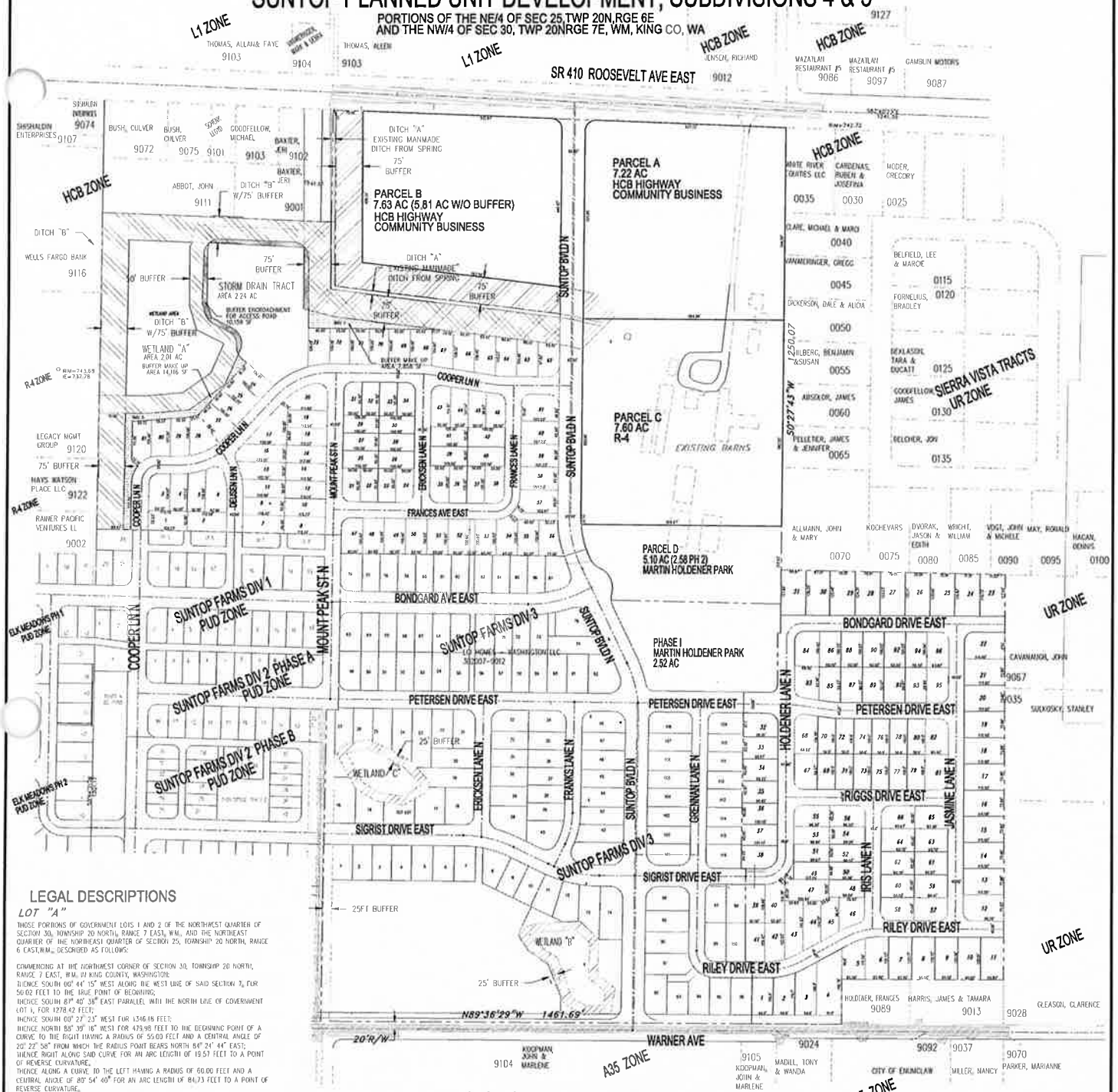
SEE OTHER SIDE FOR HEARING INFORMATION→

Public Hearing: A public hearing before the City's Hearing Examiner has been scheduled for **Thursday, December 1, 2016, at 5:30 PM** in the Enumclaw City Council Chambers located at 1339 Griffin Avenue, Enumclaw, WA 98022



SUNTOP PLANNED UNIT DEVELOPMENT, SUBDIVISIONS 4 & 5

PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E
AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA



LEGAL DESCRIPTIONS

LOT "A"

THOSE PORTIONS OF GOVERNMENT LOTS 1 AND 2 OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., AND THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 25, TOWNSHIP 20 NORTH, RANGE 6 EAST,W.M., DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M. IN KING COUNTY, WASHINGTON;
THENCE SOUTH 00° 44' 15" WEST ALONG THE WEST LINE OF SAID SECTION 7, FOR 56.02 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH 87° 40' 38" EAST PARALLEL WITH THE NORTH LINE OF GOVERNMENT LOT 1, FOR 1278.42 FEET;
THENCE SOUTH 00° 27' 23" WEST FOR 1346.19 FEET;
THENCE NORTH 88° 39' 16" WEST FOR 479.98 FEET TO THE BEGINNING POINT OF A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 20° 22' 56" FROM WHICH THE RADIUS POINT BEARS NORTH 84° 24' 44" EAST;
THENCE RIGHT ALONG SAID CURVE FOR AN ARC LENGTH OF 19.57 FEET TO A POINT OF REVERSE CURVATURE;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 89° 54' 40" FOR AN ARC LENGTH OF 84.73 FEET TO A POINT OF REVERSE CURVATURE;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 42° 10' 11" FOR AN ARC LENGTH OF 40.48 FEET;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 302.50 FEET AND A CENTRAL ANGLE OF 05° 31' 57" FOR AN ARC LENGTH OF 29.21 FEET;
THENCE SOUTH 71° 35' 10" WEST FOR 65.00 FEET;
THENCE NORTH 89° 14' 39" WEST FOR 627.72 FEET;
THENCE NORTH 00° 44' 13" EAST FOR 51.76 FEET;
THENCE NORTH 88° 32' WEST FOR 691.06 FEET;
THENCE NORTH 00° 44' 13" EAST FOR 894.85 FEET;
THENCE SOUTH 87° 25' 57" EAST FOR 648.42 FEET;
THENCE NORTH 00° 44' 15" EAST FOR 348.26 FEET,
TO THE TRUE POINT OF BEGINNING.

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON

LOT "C"

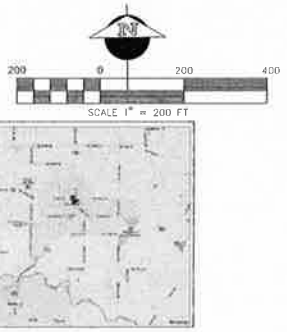
THAT PORTION OF GOVERNMENT LOT 2, AND THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M. DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID GOVERNMENT LOT 2;
THENCE SOUTH 88° 39' 16" EAST ALONG THE NORTHLINE OF THE SE QUARTER OF THE NORTHWEST QUARTER FOR 628.69 FEET;
THENCE SOUTH 00° 04' 52" WEST FOR 1142.56 FEET;
THENCE NORTH 89° 36' 49" WEST FOR 455.80 FEET;
THENCE SOUTH 00° 04' 52" WEST FOR 127.22 FEET;
THENCE NORTH 89° 36' 49" WEST FOR 250.46 FEET;
THENCE NORTH 00° 28' 11" EAST FOR 174.30 FEET;
THENCE SOUTH 89° 59' 56" WEST FOR 19.62 FEET;
THENCE NORTH 00° 05' 20" EAST FOR 263.14 FEET;
THENCE NORTH 89° 35' 43" WEST FOR 129.11 FEET;
THENCE NORTH 00° 40' 06" EAST FOR 497.65 FEET;
THENCE SOUTH 89° 32' 18" EAST FOR 746.61 FEET;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 20.10 FEET AND A CENTRAL ANGLE OF 90° 04' 25" FOR AN ARC LENGTH OF 31.60 FEET;
THENCE NORTH 00° EAST FOR 0.00 FEET;
THENCE NORTH 00° 05' 38" EAST FOR 147.52 FEET;
THENCE SOUTH 88° 14' 10" EAST FOR 7.67 FEET;
THENCE NORTH 00° 27' 23" EAST FOR 178.00 FEET, TO THE TRUE POINT OF BEGINNING.

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

7/22/2016

SUNTOP PUD DIVISIONS 4 & 5 PRELIMINARY PLAT MAP



LOCATION MAP

PROJECT DATA

1. EXISTING PARCEL AREAS: LOT C (DIVISION 4) 19.21 AC, LOT A (DIVISION 5) 50.92 AC
2. EXISTING ZONING: HOLDNER FARMS PLANNED UNIT DEVELOPMENT
3. PROPOSED LAND USE: PUD, MIXED USE
4. NUMBER OF LOTS : DIVISION 4: 96 LOTS; DIVISION 5: 81 LOTS - 173 TOTAL LOTS
5. COUNTY PARCEL NUMBERS: 302007-9011, & -9111
6. APPROXIMATE AREA SMALLEST LOT: 4,900 SqFt
8. SCS SOILS TYPE: BUCKLEY LOAM, SHALCAR MUCK, SULTAN SILT LOAM
9. SOURCE OF WATER SUPPLY: CITY OF ENUMCLAW
10. SOURCE OF SEWAGE DISPOSAL: CITY OF ENUMCLAW
11. EXISTING GROUND COVER: GRASSY PASTURE W/ SOME GROVES OF TREES

PROPERTY OWNER/APPLICANT:	AGENT/REPRESENTATIVE:
MRS FRANCES HOLDENER	KEN KRUEGER PH 425-753-2985
1009 WARNER AVE	3207 W LK SAMMAMISH PARKWAY NE
ENUMCLAW, WA 98023	REDMOND, WA 98052

PRELIMINARY PLAT AND PUD PLAN
SUNTOP PUD, DIVISIONS 4&5, PRELIMINARY PLAT, ENUMCLAW, WA
CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers - Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97703 253-951-4217 rykelsengineering@gmail.com

16314 Suntop 495

1920079012
JENSEN RICHARD P
810 Blake St
ENUMCLAW, WA 98022

1920079086
CARDENAS ANDRES
20101 SE 436TH ST
ENUMCLAW, WA 98022

1920079097
MAZATLAN RESTURANT #5
951 ROOSEVELT AVE E
ENUMCLAW, WA 98022

2309700060
AMH 2014-3 BORROWER LLC
30601 AGOURA RD #200
Agoura Hills, CA 91301

2309700070
THOMPSON VENETA G
271 BONDGARD AVE E
ENUMCLAW, WA 98022

2309700080
AABY DAVID+ALLISON
283 BONDGARD AVE E
ENUMCLAW, WA VE E

2309700090
KUFFLER RYAN+ELANA BRASSARD
2921 EDITH AVE
ENUMCLAW, WA 98022

2309700100
WINBORN LINDSEY
317 BONDGARD AVE E
ENUMCLAW, WA 98022

2309700110
BOYD ELLEN+ BEN
339 BONDGARD AVE E
ENUMCLAW, WA 98022

2309700120
PRUSS KELLY
340 BONDGARD AVE E
ENUMCLAW, WA VE E

2309700130
GRONEWOLD DARREN J
318 BONGARD AVE E
ENUMCLAW, WA VE E

2309700140
MURPHY LAURA R+KEVIN P
282 BONDGARD AVE E
ENUMCLAW, WA VE E

2309700150
DRIBNAK KODY+MINDY
270 BONDGARD AVE E
ENUMCLAW, WA 98022

2420069103
THOMAS ALLAN B+M FAYE LIVIN
123 ROOSEVELT AVE E
ENUMCLAW, WA 98022

2420069104
VANWIERINGEN MARK+DEBRA
451 ROOSEVELT AVE E
ENUMCLAW, WA 98022

2520069001
BAXTER JERI
3637 NW 18TH AVE
OAKLAND PARK, FL 33309

2520069002
POLLOCK MICHAEL+CHRISTINE
718 GRIFFIN AVE #272
ENUMCLAW, WA 98022

2520069072
BUSH CULVER
340 ROOSELVELT AVE E
ENUMCLAW, WA 98022

2520069074
SHISHALDOR ENT
P.O. BOX 72
RAVENSDALE, WA 98051

2520069075
BUSH CULVER M
340 ROOSEVELT AVE E
ENUMCLAW, WA 98022

2520069101
SCHENK LLOYD E
1823 LAFROMBOISE ST
ENUMCLAW, WA 98022

2520069102
BAXTER JERI
3637 NW 18TH AVE
OAKLAND PARK, FL 33309

2520069103
GOODFELLOW MICHAEL J
P.O. BOX 1255
ENUMCLAW, WA 98022

2520069107
SHISHALDIN ENTERPRISES INC
P.O. BOX 72
RAVENSDALE, WA 98051

2520069111
ABBOTT JOHN
400 ROOSEVELT AVE E
ENUMCLAW, WA 98022

2520069116
ROOSEVELT PLACE LLC
718 GRIFFIN AVE #906
ENUMCLAW, WA 98022

2520069120
LEGACY MANAGEMENT GROUP LLC
C/O GUARDIAN MNGT P.O.BOX 5668
PORTLAND, OR 97228

2520069122
HAYS WATSON PLACE LLC
12509 NE 80TH PL
KIRKLAND, WA 98033

3020079011
HOLDENER FRANCES M
1009 WARNER AVE E
ENUMCLAW, WA 98022

3020079012
LGI HOMES-WASHINGTON LLC
1450 LAKE ROBBINS #430
WOODLANDS, TX 77380

mailed 11/10/14

3020079013
HARRIS JAMES & TAMARA
28118 SE 456TH ST
ENUMCLAW, WA 98022

3020079024
MADILL TONY W+WANDA K
28009 SE 456TH ST
ENUMCLAW, WA 98022

3020079028
GLEASON CLARENCE J
45425 284TH AVE SE
ENUMCLAW, WA 98022

3020079035
SULKOSKY STANLEY
45309 284TH AVE SE
ENUMCLAW, WA 98022

3020079037
MILLER NANCY L
28131 SE 456TH ST
ENUMCLAW, WA 98022

3020079067
CAVANAUGH JOHN E
45201 284TH AVE SE
ENUMCLAW, WA 98022

3020079070
PARKER MARIANNE C
28221 SE 456TH ST
ENUMCLAW, WA 98022

3020079089
HOLDENER FRANCES
1009 WARNER AVE E
ENUMCLAW, WA 98022

8141310100
THOMAS KIM
495 PETERSEN DR E
ENUMCLAW, WA 98022

3020079104
KOOPMAN JOHN A+MARLENE G
209 WARNER AVE
ENUMCLAW, WA 98022

3020079105
PRICE NANCY+WILLIAM
2624 SUNFLOWER DR
EDMOND, OK 73013

3020079111
HOLDENER FRANCES M
1009 WARNER AVE E
ENUMCLAW, WA 98022

7792000025
KERSCHNER RAY GENE
28100 SE 449TH ST
ENUMCLAW, WA 98022

7792000030
CARDENAS RUBEN+JOSEFINA GON
28025 SE 448TH ST
ENUMCLAW, WA 98022

7792000035
WHITE RIVER EQUITIES LLC
126 WHITEHAWK WAY
BOISE, ID 83716

7792000040
CLARE MICHAEL T
44903 281ST AVE SE
ENUMCLAW, WA 98022

7792000045
VANWIERINGER GREGG M
44911 281ST AVE SE
ENUMCLAW, WA 98022

7792000050
DICKERSON DALE A+ALICIA L
44925 281ST AVE SE
ENUMCLAW, WA 98022

7792000055
JACOBSON WESLEY M+ROSANNE K
44937 281ST AVE SE
ENUMCLAW, WA 98022

7792000060
ABSOLOR JAMES FOSTER
45009 281ST AVE SE
ENUMCLAW, WA 98022

7792000065
SOUTHWORTH BRUCE A+STOTTLEM
45021 281ST AVE SE
ENUMCLAW, WA 98022

7792000070
ALLMANN JOHN H+MARY ANN
30817 21ST AVE SW
FEDERAL WAY, WA 98023

7792000075
KOCHEVARS
P.O. BOX 279
SOUTH PRAIRIE, WA 98385

7792000080
DVORAK JASON A+EDITH A
28115 SE 451ST ST
ENUMCLAW, WA 98022

7792000085
WRIGHT WILLIAM H
28203 SE 451ST ST
ENUMCLAW, WA 98022

7792000090
BROVOLD KEN+RHIANNON
28213 SE 451ST ST
ENUMCLAW, WA 98022

7792000095
MAY RONALD M
28301 SE 451ST ST
ENUMCLAW, WA 98022

7792000100
HAGAN DENNIS M
28315 SE 451ST ST
ENUMCLAW, WA 98022

7792000115
BELFIELD LEE+MARCIE
46922 283RD AVE SE
ENUMCLAW, WA 98022

7792000120
FORNELIUS BRADLEY S
44920 281ST AVE SE
ENUMCLAW, WA 98022

7792000125
NEKLASON TARA A+DUCATT SHAN
44932 281ST AVE SE
ENUMCLAW, WA 98022

7792000130
GOODFELLOW MICHAEL+BONNIE
45006 281ST AVE SE
ENUMCLAW, WA 98022

7792000135
BELCHER JON M
28114 SE 451ST ST
ENUMCLAW, WA 98022

8141300010
PERSON INVESTMENT PROPERTIE
718 GRIFFIN AVE #140
ENUMCLAW, WA 98022

8141300020
MOLEN PATRICIA L+BILL A
4710 MORRIS AVE S
RENTON, WA 98055

8141300030
MUTTART RICKEY L+KELLY A
402 BONDGARD AVE E
ENUMCLAW, WA 98022

8141300040
SIMMONS GRADY D+ANITRA M
29050 333RD AVE SE
RAVENSDALE, WA 98051

8141300050
PERSON INVESTMENT PROPERTIE
718 GRIFFIN AVE #140
ENUMCLAW, WA 98022

8141300060
PERSON INVESTMENT PROPERTIE
718 GRIFFIN AVE #140
ENUMCLAW, WA 98022

8141300070
EVANS CHRISTOPHER D
444 BONDGARD AVE E
ENUMCLAW, WA 98022

8141300080
B & R LAND INC
13000 LAKEHOLME RD SW
LAKEWOOD, WA 98498

8141300090
B & R LAND INC
13000 LAKEHOLME RD SW
LAKEWOOD, WA 98498

8141300100
B & R LAND INC
13000 LAKEHOLME RD SW
LAKEWOOD, WA 98498

8141300110
KNECHT LEONARD D+KIMBERLY R
486 BONDGARD AVE E
ENUMCLAW, WA 98022

8141300120
ZUMWALT JIM R+JUDITH A
494 BONDGARD AVE E
ENUMCLAW, WA 98022

8141300130
TOPP RONALD L
12032 B ROYAL BIRKDALE ROW
SAN DIEGO, CA 92128

8141300140
KINGMAN P GRACE
483 BONDGARD AVE E
ENUMCLAW, WA 98022

8141300150
B & R LAND INC
13000 LAKEHOLME RD SW
LAKEWOOD, WA 98498

8141300160
FOX DANA
467 BONDGARD AVE E
ENUMCLAW, WA 98022

8141300170
HAYS LISA SNT
C/O PARTNERS IN CARE P.O. BOX 21947
SEATTLE, WA 98111

8141300180
B & R LAND INC
13000 LAKEHOLME RD SW
LAKEWOOD, WA 98498

8141300190
B & R LAND INC
13000 LAKEHOLME RD SW
LAKEWOOD, WA 98498

8141300200
HAGEN DANIEL+KARYN HOLYK
405 BONDGARD AVE E
ENUMCLAW, WA 98022

8141300210
MCKEIGHEN KEVIN E+KIMBERLY
393 BONDGARD AVE E
ENUMCLAW, WA 98022

8141300220
PERSON INVESTMENT PROPERTIE
718 GRIFFIN AVE #140
ENUMCLAW, WA 98022

8141300230
GOOD DAVID S
512 COOPER LN N
ENUMCLAW, WA 98022

8141300270
HANSEN ANGELA J
513 COOPER LN N
ENUMCLAW, WA 98022

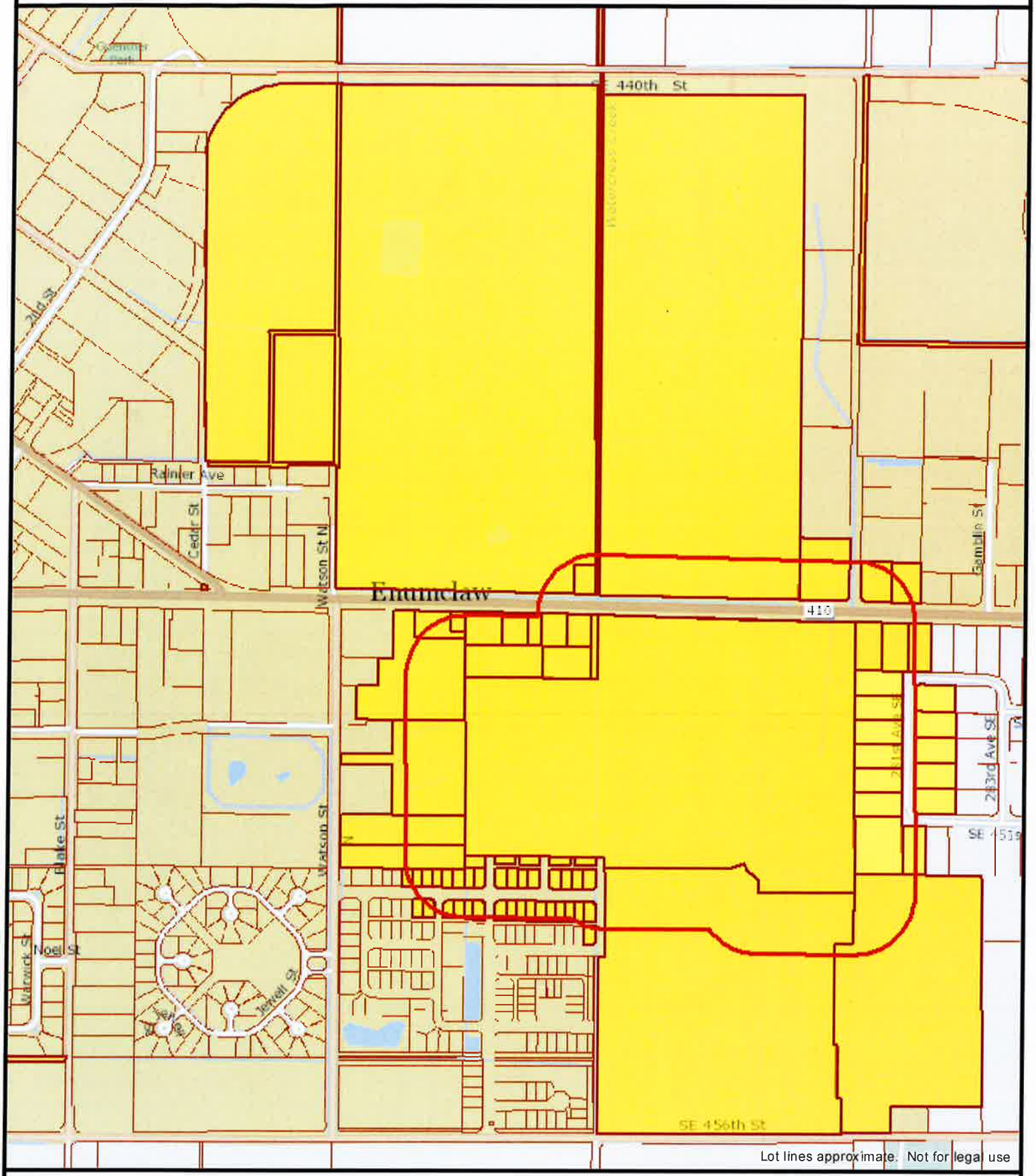
8141300280
SCHATZ TRACY M
514 DEUSEN LN N
ENUMCLAW, WA 98022

8141300290
ORWIG PHILLIP M+BEVERLY M
515 DEUSEN LN N
ENUMCLAW, WA 98022

8141300300
DEVLIN ALLEN W
516 MT PEAK ST N
ENUMCLAW, WA 98022

King County

302007-9011



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Date: 11/9/2016

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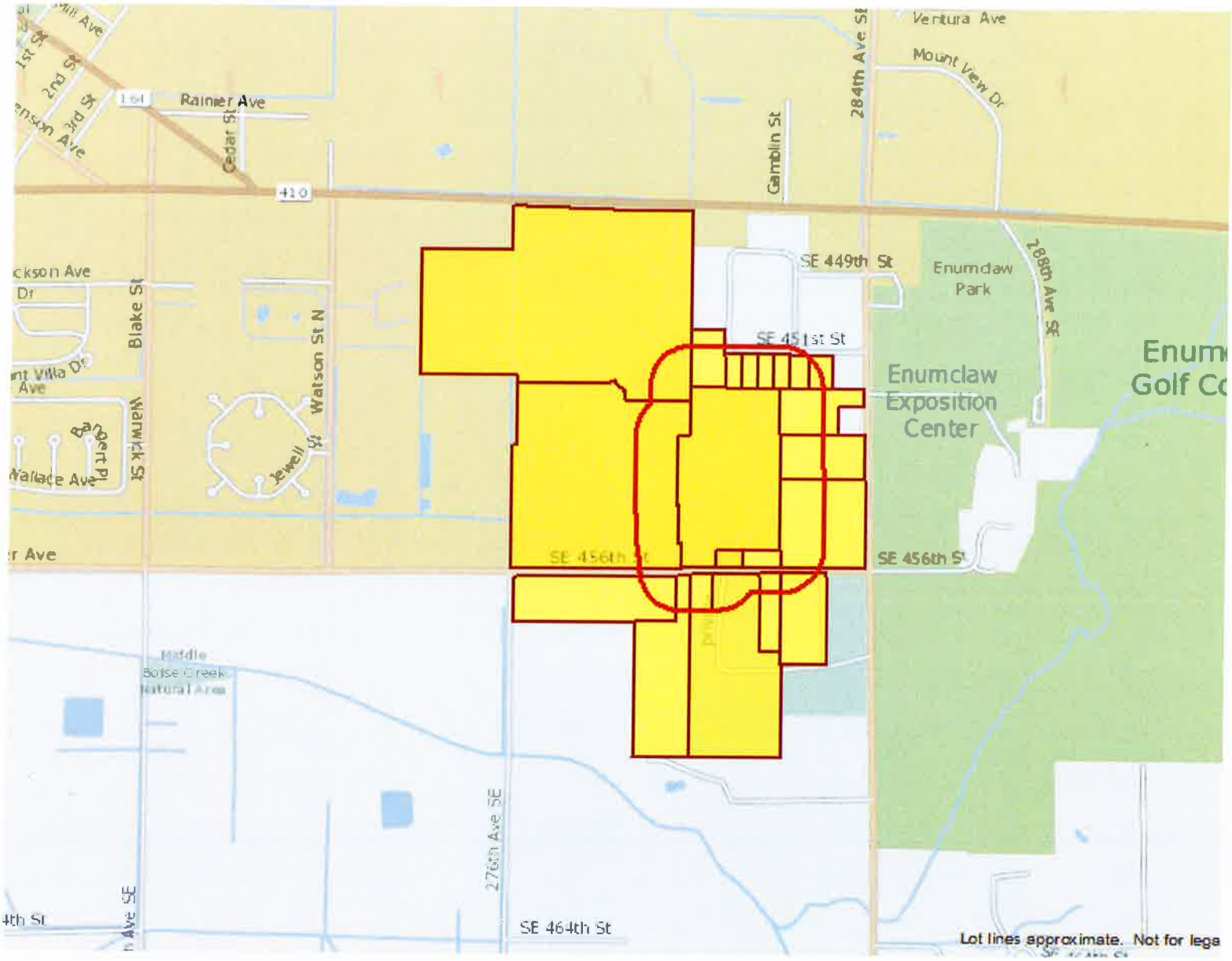
King County GIS Center

SO 2007-9111


Rainier Ave
Cedar St
Gamblin St
284th Ave SE
Ventura Ave
Mount View Dr
410
SE 449th St
Enumclaw Park
288th Ave SE
SE 451st St
Blake St
Watson St N
Jewell St
Warwick St
Enumclaw Exposition Center
Enum Golf Co
SE 456th St
Middle Boise Creek Natural Area
276th Ave SE
SE 464th St
Lot lines approximate. Not for lega

NOTICE

STATE ENVIRONMENTAL POLICY ACT (SEPA) DETERMINATION for Suntop Planned Unit Development Subdivision & Rezone

MITIGATED DETERMINATION OF NON-SIGNIFICANCE (MDNS)

Permit Application Number: SUB/Z #13305

Applicant: Francis Holdener

Description of Proposal:
The applicant, Francis Holdener, is requesting preliminary plat approval to subdivide 105.04 acres into 122 lots, one stormwater tract and one five acre public park tract. The 122 lots include 116 single family lots and six future development tracts labeled A-I. Future development tracts range in size from 7.18 acres in size to 19.21 acres in size. Full buildout of the project is estimated at 286 single family dwellings, 80 low density multi-family dwellings, 140 high density multi-family dwellings and approximately 84,000 square feet of retail space. The proposal includes a rezone of parcels A & B from Planned Unit Development to Highway and Community Business; and parcels D and C would be rezoned from Planned Unit Development to R-4 Multi-Family Residential. Parcels E, H and I would remain zoned Planned Unit Development. The proposal includes associated stormwater facilities, parks and streets.

Location of Proposal:
The subject project is located at 27921 Roosevelt Avenue East (APN 3020007-9012, 302007-9011 and 3020070-9111) in the NW ¼ of Section 30, Township 20 N, Range 6 E, WM.

Dates:

This application was originally submitted on:	October 7, 2013
This application was resubmitted on:	January 13, 2014
This application was deemed complete on:	February 4, 2014.
This notice was published on:	July 30, 2014

Other Permits Required:

- Engineering Construction Plan Review
- Design Review Board
- Critical Area Permit(s)
- Grade and Fill Permit
- Right-of-way Permits
- Final Plat Review
- NPDES General Construction Permit

Environmental Studies:

Suntop PUD Traffic Impact Analysis
October 2013, Heath and Associates, Inc.

Suntop Farms Division I – Critical Areas Report
October 2013, Sewall Wetland Consulting, Inc.

Preliminary Storm Drain Analysis Suntop Planned Unit Development
September 2013, Rykels Engineering Group

Critical Areas Study – Fisheries
Cedarock Consulting, January 2014

Lead Agency: City of Enumclaw, 1309 Myrtle Avenue, Enumclaw, WA 98022.

Responsible Official: Erika Shook, Community Development Director.

Determination of Non-Significance:

The lead agency has determined that this proposal, as mitigated by the conditions identified in "Attachment A" of this Notice, does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) is not required under RCW 43.21C030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the City of Enumclaw. This information is available for public review upon request.

Comment and Appeal Period:

The lead agency will not act on this proposal for fifteen (15) days from the publication date identified above. Written comments or appeals of the SEPA determination must be received by the Community Development Department at 1309 Myrtle Avenue no later than 4:30 pm, August 14, 2014. Appeals must be accompanied by a written statement and appeal fee as specified by the City fee resolution.

Comment Period for Other Agencies:

This MDNS is issued under WAC 197-11-350. Commenting agencies should submit any comments within the above-stated period. Upon request, the City will reconsider its lead agency status, the issuance of this MDNS, or any mitigating measures.

ATTACHMENT A - Conditions Required for Mitigation

1) Development of the site shall comply with the 2012 Department of Ecology Stormwater Management Manual for Western Washington which is the standard for the design of all drainage facilities including stormwater runoff quality and stormwater best management practices (BMP's).
2) Critical areas and buffers on site shall be protected consistent with the requirements of the City's Critical Area Ordinance EMC 19.02 and mitigation measures recommended in the *Critical Areas Study – Fisheries* Cedarock Consulting, January 2014 and the *Suntop Farms Division I – Critical Areas Report* October 2013, by Sewall Wetland Consulting, Inc.
3) A "French drain" and swale per City detail, must be provided along the rear property lines of all lots except those that back onto a street or stormwater detention tract. Providing only a swale is insufficient. Roof downspout drains and foundation drains shall connect to the street storm system. Said French drain system must drain to the street storm system and thence to the stormwater pond.
4) A 12' bench must be maintained around the stormwater pond to allow access by machinery for pond maintenance.
5) Gas utility lines shall be installed in a joint trench along with phone, electric, and cable. There is no charge for main installation and services if all homes have at least two gas appliances, one of which must be a furnace. If not, the cost will be divided up evenly by lot and charged out at time and material.
6) No driveways shall be permitted onto Warner Avenue.
7) Street illumination is required and shall meet the following requirements for Minimum Average Maintained Horizontal Light Level (Light Level) in footcandles (fc) and Maximum Uniformity Ratio (Uniformity Ratio):
   a. Warner Street frontage: Light Level = 1.1 fc with Uniformity Ratio of 4:1
   b. Interior subdivision streets: Light Level = 0.6 fc with Uniformity Ratio of 4:1
8) Lots proposed in future divisions of Parcel I that are adjacent to the north and east project boundaries shall be a minimum of 8,400 square feet in size to create a transition in density between the small lots proposed in the PUD and the existing large lots located outside of the PUD.

Administrator of Development Regulations and Responsible SEPA Official

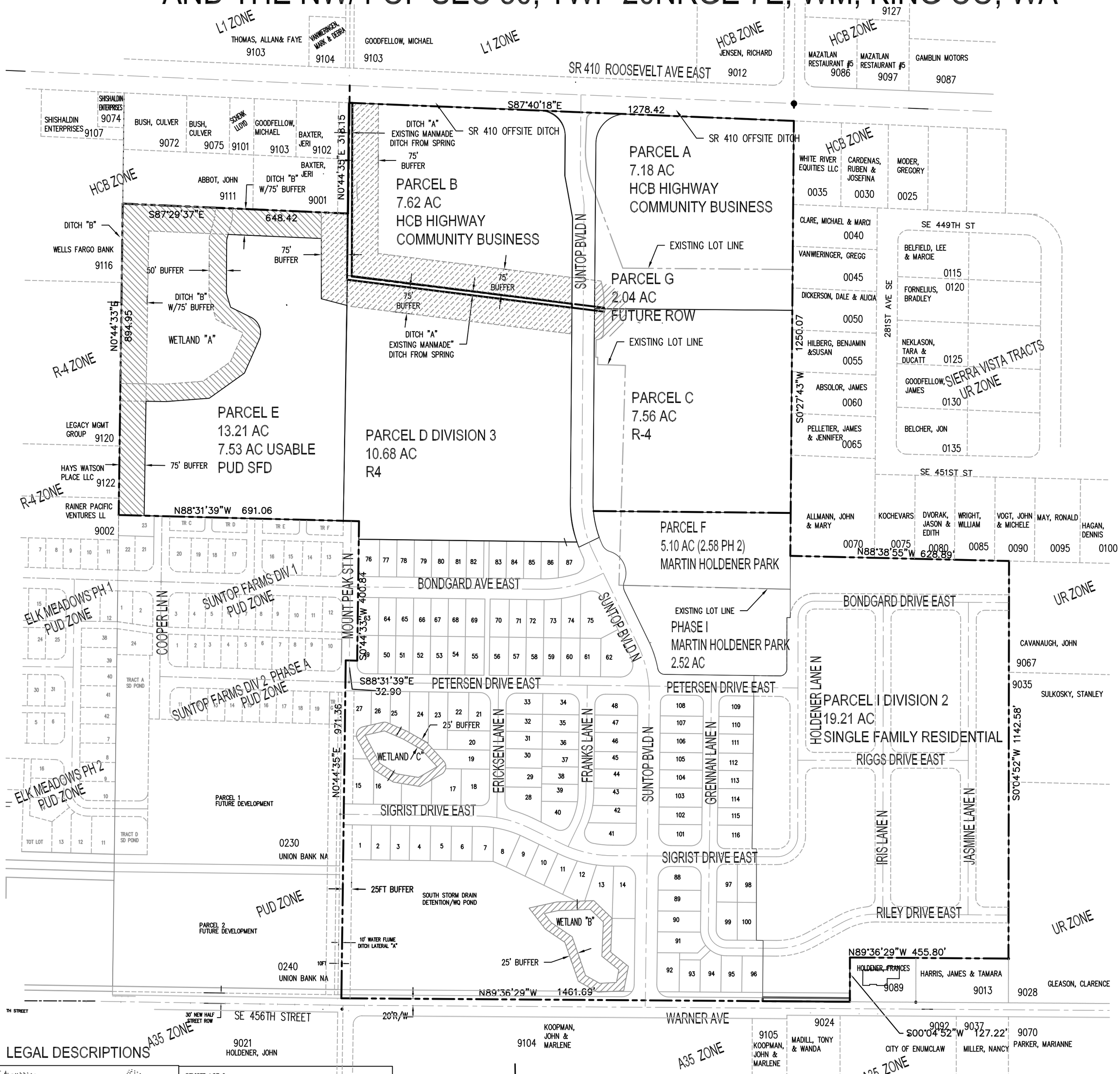
Erika Shook, Community Development Director — Date: 7-30-14

1309 Myrtle Avenue
Enumclaw, WA 98022
Phone 360-825-3593 Ext. 5725 Fax 360-825-7232

ATTACHMENT B - Distribution List:
Applicant
On-site posting
Parties of Record
Land Use Action Bulletin Board posting
SEPA Register (WSDOE Environmental Review Section)
Washington State Department of Natural Resources (Marine Land Management Division)
Washington Department of Fish and Wildlife (Boise Creek)
Utility & Transportation Commission (Utilities Division)
King County DDES (Environmental Division)
Washington State Dept. of Transportation
City of Enumclaw Website and ECTV
Enumclaw School District #216
Drainage District 5, 5A, and 6
Enumclaw Courier-Herald
Muckleshoot Indian Tribe
Washington State DSHS
Qwest Communications
Puget Sound Energy
Hedges Engineering
DNR SEPA Center
Comcast

SUNTOP PLANNED UNIT DEVELOPMENT DIVISION 1

PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA



LEGAL DESCRIPTIONS

REVISED LOT A:

COMMENCING AT THE SOUTHEAST CORNER OF GOVERNMENT LOT 1 OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN;
THENCE NORTH 00°27'23" EAST ALONG THE EAST LINE OF SAID LOT, 822.98 FEET TO THE POINT OF BEGINNING;
THENCE CONTINUING NORTH 00°27'23" EAST, 427.09 FEET TO THE SOUTHERLY MARGIN OF STATE ROUTE 410;
THENCE NORTH 87°40'38" WEST ALONG SAID SOUTHERLY MARGIN, 573.69 FEET TO THE BEGINNING OF A 20.00 FOOT RADIUS CURVE CONCAVE TO THE SOUTHEAST;
THENCE ALONG SAID CURVE 31.42 FEET, THROUGH A CENTRAL ANGLE OF 90°00'00";
THENCE SOUTH 02°19'22" WEST, 80.00 FEET TO THE BEGINNING OF 264.00 FOOT RADIUS CURVE, CONCAVE EASTERLY;
THENCE ALONG SAID CURVE 104.65 FEET, THROUGH A CENTRAL ANGLE OF 22°42'45";
THENCE SOUTH 20°23'23" EAST, 248.84 FEET TO THE BEGINNING OF 336.00 FOOT RADIUS CURVE, CONCAVE TO THE SOUTHWEST;
THENCE ALONG SAID CURVE 12.10 FEET, THROUGH A CENTRAL ANGLE OF 02°03'47";
THENCE SOUTH 89°32'37" EAST, 486.84 FEET TO THE POINT OF BEGINNING.

REVISED LOT B:

BEGINNING AT THE NORTHEAST CORNER OF GOVERNMENT LOT 2 OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN;
THENCE SOUTH 00°27'23" WEST ALONG THE EAST LINE OF SAID LOT, 96.11 FEET;
THENCE NORTH 88°39'16" WEST PARALLEL WITH THE NORTH LINE OF SAID LOT, 492.01 FEET;
THENCE NORTH 01°40'27" EAST, 632.22 FEET;
THENCE NORTH 88°19'33" WEST, 80.00 FEET;
THENCE NORTH 01°40'27" EAST, 21.00 FEET;
THENCE NORTH 88°19'33" WEST, 6.00 FEET;
THENCE NORTH 01°40'27" EAST, 50.00 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, FROM WHICH THE RADIUS POINT BEARS NORTH 01°40'27" EAST, 20.00 FEET;
THENCE ALONG SAID CURVE 31.42 FEET, THROUGH A CENTRAL ANGLE OF 90°00'00";
THENCE NORTH 01°40'27" EAST, 73.21 FEET TO THE BEGINNING OF 264.00 FOOT RADIUS CURVE, CONCAVE TO THE WEST;
THENCE ALONG SAID CURVE 76.90 FEET, THROUGH A CENTRAL ANGLE OF 16°41'19";
THENCE NORTH 82°56'39" WEST, 646.23 FEET;
THENCE NORTH 00°10'24" EAST, 429.52 FEET TO THE SOUTHERLY MARGIN OF STATE ROUTE 410;
THENCE SOUTH 87°40'38" EAST ALONG SAID SOUTHERLY MARGIN, 621.52 FEET TO A POINT OF CUSP WITH THE CURVE CONCAVE TO THE SOUTHEAST AND FROM WHICH THE RADIUS POINT BEARS SOUTH 02°19'22" WEST, A DISTANCE OF 20.00 FEET;
THENCE COUNTER CLOCKWISE ALONG SAID CURVE 31.42 FEET, THROUGH A CENTRAL ANGLE OF 90°00'00";
THENCE SOUTH 02°19'22" WEST, 80.01 FEET TO THE BEGINNING OF 264.00 FOOT RADIUS CURVE, CONCAVE EASTERLY;
THENCE ALONG SAID CURVE 104.65 FEET, THROUGH A CENTRAL ANGLE OF 22°42'45";
THENCE SOUTH 20°23'23" EAST, 248.84 FEET TO THE BEGINNING OF 336.00 FOOT RADIUS CURVE, CONCAVE TO THE SOUTHWEST;
THENCE ALONG SAID CURVE 12.10 FEET, THROUGH A CENTRAL ANGLE OF 02°03'47";
THENCE SOUTH 89°32'37" EAST, 486.84 FEET TO THE EAST LINE OF GOVERNMENT LOT 1 OF SAID SECTION;
THENCE SOUTH 00°27'23" WEST ALONG SAID EAST LINE, 822.98 FEET TO THE POINT OF BEGINNING.

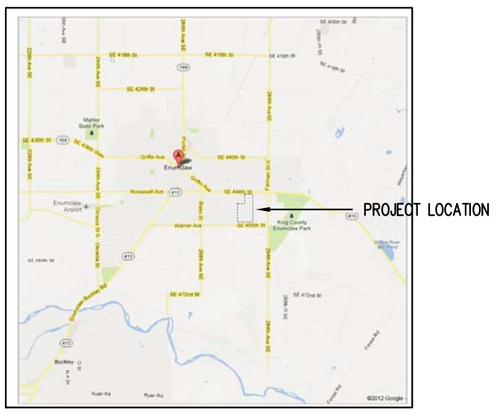
REVISED LOT C:

BEGINNING AT THE NORTHEAST CORNER OF GOVERNMENT LOT 2 OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN;
THENCE SOUTH 00°27'23" WEST ALONG THE EAST LINE OF SAID LOT, 96.11 FEET;
THENCE NORTH 88°39'16" WEST PARALLEL WITH THE NORTH LINE OF SAID LOT, 492.01 FEET;
THENCE NORTH 01°40'27" EAST, 632.22 FEET;
THENCE NORTH 88°19'33" WEST, 80.00 FEET;
THENCE NORTH 01°40'27" EAST, 21.00 FEET;
THENCE NORTH 88°19'33" WEST, 6.00 FEET;
THENCE NORTH 01°40'27" EAST, 50.00 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, FROM WHICH THE RADIUS POINT BEARS NORTH 01°40'27" EAST, 20.00 FEET;
THENCE ALONG SAID CURVE 31.42 FEET, THROUGH A CENTRAL ANGLE OF 90°00'00";
THENCE NORTH 01°40'27" EAST, 73.21 FEET TO THE BEGINNING OF 264.00 FOOT RADIUS CURVE, CONCAVE TO THE WEST;
THENCE ALONG SAID CURVE 76.90 FEET, THROUGH A CENTRAL ANGLE OF 16°41'19";
THENCE NORTH 82°56'39" WEST, 646.23 FEET;
THENCE NORTH 00°10'24" EAST, 429.52 FEET TO THE SOUTHERLY MARGIN OF STATE ROUTE 410;
THENCE NORTH 87°40'38" WEST ALONG SAID SOUTHERLY MARGIN, 83.20 FEET TO THE WEST LINE OF SAID SECTION 30;
THENCE SOUTH 00°44'15" WEST ALONG SAID WEST LINE, 318.26 FEET;
THENCE NORTH 87°39'57" WEST PARALLEL WITH AND 368.10 FEET DISTANT FROM THE NORTH LINE OF SECTION 25, TOWNSHIP 20 NORTH, RANGE 6 EAST OF THE WILLAMETTE MERIDIAN, 648.42 FEET;
THENCE SOUTH 00°44'13" WEST ALONG THE WEST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 25, 894.85 FEET;
THENCE SOUTH 88°32'00" EAST, 691.06 FEET;
THENCE SOUTH 00°44'13" WEST PARALLEL WITH THE WEST LINE OF THE EAST HALF OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 25, 400.84 FEET;
THENCE NORTH 88°32'00" WEST, 32.90 FEET;
THENCE SOUTH 00°44'15" WEST PARALLEL WITH THE WEST LINE OF SAID SECTION 30, 971.17 FEET TO THE NORTHERLY MARGIN OF SOUTHEAST 456TH STREET;
THENCE SOUTH 89°36'49" EAST ALONG SAID NORTHERLY MARGIN, 1461.69 FEET;
THENCE NORTH 00°04'52" EAST PARALLEL WITH AND 455.80 FEET DISTANT FROM THE EAST LINE OF THE WEST HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 30, 127.22 FEET;
THENCE SOUTH 89°36'49" EAST PARALLEL WITH AND 147.22 FEET DISTANT FROM THE SOUTH LINE OF THE NORTHWEST QUARTER OF SAID SECTION 30, 455.80 FEET TO THE EAST LINE OF THE WEST HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 30;
THENCE NORTH 00°04'52" EAST ALONG SAID EAST LINE, 1142.56 FEET TO THE NORTH LINE OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 30;
THENCE NORTH 88°39'16" WEST ALONG SAID NORTH LINE, 628.89 FEET TO THE POINT OF BEGINNING.

N

200 0 200 400

SCALE 1" = 200 FT



LOCATION MAP

SUNTOP PUD PRELIMINARY PLAT MAP

PROJECT DATA

1. EXISTING PARCEL AREAS: LOT A: 5.61 AC, LOT B: 17.24 AC, LOT C: 82.19 AC TOTAL 105.04 ACRES
2. EXISTING ZONING: HOLDNER FARMS PLANNED UNIT DEVELOPMENT
3. PROPOSED LAND USE: PUD, MIXED USE
4. NUMBER OF LOTS : DIVISION 1: 116 LOTS; DIVISION 2: 116 LOTS – 232 TOTAL LOTS DIVISION 3: 5 LARGE MULTI FAMILY MIXED USE LOTS
5. COUNTY PARCEL NUMBERS: 302007–9011, –9012, & –9111
6. APPROXIMATE AREA SMALLEST LOT: 5,000 SqFt
8. SCS SOILS TYPE: BUCKLEY LOAM, SHALCAR MUCK, SULTAN SILT LOAM
9. SOURCE OF WATER SUPPLY: CITY OF ENUMCLAW
10. SOURCE OF SEWAGE DISPOSAL: CITY OF ENUMCLAW
11. EXISTING GROUND COVER: GRASSY PASTURE W/ SOME GROVES OF TREES

PROPERTY OWNER/APPLICANT:
MRS FRANCES HOLDENER
1009 WARNER AVE
ENUMCLAW, WA 98023

AGENT/REPRESENTATIVE:
KEN KRUEGER PH 425–753–2985
3207 W LK SAMMAMISH PARKWAY NE
REDMOND, WA 98052

ANDREW J. RYKELS STATE OF WASHINGTON 19985 REGISTERED PROFESSIONAL ENGINEER

PRELIMINARY PLAT AND PUD PLAN
SUNTOP PUD, DIVISION 1, PRELIMINARY PLAT, ENUMCLAW, WA
CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425–753–2985

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97701 253–951–4217 rykelsengineering@gmail.com

City of Enumclaw
Department of Community Development
1309 Myrtle Ave, Enumclaw, WA 98022
Phone: (360) 825-3593 Fax: (360) 825-7232

SEPA ADDENDUM FOR SUNTOP PUD SUBDIVISIONS PHASE 4 & 5 – PROJECT NUMBER 16314

PROJECT NUMBER: 16314

Applicant: Andy Rykels, Rykels Engineering & Ken Kruger for Mrs. Frances Holdener

Location of Proposal: The subject property is located in the southwest quadrant of the intersection of State Highway 410 and 284th Avenue SE, directly east Suntop Farms Divisions 1 and 2, in the City of Enumclaw, Washington. Portions of SEC. 25 and SEC. 30, T20N, R06E, WM. The project site is: Division 4- King County Assessor's Parcel #302007-9111; Division 5- King County Assessor's Parcel #302007-9011.

Background: On July 30, 2014 the City of Enumclaw issued a SEPA Mitigated Determination of Non Significance (MDNS, SEPA Checklist File No. 13305) for a preliminary plat to subdivide 105.04 acres in 122 lots, one stormwater tract and one five acre public park tract. Full build out of the project was estimated at 286 Single Family dwellings, 80 low density multi-family dwellings and 140 high density multi-family dwellings and 84,000 square feet of retail space. The applicant has now submitted for a preliminary plat to subdivide two of the future development tracts (42.95 acres) into approximately 176 single-family residential lots. This changes the scope of the project to remove a portion of the area contemplated as multi-family residential as part of the original SEPA review under File No. 13305.

The MDNS issued under Checklist File No 13305 identified eight (8) mitigation measures as follows,

1) Development of the site shall comply with the 2012 Department of Ecology Stormwater Management Manual for Western Washington which is the standard for the design of all drainage facilities including stormwater runoff quality and stormwater best management practices (BMP's).
2) Critical areas and buffers on site shall be protected consistent with the requirements of the City's Critical Area Ordinance EMC 19.02 and mitigation measures recommended in the *Critical Areas Study – Fisheries* Cedarock Consulting, January 2014 and the *Suntop Farms Division I – Critical Areas Report* October 2013, by Sewall Wetland Consulting, Inc.
3) A "French drain" and swale per City detail, must be provided along the rear property lines of all lots except those that back onto a street or stormwater detention tract. Providing only a swale is insufficient. Roof downspout drains and foundation drains shall connect to the street storm system. Said French drain system must drain to the street storm system and thence to the stormwater pond.
4) A 12' bench must be maintained around the stormwater pond to allow access by machinery for pond maintenance.
5) Gas utility lines shall be installed in a joint trench along with phone, electric, and cable. There is no charge for main installation and services if all homes have at least two gas appliances, one of which must be a furnace. If not, the cost will be divided up evenly by lot and charged out at time and material.
6) No driveways shall be permitted onto Warner Avenue.
7) Street illumination is required and shall meet the following requirements for Minimum Average Maintained Horizontal Light Level (Light Level) in footcandles (fc) and Maximum Uniformity Ratio (Uniformity Ratio):
   a. Warner Street frontage: Light Level = 1.1 fc with Uniformity Ratio of 4:1
   b. Interior subdivision streets: Light Level = 0.6 fc with Uniformity Ratio of 4:1
8) Lots proposed in future divisions of Parcel I that are adjacent to the north and east project boundaries shall be a minimum of 8,400 square feet in size to create a transition in density between the small lots proposed in the PUD and the existing large lots located outside of the PUD.

The MDNS (File No. 13305) was not appealed.

On August 3, 2016 the applicant submitted a preliminary plat and SEPA Checklist (File No. 16314). The applicant submitted a revised Traffic Impact Analysis on October 7, 2016. The revised proposal includes 79 single family

residential lots and two (2) future development tracts. This proposal would eliminate the proposed 113 multi-family units on Parcel "D" as originally reviewed under Checklist File No. 13305.

Analysis: Based in the information in the original SEPA file and a review of the revised proposal and supporting analyses, the revised proposal does not result in any new adverse environmental impacts. An addendum and adoption of the existing environmental document is appropriate based on the following:

1. The applicant's traffic study (Traffic Impact Trip Generation Comparison Suntop Project – Heath and Associates, Dated October 6, 2016) indicates that the proposed subdivision as revised will generate 49 fewer AM peak trips, 59 fewer PM peak trips and 646 fewer daily trips. Based on the review of the documents and applicable code requirements, it has been determined that the reduced trips will not create an adverse environmental impact.

2. The applicant has provided a revised stormwater drainage analysis which indicates that the proposed stormwater ponds can provide adequate storage and the current mitigation measure #1 listed above will be addressed in Phase 4. The Preliminary Storm Drain Analysis for Suntop PUD Division 5 will adequately address stormwater from the 79 single-family lots created as part of this revised preliminary plat application.

3. Washington Administrative Code (WAC) 197-11-706 defines an "Addendum" as,

> **"WAC 197-11-706**
> **Addendum**
>
> "Addendum" means an environmental document used to provide additional information or analysis that does not substantially change the analysis of significant impacts and alternatives in the existing environmental document. The term does not include supplemental EISs. An addendum may be used at any time during the SEPA process."

Further, the Washington State Department of Ecology SEPA Handbook (section 2.7.3) discussion of an addendum states, in part,

> **"**An addendum is appropriate when a proposal has been modified, but the changes should not result in any new significant adverse impact. They can also be used if additional information becomes available that does not change the analysis of likely significant impacts or alternatives in the original SEPA document."

4. As provided for in WAC 197-11-706, the revisions to the proposal do not substantially change the analysis of significant impact. No new adverse environmental impacts resulting from the revised proposal have been identified. The existing mitigation measures (Land Use File #11041) adopted city code and revised mitigation measures (listed above) will address probable significant adverse environmental impacts.

COMMENT/APPPEAL PERIOD

In accordance with Washington Administrative Code (WAC) 197-11-625(5) an addendum need not be circulated. No comment or appeal period is required.

Administrator of Development Regulations and Responsible SEPA Official

October 31, 2016

_____ _____

Chris Pasinetti, Community Development Director Date
1309 Myrtle Avenue
Enumclaw, WA 98022
Phone 360-825-3593 x.5726 FAX 360-825-7232

Existing Environmental Documents that Evaluate the Proposed Project:
Included in the case file are the following studies and documents have been submitted in support of the proposal:

- Traffic Impact Analysis, prepared by Heath and Associates, dated October, 2013.
- Traffic Impact Trip Generation Comparison Suntop Project, prepared by Heath and Associates, dated October 6, 2016.
- Preliminary Storm Drain Analysis Suntop Planned Unit Development, prepared by Rykels Engineering Group, Inc, dated September 2013.
- Preliminary Storm Drain Analysis Suntop Planned Unit Development, prepared by Rykels Engineering Group, Inc, dated July 25, 2016.
- SEPA Checklists, prepared by Ken Krueger – Dated January, 2014 & August, 2016.
- MDNS, prepared by the City of Enumclaw, Dated July, 2014.
- Critical Areas Study prepared bv Cedarock Consultants, Inc., Dated January, 2014.

The application and associated study material can be viewed at Enumclaw Community Development Department located at 1309 Myrtle Avenue, Enumclaw.

ADOPTION OF EXISTING ENVIRONMENTAL DOCUMENT

Adoption for: Mitigated Determination of Non-Significance

Description of current proposal: Two preliminary plats to subdivide 19.21 acres into 96 single family residential lots (Division 4), and 25.89 acres into 81 single family residential lots, plus 4 parcels totaling 25 acres reserved for future development and parks (Division 5). The two subdivisions implement the provisions of the Suntop PUD approved by City of Enumclaw Ordinance # 2551 in November 2014.

Proponent : Frances Holdener; Rykels Engineering

Location of current proposal: South of State Route 410, North of Warner Avenue, and East of Mount Peak Street North. King County Assessors Parcels #302007-9111 and #302007-9011 . Portions of Sections 25 and 30, Township 20N, Range 06E, Willamette Meridian.

Title of document being adopted: *Mitigated Determination of Non-Significance for the Suntop Planned Unit Development Subdivision and Rezone* dated July 30, 2014.

Agency that prepared document being adopted: City of Enumclaw

Date adopted document was prepared : July 30, 2014

Description of document (or portion) being adopted: Mitigated Determination of Non-Significance, including eight (8) mitigation measures.

If the document being adopted has been challenged (WAC 197-11-630), please describe: The document was not challenged.

The document is available to be read at (place/time) : Enumclaw Community Development Department, 1309 Myrtle Avenue, Enumclaw, WA 98022; M-F 8- 4PM

We have identified and adopted this document as being appropriate for this proposal after independent review. An addendum to this MDNS is also being adopted which addresses traffic impacts and mitigation for the specific preliminary plats. Pursuant to WAC 197-11-625(5), the addendum regarding specific trip generation impacts need not be circulated to any outside agencies. The document and addendum meets our environmental review needs for the current proposal and will accompany the proposal to the decision maker.

Name of agency adopting document: City of Enumclaw

ADOPTION OF EXISTING ENVIRONMENTAL DOCUMENT

Contact person: Dan Catron, Associate Planner; 360-615-5725

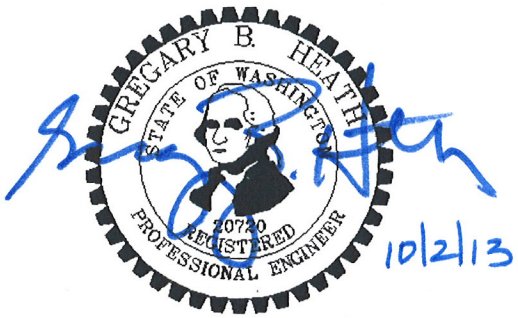
Responsible official: Chris Pasinetti, AICP

_____

Position/title Community Development Director
Address: 1309 Myrtle Avenue, Enumclaw, WA 98022
Date November 2, 2016

SUNTOP PUD
TRAFFIC IMPACT ANALYSIS

ENUMCLAW, WA



Owner: Mrs. Frances Holdener
1009 Warner Ave
Enumclaw, WA 98022

Owner's Rep: Mr. Ken Krueger
3207 West Lk Sammamish Pkwy NE
Redmond, WA 98052

October 2013

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

Attachment K

SUNTOP PUD
TRAFFIC IMPACT ANALYSIS

TABLE OF CONTENTS

I. Introduction....3
II. Project Description....3
III. Existing Conditions....6
IV. Forecasted Traffic Demand....12
V. Conclusions....23

Appendix
Trip Generation....29
Turning Movement Counts....32
Existing Level of Service....70
2018 Level of Service Without Project....89
2018 Level of Service With Divisions 1 & 2....109
2018 Level of Service With Divisions 1 & 2, Parcels D & E....130
2033 Level of Service With Full Build-out....140
Left Turn Lane Warrants....161

LIST OF TABLES

1. Existing Level of Service....9
2. Collision History....11
3. Project Trip Generation, Divisions 1 & 2....12
4. Project Trip Generation, Full Build-out....13
5. Future 2018 Level of Service, Divisions 1 & 2....18
6. Future 2018 Level of Service, Divisions 1 & 2, Parcels D & E....20
7. Future 2033 Project and Intersection Volumes, Full Build-out....22

LIST OF FIGURES

1. Vicinity Map & Roadway System....4
2. Site Plan....5
3. Existing Peak Hour Volumes....8
4. Trip Distribution & Assignment – Divisions 1 & 2....14
5. Trip Distribution & Assignment – Full Build-out....15
6. 2018 Peak Hour Volumes Without Project....16
7. 2018 Peak Hour Volumes With Divisions 1 & 2....17

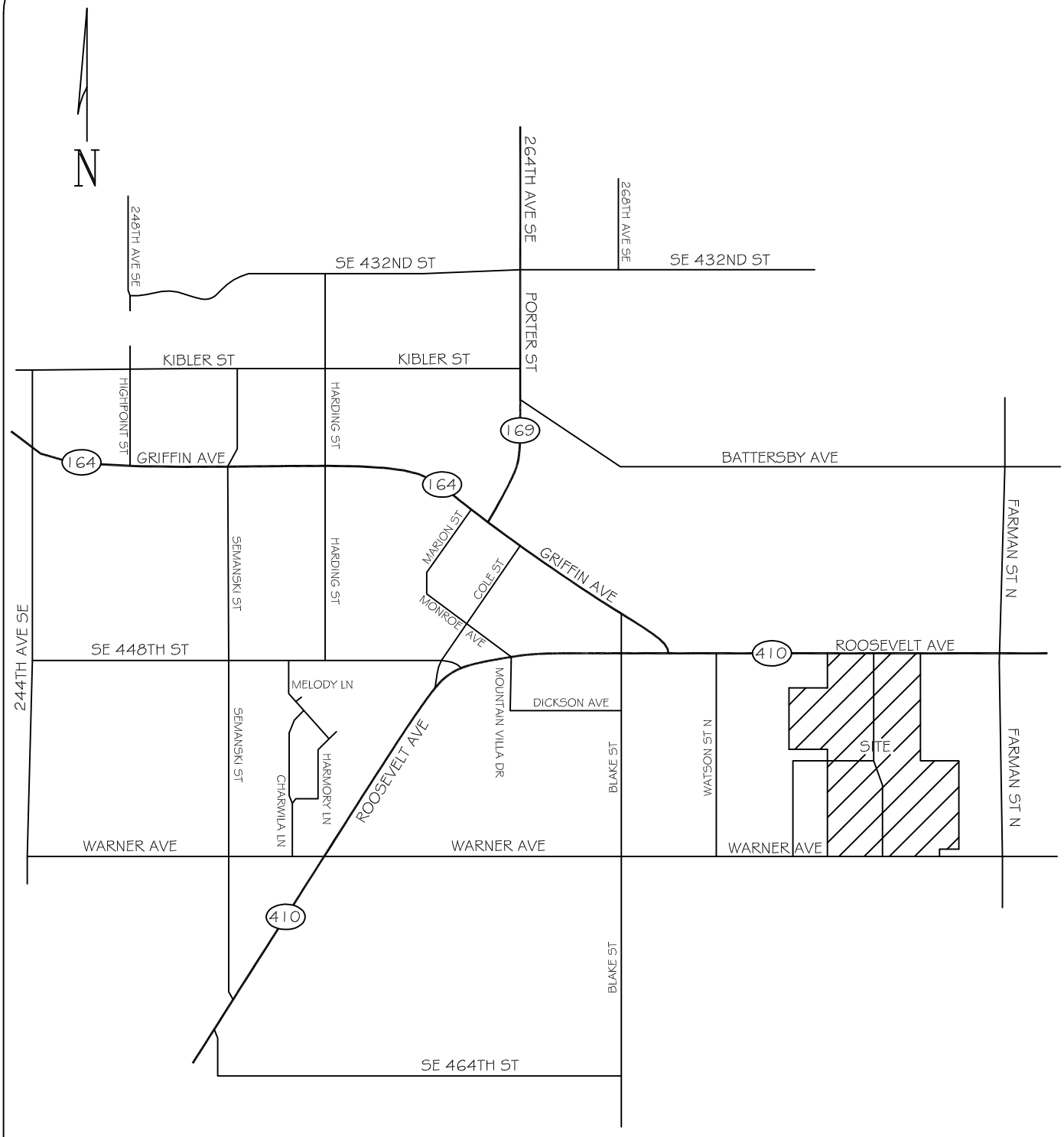
SUNTOP PUD
TRAFFIC IMPACT ANALYSIS

I. INTRODUCTION

This traffic impact analysis serves to assess the traffic impacts associated with the proposed Suntop PUD project. The main goals of this study focus on the assessment of existing traffic conditions and intersection congestion, forecasts of newly generated project traffic, and estimations of future intersection delay. The first task includes the collection of general roadway information, road improvement information, entering sight distance data, and peak hour traffic counts. Next, a detailed level of service analysis of the existing volumes is made to determine the present degree of intersection congestion. Forecasts of future traffic and dispersion patterns on the street system are then determined using established trip generation and distribution techniques. Following this forecast, the future service levels for the key intersections are investigated. As a final step, appropriate conclusions and possible off-site mitigation measures are defined.

II. PROJECT DESCRIPTION

The proposed Suntop Planned Unit Development consists of single family and multifamily units, as well as some mixed-use commercial parcels. This report focuses mainly on Divisions 1 and 2, with 116 and 110 single family units, respectively, at the southern end of the site. Full build-out estimations would include a total of 286 single family units, 80 low density multifamily units, 140 high density multifamily units, and roughly 84,000 of commercial/retail space. The project site is located on the north side of Warner Avenue and the south side of SR-410, to the east of 276th Avenue SE in the City of Enumclaw. Access to the site for the first phases of development will be provided by the connection of Suntop Drive onto Warner Avenue to the south. There is also to be interconnectivity with the Suntop Farms II development adjacent to the west side via the internal roads of Bondgard Drive and Petersen Drive, which will connect with Cooper Lane with access onto Warner Avenue. Upon further stages of development, Suntop Drive will connect to SR-410 to the north. Most development near the proposed site consists of residential use or open space. A horizon year of 2018 was selected for Divisions 1 & 2, with a horizon year of 2033 used for the full build-out per City of Enumclaw requirements for a 20 year horizon. Figure 1 shows the site location and the surrounding roadway system. The general configuration of the project is given in the site plan of Figure 2.



SUNTOP PUD

HEATH & ASSOCIATES, INC
Transportation and Civil Engineering

VICINITY MAP & ROADWAY SYSTEM

FIGURE 1

SUNTOP PUD PRELIMINARY PLAT MAP

SUNTOP PUD

HEATH & ASSOCIATES, INC
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SITE PLAN

FIGURE 2

III. EXISTING CONDITIONS

A. Roadway System

The street network in the immediate vicinity serving the proposed Suntop PUD project consists of various two-lane roadways and State Routes. Characteristics for these roadways generally vary with respect to lane width and horizontal/vertical geometry. Speed limits also vary. These differences are based on specific roadway designations and proximity to major corridors and commercial areas.

SR-410 is a generally east-west state route which borders the north side of the project. The posted speed limit is 40 mph in the vicinity, and pavement surfacing consists of asphalt with asphalt shoulders. Lane widths are generally 11 feet while shoulders are up to 10 feet wide. One travel lane per direction is typically provided, with turn lanes at major intersections.

Warner Avenue/SE 456th Street is an east-west, two-lane collector which borders the south side of the project. The posted speed limit is 35 mph and pavement surfacing consists of asphalt with paved shoulders transitioning to curbs. Sidewalks are provided for some sections. Lane widths are generally 10-11 feet.

Watson Street is a north-south, two-lane roadway which lies to the west of the site. Lanes are roughly 15 feet wide, with curbed shoulders and sidewalks. The speed limit is posted at 25 mph.

Blake Street/268th Avenue SE is a north-south, two-lane roadway which lies to the west of the project. The posted speed limit is 25 mph and pavement surfacing consists of asphalt with bike lanes and curbed or grass/gravel shoulders. Lane widths are roughly feet.

284th Avenue SE is an north-south, two-lane collector which lies to the east of the project. The posted speed limit is 35 mph and pavement surfacing consists of asphalt with grass/gravel shoulders. Lane widths are generally 12 feet.

B. Roadway Improvements

A review of the 2014-2019 City of Enumclaw Six-Year Transportation Improvement Program indicates several key projects affecting the study intersections.

SR-410/Watson Street Signalization. The intersection is to be signalized with engineering work completed in 2014, and construction completed in 2015. The total cost for this project including engineering, ROW, and construction, is listed at $1,207,906.

SR-410 Left Turn Channelization – Segment 2. The segment from Mt. Villa Drive/Monroe Avenue to Watson Street is to have engineering work completed in 2014 and construction completion estimated in 2016.

Warner-Semanski Intersection Improvement. Planned improvements for this intersection are a roundabout with outside diameter of 120 feet. The completion date of this project is not known and is dependent upon funding.

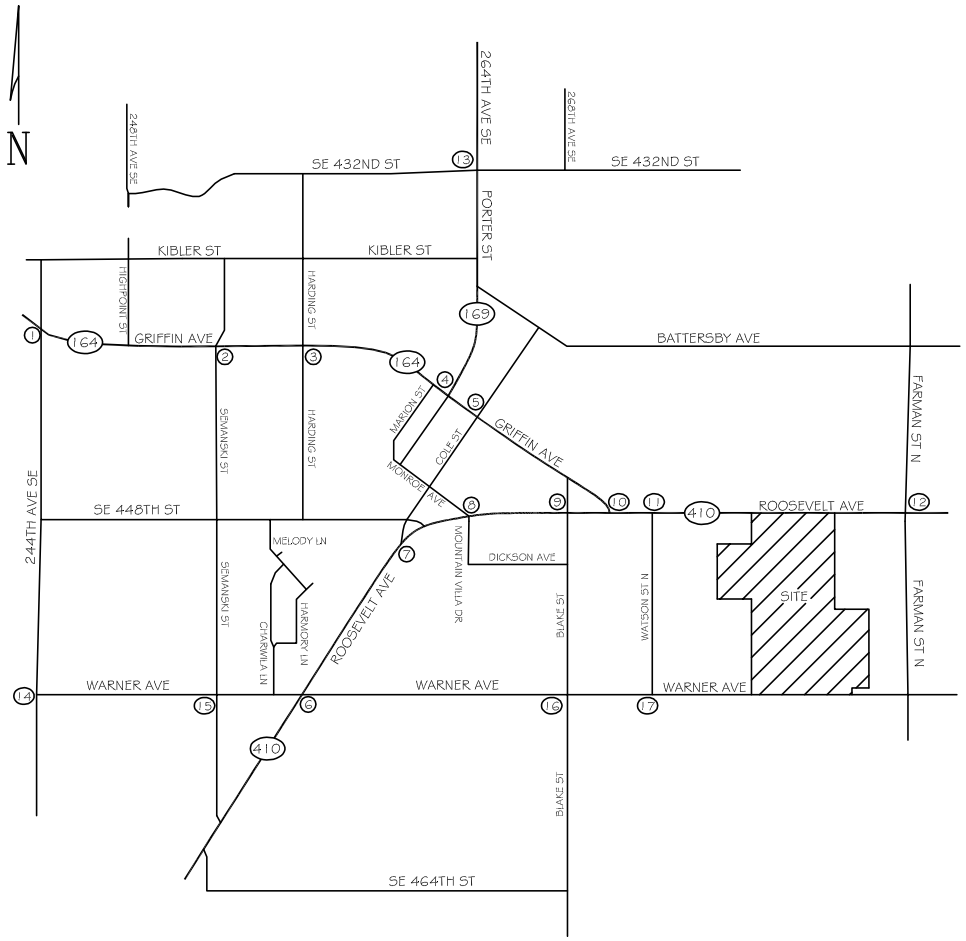
C. Peak Hour Volumes

Field data for this study was collected in September of 2013. Traffic counts used in this report were taken during the morning peak period between 7 AM and 9 AM, and the evening peak period between the hours of 4 PM and 6 PM. These specific peak periods were targeted for analysis purposes since they generally represents a worst case scenario for developments with respect to traffic conditions. This is primarily due to the common 8 AM to 5 PM work schedule and the greater number of recreation and shopping trips associated with the late afternoon to early evening period. Figure 3 shows the evening peak hour counts taken at the key intersections. Note that the AM peak hour counts were targeted at the Semanski St/Warner Ave and 244th Ave/Warner Ave intersections. The count data is included in the appendix.

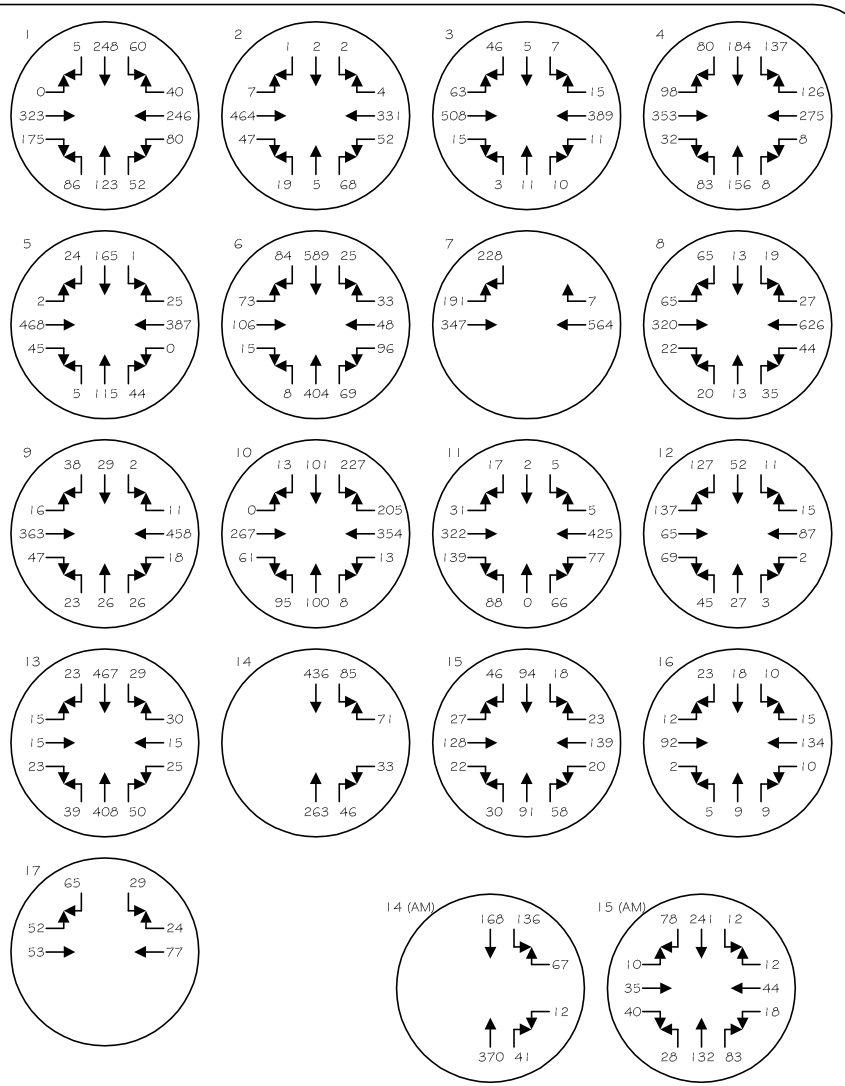
D. Existing Level of Service

Existing peak hour delays were determined through the use of the *Highway Capacity Manual*. Capacity analysis is used to determine level of service (LOS) which is an established measure of congestion for transportation facilities. LOS is defined for a variety of facilities including intersections, freeways, arterials, etc. A complete definition of level of service and related criteria can be found in the HCM. The methodology for determining the LOS at signalized intersections strives to determine the volume to capacity (v/c) ratios for the various intersection movements as well as the average control delay for those movements. *Delay* is generally used to measure the degree of driver discomfort, frustration, fuel consumption, and lost time. *Control delay*, in particular, includes movements at slower speeds and stops on intersection approaches as vehicles move up in queue position or slow down upstream of an intersection. Three specific factors mostly influence signalized intersection LOS including the type of signal operation provided, the signal phasing pattern, and the specific allocation of green time.

The methodology for determining the LOS at unsignalized intersections strives to determine the potential capacities for the various vehicle movements and ultimately determines the average total delay for each movement. *Potential Capacity* represents the number of additional vehicles that could effectively utilize a particular movement, which is essentially the equivalent of the difference between the movement capacity and the existing movement volume. *Total delay* is described as the elapsed time from when a vehicle stops at the end of a queue until the vehicle departs from the stop line. *Average total delay* is simply the mean total delay over the entire stream. A number of factors influence potential capacity and total delay including the availability/usefulness of gaps.



SUNTOP PUD



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EXISTING PEAK HOUR VOLUMES

FIGURE 3

The range 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 the worst conditions with heavy control delays. The results of the level of service analysis in Table 1 below, were determined using the automated intersection analysis program known as *Synchro 8*. This program is based on established Highway Capacity Manual procedures. All delays are taken from the program results. Program output is attached in the appendix.

TABLE 1
Existing Level of Service
Delays given in seconds per vehicle

Intersection	*Control*	*Approach*	*LOS*	*Delay*
PM Peak Hour				
244th Ave/Griffin Ave	Signal	Eastbound	B	10.5
		Westbound	A	9.8
		Northbound	B	14.1
		Southbound	B	16.3
		Overall	B	12.3
Semanski St/Griffin Ave	Stop	Northbound	B	14.0
		Southbound	B	14.5
		Eastbound LT	A	8.0
		Westbound LT	A	8.7
Harding St/Griffin Ave	Stop	Northbound	B	14.2
		Southbound	B	12.4
		Eastbound LT	A	8.3
		Westbound LT	A	8.5
Porter St/Griffin Ave	Signal	Eastbound	A	7.9
		Westbound	A	7.6
		Northbound	B	10.5
		Southbound	B	10.8
		Overall	A	9.0
Cole St/Griffin Ave	Signal	Eastbound	B	11.8
		Westbound	B	10.8
		Northbound	A	9.5
		Southbound	A	9.7
		Overall	B	10.9
SR-410/Warner Ave	Signal	Eastbound	B	17.3
		Westbound	B	15.7
		Northbound	A	4.7
		Southbound	A	5.0
		Overall	A	7.7
Cole St/SR-410	Stop	Southbound RT	C	18.0
		Eastbound LT	A	9.7
Monroe Ave/SR-410	Stop	Northbound	B	14.6
		Southbound	C	15.3
		Eastbound LT	A	9.4
		Westbound LT	A	8.2
Blake St/SR-410	Stop	Northbound	C	23.2
		Southbound	C	17.5
		Eastbound	A	0.5
		Westbound	A	0.5

Griffin Ave/SR-410	Signal	Eastbound	A	6.5
		Westbound	A	7.5
		Northbound	A	7.9
		Southbound	A	9.3
		Overall	A	7.7
Watson St/SR-410	Stop	Northbound	E	37.0
		Southbound	C	16.5
		Eastbound LT	A	8.3
		Westbound LT	A	8.6
Farman St/SR-410	Signal	Eastbound	A	6.6
		Westbound	A	10.0
		Northbound	A	7.0
		Southbound	A	7.9
		Overall	A	7.6
Porter St/432nd St	Stop	Eastbound	C	24.6
		Westbound	D	27.1
		Northbound LT	A	8.6
		Southbound LT	A	8.4
244th Ave/Warner Ave	Stop	Westbound	C	16.2
		Southbound LT	A	8.2
Semanski St/Warner Ave	Stop	Eastbound	C	17.8
		Westbound	C	17.3
		Northbound	A	1.4
		Southbound	A	1.0
Blake St/Warner Ave	AWSC	Eastbound	A	8.1
		Westbound	A	8.4
		Northbound	A	7.7
		Southbound	A	7.8
		Overall	A	8.2
Watson St/Warner Ave	Stop	Southbound	B	10.0
		Eastbound	A	3.9
AM Peak Hour				
244th Ave/Warner Ave	Stop	Westbound	C	15.7
		Southbound LT	A	9.2
Semanski St/Warner Ave	Stop	Eastbound	E	35.8
		Westbound	F	56.9
		Northbound	A	1.5
		Southbound	A	0.5

The results of Table 1 show most delays in the LOS A to LOS C range, with one LOS D and a few approaches higher than LOS D, summarized here. The intersection of Watson Street/SR-410 in the current unsignalized configuration has LOS E northbound delays. The signalization project for this intersection would improve future delays, however. Eastbound and westbound delays on Warner Avenue at Semanski Street are currently at LOS E and LOS F, respectively, during the AM peak hour.

E. Non-Motorist Traffic

Pedestrian and bicycle activity was observed at the key intersections studied for this project. Observations were made during routine peak hour movement counts and during numerous site visits. Mild pedestrian volumes were noted and no significant impact is expected due to non-motorist traffic.

F. Public Transit

A review of the King County Metro regional bus schedule shows transit is available for Suntop PUD. Metro Route 912 serves Covington, Black Diamond, and Enumclaw, with stops along Roosevelt Avenue roughly between 9:45 AM and 3:00 PM.

G. Sight Distance at Access Driveways

The main access for Suntop PUD onto the arterial system will be via the Suntop Drive connection onto Warner Avenue. A preliminary examination of the proposed site access was made to determine whether adequate entering and stopping sight distance could be provided for inbound and outbound project traffic. In accordance with AASHTO Green Book standards, a minimum entering sight distance of 445 feet is typically required for a 40 mph design speed. Based on field reviews of the proposed access location, it appears that such requirements would be met, with clear sight in either direction well above the minimum. The future connection point onto SR-410 also easily exceeds the 500 foot minimum for a 45 mph design speed. Both Warner Avenue and SR-410 have no horizontal curvature and negligible vertical curvature in the site vicinity.

H. Collision History

Collision data for Warner Avenue from SR-410 to Watson Street, and for SR-410 from Warner Avenue to Farman Street was provided by WSDOT. Data for 2008-2012 is compiled below:

TABLE 2
Collision History

Location	*2008*	*2009*	*2010*	*2011*	*2012*
Warner from SR-410 to Watson	0	0	0	0	0
SR-410 @ Warner	1	6	5	1	1
SR-410 @ Cole	2	0	0	0	2
SR-410 @ Roosevelt	0	2	2	1	0
SR-410 @ Monroe	3	3	4	3	1
SR-410 @ Garrett	1	1	3	2	2
SR-410 @ Blake	1	1	4	0	2
SR-410 @ Griffin	3	4	3	1	1
SR-410 @ Watson	7	0	2	2	4
SR-410 @ Farman	3	1	2	1	2

IV. FUTURE TRAFFIC CONDITIONS

A. Trip Generation

Trip generation is used to determine the magnitude of project impacts on the surrounding street system. Data presented in this report was taken from the Institute of Transportation Engineer's publication *Trip Generation*, 8th Edition. The site is to consist of 116 single family units for Division 1 and 110 single family units for Division 2. Average rates were used. Table 3 gives a summary of the estimated project trips for the phases of Divisions 1 & 2. Included are the average weekday volumes and the AM and PM peak hour volumes. Refer to the appendix for the trip generation output.

TABLE 3
Project Trip Generation – Divisions 1 & 2
226 Single Family Units

Time Period	*Volume*
Average Weekday 2-Way	2152 vpd
AM Peak Enter	43 vph
AM Peak Exit	127 vph
AM Peak Total	170 vph
PM Peak Enter	142 vph
PM Peak Exit	84 vph
PM Peak Total	226 vph

At full build-out, an additional 60 single family units and 220 apartment units would round out the residential development of the site. There is also a total of 14.8 acres on two parcels adjacent to SR-410 which will be commercial or mixed use, with more specifics to be determined in the future. The designated land uses for full build-out are defined as Single Family Detached Housing (LUC 210), Apartments (LUC 220), and Shopping Center (LUC 820) for the commercial/mixed use parcels.

Building configurations and sizes for the commercial parcels aren't known at this time, an estimation of 42,000 square feet each for both commercial parcel was made, for a total of 84,000 square feet. The Shopping Center land use was chosen for a worst case scenario. A significant number of shopping center trips can be in the form of pass-by trips. These trips would already an existing part of the traffic stream SR-410 adjacent to the site. Pass-by trips would turn directly into the site, and when leaving continue on in the same direction of travel. These trips are apparent only at the driveway intersections and are transparent at other intersections. The full build-out trip generation volumes shown in Table 4 show total (driveway) trips, pass-by trips, and primary trips.

TABLE 4
Project Trip Generation – Full Build-out

ITE Land Use	*Weekday 2-Way Volume*	*AM Pk Hour Enter*	*AM Pk Hour Exit*	*PM Pk Hour Enter*	*PM Pk Hour Exit*
Single Family (286 Units)	2723	54	161	180	106
Apartments (220 Units)	1463	22	90	88	48
Shopping Center (~84 ksf)	3587	50	31	150	162
Total Driveway Volume	7773	126	282	418	316
Total Pk Hr Pass-By Trips		0	0	51	55
Total Pk Hr Volumes added to Streets		126	282	367	261

B. Trip Distribution

Trip distribution describes the process by which project generated trips are dispersed on the street network surrounding the site. The specific destinations and origins of generated traffic primarily influence the major intersections surrounding the project that would receive and distribute nearly all project related trips.

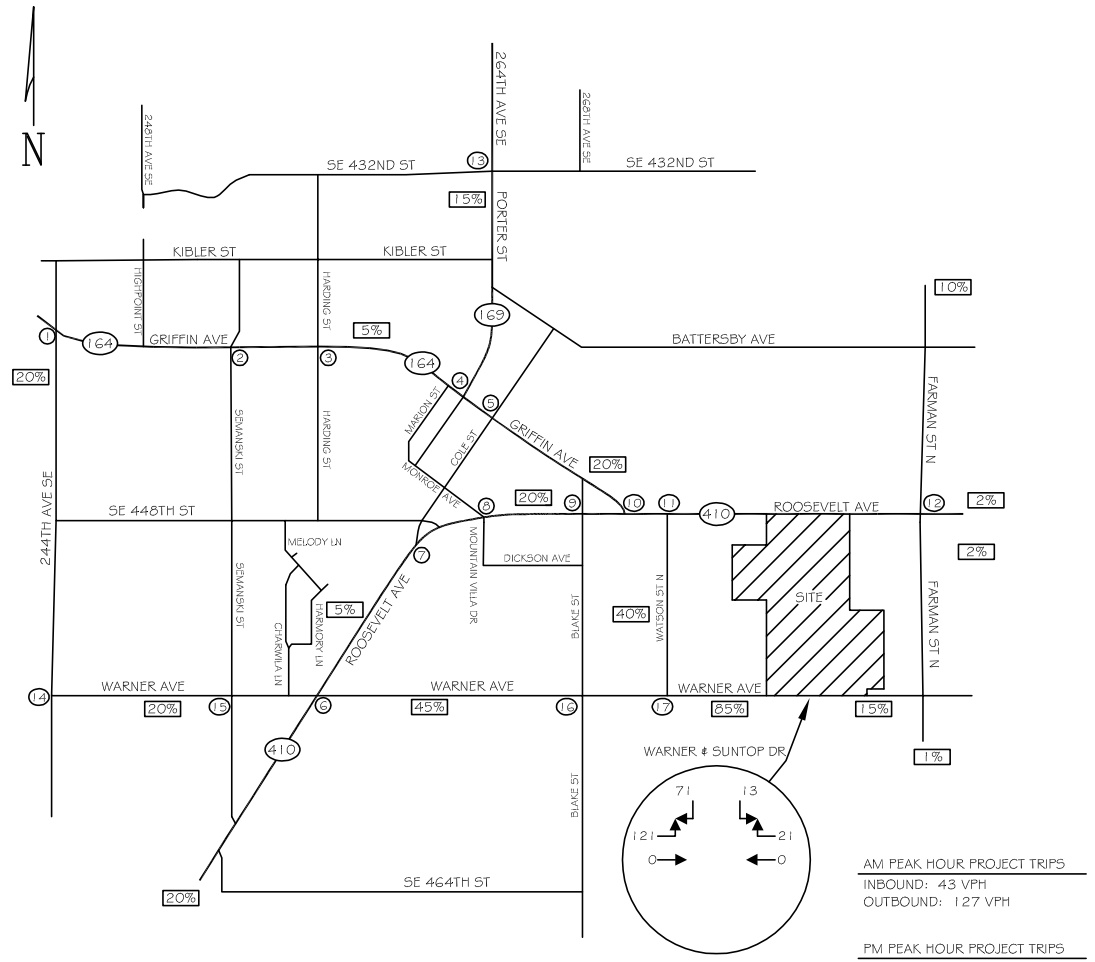
For this project, preliminary project access for Divisions 1 & 2 will be via Suntop Drive onto Warner Avenue, as well as the interconnection with Suntop Farms II to the west. For a conservative analysis, only the Suntop Drive entrance onto Warner Avenue is considered. Site generated trips for Divisions 1 & 2 are expected to follow the trip patterns shown in Figure 4, for analysis in the 2018 horizon year. These figures reflect work, home, and retail based trips taken by project traffic during the PM peak hour. Figure 5 shows the trip distribution for full project build-out, with the access to SR-410 available. Distribution percentages are slightly altered for this scenario.

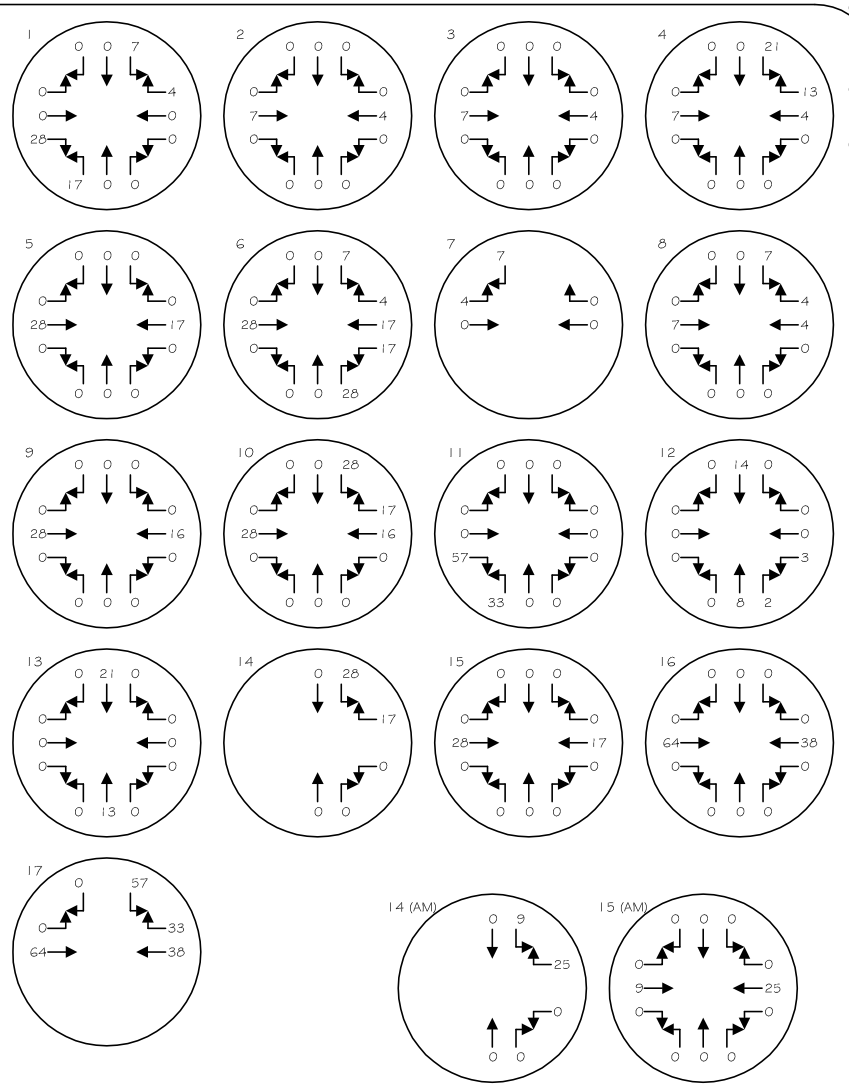
C. 2018 Peak Hour Volumes With and Without Project Traffic

For forecasting purposes, 2018 was used as a horizon study year for Divisions 1 & 2. Future traffic volumes without the project built were found by applying a 1.5 percent annual growth rate to the existing volumes of Figure 3. Future 2018 volumes with the Divisions 1 & 2 completed were found by adding the project generated volumes of Figure 4 to the future 2018 volumes without the project. Figure 6 represents 2018 traffic without the project while Figure 7 represents 2018 traffic with Divisions 1 & 2 built.

D. 2018 Level of Service

A level of service analysis was made of the future 2018 peak hour volumes without and with Divisions 1 & 2 project generated trips added to the primary intersections and entrance nodes. The only roadway improvement assumed to be in place for this analysis is the signalization project for Watson/SR-410. A summary of the LOS results is shown in Table 5.





SUNTOP PUD

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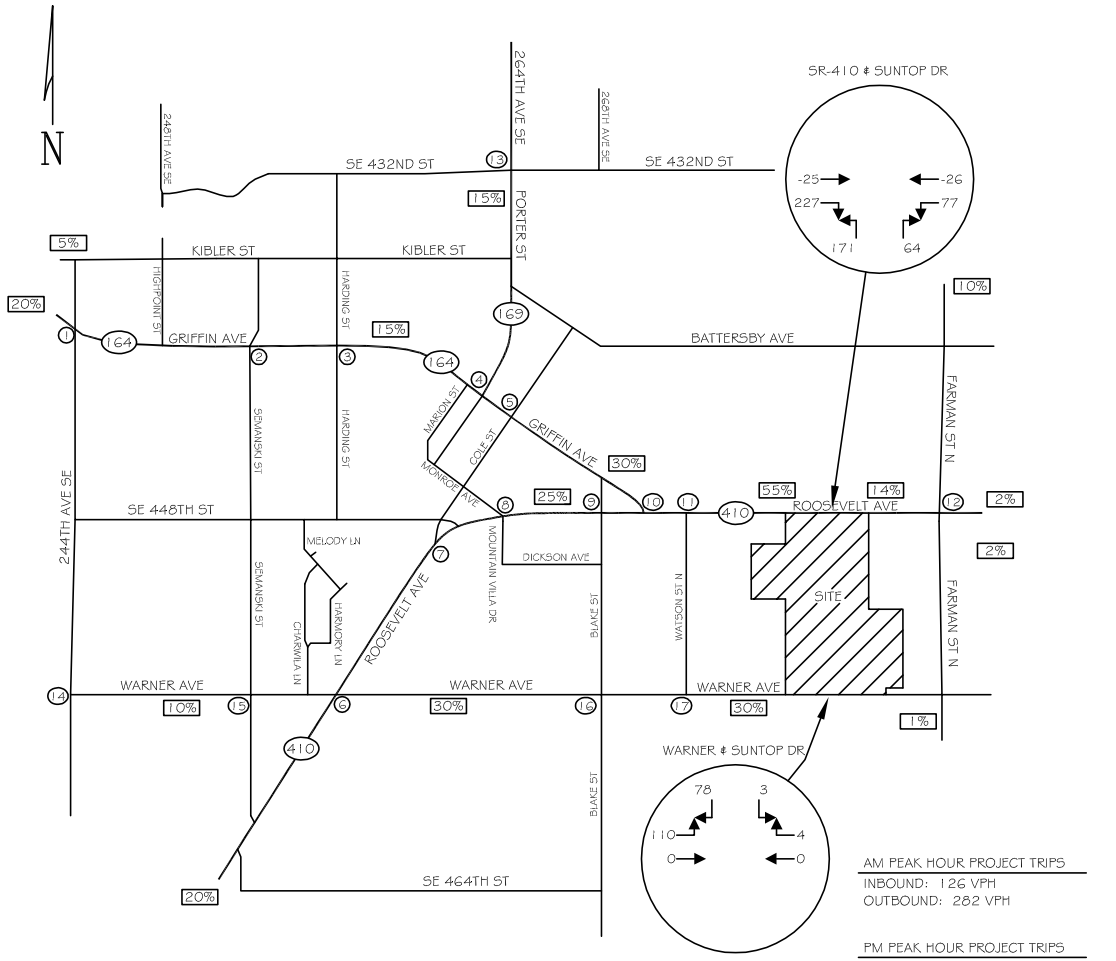
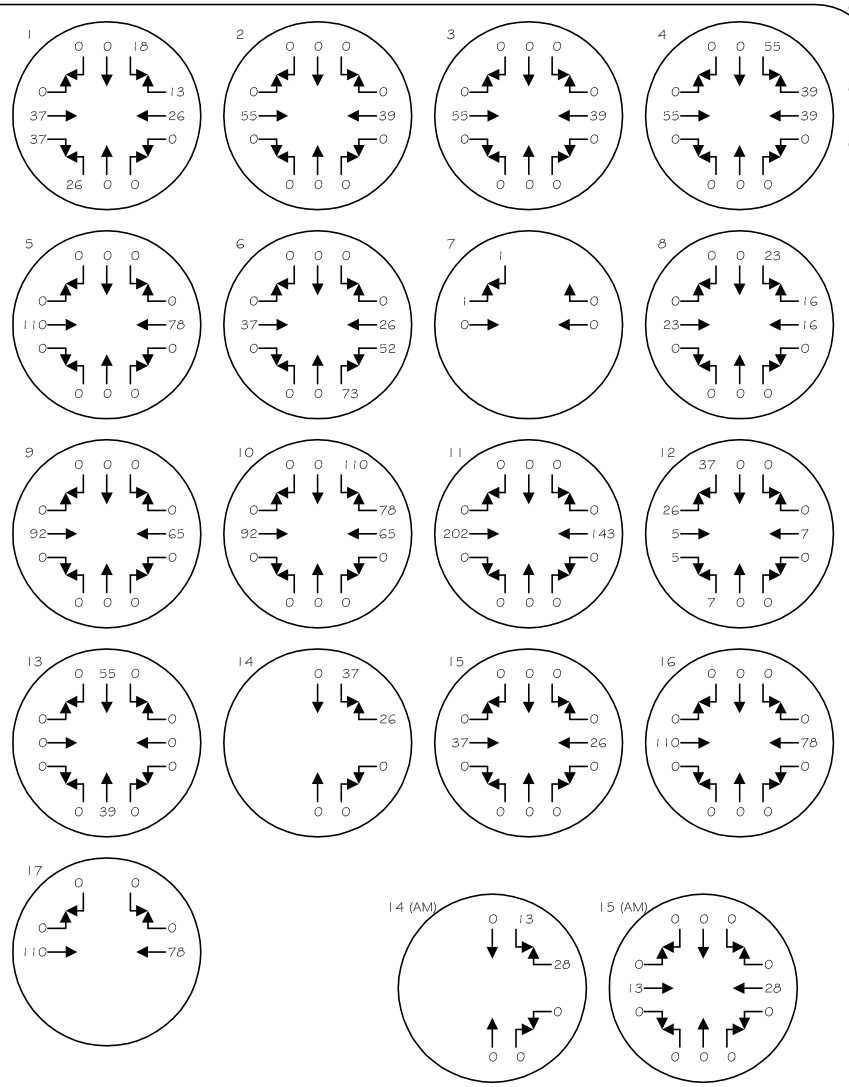
DIVISION 1 & 2 PROJECT TRIP DISTRIBUTION & ASSIGNMENT

FIGURE 4



AM PEAK HOUR PROJECT TRIPS
INBOUND: 126 VPH
OUTBOUND: 282 VPH

PM PEAK HOUR PROJECT TRIPS
INBOUND: 367 VPH (+51 PASSBY)
OUTBOUND: 261 VPH (+55 PASSBY)



SUNTOP PUD

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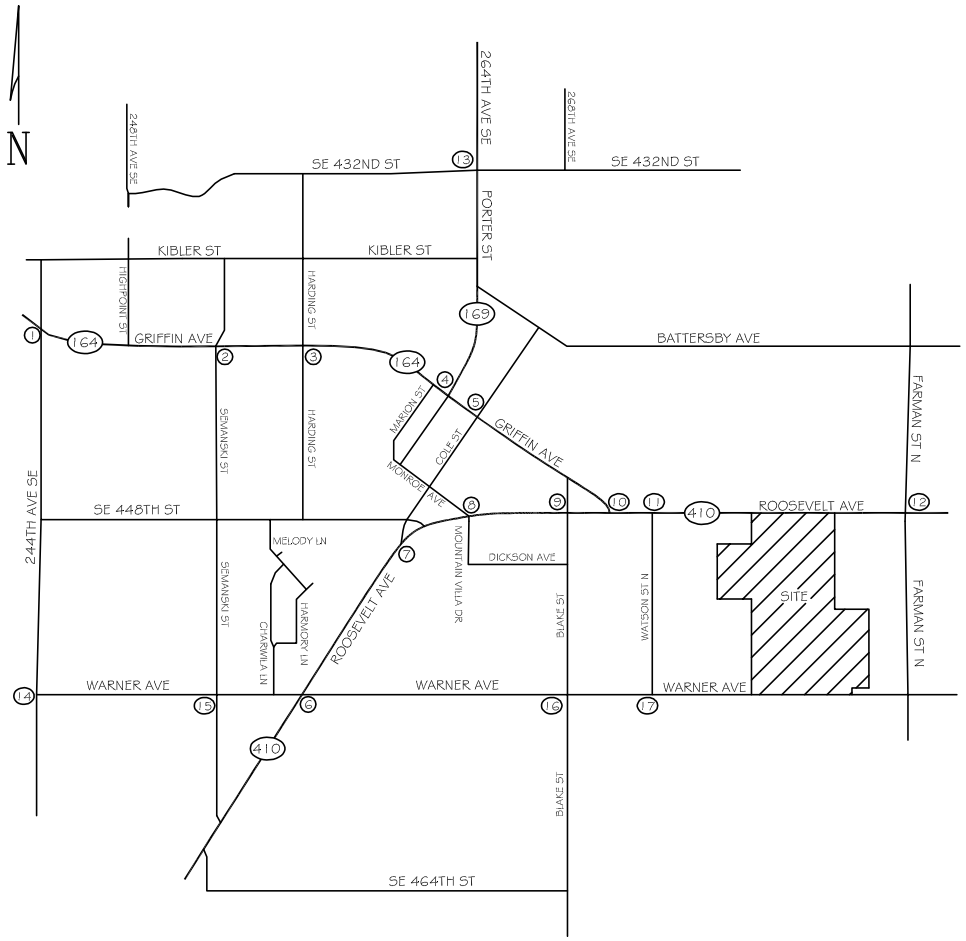
BUILDOUT PROJECT TRIP DISTRIBUTION & ASSIGNMENT

FIGURE 5



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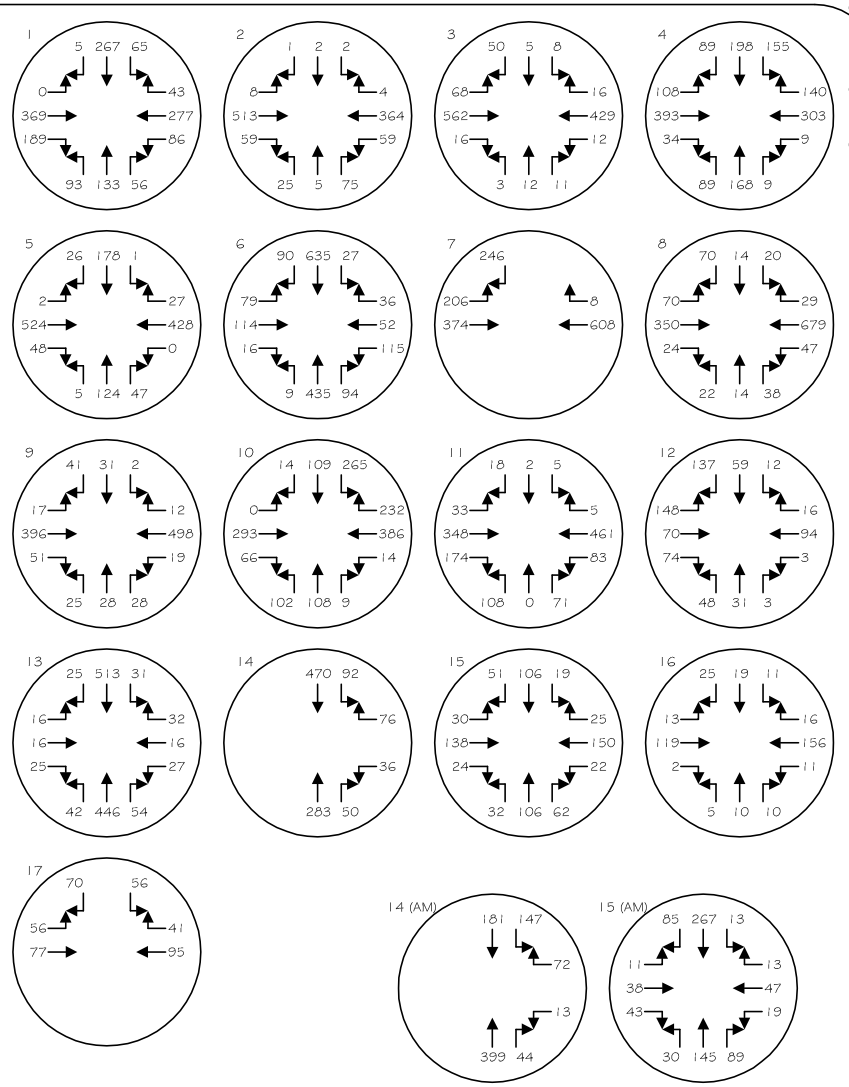

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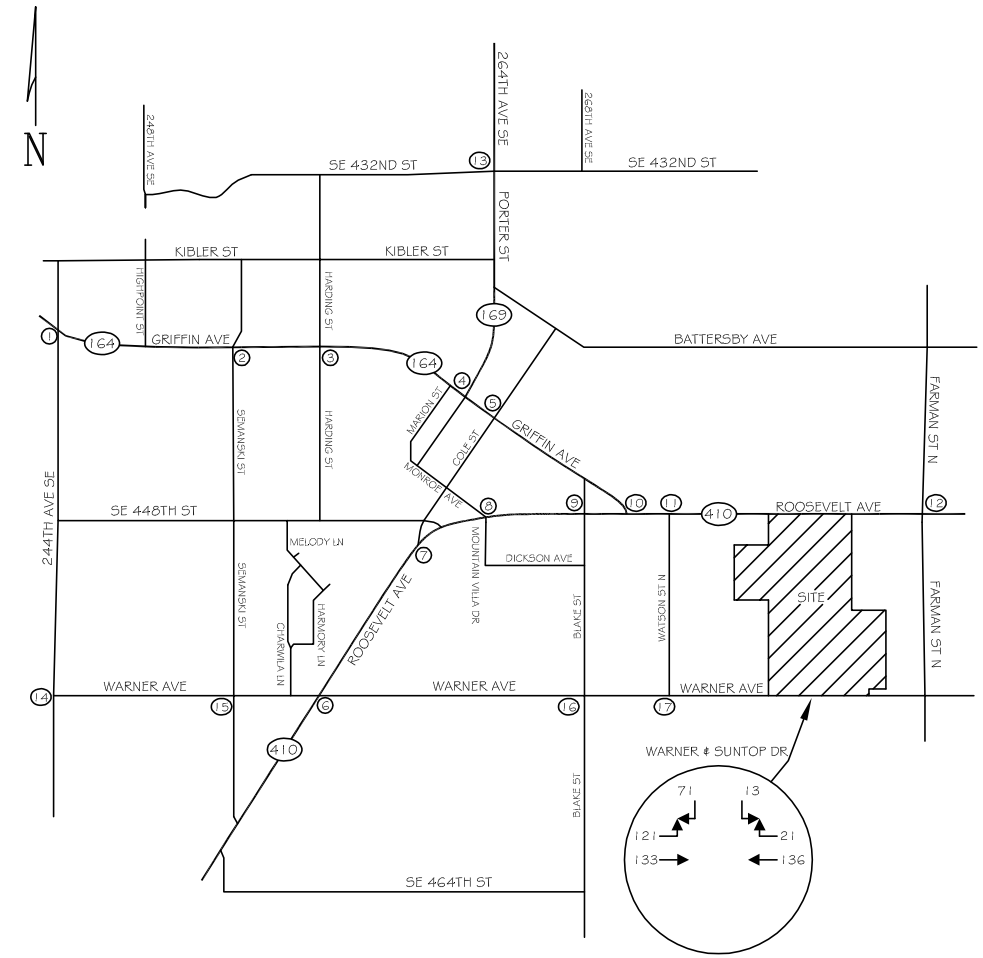
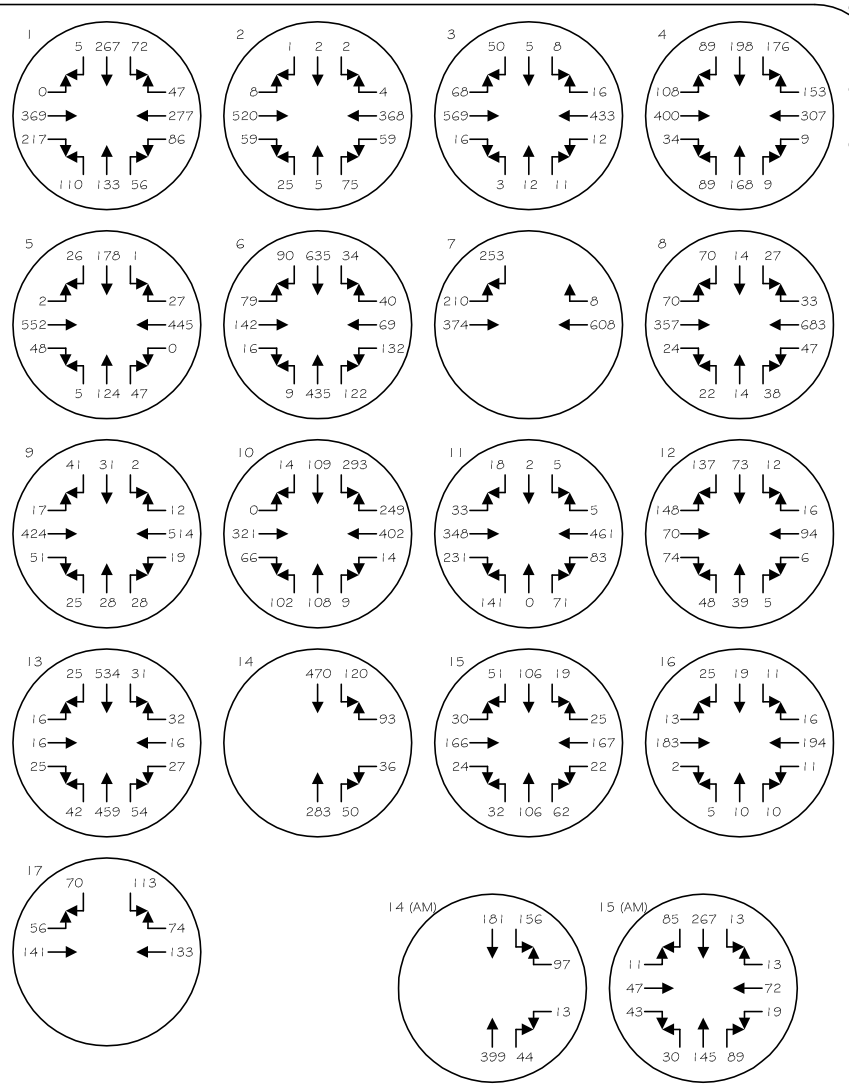
2018 PEAK HOUR VOLUMES WITHOUT PROJECT

FIGURE 6



SUNTOP PUD



17

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2018 PEAK HOUR VOLUMES WITH PROJECT (DIV 1 & 2)

FIGURE 7

TABLE 5

Future 2018 Level of Service, Divisions 1 & 2

Delays given in seconds per vehicle

			Without Project		With Project	
Intersection	*Control*	*Geometry*	*LOS*	*Delay*	*LOS*	*Delay*
PM Peak Hour						
244th Ave/Griffin Ave	Signal	Eastbound	B	12.3	B	13.8
		Westbound	B	10.5	B	11.0
		Northbound	B	15.5	B	15.9
		Southbound	B	17.9	B	18.8
		Overall	B	13.6	B	14.5
Semanski/Griffin Ave	Stop	Northbound	C	15.5	C	15.6
		Southbound	C	15.7	C	15.8
		Eastbound LT	A	8.1	A	8.1
		Westbound LT	A	9.0	A	9.0
Harding St/Griffin Ave	Stop	Northbound	C	15.2	C	15.3
		Southbound	B	13.1	B	13.2
		Eastbound LT	A	8.5	A	8.5
		Westbound LT	A	8.7	A	8.7
Porter St/Griffin Ave	Signal	Eastbound	A	8.8	A	8.9
		Westbound	A	8.3	A	8.4
		Northbound	B	11.8	B	12.1
		Southbound	B	12.2	B	12.7
		Overall	A	10.0	B	10.3
Cole St/Griffin Ave	Signal	Eastbound	B	11.9	B	11.9
		Westbound	B	10.6	B	10.5
		Northbound	B	10.9	B	11.4
		Southbound	B	11.1	B	11.7
		Overall	B	11.2	B	11.4
SR-410/Warner Ave	Signal	Eastbound	B	17.2	B	17.2
		Westbound	B	15.7	B	15.8
		Northbound	A	5.2	A	5.6
		Southbound	A	5.8	A	6.4
		Overall	A	8.2	A	8.8
Cole St/SR-410	Stop	Southbound RT	C	20.7	C	21.2
		Eastbound LT	B	10.0	B	10.0
Monroe Ave/SR-410	Stop	Northbound	C	15.8	C	15.9
		Southbound	C	16.6	C	18.0
		Eastbound LT	A	9.7	A	9.7
		Westbound LT	A	8.3	A	8.3
Blake St/SR-410	Stop	Northbound	D	28.8	D	32.3
		Southbound	C	19.7	C	21.1
		Eastbound	A	0.5	A	0.5
		Westbound	A	0.5	A	0.5
Griffin Ave/SR-410	Signal	Eastbound	A	7.2	A	7.6
		Westbound	A	8.3	A	8.8
		Northbound	A	8.4	A	8.7
		Southbound	B	10.2	B	10.8
		Overall	A	8.5	A	9.0
Watson St/SR-410	Signal	Eastbound	A	8.4	A	9.0
		Westbound	A	8.5	A	9.1
		Northbound	B	12.4	B	12.7
		Southbound	B	10.7	B	10.6
		Overall	A	9.0	A	9.6

Farman St/SR-410	Signal	Eastbound	A	6.7	A	6.8
		Westbound	B	10.2	B	10.4
		Northbound	A	7.2	A	7.2
		Southbound	A	8.2	A	8.2
		Overall	A	7.8	A	7.8
Porter St/432nd St	Stop	Eastbound	D	29.7	D	31.7
		Westbound	D	34.5	E	37.2
		Northbound LT	A	8.7	A	8.8
		Southbound LT	A	8.6	A	8.6
244th Ave/Warner Ave	Stop	Westbound	C	18.0	C	19.3
		Southbound LT	A	8.3	A	8.4
Semanski St/Warner Ave	Stop	Eastbound	C	20.9	C	23.9
		Westbound	C	20.0	C	21.9
		Northbound	A	1.4	A	1.4
		Southbound	A	1.0	A	1.0
Blake St/Warner Ave	AWSC	Eastbound	A	8.5	A	9.3
		Westbound	A	8.8	A	9.5
		Northbound	A	7.8	A	8.2
		Southbound	A	8.0	A	8.4
		Overall	A	8.5	A	9.2
Watson St/Warner Ave	Stop	Southbound	B	11.1	B	14.8
		Eastbound	A	3.4	A	2.6
Suntop Drive/Warner Ave	Stop	Southbound	-	-	B	10.4
		Eastbound	-	-	A	4.1
AM Peak Hour						
244th Ave/Warner Ave	Stop	Westbound	C	17.3	C	18.0
		Southbound LT	A	9.5	A	4.4
Semanski St/Warner Ave	Stop	Eastbound	F	57.1	F	106.8
		Westbound	F	102.9	F	195.8
		Northbound	A	1.7	A	1.7
		Southbound	A	0.6	A	0.6
Semanski St/Warner Ave	Roundabout	Eastbound	A	9.8	B	10.3
		Westbound	A	6.5	A	7.2
		Northbound	A	9.8	B	10.0
		Southbound	C	19.1	C	22.1
		Overall	B	13.7	C	15.0

As shown in the table, the Watson Street/SR-410 intersection should operate with LOS A to LOS B delays under the signalized configuration. Intersections with approaches higher than LOS D are summarized and discussed below:

Porter Street/432nd Street: With Divisions 1 & 2 project traffic added, westbound approach delays may rise over the threshold from LOS D to LOS E. Eastbound delays would still be at LOS D. WSDOT has had an earlier corridor study for SR-169 that includes this intersection in notation for future improvements should funding become available.

Semanski Street/Warner Avenue: Under the existing configuration, delays for the eastbound and westbound approaches would be at LOS F during the AM peak hour, with the westbound approach having roughly double the average delay of the eastbound

approach. However if the roundabout is assumed to be in place, all approach delays should be in the LOS A to LOS C range. With this intersection experiencing high delays, under the existing configuration it is likely that some redistribution of project trips would occur, with some trips on Warner Avenue instead shifting to Watson Street, SR-410, and Griffin Avenue for distribution to SR-164.

E. 2018 Peak Hour Volumes Adding Parcels D & E

Further analysis was made for estimated 2018 peak hour volumes with the additional 60 single family units of Parcel D and 80 multifamily units of Parcel E. The total trip generation for Divisions 1 & 2, plus Phases D & E, are 62 inbound, 194 outbound AM peak hour trips, or a roughly 51% increase from Divisions 1 & 2 alone. During the PM peak hour, a total of 212 inbound and 124 outbound trips are expected, or an increase of roughly 49% from Divisions 1 & 2 alone.

An LOS analysis was performed for these added Parcels D & E 2018 peak hour volumes assuming the same trip distribution percentages as in Figure 4, with no project access to SR-410. Only key nearby intersections, as well as locations that had moderate to high delays from Table 4 were reanalyzed under this scenario. As before, the Semanski St/Warner Ave intersection was analyzed under both the existing and roundabout configurations for the AM peak hour. In addition, an analysis of Semanski St/Warner Ave during the AM peak was redone assuming project traffic is redistributed with the Suntop Drive connection to SR-410 in place. Results are shown in Table 6.

TABLE 6

Future 2018 Level of Service With Divisions 1 & 2, Parcels D & E

Delays given in seconds per vehicle

Intersection	*Control*	*Approach*	*LOS*	*Delay*
PM Peak Hour				
Blake St/SR-410	Stop	Northbound	D	34.4
		Southbound	C	21.8
		Eastbound	A	0.5
		Westbound	A	0.5
Griffin Ave/SR-410	Signal	Eastbound	A	7.8
		Westbound	A	9.1
		Northbound	A	8.8
		Southbound	B	11.2
		Overall	A	9.3
Watson St/SR-410	Signal	Eastbound	A	9.4
		Westbound	A	9.4
		Northbound	B	12.9
		Southbound	B	10.5
		Overall	A	10.0
Porter St/432nd St	Stop	Eastbound	D	32.7
		Westbound	E	38.6
		Northbound LT	A	8.9
		Southbound LT	A	8.6

Semanski St/Warner Ave	Stop	Eastbound	D	25.7
		Westbound	C	23.0
		Northbound	A	1.4
		Southbound	A	1.0
Watson St/Warner Ave	Stop	Southbound	C	18.1
		Eastbound	A	2.3
Suntop Dr/Warner Ave	Stop	Southbound	B	11.3
		Eastbound	A	5.1
AM Peak Hour				
Semanski St/Warner Ave	Stop	Eastbound	F	186.8
		Westbound	F	256.6
		Northbound	A	1.7
		Southbound	A	0.6
Semanski St/Warner Ave	Roundabout	Eastbound	B	10.5
		Westbound	A	7.6
		Northbound	B	10.2
		Southbound	C	24.0
		Overall	C	15.8
Semanski St/Warner Ave (w/ SR-410 proj access)	Stop	Eastbound	F	86.7
		Westbound	F	167.6
		Northbound	A	1.7
		Southbound	A	0.6

As shown in Table 6, LOS levels are expected to be similar to those with just Divisions 1 & 2 built. The same notes and commentary for the problem intersections above still apply. The table also shows that the Watson St/SR-410 signalized intersection could easily handle the additional project traffic from Parcels D & E, with LOS A delays overall. The scenario for Semanski St/Warner Ave during the AM peak hour under the existing configuration, with the project access of Suntop Drive at SR-410 assumed in place, still shows LOS F for the eastbound and westbound approaches, but with lower average delays per vehicle. The reduction can be attributed to more traffic using SR-410 to Griffin Avenue for distribution to/from SR-164. Again, as noted in the comments for Table 4, some increased redistribution for this route to SR-164 could be expected regardless in an effort to avoid heavy delays at Semanski St/Warner Ave.

F. 2033 Peak Hour Volumes

Per City of Enumclaw policy, the year 2033 was considered as the horizon year of full build-out for a 20 year outlook. Table 7 shows the estimated future volumes at the key intersections, along with the project trips and percentage of project traffic of the totals.

TABLE 7
2033 Peak Hour Project Trips and Intersection Volumes

Intersection	*Project Trips*	*Intersection Trips*	*Project %*
PM Peak Hour			
244th Ave/Griffin Ave	157	2127	7.4
Semanski St/Griffin Ave	94	1482	6.3
Harding St/Griffin Ave	94	1578	6.0
Porter St/Griffin Ave	188	2298	8.2
Cole St/Griffin Ave	188	1944	9.7
SR-410/Warner Ave	188	2308	8.1
Cole St/SR-410	2	1803	0.1
Monroe Ave/SR-410	78	1797	4.3
Blake St/SR-410	157	1591	9.9
Griffin Ave/SR-410	345	2331	14.8
Watson St/SR-410	345	1971	17.5
Farman St/SR-410	87	955	9.1
Porter St/432nd St	94	1644	5.7
244th Ave/Warner Ave	63	1321	4.8
Semanski St/Warner Ave	63	1015	6.2
Blake St/Warner Ave	188	677	27.8
Watson St/Warner Ave	188	664	28.3
AM Peak Hour			
244th Ave/Warner Ave	41	1110	3.7
Semanski St/Warner Ave	41	1039	3.9

As the SR-410 improvement plans are not finalized at this time, it is difficult to accurately provide an LOS analysis for a 20 year horizon. Volume shifts of existing background traffic would be expected not just at the SR-410 intersections, but at other locations with the changes in configuration of SR-410 segments potentially affecting area-wide traffic flows. With this caveat, LOS analyses for 2033 conditions with the project fully built are provided in the appendix.

G. Left Turn Lane Warrants

Left turn lanes are a means of providing necessary storage space for left turning vehicles at intersections. Methods have been developed by various agencies to determine under what circumstances a left turn lane would be needed. For this impact study, procedures described by the WSDOT Design Manual Exhibit 1310-7a were used to ascertain storage requirements on Warner Avenue at Suntop Drive.

Based on 2018 PM peak hour volumes with Divisions 1 & 2 built, the plotted point appears to show that a left turn lane *would not be warranted* on Warner Avenue at Suntop Drive, assuming a 35 mph speed limit. A 35 mph warrant line is not provided, however the plotted point location in relation to the 40 mph line is indicative of the warrant not being met. However, any additional development beyond Divisions 1 & 2 is estimated to trigger the left turn warrant if the Suntop Drive connection to SR-410 is not made.

An analysis of Warner Avenue at Suntop Drive was next made for 2033 PM peak hour volumes with full build-out and with a Suntop Drive connection to SR-410. The results show that a left turn lane on Warner Avenue at Suntop Drive *would not be warranted.* Refer to the appendix for the warrant nomographs.

V. CONCLUSIONS

The Suntop PUD project located between SR-410 and Warner Avenue proposes to begin development with Divisions 1 & 2, which would combine 116 and 110 single family units for a total of 226 single family units by 2018. Additional development of Parcels D & E may add another 60 single family units and 80 multifamily units. Full build-out of the site would consist of a total of 286 single family units, 220 multifamily units, and an estimate of roughly 84,000 of commercial/retail space. On a daily basis, the full build-out of the PUD is expected to generate 7773 trip movements into and out of the site. Project traffic during the AM peak hour is forecasted to have 408 total movements into and out of the site entrances, with 734 trip movements during the PM peak hour. Roughly 106 of these trip movements may be pass-by trips with no effect on outlying intersections.

Initial access for the site will be onto Warner Avenue via Suntop Drive and internal connections to Suntop Farms II. This access scenario could serve development of Divisions 1 & 2 as well as Parcels D & E, assuming the signalization project for Watson Street & SR-410 is completed. Further project development phases would include an access onto SR-410, possibly in a roundabout configuration subject to development plans. Both primary project access points have adequate entering sight distance based on roadway geometrics.

Current delays at the key intersections are generally low. The primary exception is Semanski Street/Warner Avenue during the AM peak hour, which already has some LOS E or LOS F delays for the eastbound and westbound approaches. The Watson Street/SR-410 intersection has LOS E northbound delays, however this intersection is scheduled to be signalized shortly.

Future volume and delay conditions in the area are outlined in Tables 5-7. Operations at the Watson Street/SR-410 under a signalized configuration would operate with mild delays, even assuming Divisions 1 & 2 plus Parcels D & E are generating trips and distribution without the benefit of the SR-410 access. Future delays at Semanski Street/Warner Avenue would benefit from installation of a roundabout, which is in the planning phase. Some delays were noted at the intersection of Porter Street (SR-169)/SE 432nd Street, however this intersection may also receive future improvements as noted in the WSDOT SR-169 corridor study.

A left turn lane would not be warranted on Warner Avenue at the access intersection with Suntop Drive based on 2018 volumes with only Divisions 1 & 2 developed. Any further

development without the benefit of the SR-410 connection would cause the left turn lane on Warner Avenue to be warranted. However, using 2033 volumes with full build-out and the SR-410 connection in place, the left turn lane on Warner Avenue would not be warranted.

SUNTOP PUD
TRAFFIC IMPACT ANALYSIS

APPENDIX

LEVEL OF SERVICE

The following are excerpts from the *2010 Highway Capacity Manual - Transportation Research Board Special Report 209.*

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions and the driver's perception of those conditions.

Level-of-Service definitions

The following definitions generally define the various levels of service for arterials.

Level of service A represents primarily free-flow operations at average travel speeds, usually about 90 percent of the free-flow speed for the arterial classification. Vehicles are seldom impeded in their ability to maneuver in the traffic stream. Delay at signalized intersections is minimal.

Level of service B represents reasonably unimpeded operations at average travel speeds, usually about 70 percent of the free-flow speed for the arterial classification. The ability to maneuver in the traffic stream is only slightly restricted and delays are not bothersome.

Level of service C represents stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than in LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the average free-flow speed for the arterial classification.

Level of service D borders on a range in which small increases in flow may cause substantial increases in approach delay and hence decreases in arterial speed. LOS D may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40 percent of free-flow speed.

Level of service E is characterized by significant delays and average travel speeds of one-third the free-flow speed or less. Such operations are caused by some combination of adverse progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.

Level of service F characterizes arterial flow at extremely low speeds, from less than one-third to one-quarter of the free-flow speed. Intersection congestion is likely at critical signalized locations, with long delays and extensive queuing.

These definitions are general and conceptual in nature, and they apply primarily to uninterrupted flow. Levels of service for interrupted flow facilities vary widely in terms of both the user's perception of service quality and the operational variables used to describe them.

For each type of facility, levels of service are defined based on one or more operational parameters that best describe operating quality for the subject facility type. While the concept of level of service attempts to address a wide range of operating conditions, limitations on data collection and availability make it impractical to treat the full range of operational parameters for every type of facility. The parameters selected to define levels of service for each facility type are called "measures of effectiveness" or "MOE's", and represent available measures that best describe the quality of operation on the subject facility type.

Each level of service represents a range of conditions, as defined by a range in the parameters given. Thus, a level of service is not a discrete condition, but rather a range of conditions for which boundaries are established.

The following tables describe levels of service for signalized and unsignalized intersections. Level of service for signalized intersections is defined in terms of average control delay. Delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time, as well as time from movements at slower speeds and stops on intersection approaches as vehicles move up in queue position or slow down upstream of an intersection. Level of service for unsignalized intersections is determined by the computed or measured control delay and is determined for each minor movement.

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

Unsignalized Intersections - Level of Service

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

As described in the 2010 Highway Capacity Manual, level of service breakpoints for all-way stop controlled (AWSC) intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from distinct kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an AWSC intersection. Thus a higher level of control delay is acceptable at a signalized intersection for the same level of service.

AWSC Intersections - Level of Service

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

Detailed Average Rate Trip Calculations
For 226 Dwelling Units of Single Family Detached Housing(210) - [R]

Project: Suntop PUD
Phase: Divisions 1&2

Open Date:
Analysis Date:

Description:

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	9.52	3.70	1.00	2152
7-9 AM Peak Hour Enter	0.19	0.00	1.00	43
7-9 AM Peak Hour Exit	0.56	0.00	1.00	127
7-9 AM Peak Hour Total	0.75	0.90	1.00	170
4-6 PM Peak Hour Enter	0.63	0.00	1.00	142
4-6 PM Peak Hour Exit	0.37	0.00	1.00	84
4-6 PM Peak Hour Total	1.00	1.05	1.00	226
AM Pk Hr, Generator, Enter	0.20	0.00	1.00	45
AM Pk Hr, Generator, Exit	0.57	0.00	1.00	129
AM Pk Hr, Generator, Total	0.77	0.91	1.00	174
PM Pk Hr, Generator, Enter	0.65	0.00	1.00	147
PM Pk Hr, Generator, Exit	0.37	0.00	1.00	84
PM Pk Hr, Generator, Total	1.02	1.05	1.00	231
Saturday 2-Way Volume	9.91	3.72	1.00	2240
Saturday Peak Hour Enter	0.50	0.00	1.00	113
Saturday Peak Hour Exit	0.43	0.00	1.00	97
Saturday Peak Hour Total	0.93	0.99	1.00	210
Sunday 2-Way Volume	8.62	3.36	1.00	1948
Sunday Peak Hour Enter	0.46	0.00	1.00	104
Sunday Peak Hour Exit	0.40	0.00	1.00	90
Sunday Peak Hour Total	0.86	0.95	1.00	194

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Summary of Multi-Use Trip Generation
Average Weekday Driveway Volumes (Unadjusted for Internal Trips)

Project: Suntop PUD
Phase: Div1&2, Parcel D&E

Open Date:
Analysis Date:

Description:

ITE: Land Use	24 Hour Two-Way Volume	AM Pk Hour Enter	AM Pk Hour Exit	PM Pk Hour Enter	PM Pk Hour Exit
210: Single Family Detached Housing 286 Dwelling Units [R]	2723	54	161	180	106
220: Apartments 80 Dwelling Units [R]	532	8	33	32	18
Total Driveway Volume	3255	62	194	212	124
Total Peak Hour Pass-By Trips		0	0	0	0
Total Peak Hour Vol. Added to Adjacent Streets		62	194	212	124

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Summary of Multi-Use Trip Generation
Average Weekday Driveway Volumes (Unadjusted for Internal Trips)

Project: Suntop PUD
Phase: Full Buildout

Open Date:
Analysis Date:

Description:

ITE: Land Use	24 Hour Two-Way Volume	AM Pk Hour Enter	AM Pk Hour Exit	PM Pk Hour Enter	PM Pk Hour Exit
210: Single Family Detached Housing 286 Dwelling Units [R]	2723	54	161	180	106
220: Apartments 220 Dwelling Units [R]	1463	22	90	88	48
820: Shopping Center 84 Th.Sq.Ft. GLA [R]	3587	50	31	150	162
Total Driveway Volume	7773	126	282	418	316
Total Peak Hour Pass-By Trips		0	0	51	55
Total Peak Hour Vol. Added to Adjacent Streets		126	282	367	261

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

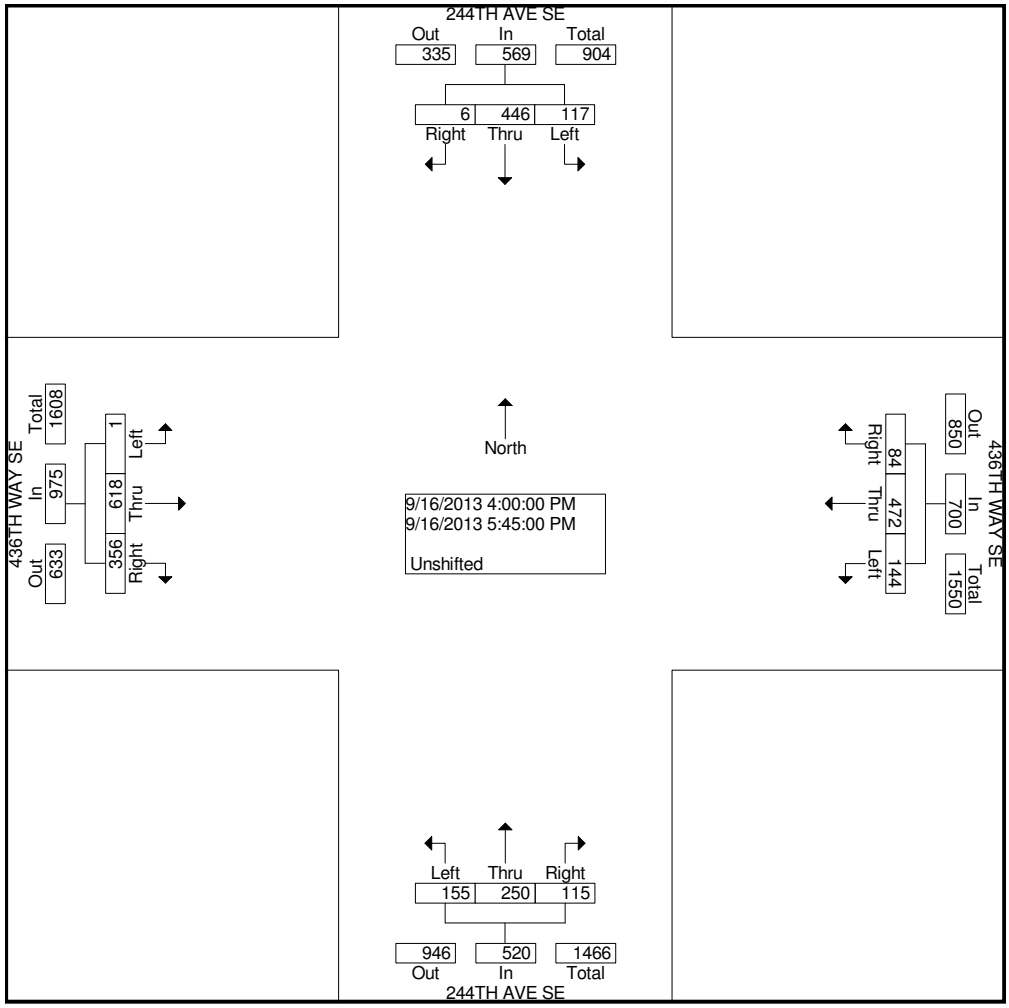
TRIP GENERATION 2013, TRAFFICWARE, LLC

Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434p
Site Code : 00003434
Start Date : 9/16/2013
Page No : 1

Groups Printed- Unshifted

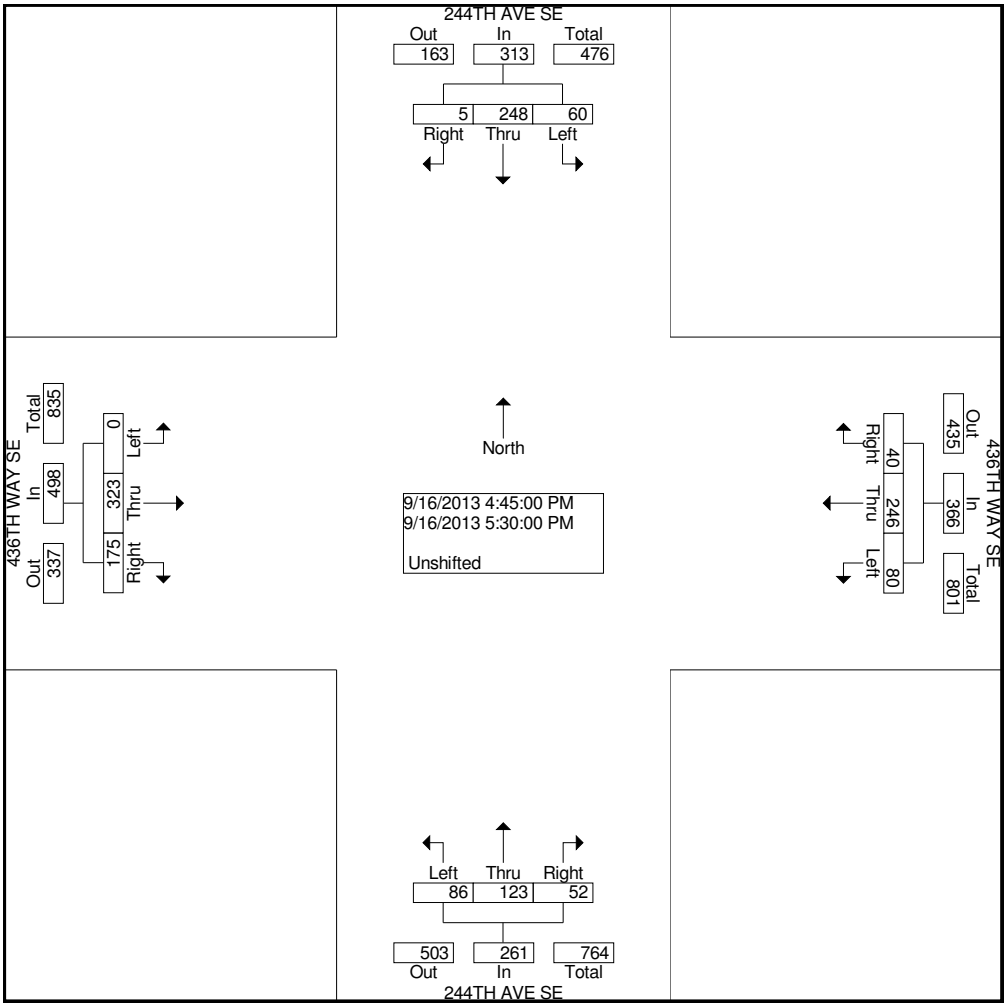
	244TH AVE SE Southbound			436TH WAY SE Westbound			244TH AVE SE Northbound			436TH WAY SE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	55	17	13	66	13	15	32	12	34	54	0	311
04:15 PM	0	47	15	10	55	24	17	34	20	54	66	1	343
04:30 PM	0	53	16	12	56	16	15	34	14	39	77	0	332
04:45 PM	3	63	15	7	70	24	11	22	16	36	80	0	347
Total	3	218	63	42	247	77	58	122	62	163	277	1	1333
05:00 PM	0	73	19	9	61	14	13	26	19	43	94	0	371
05:15 PM	2	63	12	12	57	23	13	43	23	58	70	0	376
05:30 PM	0	49	14	12	58	19	15	32	28	38	79	0	344
05:45 PM	1	43	9	9	49	11	16	27	23	54	98	0	340
Total	3	228	54	42	225	67	57	128	93	193	341	0	1431
Grand Total	6	446	117	84	472	144	115	250	155	356	618	1	2764
Apprch %	1.1	78.4	20.6	12.0	67.4	20.6	22.1	48.1	29.8	36.5	63.4	0.1	
Total %	0.2	16.1	4.2	3.0	17.1	5.2	4.2	9.0	5.6	12.9	22.4	0.0	



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434p
Site Code : 00003434
Start Date : 9/16/2013
Page No : 2

	244TH AVE SE Southbound				436TH WAY SE Westbound				244TH AVE SE Northbound				436TH WAY SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	5	248	60	313	40	246	80	366	52	123	86	261	175	323	0	498	1438
Percent	1.6	79.2	19.2		10.9	67.2	21.9		19.9	47.1	33.0		35.1	64.9	0.0		
05:15 Volume	2	63	12	77	12	57	23	92	13	43	23	79	58	70	0	128	376
Peak Factor																	0.956
High Int.	05:00 PM				04:45 PM				05:15 PM				05:00 PM				
Volume	0	73	19	92	7	70	24	101	13	43	23	79	43	94	0	137	
Peak Factor				0.851				0.906				0.826				0.909	

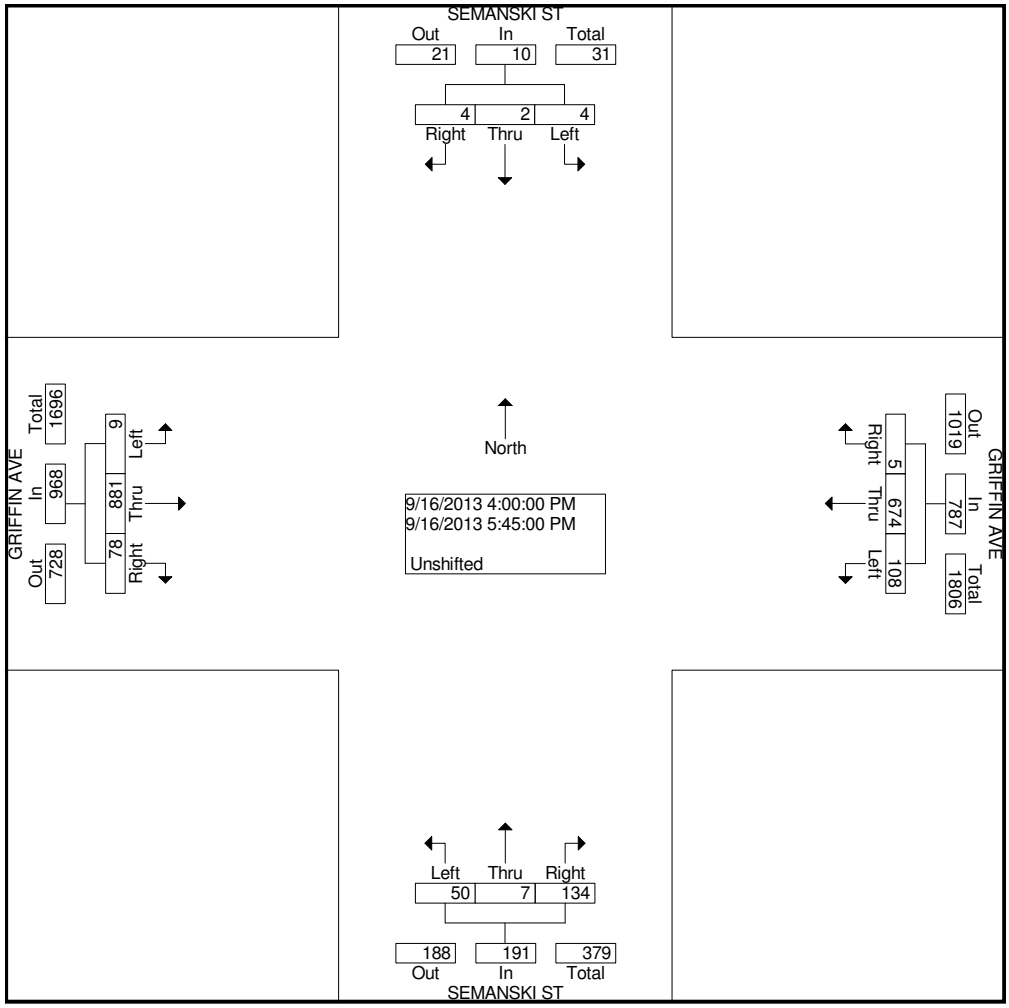


Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434q
Site Code : 00003434
Start Date : 9/16/2013
Page No : 1

Groups Printed- Unshifted

	SEMANSKI ST Southbound			GRIFFIN AVE Westbound			SEMANSKI ST Northbound			GRIFFIN AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	1	0	0	0	99	15	13	0	12	9	93	0	242
04:15 PM	0	0	0	0	79	11	23	1	5	8	107	1	235
04:30 PM	1	0	1	0	79	12	12	1	9	10	112	1	238
04:45 PM	1	0	1	1	86	18	18	0	5	4	105	0	239
Total	3	0	2	1	343	56	66	2	31	31	417	2	954
05:00 PM	0	0	0	0	94	17	20	1	5	11	127	1	276
05:15 PM	1	0	0	0	77	11	26	3	7	12	100	1	238
05:30 PM	0	1	2	0	84	12	11	1	4	11	114	1	241
05:45 PM	0	1	0	4	76	12	11	0	3	13	123	4	247
Total	1	2	2	4	331	52	68	5	19	47	464	7	1002
Grand Total	4	2	4	5	674	108	134	7	50	78	881	9	1956
Apprch %	40.0	20.0	40.0	0.6	85.6	13.7	70.2	3.7	26.2	8.1	91.0	0.9	
Total %	0.2	0.1	0.2	0.3	34.5	5.5	6.9	0.4	2.6	4.0	45.0	0.5	

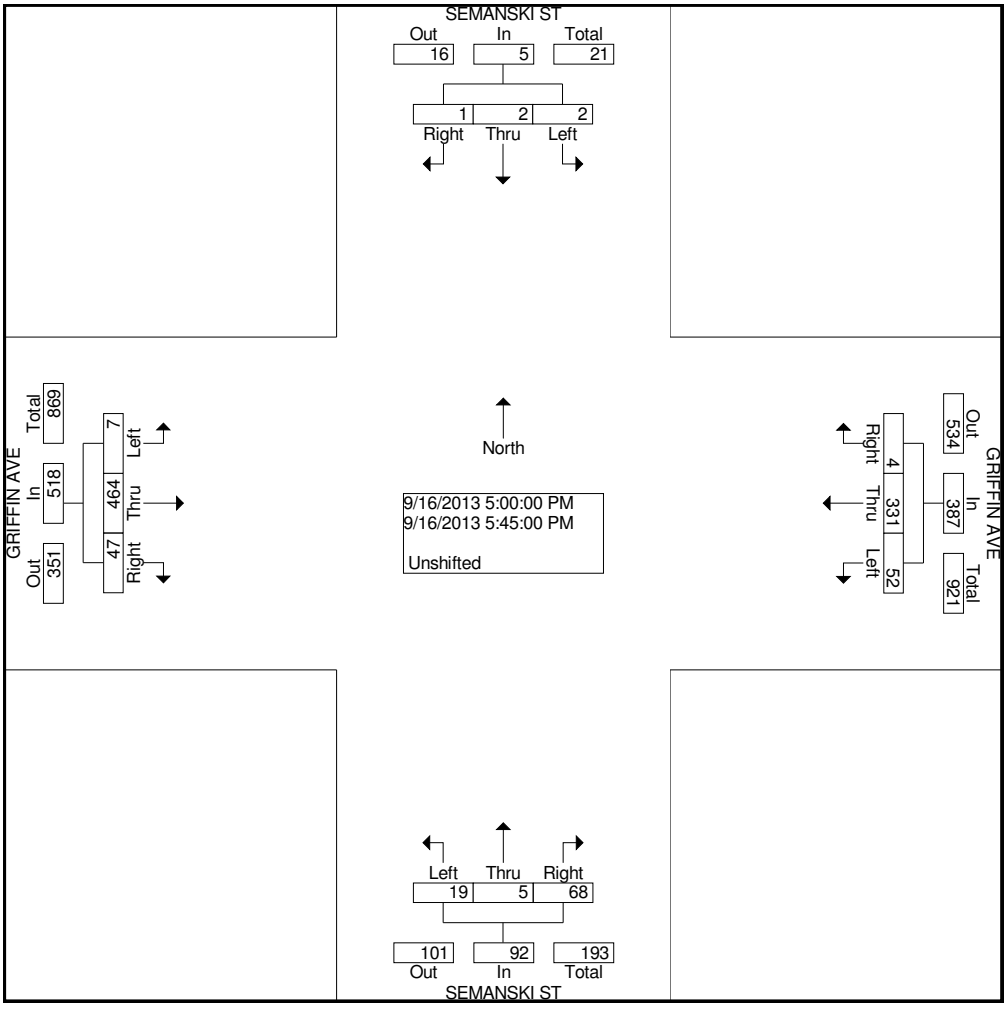


Attachment K

Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434q
Site Code : 00003434
Start Date : 9/16/2013
Page No : 2

	SEMANSKI ST Southbound				GRIFFIN AVE Westbound				SEMANSKI ST Northbound				GRIFFIN AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	1	2	2	5	4	331	52	387	68	5	19	92	47	464	7	518	1002
Percent	20.0	40.0	40.0		1.0	85.5	13.4		73.9	5.4	20.7		9.1	89.6	1.4		
05:00 Volume	0	0	0	0	0	94	17	111	20	1	5	26	11	127	1	139	276
Peak Factor																	0.908
High Int.	05:30 PM				05:00 PM				05:15 PM				05:45 PM				
Volume	0	1	2	3	0	94	17	111	26	3	7	36	13	123	4	140	
Peak Factor				0.417				0.872				0.639				0.925	

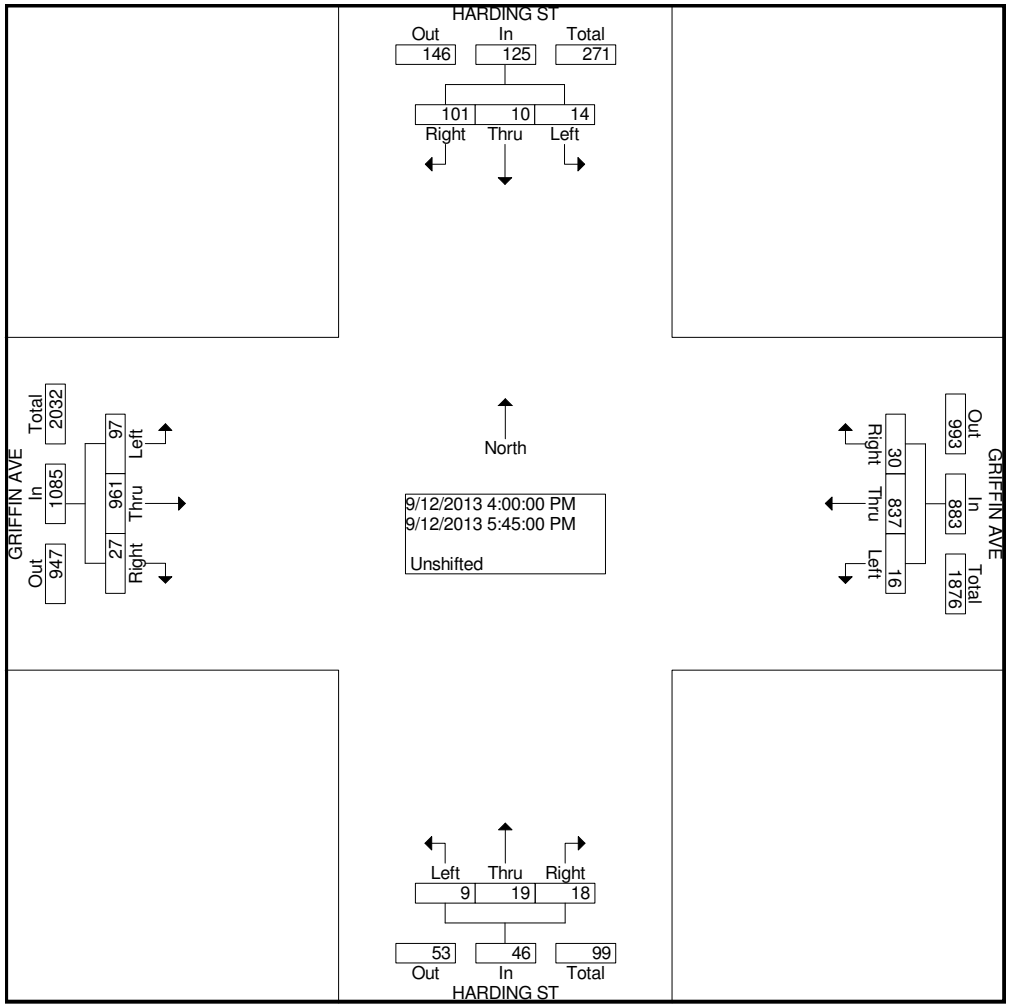


Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434n
Site Code : 00003434
Start Date : 9/12/2013
Page No : 1

Groups Printed- Unshifted

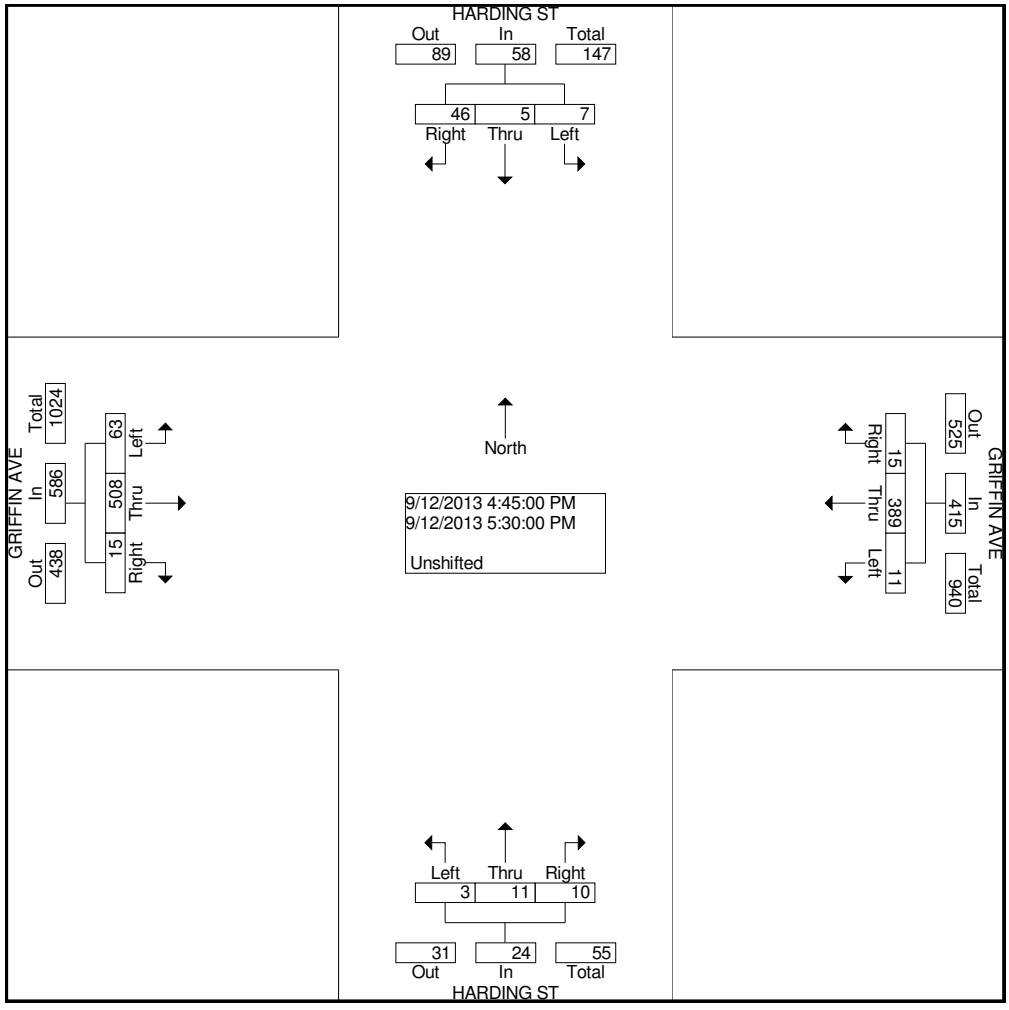
	HARDING ST Southbound			GRIFFIN AVE Westbound			HARDING ST Northbound			GRIFFIN AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	12	0	1	1	109	1	4	5	2	1	122	4	262
04:15 PM	16	3	2	2	126	0	3	0	1	3	104	8	268
04:30 PM	14	0	3	5	91	2	1	1	2	4	111	12	246
04:45 PM	9	3	2	1	97	2	5	3	3	5	132	18	280
Total	51	6	8	9	423	5	13	9	8	13	469	42	1056
05:00 PM	13	0	3	8	100	2	1	2	0	4	136	17	286
05:15 PM	12	1	2	2	103	3	3	5	0	3	116	16	266
05:30 PM	12	1	0	4	89	4	1	1	0	3	124	12	251
05:45 PM	13	2	1	7	122	2	0	2	1	4	116	10	280
Total	50	4	6	21	414	11	5	10	1	14	492	55	1083
Grand Total	101	10	14	30	837	16	18	19	9	27	961	97	2139
Apprch %	80.8	8.0	11.2	3.4	94.8	1.8	39.1	41.3	19.6	2.5	88.6	8.9	
Total %	4.7	0.5	0.7	1.4	39.1	0.7	0.8	0.9	0.4	1.3	44.9	4.5	



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434n
Site Code : 00003434
Start Date : 9/12/2013
Page No : 2

	HARDING ST Southbound				GRIFFIN AVE Westbound				HARDING ST Northbound				GRIFFIN AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	46	5	7	58	15	389	11	415	10	11	3	24	15	508	63	586	1083
Percent	79.3	8.6	12.1		3.6	93.7	2.7		41.7	45.8	12.5		2.6	86.7	10.8		
05:00 Volume	13	0	3	16	8	100	2	110	1	2	0	3	4	136	17	157	286
Peak Factor																	0.947
High Int.	05:00 PM				05:00 PM				04:45 PM				05:00 PM				
Volume	13	0	3	16	8	100	2	110	5	3	3	11	4	136	17	157	
Peak Factor				0.906				0.943				0.545				0.933	



Heath & Associates, Inc.
2214 Tacoma Road
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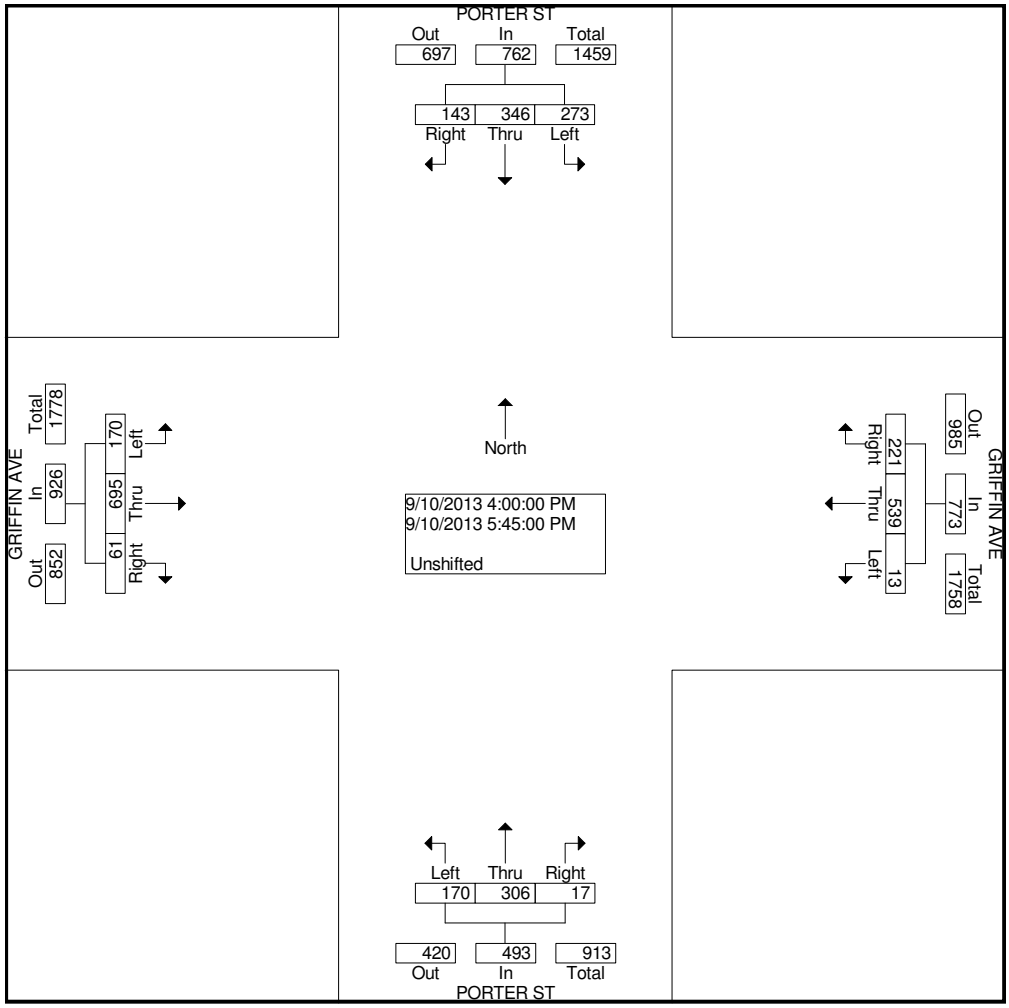
File Name : 3434j
Site Code : 00003434
Start Date : 9/10/2013
Page No : 1

Groups Printed- Unshifted

	PORTER ST Southbound			GRIFFIN AVE Westbound			PORTER ST Northbound			GRIFFIN AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	17	42	32	21	65	2	1	34	22	6	85	18	345
04:15 PM	17	48	37	26	61	1	2	49	20	6	82	22	371
04:30 PM	13	35	31	19	70	2	4	34	27	10	82	16	343
04:45 PM	19	44	36	32	66	2	4	41	26	8	96	12	386
Total	66	169	136	98	262	7	11	158	95	30	345	68	1445
05:00 PM	26	37	37	35	77	4	1	35	21	6	92	31	402
05:15 PM	22	53	32	34	63	1	3	38	11	10	86	23	376
05:30 PM	13	50	32	25	69	1	0	42	25	8	79	32	376
05:45 PM	16	37	36	29	68	0	2	33	18	7	93	16	355
Total	77	177	137	123	277	6	6	148	75	31	350	102	1509
Grand Total	143	346	273	221	539	13	17	306	170	61	695	170	2954
Apprch %	18.8	45.4	35.8	28.6	69.7	1.7	3.4	62.1	34.5	6.6	75.1	18.4	
Total %	4.8	11.7	9.2	7.5	18.2	0.4	0.6	10.4	5.8	2.1	23.5	5.8	

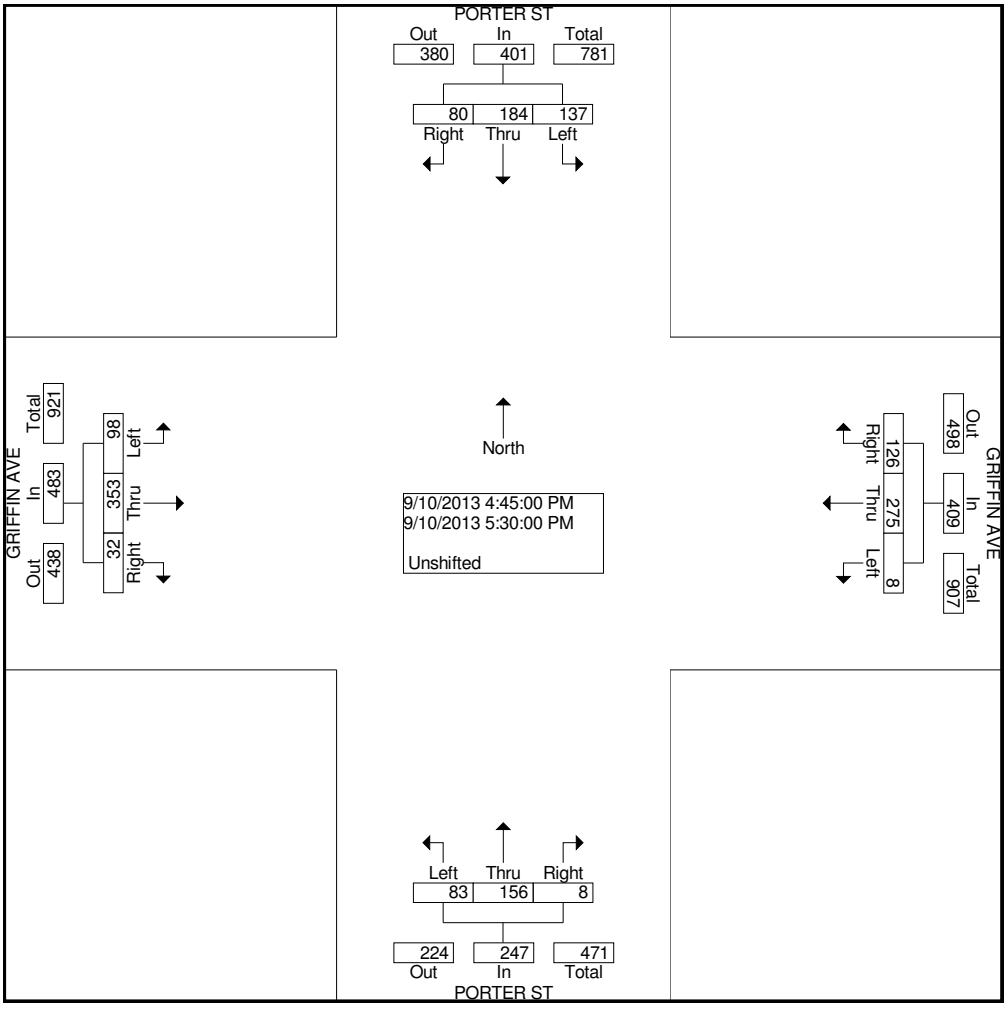


Attachment K

Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434j
Site Code : 00003434
Start Date : 9/10/2013

	PORTER ST Southbound				GRIFFIN AVE Westbound				PORTER ST Northbound				GRIFFIN AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	80	184	137	401	126	275	8	409	8	156	83	247	32	353	98	483	1540
Percent	20.0	45.9	34.2		30.8	67.2	2.0		3.2	63.2	33.6		6.6	73.1	20.3		
05:00 Volume	26	37	37	100	35	77	4	116	1	35	21	57	6	92	31	129	402
Peak Factor																	0.958
High Int.	05:15 PM				05:00 PM				04:45 PM				05:00 PM				
Volume	22	53	32	107	35	77	4	116	4	41	26	71	6	92	31	129	
Peak Factor				0.937				0.881				0.870				0.936	



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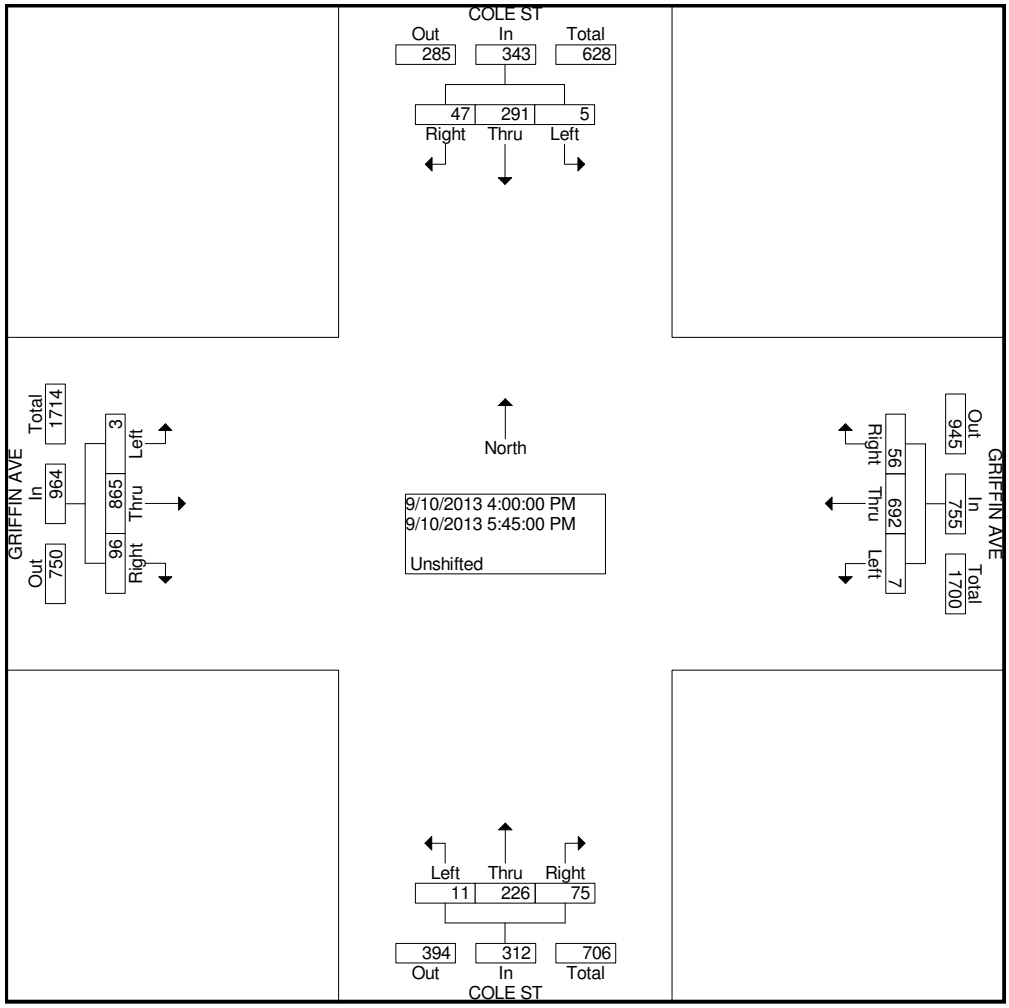
File Name : 3434k
Site Code : 00003434
Start Date : 9/10/2013
Page No : 1

Groups Printed- Unshifted

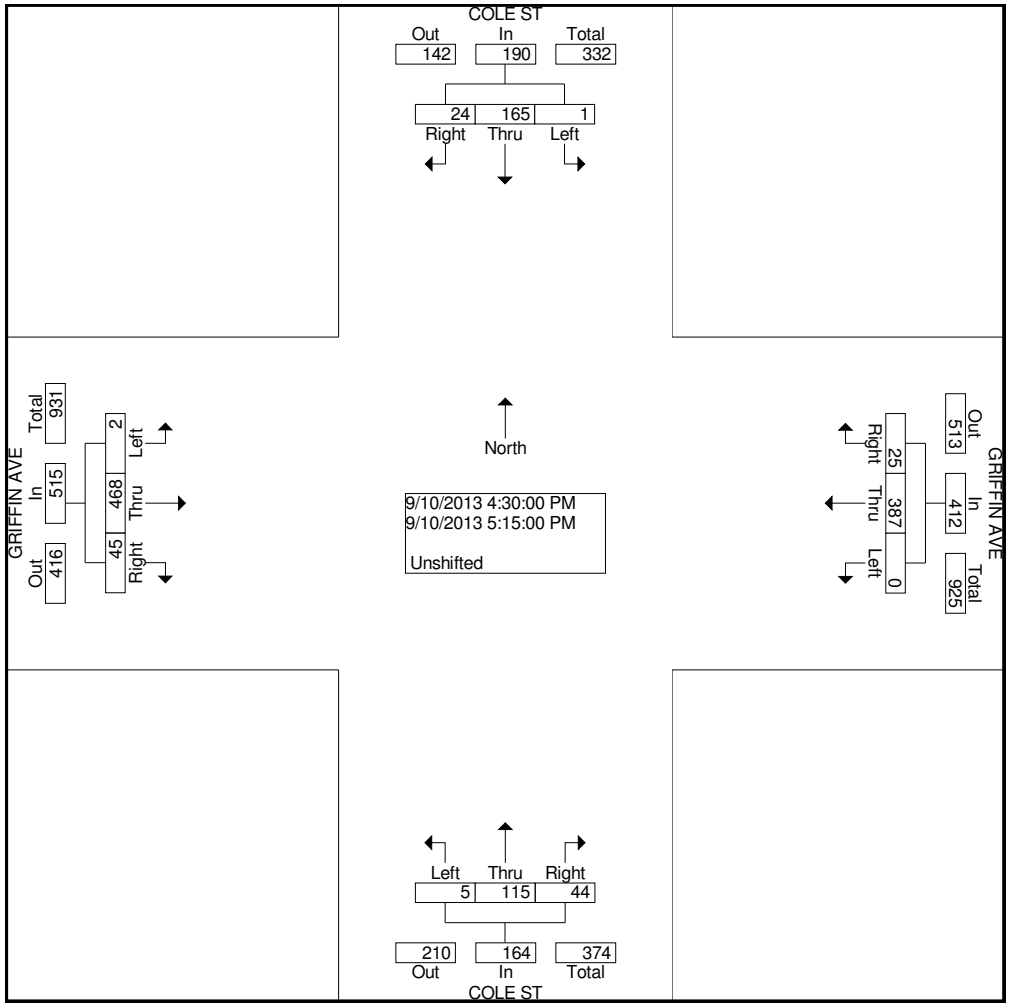
	COLE ST Southbound			GRIFFIN AVE Westbound			COLE ST Northbound			GRIFFIN AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	8	41	3	6	62	3	7	33	0	17	96	1	277
04:15 PM	4	34	1	12	75	2	8	23	0	10	96	0	265
04:30 PM	3	43	0	5	92	0	11	27	1	8	115	1	306
04:45 PM	7	38	1	4	98	0	11	30	0	16	111	0	316
Total	22	156	5	27	327	5	37	113	1	51	418	2	1164
05:00 PM	4	46	0	8	105	0	16	30	2	11	113	0	335
05:15 PM	10	38	0	8	92	0	6	28	2	10	129	1	324
05:30 PM	6	21	0	5	85	1	7	24	2	8	91	0	250
05:45 PM	5	30	0	8	83	1	9	31	4	16	114	0	301
Total	25	135	0	29	365	2	38	113	10	45	447	1	1210
Grand Total	47	291	5	56	692	7	75	226	11	96	865	3	2374
Apprch %	13.7	84.8	1.5	7.4	91.7	0.9	24.0	72.4	3.5	10.0	89.7	0.3	
Total %	2.0	12.3	0.2	2.4	29.1	0.3	3.2	9.5	0.5	4.0	36.4	0.1	



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434k
Site Code : 00003434
Start Date : 9/10/2013
Page No : 2

	COLE ST Southbound				GRIFFIN AVE Westbound				COLE ST Northbound				GRIFFIN AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:30 PM																
Volume	24	165	1	190	25	387	0	412	44	115	5	164	45	468	2	515	1281
Percent	12.6	86.8	0.5		6.1	93.9	0.0		26.8	70.1	3.0		8.7	90.9	0.4		
05:00 Volume	4	46	0	50	8	105	0	113	16	30	2	48	11	113	0	124	335
Peak Factor																	0.956
High Int.	05:00 PM				05:00 PM				05:00 PM				05:15 PM				
Volume	4	46	0	50	8	105	0	113	16	30	2	48	10	129	1	140	
Peak Factor				0.950				0.912				0.854				0.920	

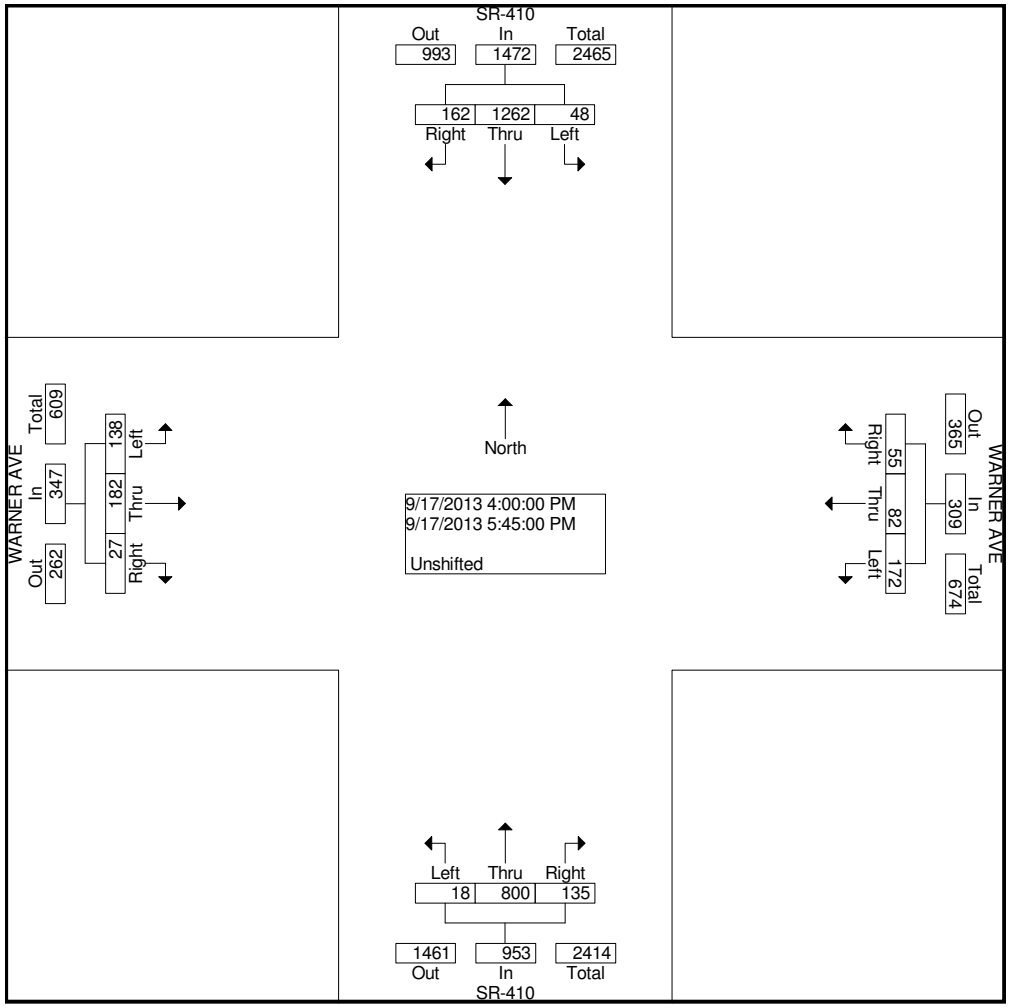


Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434r
Site Code : 00003434
Start Date : 9/17/2013
Page No : 1

Groups Printed- Unshifted

	SR-410 Southbound			WARNER AVE Westbound			SR-410 Northbound			WARNER AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	13	186	7	7	11	21	18	104	2	5	20	14	408
04:15 PM	21	191	5	4	8	12	16	124	2	2	22	12	419
04:30 PM	16	140	7	8	7	18	15	87	2	2	20	20	342
04:45 PM	28	156	4	3	8	25	17	81	4	3	14	19	362
Total	78	673	23	22	34	76	66	396	10	12	76	65	1531
05:00 PM	16	156	6	8	12	29	18	105	1	6	27	19	403
05:15 PM	26	167	7	9	10	21	18	94	2	1	44	29	428
05:30 PM	20	123	8	8	12	28	13	99	3	3	19	16	352
05:45 PM	22	143	4	8	14	18	20	106	2	5	16	9	367
Total	84	589	25	33	48	96	69	404	8	15	106	73	1550
Grand Total	162	1262	48	55	82	172	135	800	18	27	182	138	3081
Apprch %	11.0	85.7	3.3	17.8	26.5	55.7	14.2	83.9	1.9	7.8	52.4	39.8	
Total %	5.3	41.0	1.6	1.8	2.7	5.6	4.4	26.0	0.6	0.9	5.9	4.5	



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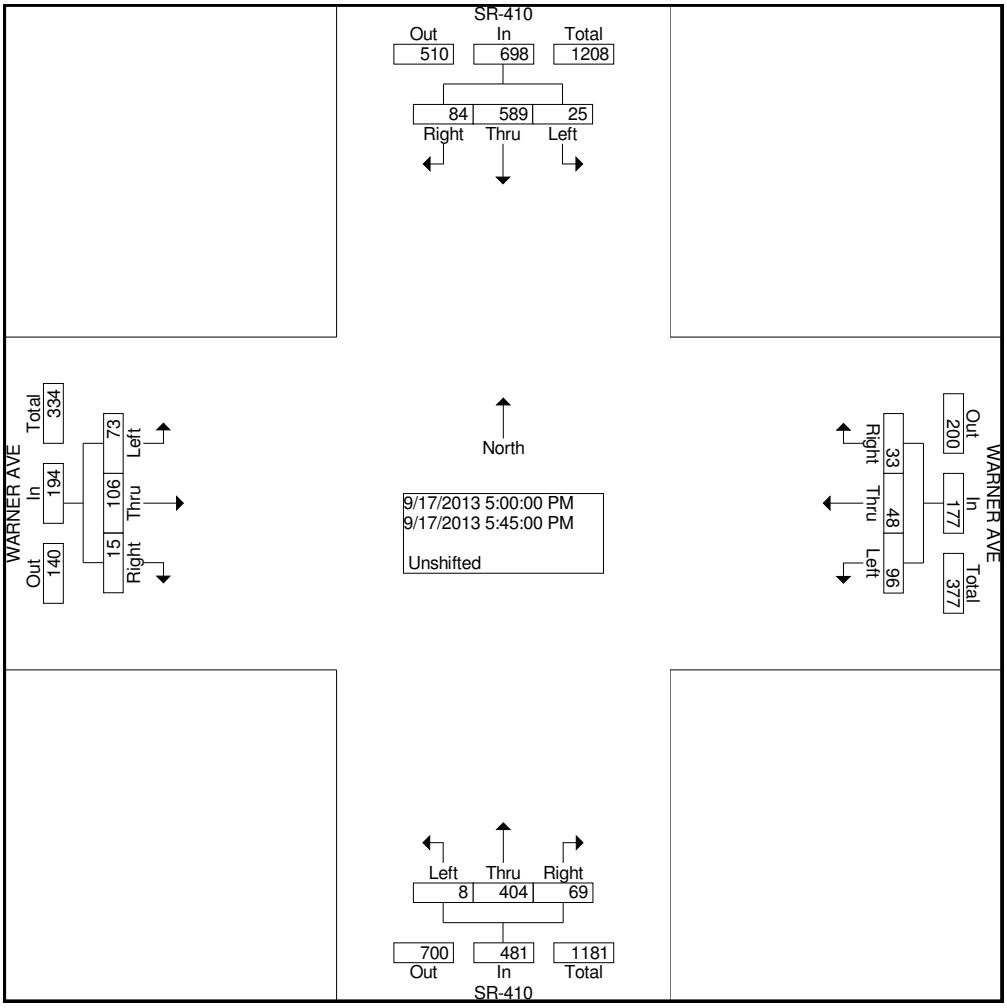
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434r
Site Code : 00003434
Start Date : 9/17/2013
Page No : 2

	SR-410 Southbound				WARNER AVE Westbound				SR-410 Northbound				WARNER AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	84	589	25	698	33	48	96	177	69	404	8	481	15	106	73	194	1550
Percent	12.0	84.4	3.6		18.6	27.1	54.2		14.3	84.0	1.7		7.7	54.6	37.6		
05:15 Volume	26	167	7	200	9	10	21	40	18	94	2	114	1	44	29	74	428
Peak Factor																	0.905
High Int.	05:15 PM				05:00 PM				05:45 PM				05:15 PM				
Volume	26	167	7	200	8	12	29	49	20	106	2	128	1	44	29	74	
Peak Factor				0.873				0.903				0.939				0.655	

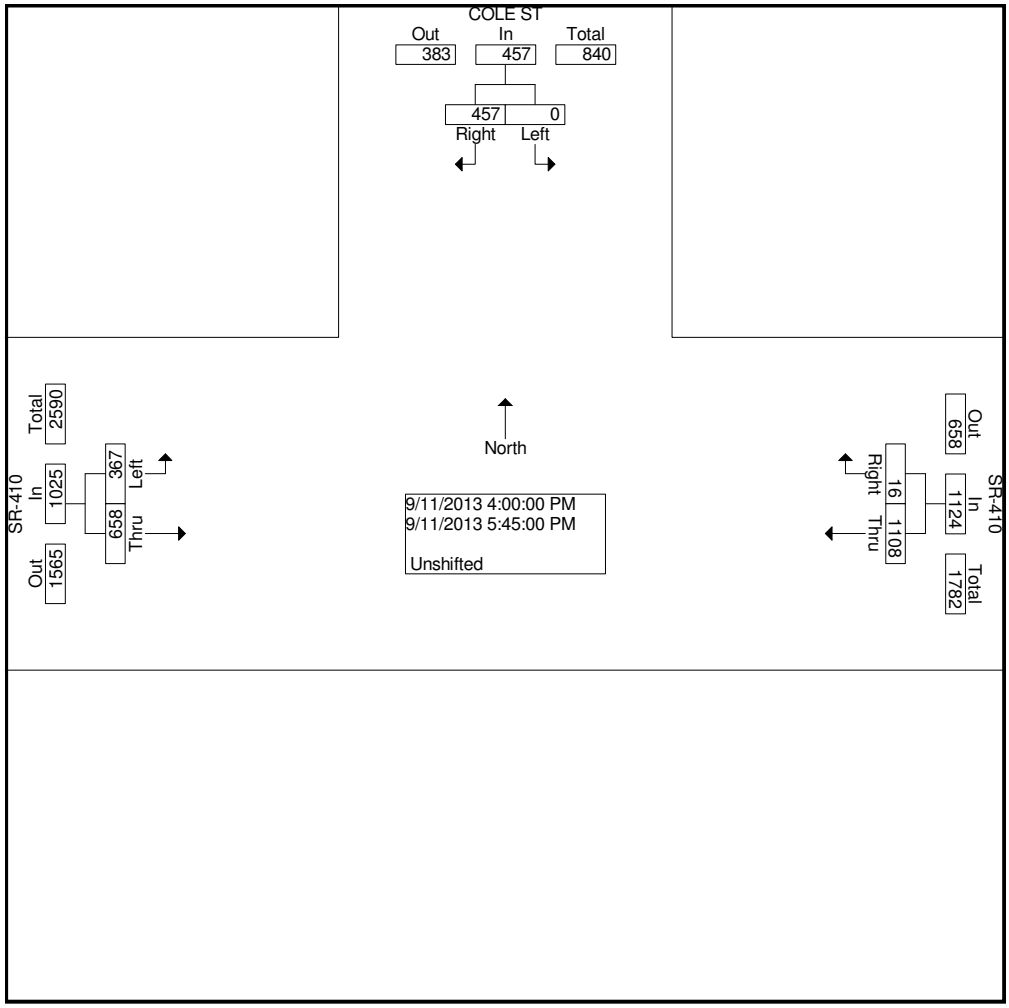


Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434I
Site Code : 00003434
Start Date : 9/11/2013
Page No : 1

Groups Printed- Unshifted

	COLE ST Southbound			SR-410 Westbound			SR-410 Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	55	0	0	5	187	0	0	72	48	367
04:15 PM	55	0	0	0	131	0	0	79	50	315
04:30 PM	48	0	0	2	139	0	0	90	46	325
04:45 PM	44	0	0	3	143	0	0	88	51	329
Total	202	0	0	10	600	0	0	329	195	1336
05:00 PM	72	0	0	2	156	0	0	82	35	347
05:15 PM	64	0	0	0	126	0	0	87	59	336
05:30 PM	66	0	0	3	118	0	0	78	42	307
05:45 PM	53	0	0	1	108	0	0	82	36	280
Total	255	0	0	6	508	0	0	329	172	1270
Grand Total	457	0	0	16	1108	0	0	658	367	2606
Apprch %	100.0	0.0	0.0	1.4	98.6	0.0	0.0	64.2	35.8	
Total %	17.5	0.0	0.0	0.6	42.5	0.0	0.0	25.2	14.1	



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2214 Tacoma Road
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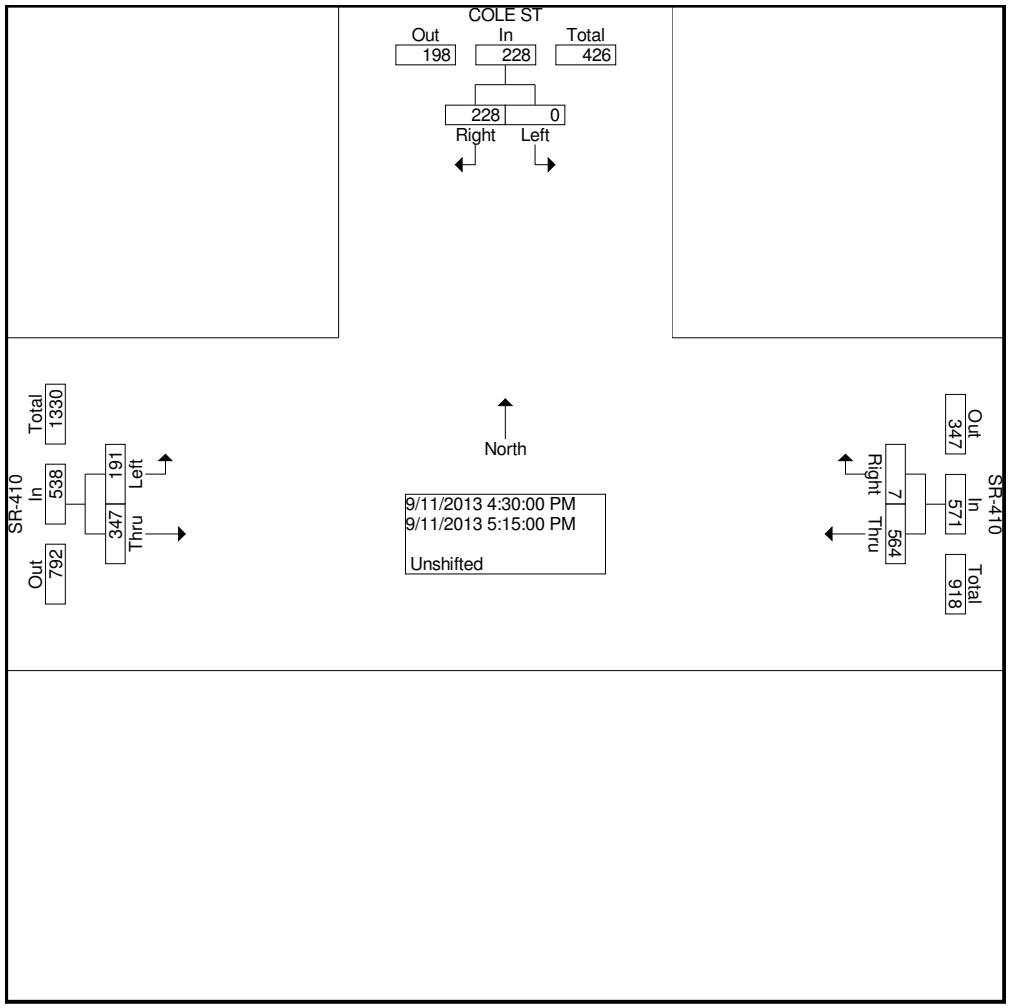
File Name : 3434I
Site Code : 00003434
Start Date : 9/11/2013
Page No : 2

	COLE ST Southbound				SR-410 Westbound				SR-410 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1													
Intersection	04:30 PM												
Volume	228	0	0	228	7	564	0	571	0	347	191	538	1337
Percent	100.0	0.0	0.0		1.2	98.8	0.0		0.0	64.5	35.5		
05:00 Volume	72	0	0	72	2	156	0	158	0	82	35	117	347
Peak Factor													0.963
High Int.	05:00 PM				05:00 PM				05:15 PM				
Volume	72	0	0	72	2	156	0	158	0	87	59	146	
Peak Factor				0.792				0.903				0.921	



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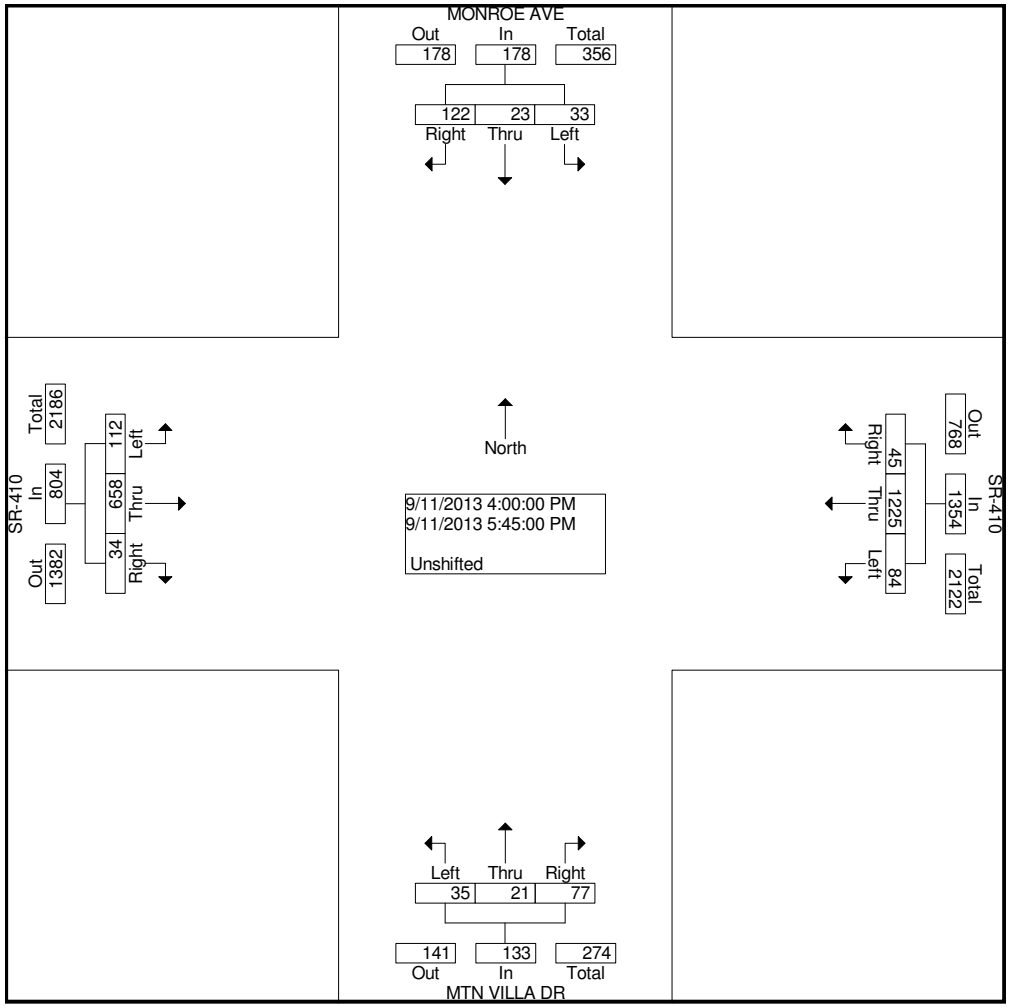
File Name : 3434m
Site Code : 00003434
Start Date : 9/11/2013
Page No : 1

Groups Printed- Unshifted

	MONROE AVE Southbound			SR-410 Westbound			MTN VILLA DR Northbound			SR-410 Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	19	4	4	2	198	8	10	1	1	1	83	9	340
04:15 PM	12	9	6	9	150	11	6	3	3	8	81	12	310
04:30 PM	17	0	5	11	146	11	10	2	7	3	75	15	302
04:45 PM	20	2	3	2	147	14	8	3	5	5	80	23	312
Total	68	15	18	24	641	44	34	9	16	17	319	59	1264
05:00 PM	16	2	5	5	183	8	11	5	5	6	84	15	345
05:15 PM	13	2	3	7	144	14	10	3	2	6	91	15	310
05:30 PM	12	3	6	5	141	13	13	1	8	3	76	14	295
05:45 PM	13	1	1	4	116	5	9	3	4	2	88	9	255
Total	54	8	15	21	584	40	43	12	19	17	339	53	1205
Grand Total	122	23	33	45	1225	84	77	21	35	34	658	112	2469
Apprch %	68.5	12.9	18.5	3.3	90.5	6.2	57.9	15.8	26.3	4.2	81.8	13.9	
Total %	4.9	0.9	1.3	1.8	49.6	3.4	3.1	0.9	1.4	1.4	26.7	4.5	



Heath & Associates, Inc.
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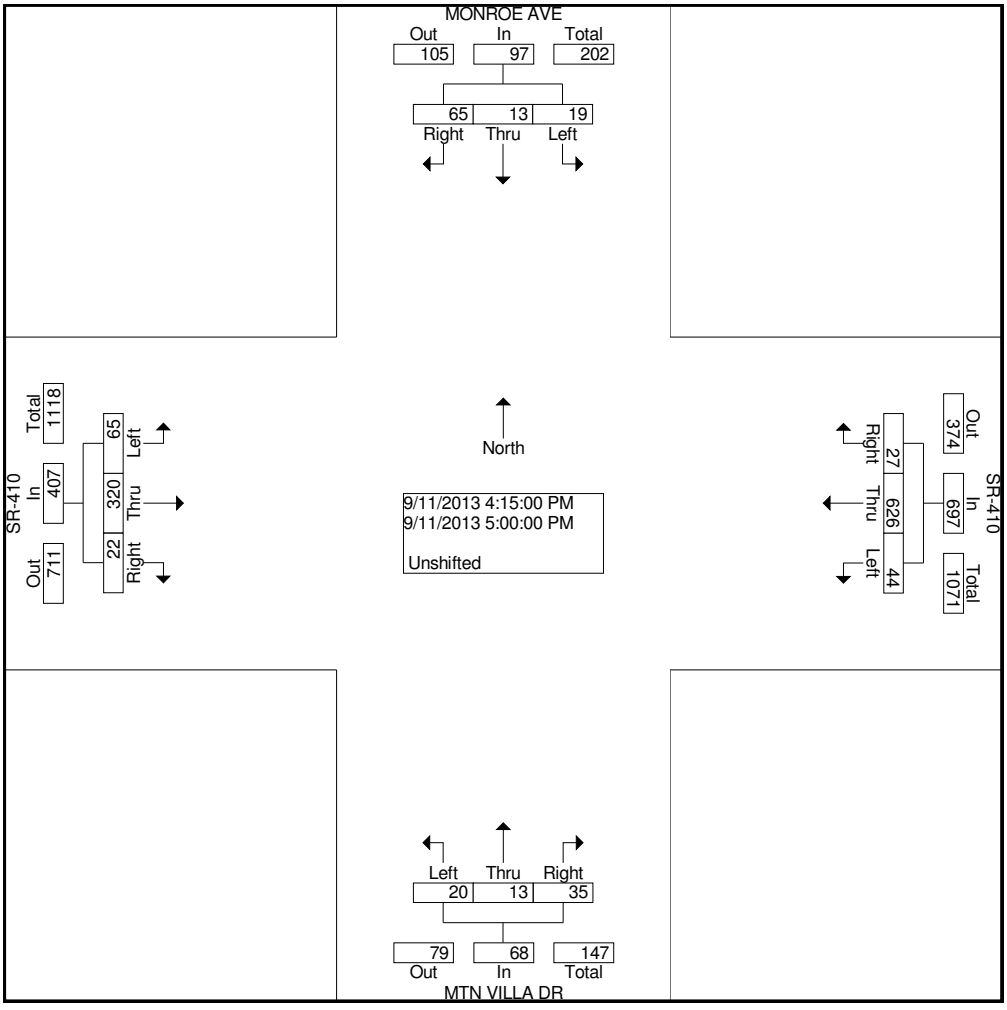
File Name : 3434m
Site Code : 00003434
Start Date : 9/11/2013
Page No : 2

	MONROE AVE Southbound				SR-410 Westbound				MTN VILLA DR Northbound				SR-410 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:15 PM																
Volume	65	13	19	97	27	626	44	697	35	13	20	68	22	320	65	407	1269
Percent	67.0	13.4	19.6		3.9	89.8	6.3		51.5	19.1	29.4		5.4	78.6	16.0		
05:00 Volume	16	2	5	23	5	183	8	196	11	5	5	21	6	84	15	105	345
Peak Factor																	0.920
High Int.	04:15 PM				05:00 PM				05:00 PM				04:45 PM				
Volume	12	9	6	27	5	183	8	196	11	5	5	21	5	80	23	108	
Peak Factor				0.898				0.889				0.810				0.942	



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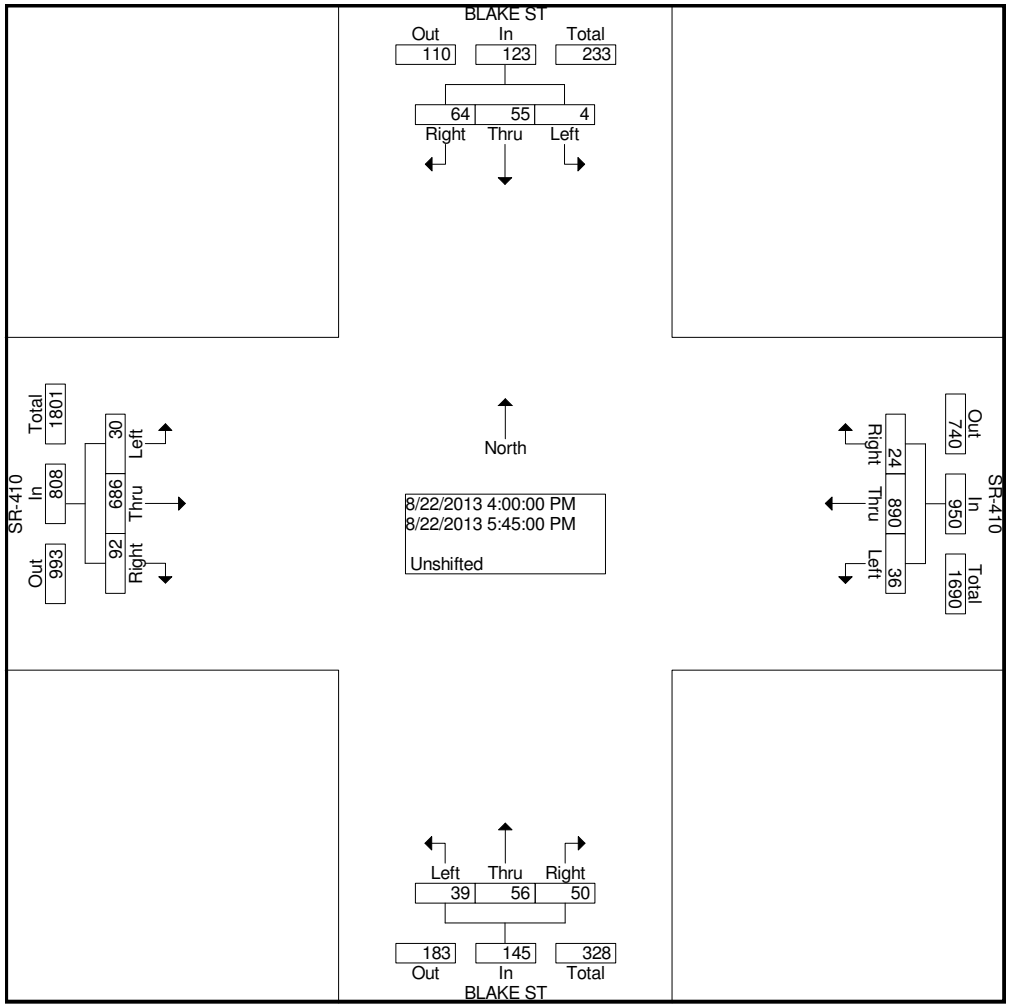
File Name : 3434e
Site Code : 00003434
Start Date : 8/22/2013
Page No : 1

Groups Printed- Unshifted

	BLAKE ST Southbound			SR-410 Westbound			BLAKE ST Northbound			SR-410 Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	8	4	0	2	116	5	6	4	8	12	100	6	271
04:15 PM	4	8	0	2	119	3	7	6	4	15	77	4	249
04:30 PM	18	8	2	1	112	5	8	4	6	10	97	2	273
04:45 PM	8	9	0	6	111	5	5	12	5	10	89	4	264
Total	38	29	2	11	458	18	26	26	23	47	363	16	1057
05:00 PM	10	4	1	5	109	4	6	9	2	18	68	1	237
05:15 PM	6	7	0	1	124	6	6	7	5	10	79	3	254
05:30 PM	4	5	1	4	94	5	6	5	3	7	89	3	226
05:45 PM	6	10	0	3	105	3	6	9	6	10	87	7	252
Total	26	26	2	13	432	18	24	30	16	45	323	14	969
Grand Total	64	55	4	24	890	36	50	56	39	92	686	30	2026
Apprch %	52.0	44.7	3.3	2.5	93.7	3.8	34.5	38.6	26.9	11.4	84.9	3.7	
Total %	3.2	2.7	0.2	1.2	43.9	1.8	2.5	2.8	1.9	4.5	33.9	1.5	



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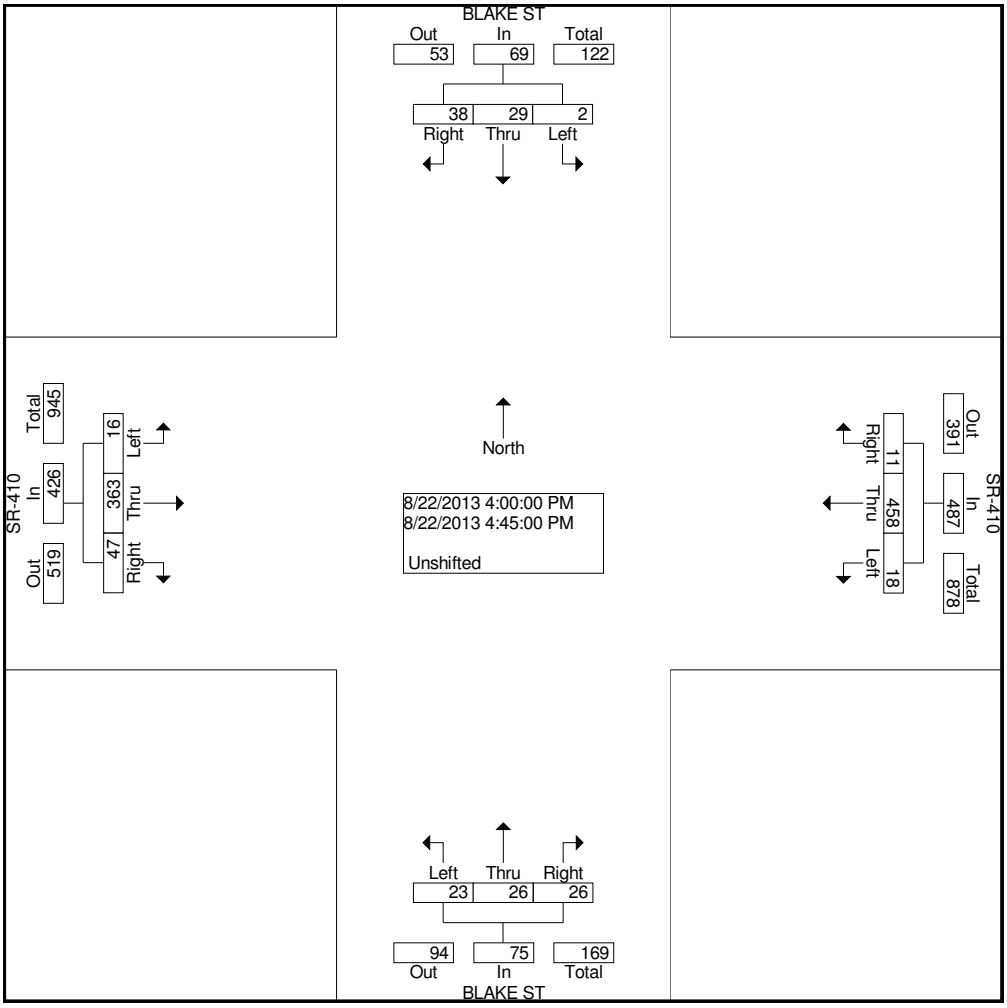
File Name : 3434e
Site Code : 00003434
Start Date : 8/22/2013
Page No : 2

	BLAKE ST Southbound				SR-410 Westbound				BLAKE ST Northbound				SR-410 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	38	29	2	69	11	458	18	487	26	26	23	75	47	363	16	426	1057
Percent	55.1	42.0	2.9		2.3	94.0	3.7		34.7	34.7	30.7		11.0	85.2	3.8		
04:30 Volume	18	8	2	28	1	112	5	118	8	4	6	18	10	97	2	109	273
Peak Factor																	0.968
High Int.	04:30 PM				04:15 PM				04:45 PM				04:00 PM				
Volume	18	8	2	28	2	119	3	124	5	12	5	22	12	100	6	118	
Peak Factor				0.616				0.982				0.852				0.903	



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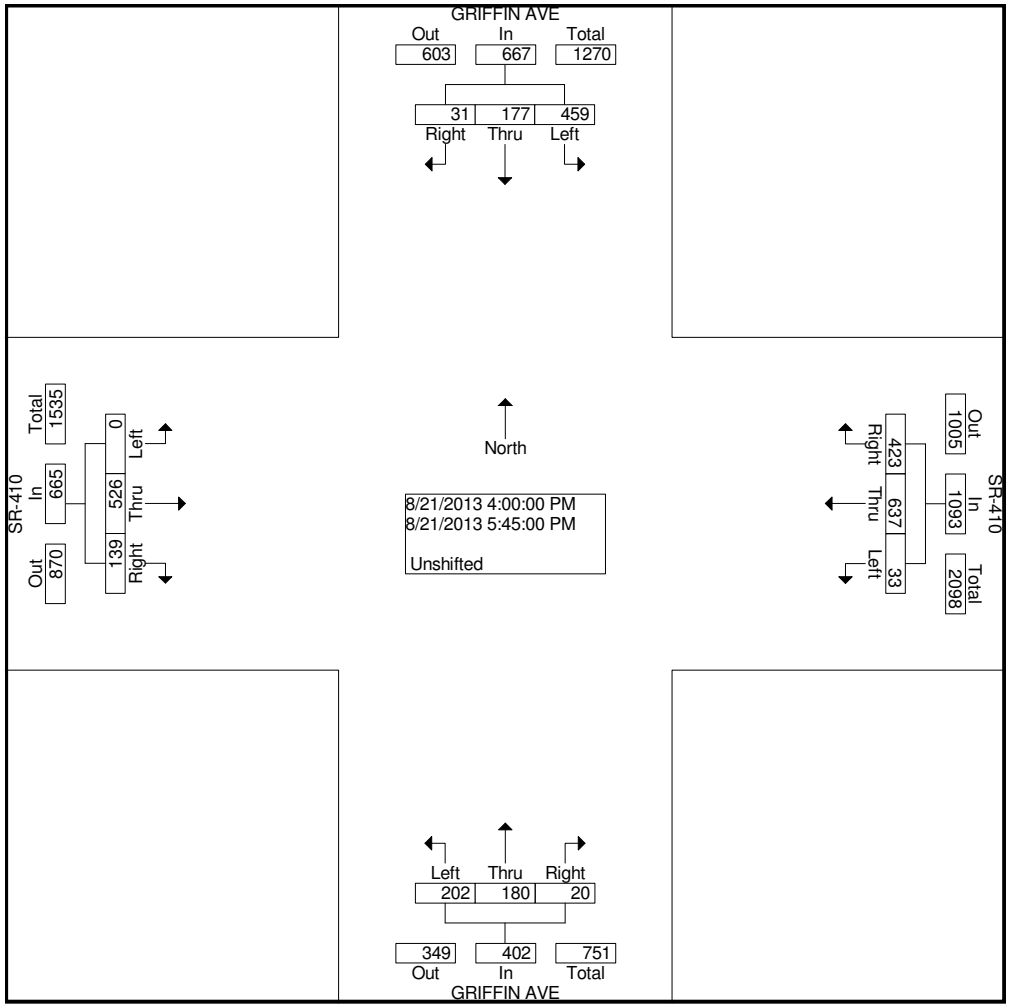
File Name : 3434c
Site Code : 00003434
Start Date : 8/21/2013
Page No : 1

Groups Printed- Unshifted

	GRIFFIN AVE Southbound			SR-410 Westbound			GRIFFIN AVE Northbound			SR-410 Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	1	21	64	53	97	3	4	28	25	19	73	0	388
04:15 PM	5	28	61	44	96	4	1	22	23	22	66	0	372
04:30 PM	2	24	52	49	84	4	1	27	27	11	65	0	346
04:45 PM	5	28	50	59	77	2	2	23	20	9	63	0	338
Total	13	101	227	205	354	13	8	100	95	61	267	0	1444
05:00 PM	4	18	59	55	66	5	4	17	20	22	58	0	328
05:15 PM	6	26	50	62	78	7	3	29	29	15	74	0	379
05:30 PM	4	16	59	48	73	3	3	20	27	27	62	0	342
05:45 PM	4	16	64	53	66	5	2	14	31	14	65	0	334
Total	18	76	232	218	283	20	12	80	107	78	259	0	1383
Grand Total	31	177	459	423	637	33	20	180	202	139	526	0	2827
Apprch %	4.6	26.5	68.8	38.7	58.3	3.0	5.0	44.8	50.2	20.9	79.1	0.0	
Total %	1.1	6.3	16.2	15.0	22.5	1.2	0.7	6.4	7.1	4.9	18.6	0.0	



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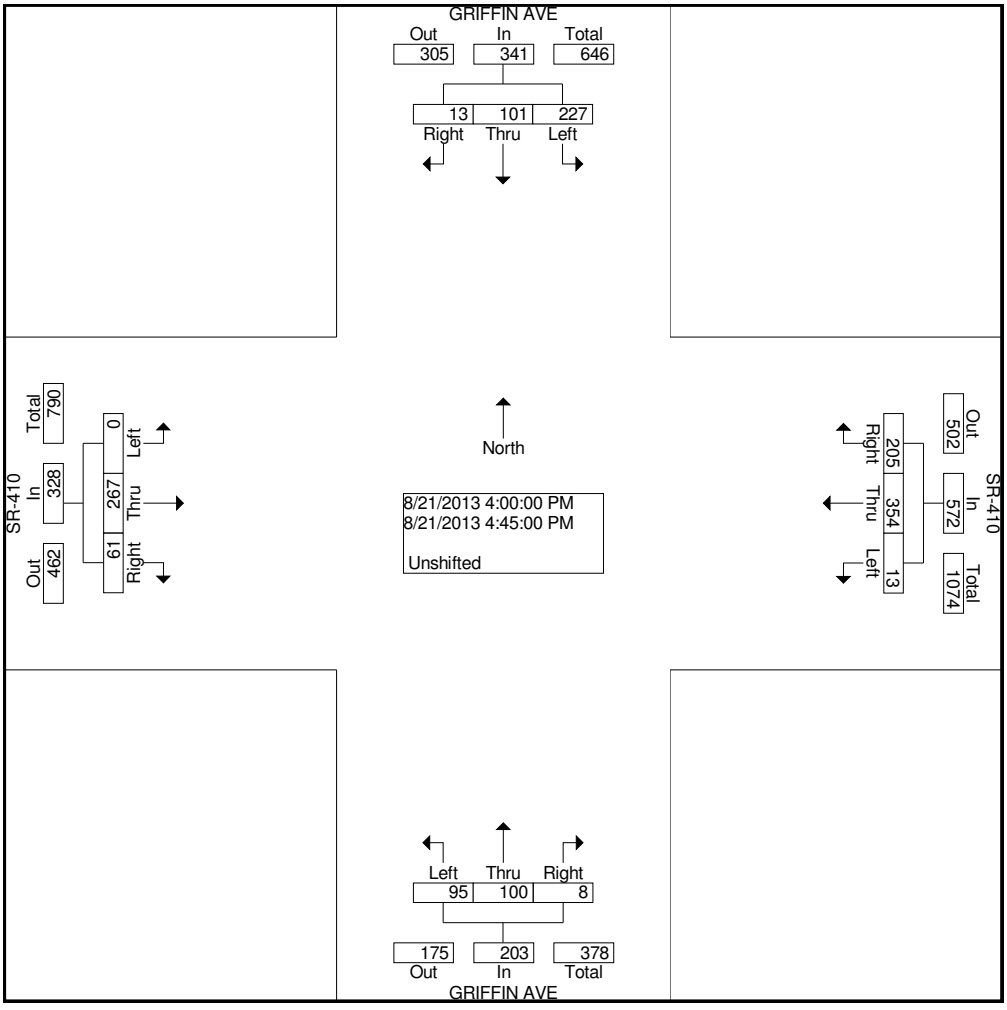
File Name : 3434c
Site Code : 00003434
Start Date : 8/21/2013

	GRIFFIN AVE Southbound				SR-410 Westbound				GRIFFIN AVE Northbound				SR-410 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection 04:00 PM																	
Volume	13	101	227	341	205	354	13	572	8	100	95	203	61	267	0	328	1444
Percent	3.8	29.6	66.6		35.8	61.9	2.3		3.9	49.3	46.8		18.6	81.4	0.0		
04:00 Volume	1	21	64	86	53	97	3	153	4	28	25	57	19	73	0	92	388
Peak Factor																	0.930
High Int.	04:15 PM				04:00 PM				04:00 PM				04:00 PM				
Volume	5	28	61	94	53	97	3	153	4	28	25	57	19	73	0	92	
Peak Factor				0.907				0.935				0.890				0.891	



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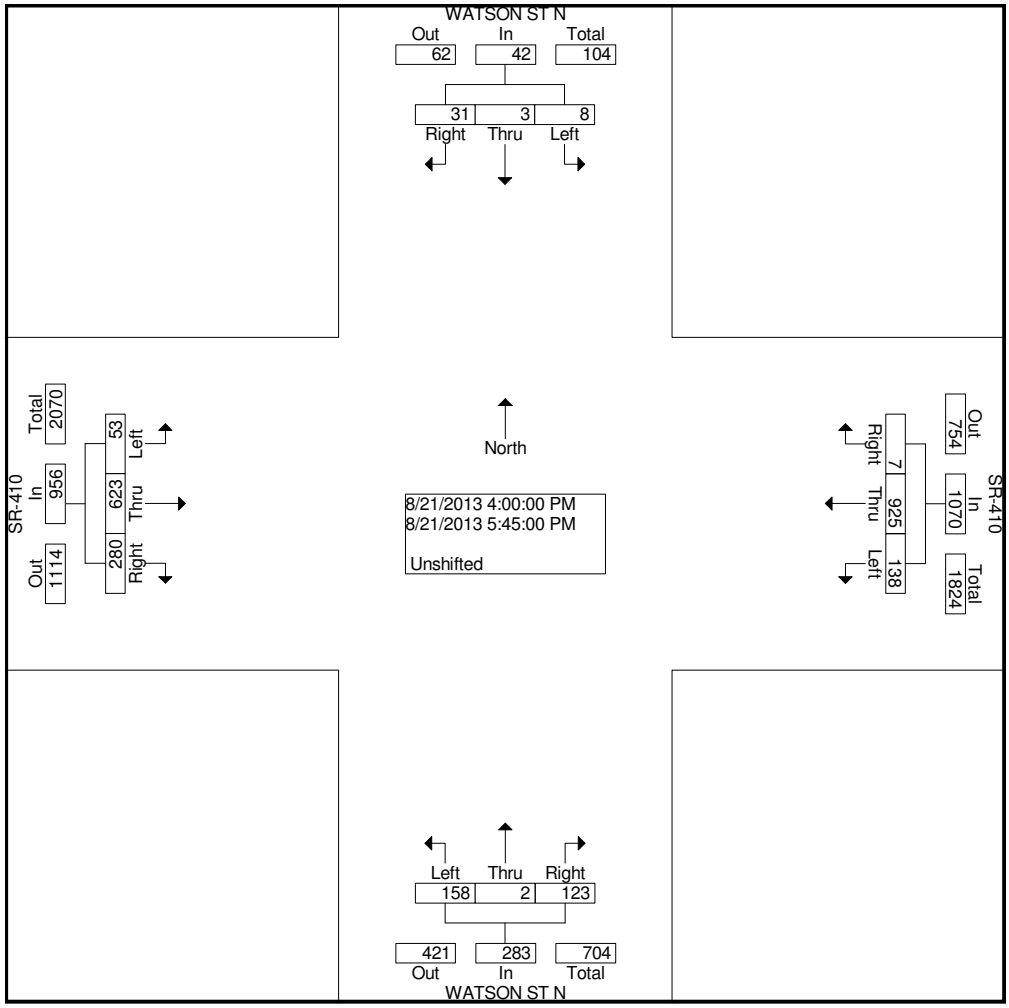
File Name : 3434d
Site Code : 00003434
Start Date : 8/21/2013
Page No : 1

Groups Printed- Unshifted

	WATSON ST N Southbound			SR-410 Westbound			WATSON ST N Northbound			SR-410 Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	2	0	0	0	126	24	16	2	19	45	78	8	320
04:15 PM	3	0	1	1	121	14	16	0	16	34	77	5	288
04:30 PM	3	0	1	1	130	12	12	0	17	35	76	2	289
04:45 PM	6	1	1	0	123	11	13	0	18	27	70	7	277
Total	14	1	3	2	500	61	57	2	70	141	301	22	1174
05:00 PM	1	1	0	1	102	22	19	0	20	36	84	4	290
05:15 PM	4	0	1	0	131	21	19	0	23	31	77	6	313
05:30 PM	4	1	3	2	95	17	16	0	21	32	79	8	278
05:45 PM	8	0	1	2	97	17	12	0	24	40	82	13	296
Total	17	2	5	5	425	77	66	0	88	139	322	31	1177
Grand Total	31	3	8	7	925	138	123	2	158	280	623	53	2351
Apprch %	73.8	7.1	19.0	0.7	86.4	12.9	43.5	0.7	55.8	29.3	65.2	5.5	
Total %	1.3	0.1	0.3	0.3	39.3	5.9	5.2	0.1	6.7	11.9	26.5	2.3	



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2214 Tacoma Road
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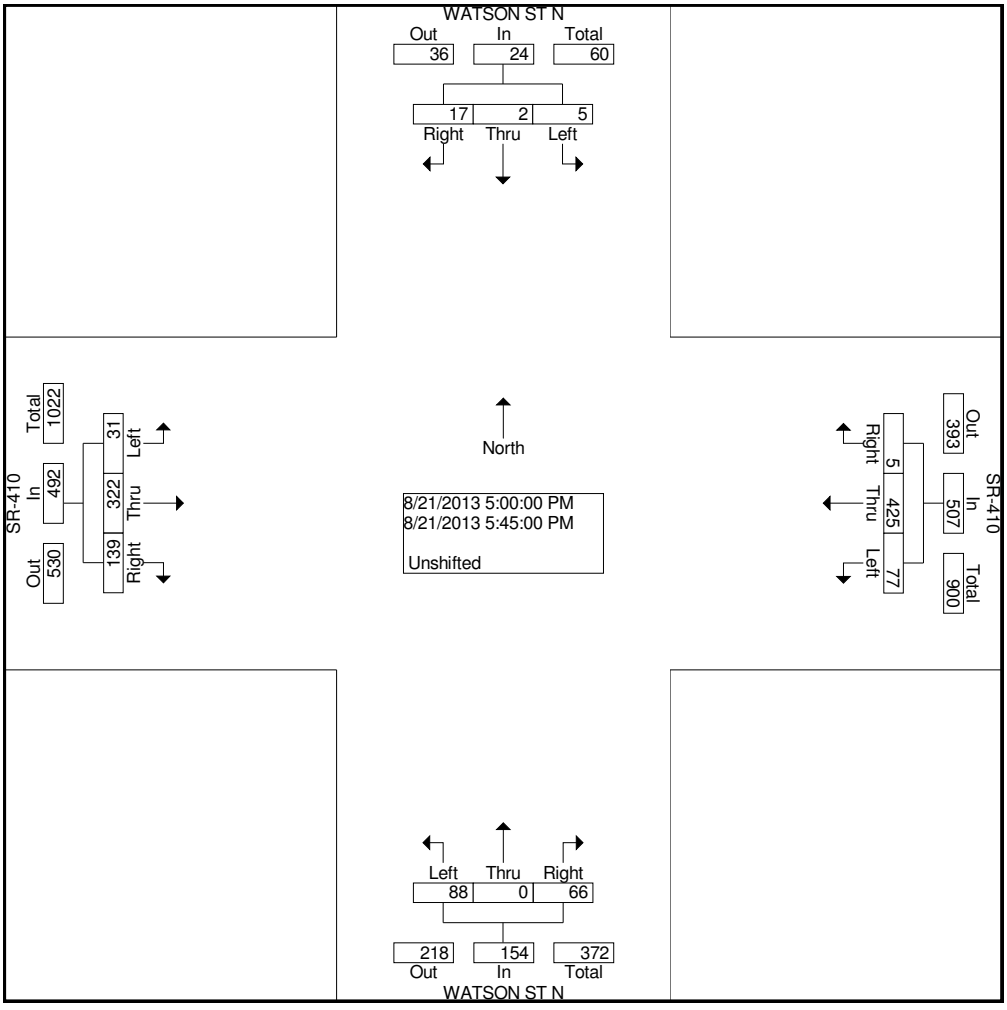
File Name : 3434d
Site Code : 00003434
Start Date : 8/21/2013
Page No : 2

	WATSON ST N Southbound				SR-410 Westbound				WATSON ST N Northbound				SR-410 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection 05:00 PM																	
Volume	17	2	5	24	5	425	77	507	66	0	88	154	139	322	31	492	1177
Percent	70.8	8.3	20.8		1.0	83.8	15.2		42.9	0.0	57.1		28.3	65.4	6.3		
05:15 Volume	4	0	1	5	0	131	21	152	19	0	23	42	31	77	6	114	313
Peak Factor																	0.940
High Int.	05:45 PM				05:15 PM				05:15 PM				05:45 PM				
Volume	8	0	1	9	0	131	21	152	19	0	23	42	40	82	13	135	
Peak Factor				0.667				0.834				0.917				0.911	



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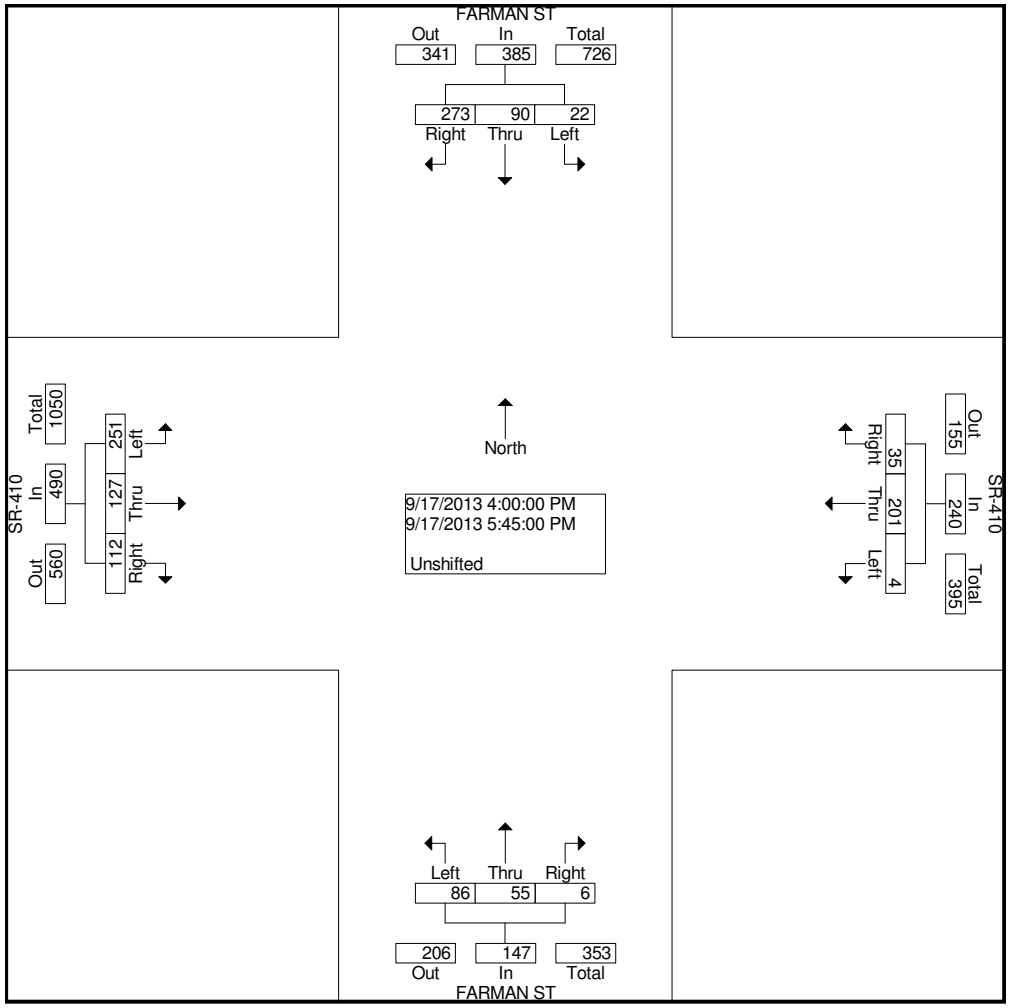
File Name : 3434s
Site Code : 00003434
Start Date : 9/17/2013
Page No : 1

Groups Printed- Unshifted

	FARMAN ST Southbound			SR-410 Westbound			FARMAN ST Northbound			SR-410 Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	52	13	2	7	27	0	1	7	6	13	18	28	174
04:15 PM	28	9	2	6	22	0	1	6	9	9	14	35	141
04:30 PM	26	10	4	6	31	0	1	7	10	8	20	27	150
04:45 PM	40	6	3	1	34	2	0	8	16	13	10	24	157
Total	146	38	11	20	114	2	3	28	41	43	62	114	622
05:00 PM	35	11	6	2	22	0	2	5	8	10	16	34	151
05:15 PM	27	8	0	1	23	0	1	4	7	20	18	39	148
05:30 PM	41	18	2	4	18	1	0	6	8	20	13	38	169
05:45 PM	24	15	3	8	24	1	0	12	22	19	18	26	172
Total	127	52	11	15	87	2	3	27	45	69	65	137	640
Grand Total	273	90	22	35	201	4	6	55	86	112	127	251	1262
Apprch %	70.9	23.4	5.7	14.6	83.8	1.7	4.1	37.4	58.5	22.9	25.9	51.2	
Total %	21.6	7.1	1.7	2.8	15.9	0.3	0.5	4.4	6.8	8.9	10.1	19.9	



Heath & Associates, Inc.
2214 Tacoma Road
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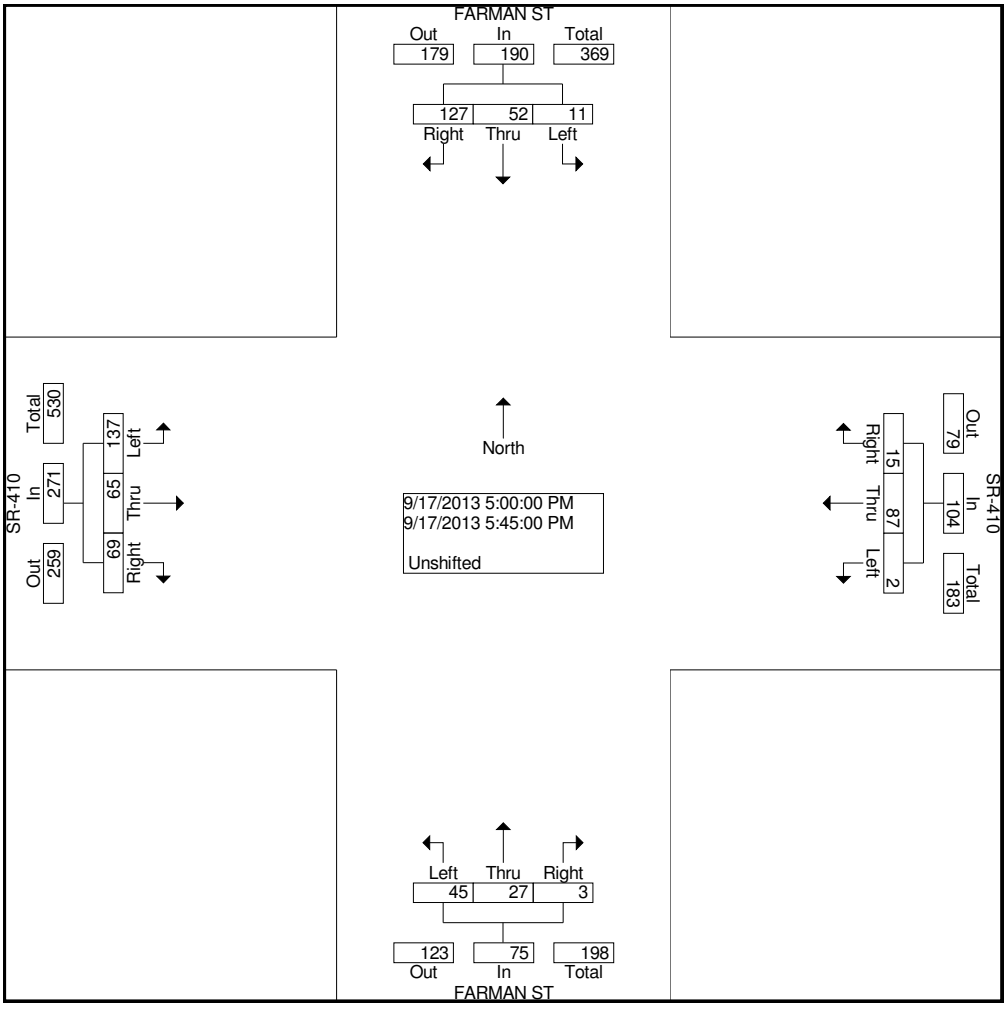
File Name : 3434s
Site Code : 00003434
Start Date : 9/17/2013

	FARMAN ST Southbound				SR-410 Westbound				FARMAN ST Northbound				SR-410 Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection 05:00 PM																	
Volume	127	52	11	190	15	87	2	104	3	27	45	75	69	65	137	271	640
Percent	66.8	27.4	5.8		14.4	83.7	1.9		4.0	36.0	60.0		25.5	24.0	50.6		
05:45 Volume	24	15	3	42	8	24	1	33	0	12	22	34	19	18	26	63	172
Peak Factor																	0.930
High Int.	05:30 PM				05:45 PM				05:45 PM				05:15 PM				
Volume	41	18	2	61	8	24	1	33	0	12	22	34	20	18	39	77	
Peak Factor				0.779				0.788				0.551				0.880	



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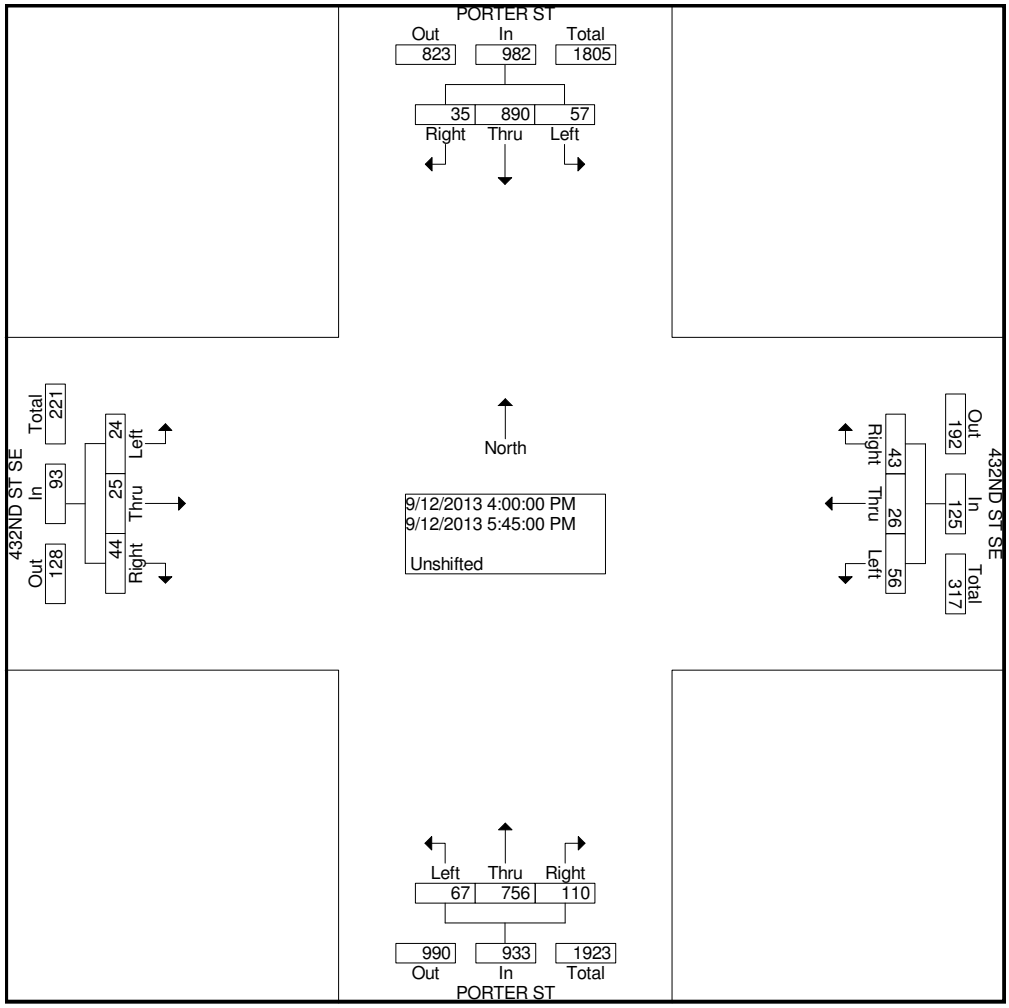
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434o
Site Code : 00003434
Start Date : 9/12/2013
Page No : 1

Groups Printed- Unshifted

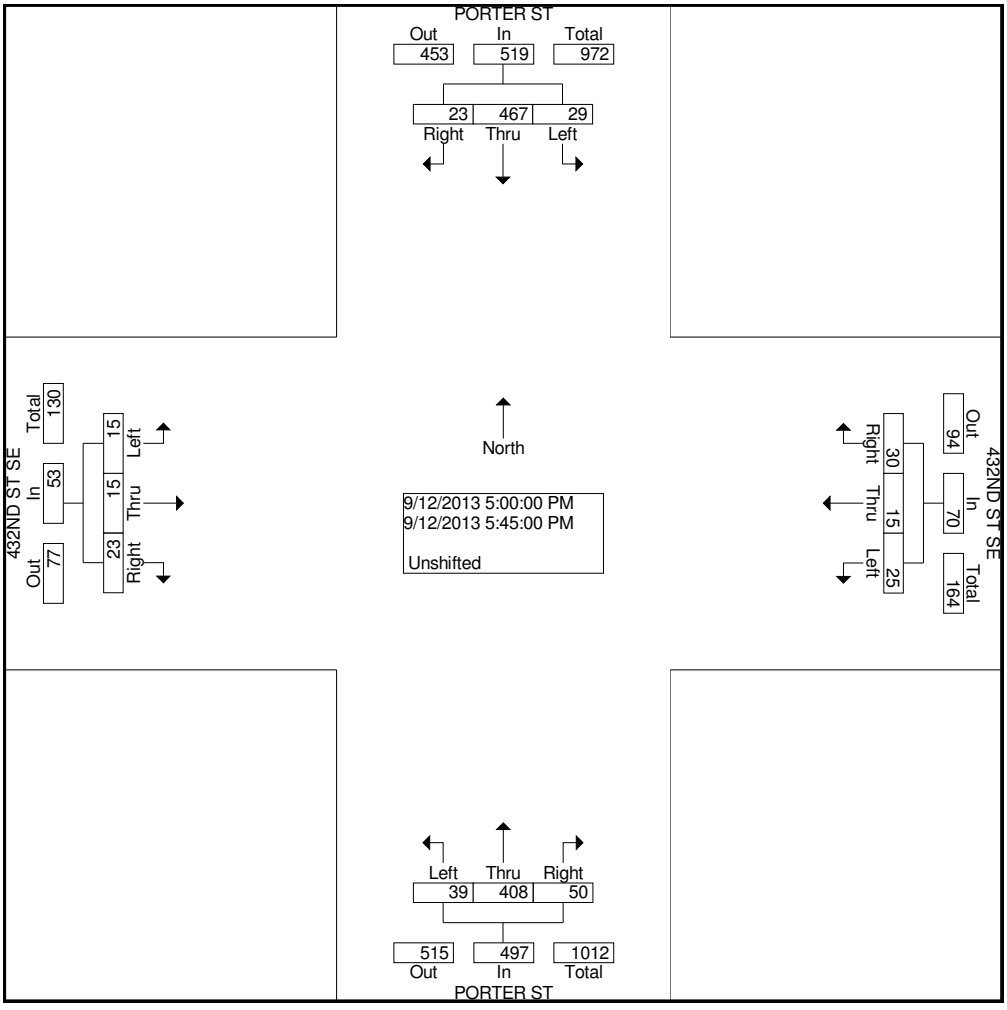
	PORTER ST Southbound			432ND ST SE Westbound			PORTER ST Northbound			432ND ST SE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	3	102	7	3	2	5	16	84	5	6	4	3	240
04:15 PM	6	114	9	0	3	12	19	86	5	5	2	2	263
04:30 PM	1	113	6	5	2	9	5	83	12	2	2	3	243
04:45 PM	2	94	6	5	4	5	20	95	6	8	2	1	248
Total	12	423	28	13	11	31	60	348	28	21	10	9	994
05:00 PM	3	126	5	6	3	3	11	108	9	7	7	4	292
05:15 PM	8	101	5	8	3	5	12	96	11	7	0	1	257
05:30 PM	9	131	9	4	1	8	17	104	5	7	6	5	306
05:45 PM	3	109	10	12	8	9	10	100	14	2	2	5	284
Total	23	467	29	30	15	25	50	408	39	23	15	15	1139
Grand Total	35	890	57	43	26	56	110	756	67	44	25	24	2133
Apprch %	3.6	90.6	5.8	34.4	20.8	44.8	11.8	81.0	7.2	47.3	26.9	25.8	
Total %	1.6	41.7	2.7	2.0	1.2	2.6	5.2	35.4	3.1	2.1	1.2	1.1	



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434o
Site Code : 00003434
Start Date : 9/12/2013

	PORTER ST Southbound				432ND ST SE Westbound				PORTER ST Northbound				432ND ST SE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	23	467	29	519	30	15	25	70	50	408	39	497	23	15	15	53	1139
Percent	4.4	90.0	5.6		42.9	21.4	35.7		10.1	82.1	7.8		43.4	28.3	28.3		
05:30 Volume	9	131	9	149	4	1	8	13	17	104	5	126	7	6	5	18	306
Peak Factor																	0.931
High Int.	05:30 PM				05:45 PM				05:00 PM				05:00 PM				
Volume	9	131	9	149	12	8	9	29	11	108	9	128	7	7	4	18	
Peak Factor				0.871				0.603				0.971				0.736	



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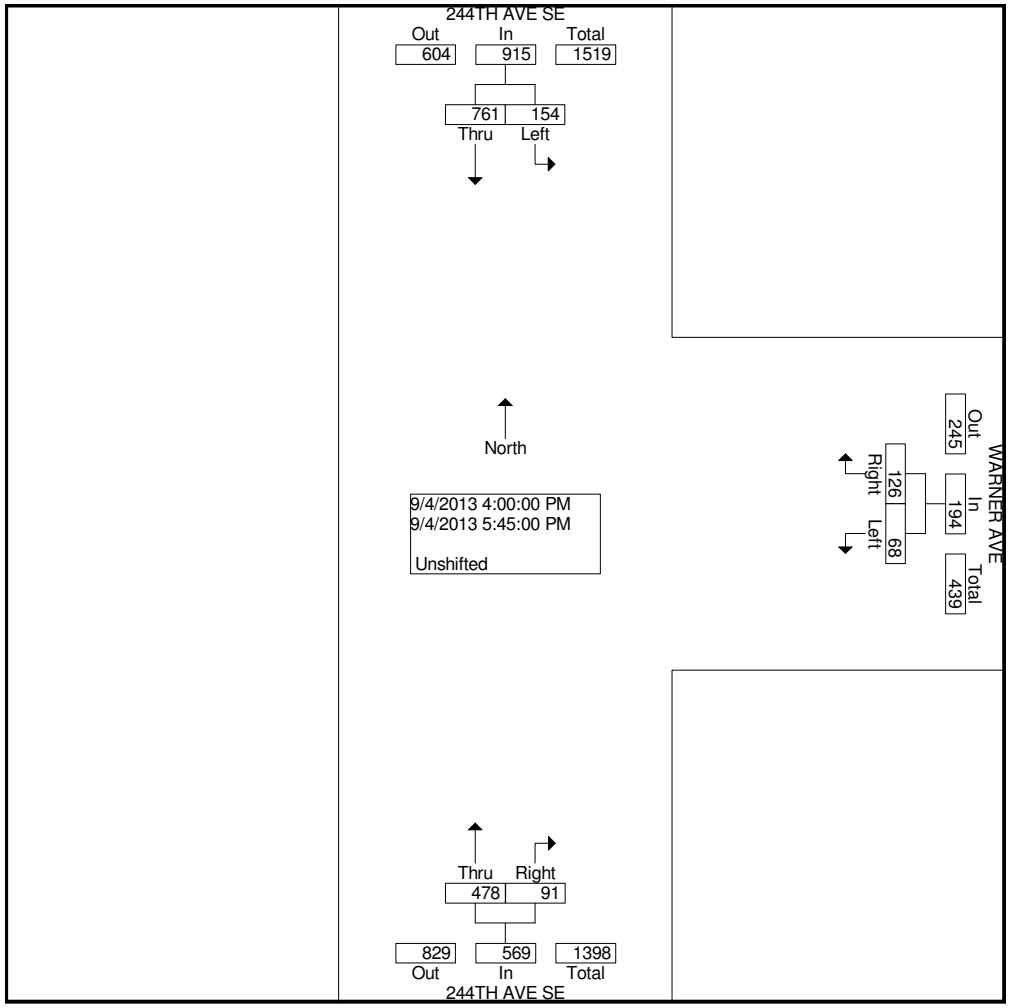
File Name : 3434h
Site Code : 00003434
Start Date : 9/4/2013
Page No : 1

Groups Printed- Unshifted

	244TH AVE SE Southbound			WARNER AVE Westbound			244TH AVE SE Northbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	0	79	21	12	0	4	14	52	0	182
04:15 PM	0	84	11	9	0	9	7	54	0	174
04:30 PM	0	100	20	17	0	6	8	57	0	208
04:45 PM	0	92	22	14	0	9	13	66	0	216
Total	0	355	74	52	0	28	42	229	0	780
05:00 PM	0	131	16	23	0	13	17	68	0	268
05:15 PM	0	113	27	17	0	5	8	72	0	242
05:30 PM	0	81	17	21	0	14	17	58	0	208
05:45 PM	0	81	20	13	0	8	7	51	0	180
Total	0	406	80	74	0	40	49	249	0	898
Grand Total	0	761	154	126	0	68	91	478	0	1678
Apprch %	0.0	83.2	16.8	64.9	0.0	35.1	16.0	84.0	0.0	
Total %	0.0	45.4	9.2	7.5	0.0	4.1	5.4	28.5	0.0	



Heath & Associates, Inc.
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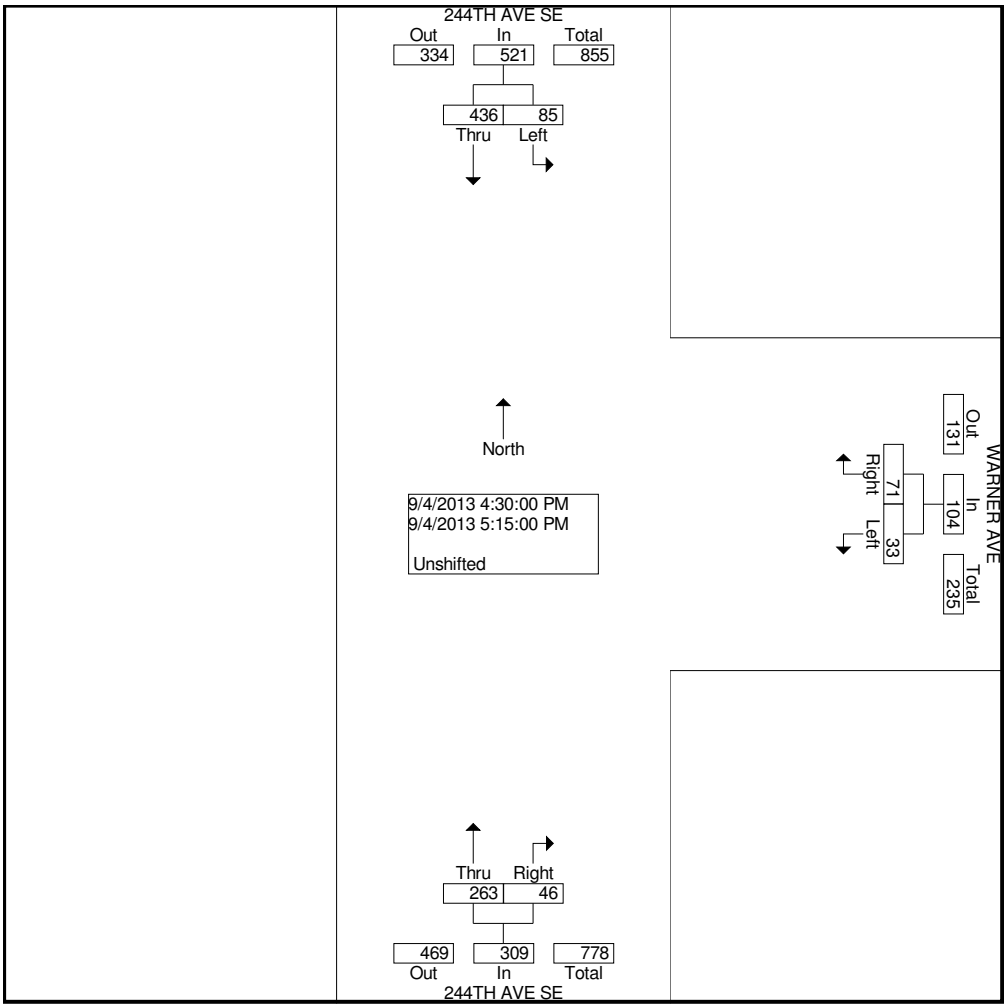
Puyallup, WA 98371

File Name : 3434h
Site Code : 00003434
Start Date : 9/4/2013
Page No : 2

	244TH AVE SE Southbound				WARNER AVE Westbound				244TH AVE SE Northbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1													
Intersection	04:30 PM												
Volume	0	436	85	521	71	0	33	104	46	263	0	309	934
Percent	0.0	83.7	16.3		68.3	0.0	31.7		14.9	85.1	0.0		
05:00 Volume	0	131	16	147	23	0	13	36	17	68	0	85	268
Peak Factor													0.871
High Int.	05:00 PM				05:00 PM				05:00 PM				
Volume	0	131	16	147	23	0	13	36	17	68	0	85	
Peak Factor				0.886				0.722				0.909	



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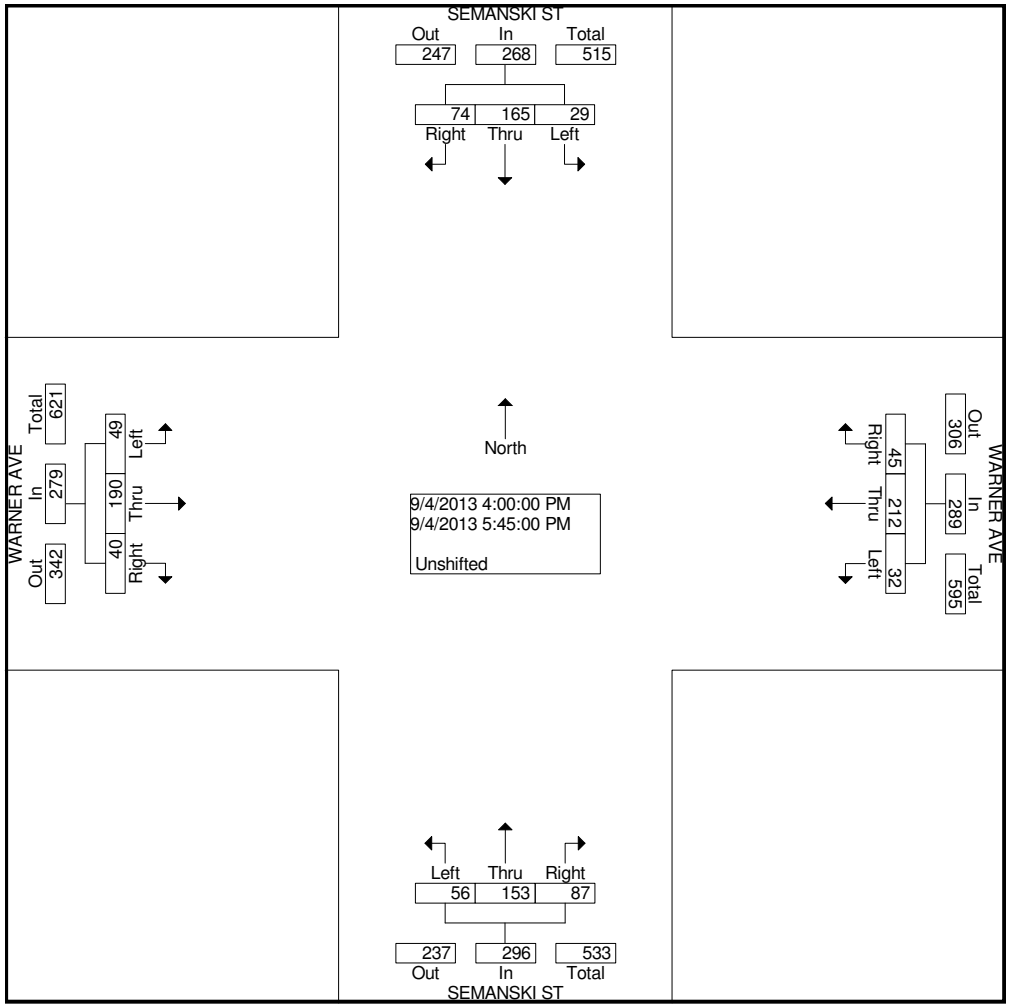
File Name : 3434f
Site Code : 00003434
Start Date : 9/4/2013
Page No : 1

Groups Printed- Unshifted

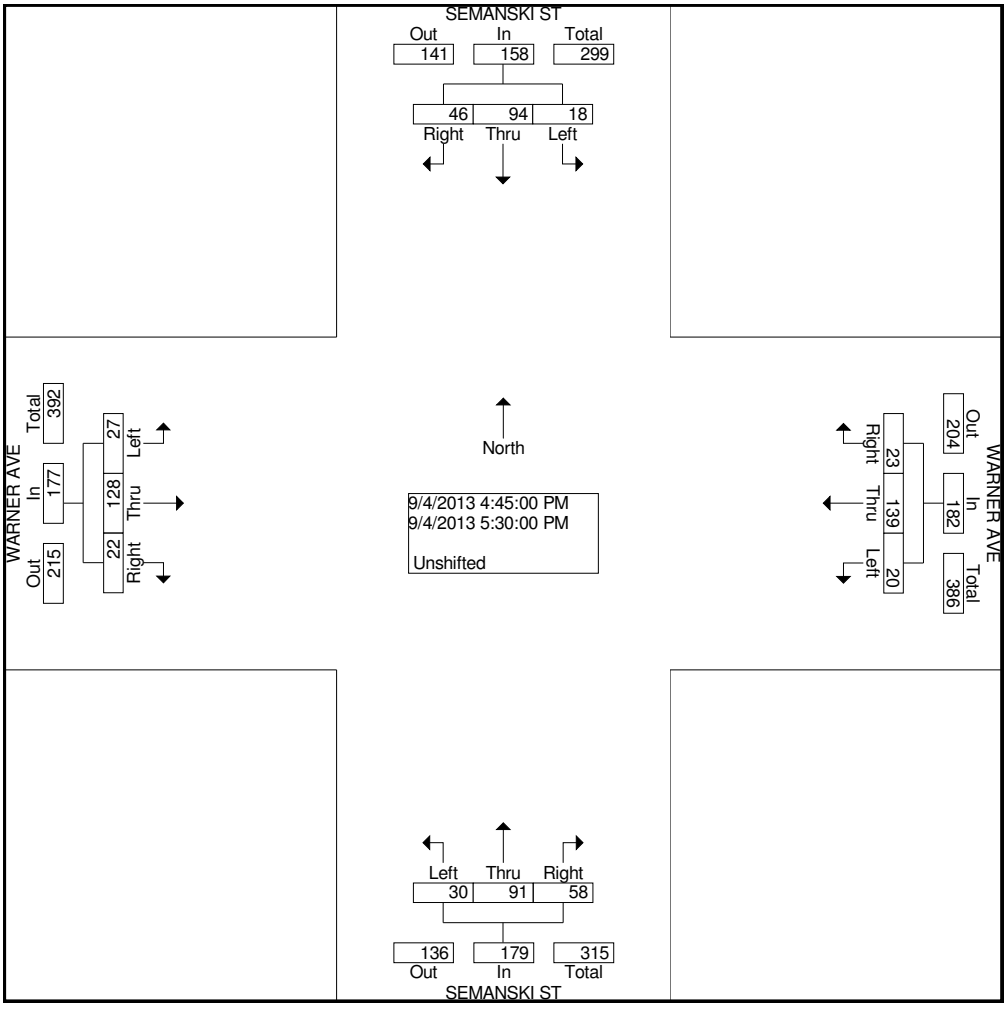
	SEMANSKI ST Southbound			WARNER AVE Westbound			SEMANSKI ST Northbound			WARNER AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	5	17	5	8	17	4	8	10	6	1	17	8	106
04:15 PM	6	15	2	6	18	1	6	17	7	7	14	2	101
04:30 PM	5	24	3	4	17	3	10	22	8	9	14	5	124
04:45 PM	6	20	8	8	27	5	12	15	10	5	24	2	142
Total	22	76	18	26	79	13	36	64	31	22	69	17	473
05:00 PM	16	32	3	2	43	4	17	25	8	5	29	10	194
05:15 PM	14	31	2	8	36	5	22	29	5	6	42	7	207
05:30 PM	10	11	5	5	33	6	7	22	7	6	33	8	153
05:45 PM	12	15	1	4	21	4	5	13	5	1	17	7	105
Total	52	89	11	19	133	19	51	89	25	18	121	32	659
Grand Total	74	165	29	45	212	32	87	153	56	40	190	49	1132
Apprch %	27.6	61.6	10.8	15.6	73.4	11.1	29.4	51.7	18.9	14.3	68.1	17.6	
Total %	6.5	14.6	2.6	4.0	18.7	2.8	7.7	13.5	4.9	3.5	16.8	4.3	



Heath & Associates, Inc.
2214 Tacoma Road
Puyallup, WA 98371

File Name : 3434f
Site Code : 00003434
Start Date : 9/4/2013

	SEMANSKI ST Southbound				WARNER AVE Westbound				SEMANSKI ST Northbound				WARNER AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	46	94	18	158	23	139	20	182	58	91	30	179	22	128	27	177	696
Percent	29.1	59.5	11.4		12.6	76.4	11.0		32.4	50.8	16.8		12.4	72.3	15.3		
05:15 Volume	14	31	2	47	8	36	5	49	22	29	5	56	6	42	7	55	207
Peak Factor																	0.841
High Int.	05:00 PM				05:00 PM				05:15 PM				05:15 PM				
Volume	16	32	3	51	2	43	4	49	22	29	5	56	6	42	7	55	
Peak Factor				0.775				0.929				0.799				0.805	



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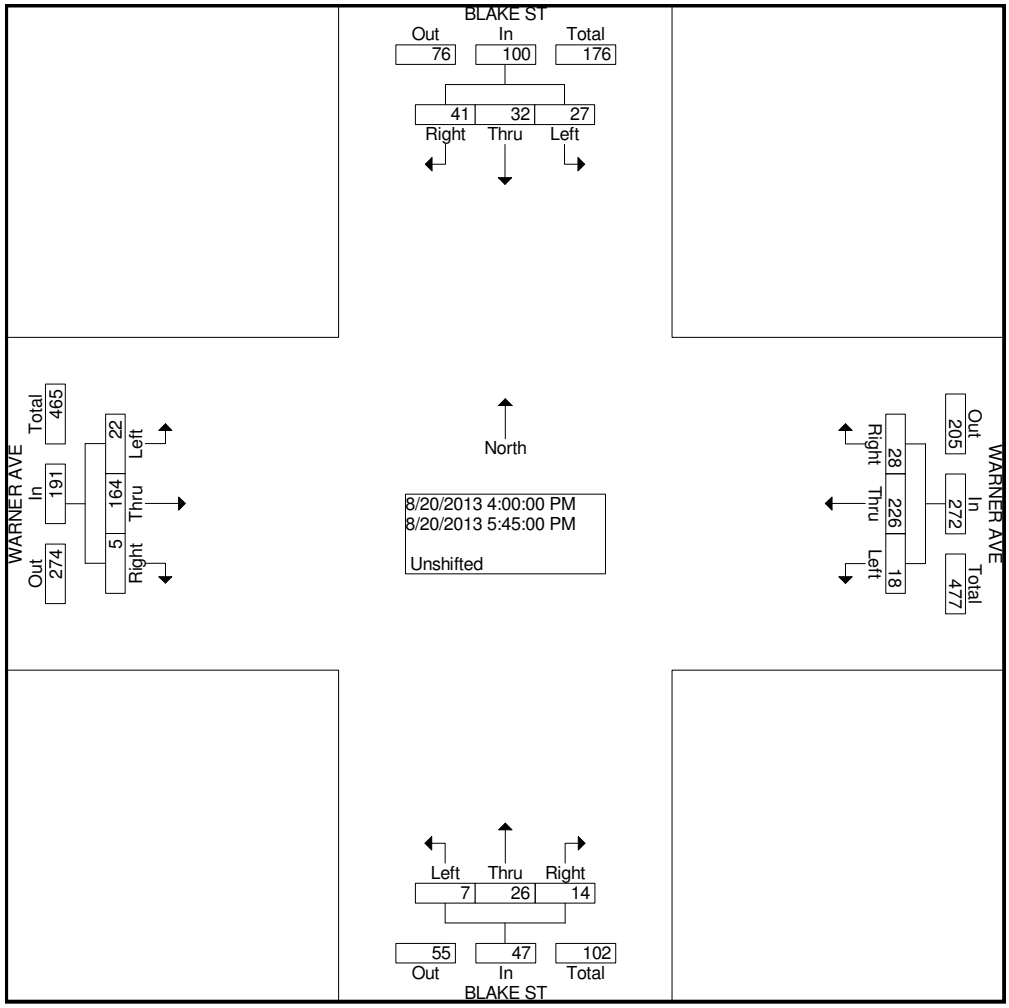
File Name : 3434b
Site Code : 00003434
Start Date : 8/20/2013
Page No : 1

Groups Printed- Unshifted

	BLAKE ST Southbound			WARNER AVE Westbound			BLAKE ST Northbound			WARNER AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	5	1	3	3	32	2	2	2	0	0	16	1	67
04:15 PM	4	5	4	1	15	2	0	4	1	0	19	3	58
04:30 PM	4	3	8	5	18	2	1	7	1	2	16	3	70
04:45 PM	5	5	2	4	27	2	2	4	0	1	21	3	76
Total	18	14	17	13	92	8	5	17	2	3	72	10	271
05:00 PM	7	6	5	2	21	2	2	2	2	1	22	2	74
05:15 PM	5	3	2	5	25	3	2	2	1	0	17	2	67
05:30 PM	4	6	3	5	41	4	1	2	1	0	21	6	94
05:45 PM	7	3	0	3	47	1	4	3	1	1	32	2	104
Total	23	18	10	15	134	10	9	9	5	2	92	12	339
Grand Total	41	32	27	28	226	18	14	26	7	5	164	22	610
Apprch %	41.0	32.0	27.0	10.3	83.1	6.6	29.8	55.3	14.9	2.6	85.9	11.5	
Total %	6.7	5.2	4.4	4.6	37.0	3.0	2.3	4.3	1.1	0.8	26.9	3.6	



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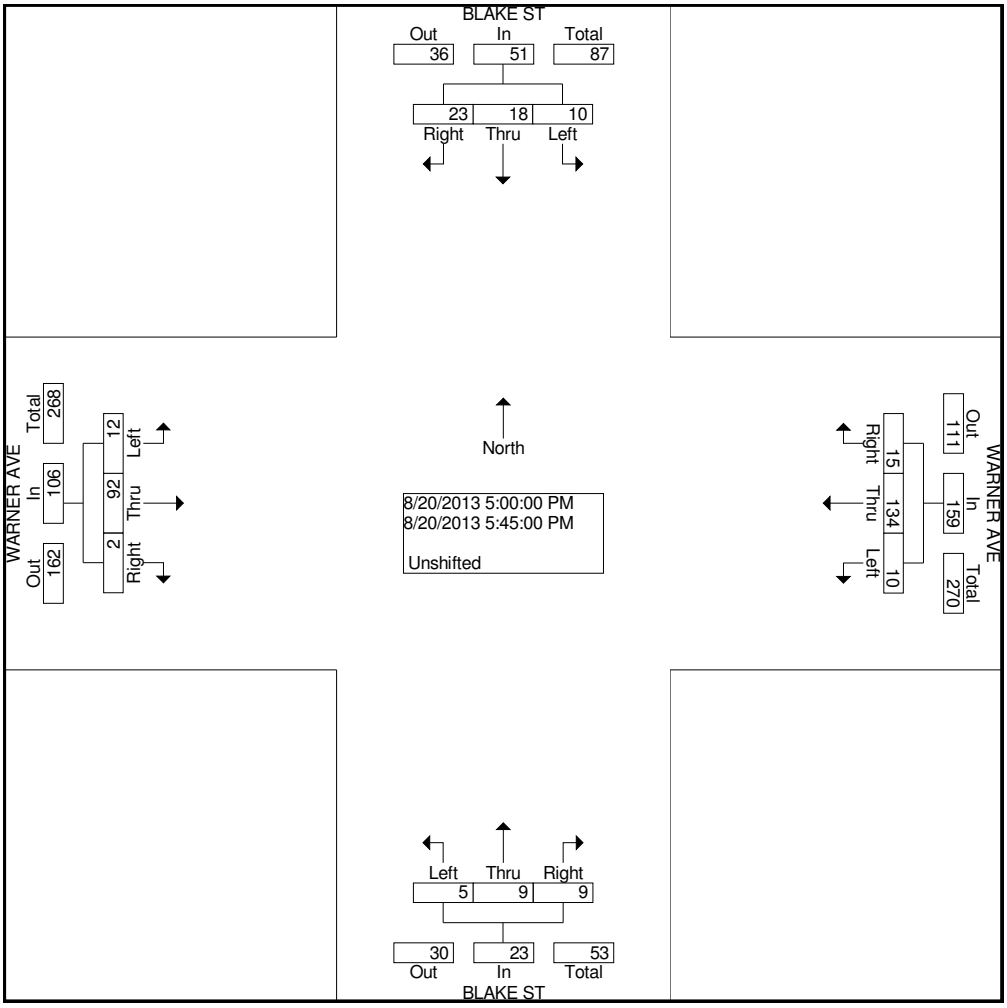
Puyallup, WA 98371

File Name : 3434b
Site Code : 00003434
Start Date : 8/20/2013
Page No : 2

	BLAKE ST Southbound				WARNER AVE Westbound				BLAKE ST Northbound				WARNER AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	23	18	10	51	15	134	10	159	9	9	5	23	2	92	12	106	339
Percent	45.1	35.3	19.6		9.4	84.3	6.3		39.1	39.1	21.7		1.9	86.8	11.3		
05:45 Volume	7	3	0	10	3	47	1	51	4	3	1	8	1	32	2	35	104
Peak Factor																	0.815
High Int.	05:00 PM				05:45 PM				05:45 PM				05:45 PM				
Volume	7	6	5	18	3	47	1	51	4	3	1	8	1	32	2	35	
Peak Factor				0.708				0.779				0.719				0.757	



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2214 Tacoma Road
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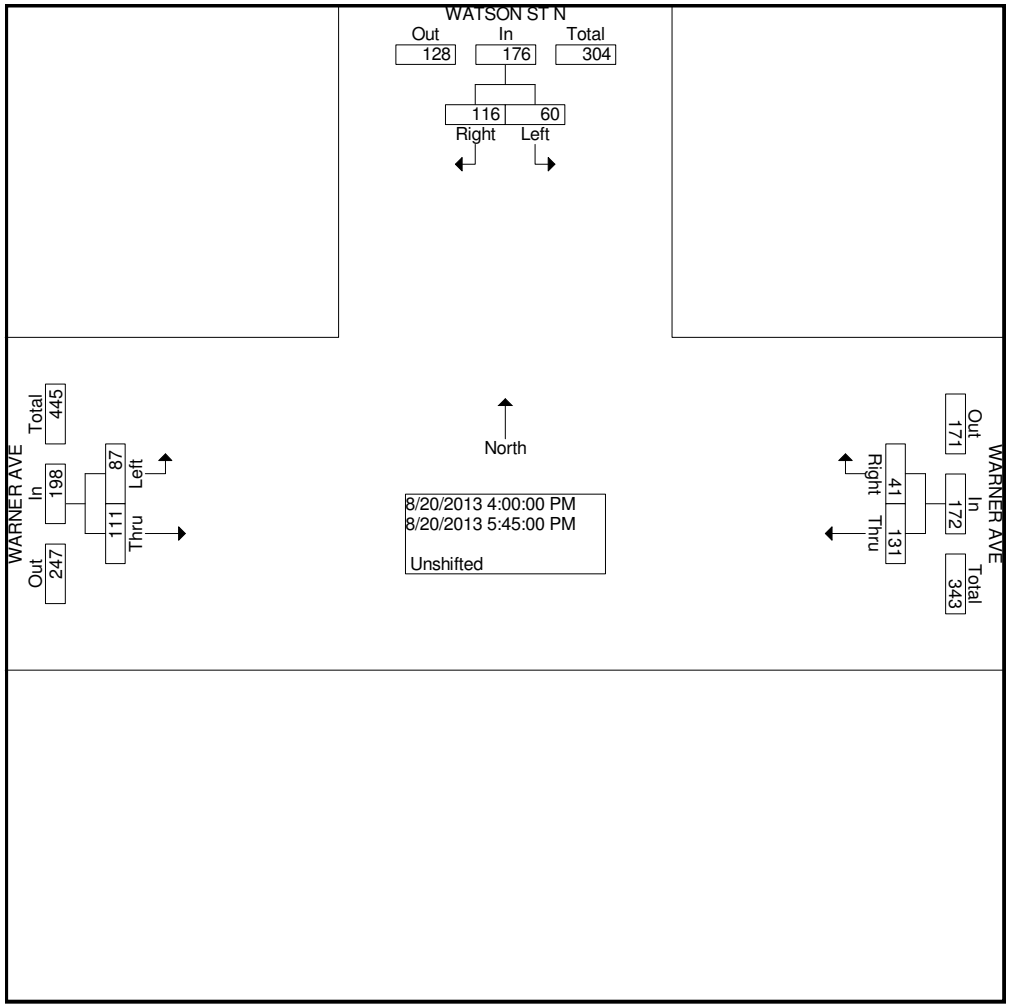
File Name : 3434a
Site Code : 00003434
Start Date : 8/20/2013
Page No : 1

Groups Printed- Unshifted

	WATSON ST N Southbound			WARNER AVE Westbound			WARNER AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
04:00 PM	12	0	8	3	8	0	0	11	9	51
04:15 PM	10	0	4	4	14	0	0	16	8	56
04:30 PM	11	0	10	6	15	0	0	18	6	66
04:45 PM	15	0	10	7	11	0	0	21	13	77
Total	48	0	32	20	48	0	0	66	36	250
05:00 PM	18	0	4	3	14	0	0	11	10	60
05:15 PM	17	0	8	6	21	0	0	12	7	71
05:30 PM	15	0	7	8	31	0	0	9	22	92
05:45 PM	18	0	9	4	17	0	0	13	12	73
Total	68	0	28	21	83	0	0	45	51	296
Grand Total	116	0	60	41	131	0	0	111	87	546
Apprch %	65.9	0.0	34.1	23.8	76.2	0.0	0.0	56.1	43.9	
Total %	21.2	0.0	11.0	7.5	24.0	0.0	0.0	20.3	15.9	



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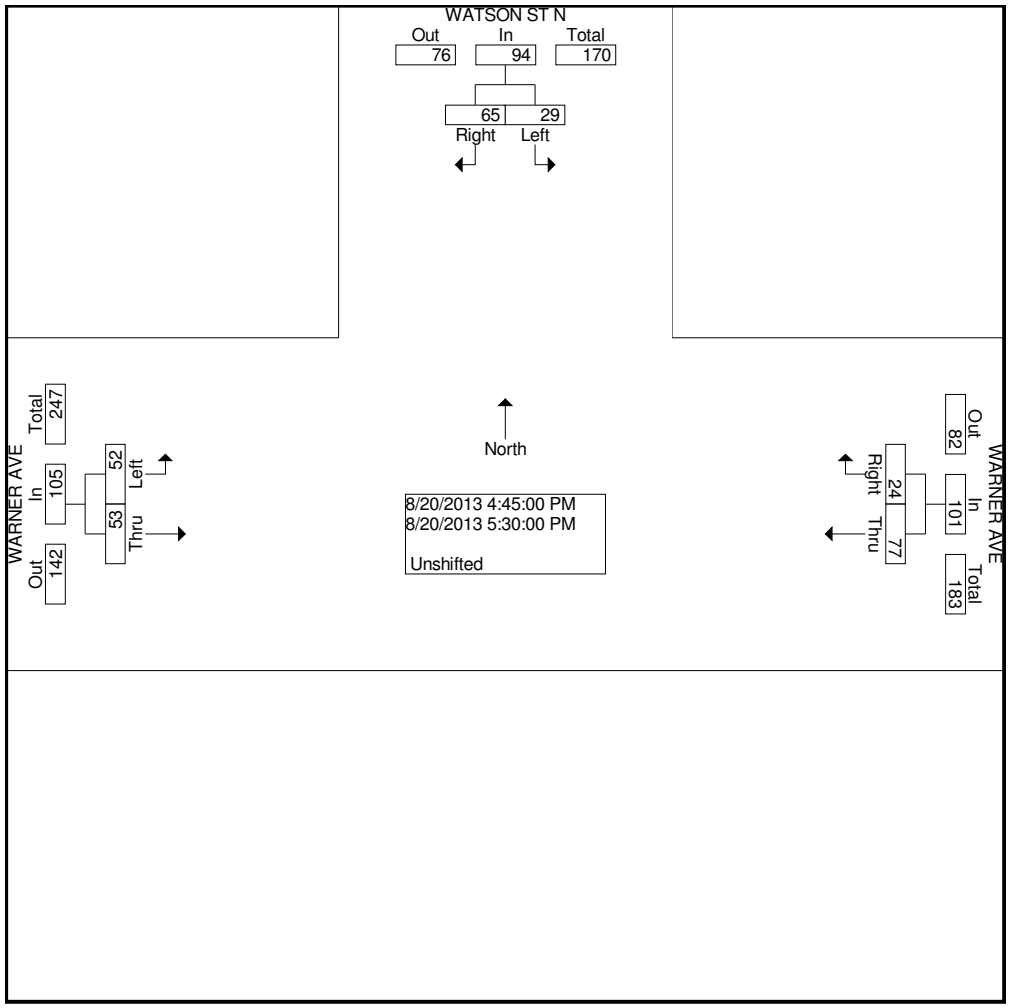
File Name : 3434a
Site Code : 00003434
Start Date : 8/20/2013
Page No : 2

	WATSON ST N Southbound				WARNER AVE Westbound				WARNER AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1													
Intersection	04:45 PM												
Volume	65	0	29	94	24	77	0	101	0	53	52	105	300
Percent	69.1	0.0	30.9		23.8	76.2	0.0		0.0	50.5	49.5		
05:30 Volume	15	0	7	22	8	31	0	39	0	9	22	31	92
Peak Factor													0.815
High Int.	04:45 PM				05:30 PM				04:45 PM				
Volume	15	0	10	25	8	31	0	39	0	21	13	34	
Peak Factor				0.940				0.647				0.772	



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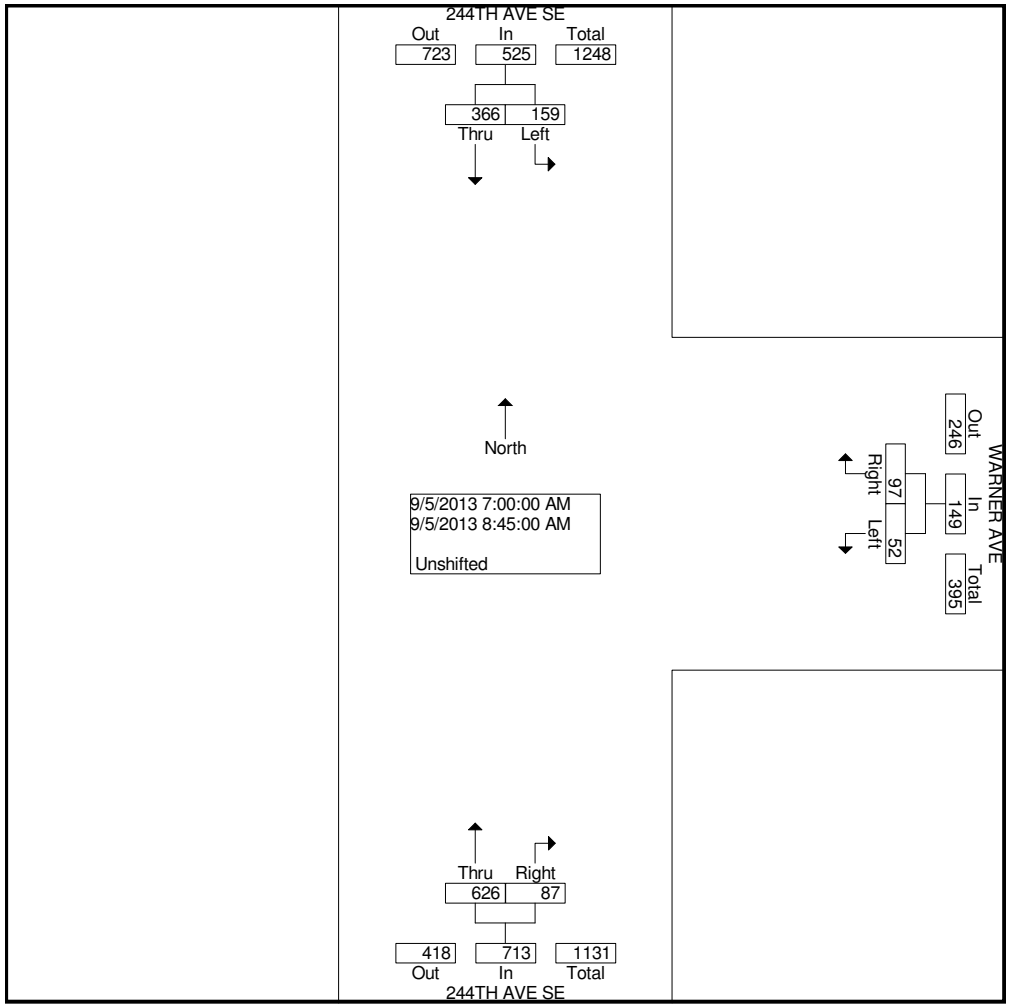
File Name : 3434i
Site Code : 00003434
Start Date : 9/5/2013
Page No : 1

Groups Printed- Unshifted

	244TH AVE SE Southbound			WARNER AVE Westbound			244TH AVE SE Northbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	36	4	20	0	4	6	69	0	139
07:15 AM	0	38	30	7	0	4	6	68	0	153
07:30 AM	0	45	53	19	0	1	20	103	0	241
07:45 AM	0	49	49	21	0	3	9	130	0	261
Total	0	168	136	67	0	12	41	370	0	794
08:00 AM	0	34	4	5	0	3	5	54	0	105
08:15 AM	0	29	3	10	0	4	2	44	0	92
08:30 AM	0	52	3	9	0	10	12	66	0	152
08:45 AM	0	83	13	6	0	23	27	92	0	244
Total	0	198	23	30	0	40	46	256	0	593
Grand Total	0	366	159	97	0	52	87	626	0	1387
Apprch %	0.0	69.7	30.3	65.1	0.0	34.9	12.2	87.8	0.0	
Total %	0.0	26.4	11.5	7.0	0.0	3.7	6.3	45.1	0.0	



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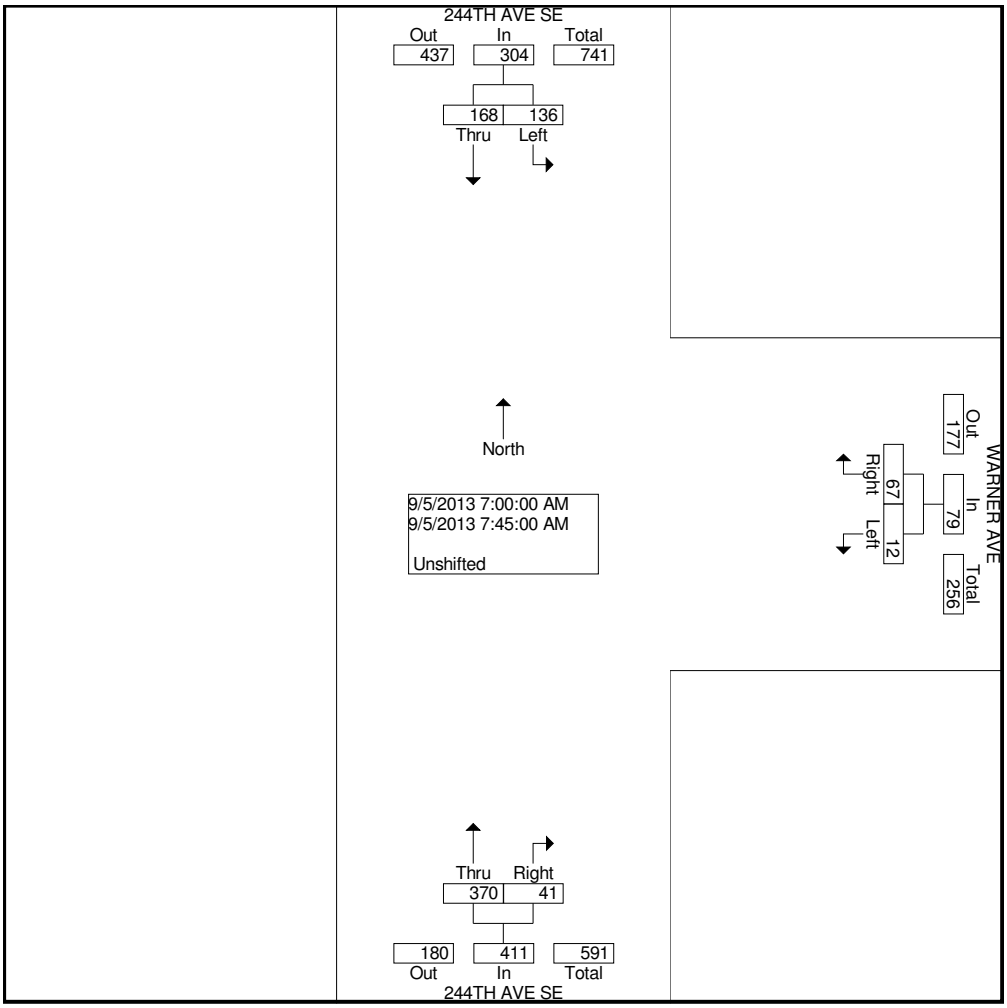
Puyallup, WA 98371

File Name : 3434i
Site Code : 00003434
Start Date : 9/5/2013
Page No : 2

	244TH AVE SE Southbound				WARNER AVE Westbound				244TH AVE SE Northbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1													
Intersection 07:00 AM													
Volume	0	168	136	304	67	0	12	79	41	370	0	411	794
Percent	0.0	55.3	44.7		84.8	0.0	15.2		10.0	90.0	0.0		
07:45 Volume	0	49	49	98	21	0	3	24	9	130	0	139	261
Peak Factor													0.761
High Int.	07:30 AM				07:00 AM				07:45 AM				
Volume	0	45	53	98	20	0	4	24	9	130	0	139	
Peak Factor				0.776				0.823				0.739	



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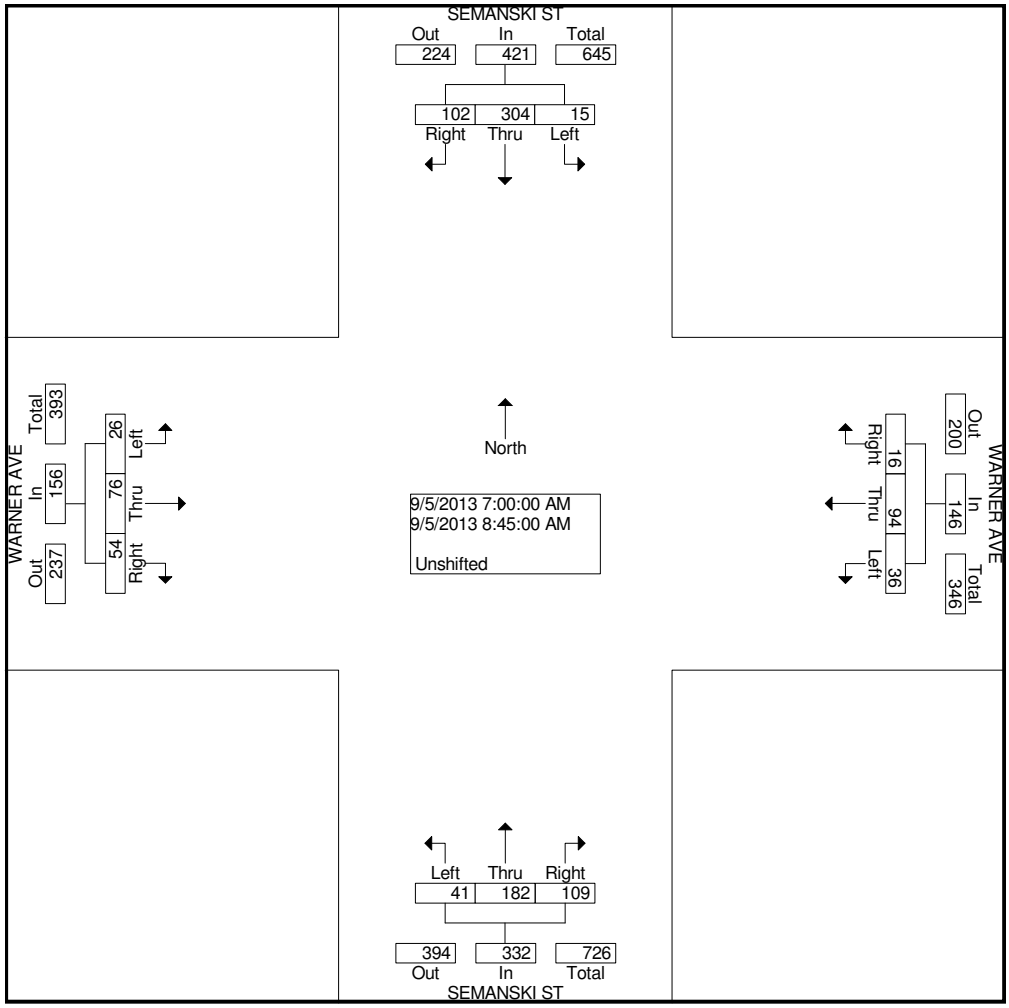
Puyallup, WA 98371

File Name : 3434g
Site Code : 00003434
Start Date : 9/5/2013
Page No : 1

Groups Printed- Unshifted

	SEMANSKI ST Southbound			WARNER AVE Westbound			SEMANSKI ST Northbound			WARNER AVE Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	7	15	1	2	19	5	8	10	9	7	6	6	95
07:15 AM	2	18	4	0	9	3	8	8	2	3	9	1	67
07:30 AM	31	63	1	3	12	6	18	23	5	9	9	0	180
07:45 AM	36	126	4	6	14	4	32	72	15	21	7	2	339
Total	76	222	10	11	54	18	66	113	31	40	31	9	681
08:00 AM	9	34	3	3	9	5	25	29	6	7	10	7	147
08:15 AM	2	15	2	0	8	3	4	9	3	4	8	2	60
08:30 AM	5	14	0	1	8	4	8	10	0	1	10	2	63
08:45 AM	10	19	0	1	15	6	6	21	1	2	17	6	104
Total	26	82	5	5	40	18	43	69	10	14	45	17	374
Grand Total	102	304	15	16	94	36	109	182	41	54	76	26	1055
Apprch %	24.2	72.2	3.6	11.0	64.4	24.7	32.8	54.8	12.3	34.6	48.7	16.7	
Total %	9.7	28.8	1.4	1.5	8.9	3.4	10.3	17.3	3.9	5.1	7.2	2.5	



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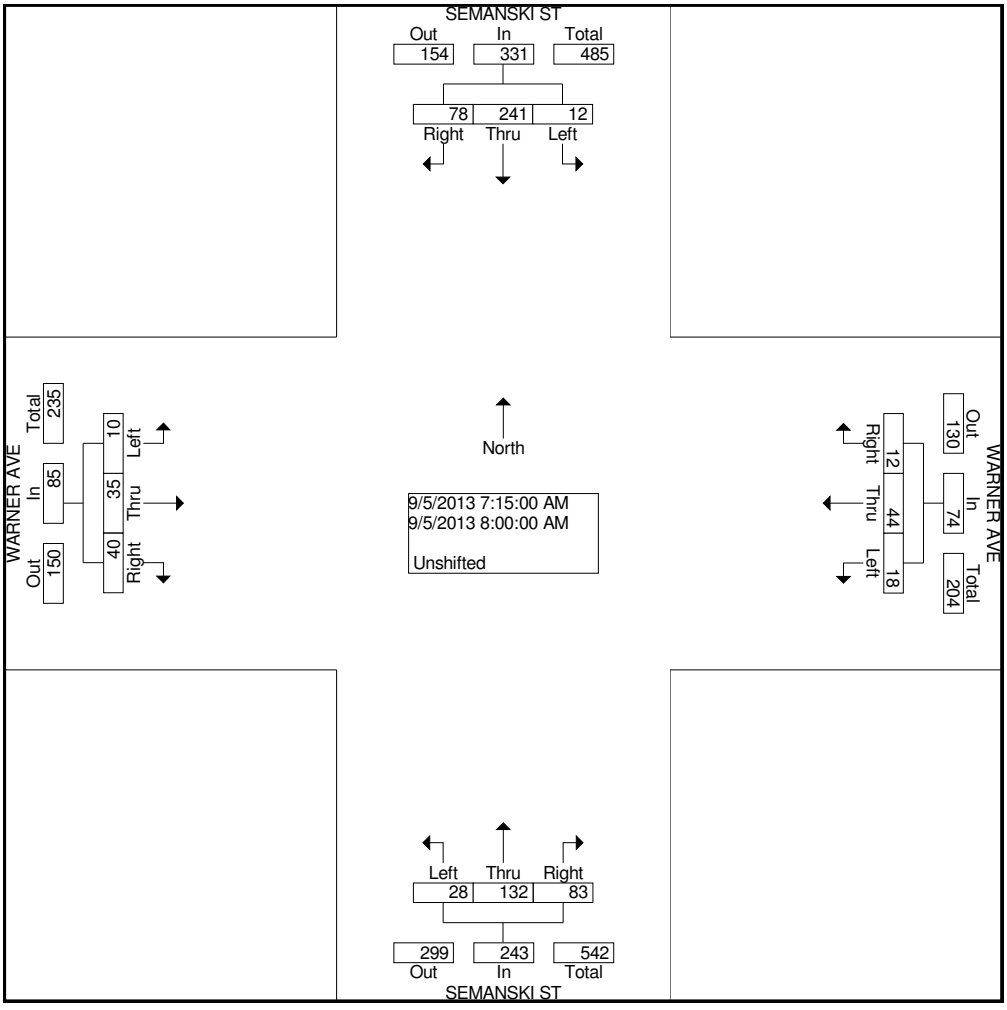
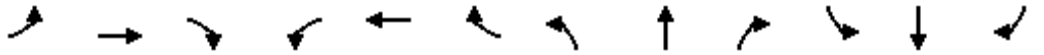
Puyallup, WA 98371

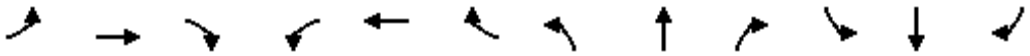
File Name : 3434g
Site Code : 00003434
Start Date : 9/5/2013

	SEMANSKI ST Southbound				WARNER AVE Westbound				SEMANSKI ST Northbound				WARNER AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Intersection	07:15 AM																
Volume	78	241	12	331	12	44	18	74	83	132	28	243	40	35	10	85	733
Percent	23.6	72.8	3.6		16.2	59.5	24.3		34.2	54.3	11.5		47.1	41.2	11.8		
07:45 Volume	36	126	4	166	6	14	4	24	32	72	15	119	21	7	2	30	339
Peak Factor																	0.541
High Int.	07:45 AM				07:45 AM				07:45 AM				07:45 AM				
Volume	36	126	4	166	6	14	4	24	32	72	15	119	21	7	2	30	
Peak Factor				0.498				0.771				0.511				0.708	





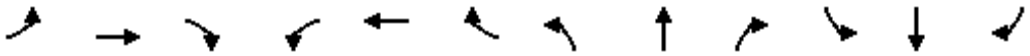
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	323	175	80	246	40	86	123	52	60	248	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	190.0	188.1	188.1	190.0	188.1	188.1	190.0	184.5	184.5	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	165	510	277	356	701	115	375	292	123	422	397	8
Arrive On Green	0.00	0.44	0.44	0.44	0.44	0.44	0.06	0.23	0.23	0.05	0.22	0.22
Sat Flow, veh/h	1087	1149	622	888	1577	259	1792	1257	530	1757	1804	35
Grp Volume(v), veh/h	0	0	518	83	0	298	90	0	182	62	0	263
Grp Sat Flow(s),veh/h/ln	1087	0	1771	888	0	1836	1792	0	1788	1757	0	1838
Q Serve(g_s), s	0.0	0.0	10.0	3.5	0.0	4.7	1.6	0.0	3.8	1.2	0.0	5.7
Cycle Q Clear(g_c), s	0.0	0.0	10.0	13.6	0.0	4.7	1.6	0.0	3.8	1.2	0.0	5.7
Prop In Lane	1.00		0.35	1.00		0.14	1.00		0.30	1.00		0.02
Lane Grp Cap(c), veh/h	165	0	787	356	0	815	375	0	415	422	0	404
V/C Ratio(X)	0.00	0.00	0.66	0.23	0.00	0.37	0.24	0.00	0.44	0.15	0.00	0.65
Avail Cap(c_a), veh/h	305	0	1015	470	0	1052	471	0	778	498	0	758
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	9.5	14.8	0.0	8.0	12.0	0.0	14.3	12.2	0.0	15.5
Incr Delay (d2), s/veh	0.0	0.0	1.0	0.3	0.0	0.3	0.3	0.0	0.7	0.2	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	0.0	3.8	0.7	0.0	1.8	0.6	0.0	1.6	0.4	0.0	2.5
Lane Grp Delay (d), s/veh	0.0	0.0	10.5	15.2	0.0	8.3	12.3	0.0	15.0	12.4	0.0	17.3
Lane Grp LOS			B	B		A	B		B	B		B
Approach Vol, veh/h		518			381			272			325	
Approach Delay, s/veh		10.5			9.8			14.1			16.3	
Approach LOS		B			A			B			B	
Timer												
Assigned Phs		4			8		5	2		1	6	
Phs Duration (G+Y+Rc), s		23.4			23.4		6.7	14.1		6.1	13.6	
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s		25.0			25.0		5.0	19.0		4.0	18.0	
Max Q Clear Time (g_c+I1), s		12.0			15.6		3.6	5.8		3.2	7.7	
Green Ext Time (p_c), s		4.6			3.8		0.0	2.2		0.0	1.9	
Intersection Summary												
HCM 2010 Ctrl Delay			12.3									
HCM 2010 LOS			B									
Notes												



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	7	464	47	52	331	4	19	5	68	2	2	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	510	52	57	364	4	21	5	75	2	2	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	368			562			1031	1034	536	1083	1057	366
vC1, stage 1 conf vol							551	551		480	480	
vC2, stage 2 conf vol							480	482		603	577	
vCu, unblocked vol	368			562			1031	1034	536	1083	1057	366
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			94			95	99	86	99	99	100
cM capacity (veh/h)	1202			1020			406	408	549	320	380	684

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	8	562	57	368	101	5
Volume Left	8	0	57	0	21	2
Volume Right	0	52	0	4	75	1
cSH	1202	1700	1020	1700	503	386
Volume to Capacity	0.01	0.33	0.06	0.22	0.20	0.01
Queue Length 95th (ft)	0	0	4	0	19	1
Control Delay (s)	8.0	0.0	8.7	0.0	14.0	14.5
Lane LOS	A		A		B	B
Approach Delay (s)	0.1		1.2		14.0	14.5
Approach LOS					B	B

Intersection Summary				
Average Delay	1.9			
Intersection Capacity Utilization	46.7%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	63	508	15	11	389	15	3	11	10	7	5	46
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	66	535	16	12	409	16	3	12	11	7	5	48
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	425			551			1159	1124	543	1124	1124	417
vC1, stage 1 conf vol							675	675		441	441	
vC2, stage 2 conf vol							484	448		684	683	
vCu, unblocked vol	425			551			1159	1124	543	1124	1124	417
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			99			99	97	98	98	99	92
cM capacity (veh/h)	1145			1029			331	362	544	345	367	640

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	66	551	12	425	25	61
Volume Left	66	0	12	0	3	7
Volume Right	0	16	0	16	11	48
cSH	1145	1700	1029	1700	415	548
Volume to Capacity	0.06	0.32	0.01	0.25	0.06	0.11
Queue Length 95th (ft)	5	0	1	0	5	9
Control Delay (s)	8.3	0.0	8.5	0.0	14.2	12.4
Lane LOS	A		A		B	B
Approach Delay (s)	0.9		0.2		14.2	12.4
Approach LOS					B	B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	45.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	98	353	32	8	275	126	83	156	8	137	184	80
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	190.0	188.1	188.1	190.0	190.0	188.2	190.0	190.0	188.7	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	479	773	69	499	555	254	426	578	29	516	406	176
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	975	1702	153	990	1222	560	1122	1779	88	1234	1251	541
Grp Volume(v), veh/h	102	0	401	8	0	417	86	0	170	143	0	275
Grp Sat Flow(s),veh/h/ln	975	0	1854	990	0	1782	1122	0	1867	1234	0	1791
Q Serve(g_s), s	3.0	0.0	5.5	0.2	0.0	6.0	2.4	0.0	2.5	3.5	0.0	4.4
Cycle Q Clear(g_c), s	9.0	0.0	5.5	5.7	0.0	6.0	6.8	0.0	2.5	6.0	0.0	4.4
Prop In Lane	1.00		0.08	1.00		0.31	1.00		0.05	1.00		0.30
Lane Grp Cap(c), veh/h	479	0	843	499	0	810	426	0	606	516	0	582
V/C Ratio(X)	0.21	0.00	0.48	0.02	0.00	0.51	0.20	0.00	0.28	0.28	0.00	0.47
Avail Cap(c_a), veh/h	817	0	1485	842	0	1428	774	0	1186	899	0	1138
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	6.9	8.8	0.0	7.0	12.5	0.0	9.1	11.3	0.0	9.8
Incr Delay (d2), s/veh	0.2	0.0	0.4	0.0	0.0	0.5	0.2	0.0	0.3	0.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.6	0.0	1.9	0.0	0.0	2.0	0.6	0.0	0.9	0.9	0.0	1.7
Lane Grp Delay (d), s/veh	10.5	0.0	7.3	8.9	0.0	7.5	12.7	0.0	9.3	11.6	0.0	10.4
Lane Grp LOS	B		A	A		A	B		A	B		B
Approach Vol, veh/h		503			425			256			418	
Approach Delay, s/veh		7.9			7.6			10.5			10.8	
Approach LOS		A			A			B			B	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		20.5			20.5			15.8			15.8	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		29.0			29.0			23.0			23.0	
Max Q Clear Time (g_c+I1), s		11.0			8.0			8.8			8.0	
Green Ext Time (p_c), s		5.4			5.7			2.9			3.0	
Intersection Summary												
HCM 2010 Ctrl Delay			9.0									
HCM 2010 LOS			A									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	468	45	0	387	25	5	115	44	1	165	24
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	190.0	190.0	188.1	190.0	190.0	190.0	190.0	190.0	190.0	190.0
Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Cap, veh/h	78	707	68	0	732	47	85	535	199	79	664	96
Arrive On Green	0.42	0.42	0.42	0.00	0.42	0.42	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	1	1688	162	0	1748	113	13	1308	486	1	1622	235
Grp Volume(v), veh/h	537	0	0	0	0	429	171	0	0	198	0	0
Grp Sat Flow(s),veh/h/ln	1851	0	0	0	0	1861	1807	0	0	1858	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	8.1	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.0	0.0	0.0	0.0	0.0	8.1	2.9	0.0	0.0	3.3	0.0	0.0
Prop In Lane	0.00		0.09	0.00		0.06	0.03		0.27	0.01		0.13
Lane Grp Cap(c), veh/h	853	0	0	0	0	779	819	0	0	838	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.00	0.00	0.55	0.21	0.00	0.00	0.24	0.00	0.00
Avail Cap(c_a), veh/h	1392	0	0	0	0	1323	819	0	0	838	0	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)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.1	0.0	0.0	0.0	0.0	10.2	9.0	0.0	0.0	9.1	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.7	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 Back of Q (50%), veh/ln	4.4	0.0	0.0	0.0	0.0	3.1	1.2	0.0	0.0	1.4	0.0	0.0
Lane Grp Delay (d), s/veh	11.8	0.0	0.0	0.0	0.0	10.8	9.5	0.0	0.0	9.7	0.0	0.0
Lane Grp LOS	B					B	A			A		
Approach Vol, veh/h		537			429			171			198	
Approach Delay, s/veh		11.8			10.8			9.5			9.7	
Approach LOS		B			B			A			A	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		23.4			23.4			23.0			23.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		33.0			33.0			19.0			19.0	
Max Q Clear Time (g_c+I1), s		13.0			10.1			4.9			5.3	
Green Ext Time (p_c), s		6.4			6.8			1.8			1.8	

Intersection Summary												
HCM 2010 Ctrl Delay			10.9									
HCM 2010 LOS			B									

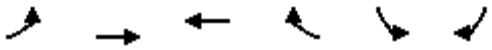
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	73	106	15	96	48	33	8	404	69	25	589	84
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	190.0	190.0	190.0	190.0	190.0	188.1	188.1	188.1	188.1	186.3	188.1
Lanes	0	1	0	0	1	1	1	1	1	1	1	1
Cap, veh/h	131	191	26	231	117	305	474	1166	991	617	1155	991
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.62	0.62	0.62	0.62	0.62	0.62
Sat Flow, veh/h	695	1007	139	1222	617	1615	724	1881	1599	887	1863	1599
Grp Volume(v), veh/h	212	0	0	158	0	36	9	444	76	27	647	92
Grp Sat Flow(s),veh/h/ln	1841	0	0	1839	0	1615	724	1881	1599	887	1863	1599
Q Serve(g_s), s	4.4	0.0	0.0	3.2	0.0	0.8	0.3	4.9	0.8	0.7	8.5	1.0
Cycle Q Clear(g_c), s	4.4	0.0	0.0	3.2	0.0	0.8	8.8	4.9	0.8	5.6	8.5	1.0
Prop In Lane	0.38		0.08	0.66		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	348	0	0	348	0	305	474	1166	991	617	1155	991
V/C Ratio(X)	0.61	0.00	0.00	0.45	0.00	0.12	0.02	0.38	0.08	0.04	0.56	0.09
Avail Cap(c_a), veh/h	702	0	0	702	0	616	474	1166	991	617	1155	991
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	0.0	15.1	0.0	14.1	7.2	4.0	3.2	5.3	4.6	3.2
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.9	0.0	0.2	0.1	0.9	0.2	0.0	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.9	0.0	0.0	1.4	0.0	0.3	0.1	1.7	0.2	0.1	2.5	0.2
Lane Grp Delay (d), s/veh	17.3	0.0	0.0	16.0	0.0	14.3	7.3	4.9	3.3	5.4	5.3	3.3
Lane Grp LOS	B			B		B	A	A	A	A	A	A
Approach Vol, veh/h		212			194			529			766	
Approach Delay, s/veh		17.3			15.7			4.7			5.0	
Approach LOS		B			B			A			A	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		11.9			11.9			30.0			30.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		16.0			16.0			26.0			26.0	
Max Q Clear Time (g_c+I1), s		6.4			5.2			10.8			10.5	
Green Ext Time (p_c), s		1.6			1.7			7.1			7.2	

Intersection Summary												
HCM 2010 Ctrl Delay			7.7									
HCM 2010 LOS			A									

Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	191	347	564	7	0	228
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	199	361	588	7	0	238
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	595				1351	591
vC1, stage 1 conf vol					591	
vC2, stage 2 conf vol					759	
vCu, unblocked vol	595				1351	591
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	80				100	53
cM capacity (veh/h)	972				323	511

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	199	361	595	238
Volume Left	199	0	0	0
Volume Right	0	0	7	238
cSH	972	1700	1700	511
Volume to Capacity	0.20	0.21	0.35	0.47
Queue Length 95th (ft)	19	0	0	61
Control Delay (s)	9.7	0.0	0.0	18.0
Lane LOS	A			C
Approach Delay (s)	3.4		0.0	18.0
Approach LOS				C

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	65	320	22	44	626	27	20	13	35	19	13	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	71	348	24	48	680	29	22	14	38	21	14	71
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					536							
pX, platoon unblocked												
vC, conflicting volume	710			372			1015	1307	360	1325	1304	355
vC1, stage 1 conf vol							501	501		791	791	
vC2, stage 2 conf vol							514	805		534	513	
vCu, unblocked vol	710			372			1015	1307	360	1325	1304	355
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			96			93	95	94	92	96	89
cM capacity (veh/h)	892			1183			310	282	643	263	316	647

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	71	372	48	454	256	22	52	105
Volume Left	71	0	48	0	0	22	0	21
Volume Right	0	24	0	0	29	0	38	71
cSH	892	1700	1183	1700	1700	310	478	453
Volume to Capacity	0.08	0.22	0.04	0.27	0.15	0.07	0.11	0.23
Queue Length 95th (ft)	6	0	3	0	0	6	9	22
Control Delay (s)	9.4	0.0	8.2	0.0	0.0	17.5	13.5	15.3
Lane LOS	A		A			C	B	C
Approach Delay (s)	1.5		0.5			14.6		15.3
Approach LOS						B		C

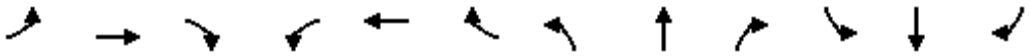
Intersection Summary				
Average Delay	2.7			
Intersection Capacity Utilization	44.2%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	363	47	18	458	11	23	26	26	2	29	38
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	16	374	48	19	472	11	24	27	27	2	30	39
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		944			684							
pX, platoon unblocked	0.83						0.83	0.83		0.83	0.83	0.83
vC, conflicting volume	484			423			1001	952	398	987	971	478
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	276			423			899	840	398	882	863	269
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			87	89	96	99	87	94
cM capacity (veh/h)	1078			1147			180	244	656	192	237	641

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	439	502	77	71
Volume Left	16	19	24	2
Volume Right	48	11	27	39
cSH	1078	1147	274	359
Volume to Capacity	0.02	0.02	0.28	0.20
Queue Length 95th (ft)	1	1	28	18
Control Delay (s)	0.5	0.5	23.2	17.5
Lane LOS	A	A	C	C
Approach Delay (s)	0.5	0.5	23.2	17.5
Approach LOS			C	C

Intersection Summary				
Average Delay	3.2			
Intersection Capacity Utilization	49.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	267	61	13	354	205	95	100	8	227	101	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	188.1	190.0	188.1	186.3	188.1	190.0	190.0	190.0	190.0	188.1	190.0
Lanes	0	2	0	1	1	1	0	1	0	0	1	0
Cap, veh/h	0	1186	268	572	743	638	300	317	26	420	187	24
Arrive On Green	0.00	0.40	0.40	0.40	0.40	0.40	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	0	2971	672	1034	1863	1599	859	909	76	1203	537	69
Grp Volume(v), veh/h	0	180	173	14	381	220	219	0	0	367	0	0
Grp Sat Flow(s),veh/h/ln	0	1881	1763	1034	1863	1599	1844	0	0	1809	0	0
Q Serve(g_s), s	0.0	2.0	2.1	0.3	4.9	3.0	2.8	0.0	0.0	5.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.0	2.1	2.4	4.9	3.0	2.8	0.0	0.0	5.3	0.0	0.0
Prop In Lane	0.00		0.38	1.00		1.00	0.47		0.04	0.66		0.04
Lane Grp Cap(c), veh/h	0	751	703	572	743	638	643	0	0	631	0	0
V/C Ratio(X)	0.00	0.24	0.25	0.02	0.51	0.34	0.34	0.00	0.00	0.58	0.00	0.00
Avail Cap(c_a), veh/h	0	1955	1832	1234	1936	1662	1336	0	0	1823	0	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	6.3	6.4	7.1	7.2	6.6	7.6	0.0	0.0	8.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.5	0.3	0.3	0.0	0.0	0.9	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 Back of Q (50%), veh/ln	0.0	0.7	0.7	0.1	1.8	1.0	1.0	0.0	0.0	1.9	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	6.5	6.5	7.2	7.8	7.0	7.9	0.0	0.0	9.3	0.0	0.0
Lane Grp LOS		A	A	A	A	A	A			A		
Approach Vol, veh/h		353			615			219			367	
Approach Delay, s/veh		6.5			7.5			7.9			9.3	
Approach LOS		A			A			A			A	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		16.7			16.7			15.1			15.1	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		33.0			33.0			23.0			32.0	
Max Q Clear Time (g_c+I1), s		4.1			6.9			4.8			7.3	
Green Ext Time (p_c), s		5.9			5.8			3.5			3.8	
Intersection Summary												
HCM 2010 Ctrl Delay			7.7									
HCM 2010 LOS			A									
Notes												



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	31	322	139	77	425	5	88	0	66	5	2	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	33	343	148	82	452	5	94	0	70	5	2	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		627										
pX, platoon unblocked				0.98			0.98	0.98	0.98	0.98	0.98	
vC, conflicting volume	457			490			1044	1030	343	1097	1175	455
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	457			470			1035	1020	319	1089	1169	455
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			92			49	100	90	97	99	97
cM capacity (veh/h)	1109			1075			184	209	712	158	171	610

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	NB 1	SB 1
Volume Total	33	343	148	82	457	164	26
Volume Left	33	0	0	82	0	94	5
Volume Right	0	0	148	0	5	70	18
cSH	1109	1700	1700	1075	1700	270	337
Volume to Capacity	0.03	0.20	0.09	0.08	0.27	0.61	0.08
Queue Length 95th (ft)	2	0	0	6	0	91	6
Control Delay (s)	8.3	0.0	0.0	8.6	0.0	37.0	16.5
Lane LOS	A			A		E	C
Approach Delay (s)	0.5			1.3		37.0	16.5
Approach LOS						E	C

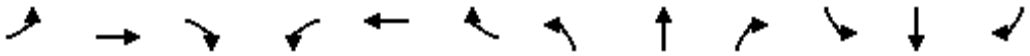
Intersection Summary				
Average Delay	6.0			
Intersection Capacity Utilization	51.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	137	65	69	2	87	15	45	27	3	11	52	127
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	188.1	186.3	186.3	186.3	190.0	190.0	190.0	190.0	187.3	190.0
Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Cap, veh/h	610	454	386	482	260	221	426	207	15	172	127	281
Arrive On Green	0.10	0.24	0.24	0.00	0.14	0.14	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1792	1881	1599	1774	1863	1583	730	817	60	47	503	1109
Grp Volume(v), veh/h	147	70	74	2	94	16	80	0	0	205	0	0
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1774	1863	1583	1608	0	0	1660	0	0
Q Serve(g_s), s	1.4	0.7	0.9	0.0	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.7	0.9	0.0	1.1	0.2	0.8	0.0	0.0	2.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.60		0.04	0.06		0.67
Lane Grp Cap(c), veh/h	610	454	386	482	260	221	648	0	0	580	0	0
V/C Ratio(X)	0.24	0.15	0.19	0.00	0.36	0.07	0.12	0.00	0.00	0.35	0.00	0.00
Avail Cap(c_a), veh/h	1024	1736	1475	772	1406	1195	1591	0	0	1681	0	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)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.6	7.1	7.2	8.8	9.3	8.9	6.9	0.0	0.0	7.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.2	0.2	0.0	0.8	0.1	0.1	0.0	0.0	0.4	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 Back of Q (50%), veh/ln	0.4	0.3	0.3	0.0	0.4	0.1	0.3	0.0	0.0	0.7	0.0	0.0
Lane Grp Delay (d), s/veh	5.8	7.3	7.4	8.8	10.1	9.1	7.0	0.0	0.0	7.9	0.0	0.0
Lane Grp LOS	A	A	A	A	B	A	A			A		
Approach Vol, veh/h		291			112			80			205	
Approach Delay, s/veh		6.6			10.0			7.0			7.9	
Approach LOS		A			A			A			A	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	6.5	9.8		4.1	7.3			10.0			10.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	8.0	22.0		4.0	18.0			22.0			22.0	
Max Q Clear Time (g_c+I1), s	3.4	2.9		2.0	3.1			2.8			4.5	
Green Ext Time (p_c), s	0.1	1.1		0.0	1.0			1.6			1.5	

Intersection Summary												
HCM 2010 Ctrl Delay			7.6									
HCM 2010 LOS			A									

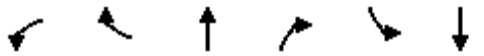
Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	15	15	23	25	15	30	39	408	50	29	467	23
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	16	16	25	27	16	32	42	439	54	31	502	25
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1140	1153	515	1147	1139	466	527			492		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1140	1153	515	1147	1139	466	527			492		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	91	96	82	91	95	96			97		
cM capacity (veh/h)	151	186	564	151	189	601	1050			1081		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	57	75	42	492	31	527
Volume Left	16	27	42	0	31	0
Volume Right	25	32	0	54	0	25
cSH	240	237	1050	1700	1081	1700
Volume to Capacity	0.24	0.32	0.04	0.29	0.03	0.31
Queue Length 95th (ft)	22	33	3	0	2	0
Control Delay (s)	24.6	27.1	8.6	0.0	8.4	0.0
Lane LOS	C	D	A		A	
Approach Delay (s)	24.6	27.1	0.7		0.5	
Approach LOS	C	D				

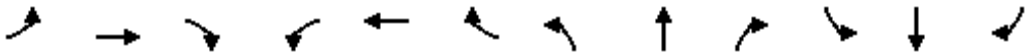
Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	44.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	33	71	263	46	85	436
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	38	82	302	53	98	501
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1025	329			355	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1025	329			355	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	89			92	
cM capacity (veh/h)	241	717			1215	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	120	355	98	501
Volume Left	38	0	98	0
Volume Right	82	53	0	0
cSH	441	1700	1215	1700
Volume to Capacity	0.27	0.21	0.08	0.29
Queue Length 95th (ft)	27	0	7	0
Control Delay (s)	16.2	0.0	8.2	0.0
Lane LOS	C		A	
Approach Delay (s)	16.2	0.0	1.3	
Approach LOS	C			

Intersection Summary			
Average Delay	2.5		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	27	128	22	20	139	23	30	91	58	18	94	46
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	32	152	26	24	165	27	36	108	69	21	112	55
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	507	431	139	499	424	143	167			177		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	507	431	139	499	424	143	167			177		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	69	97	93	67	97	97			98		
cM capacity (veh/h)	336	498	912	349	504	910	1424			1399		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	211	217	213	188
Volume Left	32	24	36	21
Volume Right	26	27	69	55
cSH	489	508	1424	1399
Volume to Capacity	0.43	0.43	0.03	0.02
Queue Length 95th (ft)	53	53	2	1
Control Delay (s)	17.8	17.3	1.4	1.0
Lane LOS	C	C	A	A
Approach Delay (s)	17.8	17.3	1.4	1.0
Approach LOS	C	C		

Intersection Summary				
Average Delay	9.6			
Intersection Capacity Utilization	36.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

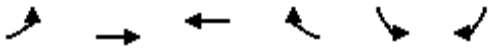
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	12	92	2	10	134	15	5	9	9	10	18	23
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	15	112	2	12	163	18	6	11	11	12	22	28
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.4	7.7	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	22%	11%	6%	20%
Vol Thru, %	39%	87%	84%	35%
Vol Right, %	39%	2%	9%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	106	159	51
LT Vol	9	92	134	18
Through Vol	9	2	15	23
RT Vol	5	12	10	10
Lane Flow Rate	28	129	194	62
Geometry Grp	1	1	1	1
Degree of Util (X)	0.035	0.151	0.221	0.076
Departure Headway (Hd)	4.488	4.322	4.112	4.408
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	802	835	859	817
Service Time	2.491	2.322	2.205	2.409
HCM Lane V/C Ratio	0.035	0.154	0.226	0.076
HCM Control Delay	7.7	8.1	8.4	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.5	0.8	0.2

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	52	53	77	24	29	65
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	63	65	94	29	35	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	123				300	109
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123				300	109
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				95	92
cM capacity (veh/h)	1476				666	951

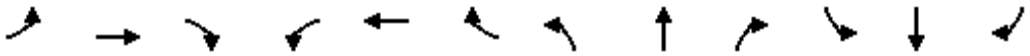
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	128	123	115
Volume Left	63	0	35
Volume Right	0	29	79
cSH	1476	1700	840
Volume to Capacity	0.04	0.07	0.14
Queue Length 95th (ft)	3	0	12
Control Delay (s)	3.9	0.0	10.0
Lane LOS	A		A
Approach Delay (s)	3.9	0.0	10.0
Approach LOS			A

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	12	67	370	41	136	168
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	16	88	487	54	179	221
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1093	514			541	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1093	514			541	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	92	84			83	
cM capacity (veh/h)	197	563			1033	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	104	541	179	221
Volume Left	16	0	179	0
Volume Right	88	54	0	0
cSH	439	1700	1033	1700
Volume to Capacity	0.24	0.32	0.17	0.13
Queue Length 95th (ft)	23	0	16	0
Control Delay (s)	15.7	0.0	9.2	0.0
Lane LOS	C		A	
Approach Delay (s)	15.7	0.0	4.1	
Approach LOS	C			

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	10	35	40	18	44	12	28	132	83	12	241	78
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	19	65	74	33	81	22	52	244	154	22	446	144
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1051	1065	519	1094	1060	321	591			398		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1051	1065	519	1094	1060	321	591			398		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	69	86	72	61	97	95			98		
cM capacity (veh/h)	133	209	542	120	210	724	995			1171		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	157	137	450	613
Volume Left	19	33	52	22
Volume Right	74	22	154	144
cSH	268	197	995	1171
Volume to Capacity	0.59	0.70	0.05	0.02
Queue Length 95th (ft)	85	109	4	1
Control Delay (s)	35.8	56.9	1.5	0.5
Lane LOS	E	F	A	A
Approach Delay (s)	35.8	56.9	1.5	0.5
Approach LOS	E	F		

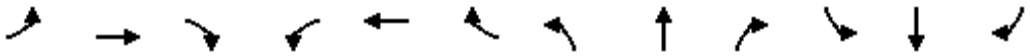
Intersection Summary				
Average Delay	10.6			
Intersection Capacity Utilization	38.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	369	189	86	277	43	93	133	56	65	267	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	190.0	188.1	188.1	190.0	188.1	188.1	190.0	184.5	184.5	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	151	544	279	321	737	115	351	297	124	402	405	7
Arrive On Green	0.00	0.46	0.46	0.46	0.46	0.46	0.06	0.23	0.23	0.05	0.22	0.22
Sat Flow, veh/h	1052	1173	602	838	1590	248	1792	1262	526	1757	1806	32
Grp Volume(v), veh/h	0	0	581	90	0	334	97	0	197	68	0	283
Grp Sat Flow(s),veh/h/ln	1052	0	1775	838	0	1837	1792	0	1788	1757	0	1839
Q Serve(g_s), s	0.0	0.0	12.4	4.6	0.0	5.7	1.9	0.0	4.5	1.4	0.0	6.7
Cycle Q Clear(g_c), s	0.0	0.0	12.4	17.0	0.0	5.7	1.9	0.0	4.5	1.4	0.0	6.7
Prop In Lane	1.00		0.34	1.00		0.13	1.00		0.29	1.00		0.02
Lane Grp Cap(c), veh/h	151	0	823	321	0	852	351	0	420	402	0	412
V/C Ratio(X)	0.00	0.00	0.71	0.28	0.00	0.39	0.28	0.00	0.47	0.17	0.00	0.69
Avail Cap(c_a), veh/h	215	0	930	371	0	963	430	0	712	462	0	694
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	10.2	17.0	0.0	8.4	13.1	0.0	15.7	13.3	0.0	17.0
Incr Delay (d2), s/veh	0.0	0.0	2.1	0.5	0.0	0.3	0.4	0.0	0.8	0.2	0.0	2.0
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 Back of Q (50%), veh/ln	0.0	0.0	5.0	0.9	0.0	2.2	0.8	0.0	1.9	0.6	0.0	3.1
Lane Grp Delay (d), s/veh	0.0	0.0	12.3	17.5	0.0	8.7	13.5	0.0	16.5	13.5	0.0	19.0
Lane Grp LOS			B	B		A	B		B	B		B
Approach Vol, veh/h		581			424			294			351	
Approach Delay, s/veh		12.3			10.5			15.5			17.9	
Approach LOS		B			B			B			B	

Timer												
Assigned Phs		4			8		5	2		1	6	
Phs Duration (G+Y+Rc), s		26.1			26.1		6.9	15.2		6.4	14.7	
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s		25.0			25.0		5.0	19.0		4.0	18.0	
Max Q Clear Time (g_c+I1), s		14.4			19.0		3.9	6.5		3.4	8.7	
Green Ext Time (p_c), s		4.6			3.1		0.0	2.3		0.0	2.0	

Intersection Summary		
HCM 2010 Ctrl Delay	13.6	
HCM 2010 LOS	B	

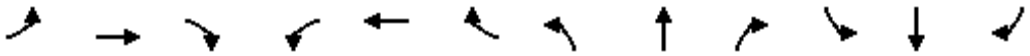
Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	513	59	59	364	4	25	5	75	2	2	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	9	564	65	65	400	4	27	5	82	2	2	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	404			629			1146	1148	596	1198	1178	402
vC1, stage 1 conf vol							614	614		532	532	
vC2, stage 2 conf vol							532	534		666	646	
vCu, unblocked vol	404			629			1146	1148	596	1198	1178	402
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			93			93	99	84	99	99	100
cM capacity (veh/h)	1165			963			369	375	507	276	342	652

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	9	629	65	404	115	5
Volume Left	9	0	65	0	27	2
Volume Right	0	65	0	4	82	1
cSH	1165	1700	963	1700	458	342
Volume to Capacity	0.01	0.37	0.07	0.24	0.25	0.02
Queue Length 95th (ft)	1	0	5	0	25	1
Control Delay (s)	8.1	0.0	9.0	0.0	15.5	15.7
Lane LOS	A		A		C	C
Approach Delay (s)	0.1		1.2		15.5	15.7
Approach LOS					C	C

Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	51.0%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	562	16	12	429	16	3	12	11	8	5	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	72	592	17	13	452	17	3	13	12	8	5	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	468			608			1275	1237	600	1238	1237	460
vC1, stage 1 conf vol							743	743		485	485	
vC2, stage 2 conf vol							532	494		753	752	
vCu, unblocked vol	468			608			1275	1237	600	1238	1237	460
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			99			99	96	98	97	98	91
cM capacity (veh/h)	1104			980			297	332	505	309	336	605

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	72	608	13	468	27	66
Volume Left	72	0	13	0	3	8
Volume Right	0	17	0	17	12	53
cSH	1104	1700	980	1700	382	511
Volume to Capacity	0.06	0.36	0.01	0.28	0.07	0.13
Queue Length 95th (ft)	5	0	1	0	6	11
Control Delay (s)	8.5	0.0	8.7	0.0	15.2	13.1
Lane LOS	A		A		C	B
Approach Delay (s)	0.9		0.2		15.2	13.1
Approach LOS					C	B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	49.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	108	393	34	9	303	140	89	168	9	155	198	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	190.0	188.1	188.1	190.0	190.0	188.2	190.0	190.0	188.7	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	445	805	69	467	574	265	394	590	30	493	410	185
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	935	1709	146	951	1219	563	1097	1775	91	1219	1232	556
Grp Volume(v), veh/h	112	0	444	9	0	462	93	0	184	161	0	299
Grp Sat Flow(s),veh/h/ln	935	0	1855	951	0	1782	1097	0	1866	1219	0	1789
Q Serve(g_s), s	4.0	0.0	6.8	0.3	0.0	7.5	3.0	0.0	3.0	4.6	0.0	5.5
Cycle Q Clear(g_c), s	11.5	0.0	6.8	7.0	0.0	7.5	8.5	0.0	3.0	7.6	0.0	5.5
Prop In Lane	1.00		0.08	1.00		0.32	1.00		0.05	1.00		0.31
Lane Grp Cap(c), veh/h	445	0	874	467	0	840	394	0	620	493	0	594
V/C Ratio(X)	0.25	0.00	0.51	0.02	0.00	0.55	0.24	0.00	0.30	0.33	0.00	0.50
Avail Cap(c_a), veh/h	670	0	1322	696	0	1269	650	0	1054	776	0	1010
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	7.5	9.9	0.0	7.7	14.3	0.0	10.1	12.9	0.0	10.9
Incr Delay (d2), s/veh	0.3	0.0	0.5	0.0	0.0	0.6	0.3	0.0	0.3	0.4	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	0.0	2.5	0.1	0.0	2.7	0.8	0.0	1.2	1.3	0.0	2.2
Lane Grp Delay (d), s/veh	12.1	0.0	7.9	9.9	0.0	8.2	14.6	0.0	10.3	13.3	0.0	11.6
Lane Grp LOS	B		A	A		A	B		B	B		B
Approach Vol, veh/h		556			471			277			460	
Approach Delay, s/veh		8.8			8.3			11.8			12.2	
Approach LOS		A			A			B			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		23.2			23.2			17.5			17.5	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		29.0			29.0			23.0			23.0	
Max Q Clear Time (g_c+I1), s		13.5			9.5			10.5			9.6	
Green Ext Time (p_c), s		5.7			6.3			3.1			3.2	

Intersection Summary		
HCM 2010 Ctrl Delay	10.0	
HCM 2010 LOS	A	

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	524	48	0	428	27	5	124	47	1	178	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	190.0	190.0	188.1	190.0	190.0	190.0	190.0	190.0	190.0	190.0
Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Cap, veh/h	74	759	69	0	784	49	80	510	188	75	630	92
Arrive On Green	0.45	0.45	0.45	0.00	0.45	0.45	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1	1697	155	0	1752	110	12	1311	484	1	1621	235
Grp Volume(v), veh/h	598	0	0	0	0	474	183	0	0	213	0	0
Grp Sat Flow(s),veh/h/ln	1853	0	0	0	0	1862	1807	0	0	1858	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	9.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	12.9	0.0	0.0	0.0	0.0	9.2	3.3	0.0	0.0	3.9	0.0	0.0
Prop In Lane	0.00		0.08	0.00		0.06	0.03		0.27	0.00		0.13
Lane Grp Cap(c), veh/h	903	0	0	0	0	833	779	0	0	797	0	0
V/C Ratio(X)	0.66	0.00	0.00	0.00	0.00	0.57	0.24	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1324	0	0	0	0	1258	779	0	0	797	0	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)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.0	0.0	0.0	0.0	0.0	10.0	10.1	0.0	0.0	10.3	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	0.0	0.6	0.7	0.0	0.0	0.8	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 Back of Q (50%), veh/ln	5.4	0.0	0.0	0.0	0.0	3.8	1.4	0.0	0.0	1.7	0.0	0.0
Lane Grp Delay (d), s/veh	11.9	0.0	0.0	0.0	0.0	10.6	10.9	0.0	0.0	11.1	0.0	0.0
Lane Grp LOS	B					B	B			B		
Approach Vol, veh/h		598			474			183			213	
Approach Delay, s/veh		11.9			10.6			10.9			11.1	
Approach LOS		B			B			B			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		25.8			25.8			23.0			23.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		33.0			33.0			19.0			19.0	
Max Q Clear Time (g_c+I1), s		14.9			11.2			5.3			5.9	
Green Ext Time (p_c), s		7.0			7.6			1.9			1.9	

Intersection Summary		
HCM 2010 Ctrl Delay		11.2
HCM 2010 LOS		B

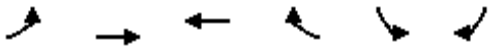
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	79	114	16	115	52	36	9	435	94	27	635	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	190.0	190.0	190.0	190.0	190.0	188.1	188.1	188.1	188.1	186.3	188.1
Lanes	0	1	0	0	1	1	1	1	1	1	1	1
Cap, veh/h	140	201	29	254	115	325	428	1149	977	570	1138	977
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.61	0.61	0.61	0.61	0.61	0.61
Sat Flow, veh/h	696	1000	144	1265	572	1615	686	1881	1599	838	1863	1599
Grp Volume(v), veh/h	230	0	0	183	0	40	10	478	103	30	698	99
Grp Sat Flow(s),veh/h/ln	1840	0	0	1837	0	1615	686	1881	1599	838	1863	1599
Q Serve(g_s), s	4.9	0.0	0.0	3.8	0.0	0.9	0.4	5.6	1.1	0.8	9.9	1.1
Cycle Q Clear(g_c), s	4.9	0.0	0.0	3.8	0.0	0.9	10.3	5.6	1.1	6.5	9.9	1.1
Prop In Lane	0.38		0.08	0.69		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	370	0	0	369	0	325	428	1149	977	570	1138	977
V/C Ratio(X)	0.62	0.00	0.00	0.50	0.00	0.12	0.02	0.42	0.11	0.05	0.61	0.10
Avail Cap(c_a), veh/h	692	0	0	691	0	607	428	1149	977	570	1138	977
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	0.0	15.1	0.0	13.9	8.4	4.3	3.4	6.0	5.2	3.4
Incr Delay (d2), s/veh	1.7	0.0	0.0	1.0	0.0	0.2	0.1	1.1	0.2	0.0	1.0	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 Back of Q (50%), veh/ln	2.1	0.0	0.0	1.6	0.0	0.3	0.1	2.1	0.3	0.1	3.2	0.3
Lane Grp Delay (d), s/veh	17.2	0.0	0.0	16.1	0.0	14.1	8.5	5.4	3.7	6.0	6.1	3.5
Lane Grp LOS	B			B		B	A	A	A	A	A	A
Approach Vol, veh/h		230			223			591			827	
Approach Delay, s/veh		17.2			15.7			5.2			5.8	
Approach LOS		B			B			A			A	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		12.6			12.6			30.0			30.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		16.0			16.0			26.0			26.0	
Max Q Clear Time (g_c+I1), s		6.9			5.8			12.3			11.9	
Green Ext Time (p_c), s		1.7			1.9			7.3			7.4	

Intersection Summary		
HCM 2010 Ctrl Delay	8.2	
HCM 2010 LOS	A	

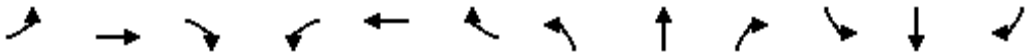
Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	206	374	608	8	0	246
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	215	390	633	8	0	256
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	642				1456	638
vC1, stage 1 conf vol					638	
vC2, stage 2 conf vol					819	
vCu, unblocked vol	642				1456	638
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	77				100	47
cM capacity (veh/h)	933				294	481

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	215	390	642	256
Volume Left	215	0	0	0
Volume Right	0	0	8	256
cSH	933	1700	1700	481
Volume to Capacity	0.23	0.23	0.38	0.53
Queue Length 95th (ft)	22	0	0	77
Control Delay (s)	10.0	0.0	0.0	20.7
Lane LOS	B			C
Approach Delay (s)	3.6		0.0	20.7
Approach LOS				C

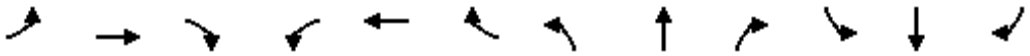
Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	350	24	47	679	29	22	14	38	20	14	70
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	76	380	26	51	738	32	24	15	41	22	15	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					536							
pX, platoon unblocked												
vC, conflicting volume	770			407			1101	1417	393	1438	1415	385
vC1, stage 1 conf vol							546	546		856	856	
vC2, stage 2 conf vol							555	872		582	559	
vCu, unblocked vol	770			407			1101	1417	393	1438	1415	385
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			96			91	94	93	91	95	88
cM capacity (veh/h)	847			1149			276	253	611	234	290	619

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	76	407	51	492	278	24	57	113
Volume Left	76	0	51	0	0	24	0	22
Volume Right	0	26	0	0	32	0	41	76
cSH	847	1700	1149	1700	1700	276	443	421
Volume to Capacity	0.09	0.24	0.04	0.29	0.16	0.09	0.13	0.27
Queue Length 95th (ft)	7	0	3	0	0	7	11	27
Control Delay (s)	9.7	0.0	8.3	0.0	0.0	19.3	14.3	16.6
Lane LOS	A		A			C	B	C
Approach Delay (s)	1.5		0.5			15.8		16.6
Approach LOS						C		C

Intersection Summary				
Average Delay	2.9			
Intersection Capacity Utilization	46.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	396	51	19	498	12	25	28	28	2	31	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	18	408	53	20	513	12	26	29	29	2	32	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		944			684							
pX, platoon unblocked	0.80						0.80	0.80		0.80	0.80	0.80
vC, conflicting volume	526			461			1087	1035	435	1072	1055	520
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	287			461			985	921	435	967	946	280
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			82	86	95	99	84	93
cM capacity (veh/h)	1033			1111			147	212	626	158	205	612

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	478	545	84	76
Volume Left	18	20	26	2
Volume Right	53	12	29	42
cSH	1033	1111	233	320
Volume to Capacity	0.02	0.02	0.36	0.24
Queue Length 95th (ft)	1	1	39	23
Control Delay (s)	0.5	0.5	28.8	19.7
Lane LOS	A	A	D	C
Approach Delay (s)	0.5	0.5	28.8	19.7
Approach LOS			D	C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	293	66	14	386	232	102	108	9	265	109	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	188.1	190.0	188.1	186.3	188.1	190.0	190.0	190.0	190.0	188.1	190.0
Lanes	0	2	0	1	1	1	0	1	0	0	1	0
Cap, veh/h	0	1214	270	540	758	651	315	333	29	454	186	24
Arrive On Green	0.00	0.41	0.41	0.41	0.41	0.41	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	0	2983	663	1003	1863	1599	859	906	78	1236	507	65
Grp Volume(v), veh/h	0	197	189	15	415	249	236	0	0	417	0	0
Grp Sat Flow(s),veh/h/ln	0	1881	1764	1003	1863	1599	1843	0	0	1808	0	0
Q Serve(g_s), s	0.0	2.5	2.5	0.4	6.0	3.9	3.3	0.0	0.0	6.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.5	2.5	2.9	6.0	3.9	3.3	0.0	0.0	6.7	0.0	0.0
Prop In Lane	0.00		0.38	1.00		1.00	0.47		0.04	0.68		0.04
Lane Grp Cap(c), veh/h	0	766	718	540	758	651	677	0	0	664	0	0
V/C Ratio(X)	0.00	0.26	0.26	0.03	0.55	0.38	0.35	0.00	0.00	0.63	0.00	0.00
Avail Cap(c_a), veh/h	0	1752	1643	1066	1735	1489	1197	0	0	1633	0	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.0	7.0	7.9	8.0	7.4	8.1	0.0	0.0	9.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.6	0.4	0.3	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	0.9	0.9	0.1	2.3	1.2	1.2	0.0	0.0	2.5	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	7.1	7.2	8.0	8.6	7.7	8.4	0.0	0.0	10.2	0.0	0.0
Lane Grp LOS		A	A	A	A	A	A			B		
Approach Vol, veh/h		386			679			236			417	
Approach Delay, s/veh		7.2			8.3			8.4			10.2	
Approach LOS		A			A			A			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		18.4			18.4			17.0			17.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		33.0			33.0			23.0			32.0	
Max Q Clear Time (g_c+I1), s		4.5			8.0			5.3			8.7	
Green Ext Time (p_c), s		6.6			6.4			3.9			4.3	

Intersection Summary		
HCM 2010 Ctrl Delay	8.5	
HCM 2010 LOS	A	

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	33	348	174	83	461	5	108	0	71	5	2	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	188.1	188.1	188.1	190.0	190.0	190.0	190.0	190.0	190.0	190.0
Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Cap, veh/h	448	689	585	522	744	8	336	23	121	157	63	239
Arrive On Green	0.03	0.37	0.37	0.07	0.40	0.40	0.20	0.00	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1792	1881	1599	1792	1859	19	799	115	604	127	313	1196
Grp Volume(v), veh/h	35	370	185	88	0	495	191	0	0	26	0	0
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	0	1878	1518	0	0	1636	0	0
Q Serve(g_s), s	0.4	5.1	2.7	0.9	0.0	7.0	3.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	5.1	2.7	0.9	0.0	7.0	3.7	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.60		0.40	0.19		0.73
Lane Grp Cap(c), veh/h	448	689	585	522	0	751	480	0	0	458	0	0
V/C Ratio(X)	0.08	0.54	0.32	0.17	0.00	0.66	0.40	0.00	0.00	0.06	0.00	0.00
Avail Cap(c_a), veh/h	607	977	830	675	0	1032	909	0	0	912	0	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)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.6	8.2	7.4	5.5	0.0	8.0	11.9	0.0	0.0	10.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.3	0.2	0.0	1.0	0.5	0.0	0.0	0.1	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 Back of Q (50%), veh/ln	0.1	1.9	0.8	0.3	0.0	2.5	1.2	0.0	0.0	0.2	0.0	0.0
Lane Grp Delay (d), s/veh	6.7	8.8	7.7	5.7	0.0	9.0	12.4	0.0	0.0	10.7	0.0	0.0
Lane Grp LOS	A	A	A	A		A	B			B		
Approach Vol, veh/h		590			583			191			26	
Approach Delay, s/veh		8.4			8.5			12.4			10.7	
Approach LOS		A			A			B			B	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	5.1	16.0		6.2	17.1			10.6			10.6	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	4.0	17.0		5.0	18.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s	2.4	7.1		2.9	9.0			5.7			2.4	
Green Ext Time (p_c), s	0.0	4.3		0.0	4.1			0.8			1.0	

Intersection Summary												
HCM 2010 Ctrl Delay			9.0									
HCM 2010 LOS			A									

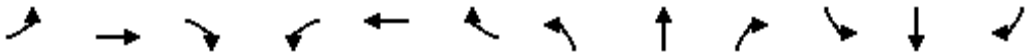
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	148	70	74	3	94	16	48	31	3	12	59	137
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	188.1	186.3	186.3	186.3	190.0	190.0	190.0	190.0	187.3	190.0
Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Cap, veh/h	608	472	401	477	273	232	422	218	14	166	137	288
Arrive On Green	0.11	0.25	0.25	0.00	0.15	0.15	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1792	1881	1599	1774	1863	1583	728	829	55	46	521	1096
Grp Volume(v), veh/h	159	75	80	3	101	17	88	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1774	1863	1583	1613	0	0	1663	0	0
Q Serve(g_s), s	1.5	0.8	1.0	0.0	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.8	1.0	0.0	1.2	0.2	0.9	0.0	0.0	2.8	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.59		0.03	0.06		0.66
Lane Grp Cap(c), veh/h	608	472	401	477	273	232	654	0	0	590	0	0
V/C Ratio(X)	0.26	0.16	0.20	0.01	0.37	0.07	0.13	0.00	0.00	0.38	0.00	0.00
Avail Cap(c_a), veh/h	993	1668	1418	756	1352	1149	1527	0	0	1618	0	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)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.6	7.3	7.3	9.0	9.6	9.1	7.1	0.0	0.0	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.2	0.2	0.0	0.8	0.1	0.1	0.0	0.0	0.4	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 Back of Q (50%), veh/ln	0.4	0.3	0.3	0.0	0.5	0.1	0.3	0.0	0.0	0.9	0.0	0.0
Lane Grp Delay (d), s/veh	5.9	7.4	7.6	9.0	10.4	9.3	7.2	0.0	0.0	8.2	0.0	0.0
Lane Grp LOS	A	A	A	A	B	A	A			A		
Approach Vol, veh/h		314			121			88			223	
Approach Delay, s/veh		6.7			10.2			7.2			8.2	
Approach LOS		A			B			A			A	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	6.7	10.2		4.1	7.6			10.5			10.5	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	8.0	22.0		4.0	18.0			22.0			22.0	
Max Q Clear Time (g_c+I1), s	3.5	3.0		2.0	3.2			2.9			4.8	
Green Ext Time (p_c), s	0.2	1.2		0.0	1.1			1.8			1.7	

Intersection Summary												
HCM 2010 Ctrl Delay			7.8									
HCM 2010 LOS			A									

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	25	27	16	32	42	446	54	31	513	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	17	17	27	29	17	34	45	480	58	33	552	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1245	1260	565	1253	1244	509	578			538		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1245	1260	565	1253	1244	509	578			538		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	89	95	76	89	94	96			97		
cM capacity (veh/h)	124	159	528	123	162	568	1005			1041		

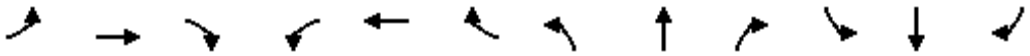
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	61	81	45	538	33	578
Volume Left	17	29	45	0	33	0
Volume Right	27	34	0	58	0	27
cSH	206	201	1005	1700	1041	1700
Volume to Capacity	0.30	0.40	0.04	0.32	0.03	0.34
Queue Length 95th (ft)	30	45	4	0	2	0
Control Delay (s)	29.7	34.5	8.7	0.0	8.6	0.0
Lane LOS	D	D	A		A	
Approach Delay (s)	29.7	34.5	0.7		0.5	
Approach LOS	D	D				

Intersection Summary				
Average Delay	4.0			
Intersection Capacity Utilization	47.9%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	36	76	283	50	92	470
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	41	87	325	57	106	540
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1106	354			383	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1106	354			383	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	81	87			91	
cM capacity (veh/h)	214	694			1187	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	129	383	106	540
Volume Left	41	0	106	0
Volume Right	87	57	0	0
cSH	403	1700	1187	1700
Volume to Capacity	0.32	0.23	0.09	0.32
Queue Length 95th (ft)	34	0	7	0
Control Delay (s)	18.0	0.0	8.3	0.0
Lane LOS	C		A	
Approach Delay (s)	18.0	0.0	1.4	
Approach LOS	C			

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	138	24	22	150	25	32	106	62	19	106	51
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	36	164	29	26	179	30	38	126	74	23	126	61
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	560	478	157	552	471	163	187			200		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	560	478	157	552	471	163	187			200		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	88	65	97	91	62	97	97			98		
cM capacity (veh/h)	291	467	892	305	472	887	1400			1372		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	229	235	238	210
Volume Left	36	26	38	23
Volume Right	29	30	74	61
cSH	451	471	1400	1372
Volume to Capacity	0.51	0.50	0.03	0.02
Queue Length 95th (ft)	70	68	2	1
Control Delay (s)	20.9	20.0	1.4	1.0
Lane LOS	C	C	A	A
Approach Delay (s)	20.9	20.0	1.4	1.0
Approach LOS	C	C		

Intersection Summary				
Average Delay	11.0			
Intersection Capacity Utilization	39.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

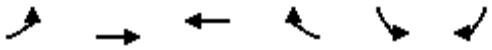
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	119	2	11	156	16	5	10	10	11	19	25
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	16	145	2	13	190	20	6	12	12	13	23	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.5	8.8	7.8	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	10%	6%	20%
Vol Thru, %	40%	89%	85%	35%
Vol Right, %	40%	1%	9%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	134	183	55
LT Vol	10	119	156	19
Through Vol	10	2	16	25
RT Vol	5	13	11	11
Lane Flow Rate	30	163	223	67
Geometry Grp	1	1	1	1
Degree of Util (X)	0.039	0.198	0.264	0.085
Departure Headway (Hd)	4.635	4.368	4.26	4.555
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	824	846	787
Service Time	2.66	2.386	2.276	2.577
HCM Lane V/C Ratio	0.039	0.198	0.264	0.085
HCM Control Delay	7.8	8.5	8.8	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	0.7	1.1	0.3

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	56	77	95	41	56	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	68	94	116	50	68	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	166				371	141
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	166				371	141
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				89	91
cM capacity (veh/h)	1425				603	912

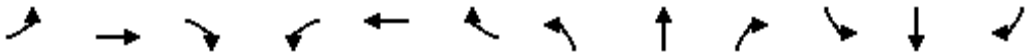
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	162	166	154
Volume Left	68	0	68
Volume Right	0	50	85
cSH	1425	1700	743
Volume to Capacity	0.05	0.10	0.21
Queue Length 95th (ft)	4	0	19
Control Delay (s)	3.4	0.0	11.1
Lane LOS	A		B
Approach Delay (s)	3.4	0.0	11.1
Approach LOS			B

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	32.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	72	399	44	147	181
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	17	95	525	58	193	238
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1179	554			583	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1179	554			583	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	82			81	
cM capacity (veh/h)	170	534			996	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	112	583	193	238
Volume Left	17	0	193	0
Volume Right	95	58	0	0
cSH	403	1700	996	1700
Volume to Capacity	0.28	0.34	0.19	0.14
Queue Length 95th (ft)	28	0	18	0
Control Delay (s)	17.3	0.0	9.5	0.0
Lane LOS	C		A	
Approach Delay (s)	17.3	0.0	4.2	
Approach LOS	C			

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	38	43	19	47	13	30	145	89	13	267	85
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	20	70	80	35	87	24	56	269	165	24	494	157
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1151	1166	573	1198	1162	351	652			433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1151	1166	573	1198	1162	351	652			433		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	80	61	84	61	52	97	94			98		
cM capacity (veh/h)	100	180	504	91	181	697	944			1137		

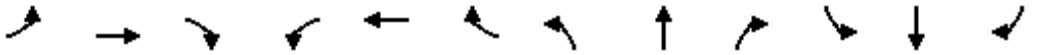
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	170	146	489	676
Volume Left	20	35	56	24
Volume Right	80	24	165	157
cSH	227	162	944	1137
Volume to Capacity	0.75	0.90	0.06	0.02
Queue Length 95th (ft)	130	162	5	2
Control Delay (s)	57.1	102.9	1.7	0.6
Lane LOS	F	F	A	A
Approach Delay (s)	57.1	102.9	1.7	0.6
Approach LOS	F	F		

Intersection Summary				
Average Delay	17.5			
Intersection Capacity Utilization	40.8%	ICU Level of Service	A	
Analysis Period (min)	15			

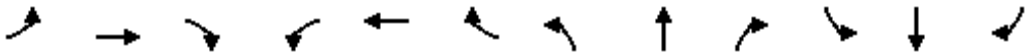
Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	170	146	490	675
Demand Flow Rate, veh/h	178	146	503	715
Vehicles Circulating, veh/h	593	358	114	178
Vehicles Exiting, veh/h	300	259	657	326
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	9.8	6.5	9.8	19.1
Approach LOS	A	A	A	C

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	178	146	503	715
Cap Entry Lane, veh/h	624	790	1008	946
Entry HV Adj Factor	0.955	1.000	0.973	0.945
Flow Entry, veh/h	170	146	490	675
Cap Entry, veh/h	596	790	981	893
V/C Ratio	0.285	0.185	0.499	0.756
Control Delay, s/veh	9.8	6.5	9.8	19.1
LOS	A	A	A	C
95th %tile Queue, veh	1	1	3	7



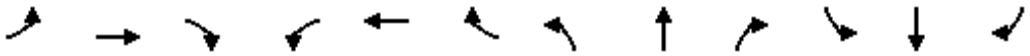
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	369	217	86	277	47	110	133	56	72	267	5
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	190.0	188.1	188.1	190.0	188.1	188.1	190.0	184.5	184.5	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	145	520	306	298	734	124	357	301	126	405	398	7
Arrive On Green	0.00	0.47	0.47	0.47	0.47	0.47	0.07	0.24	0.24	0.05	0.22	0.22
Sat Flow, veh/h	1048	1112	654	816	1568	266	1792	1262	526	1757	1806	32
Grp Volume(v), veh/h	0	0	610	90	0	338	115	0	197	75	0	283
Grp Sat Flow(s),veh/h/ln	1048	0	1766	816	0	1834	1792	0	1788	1757	0	1839
Q Serve(g_s), s	0.0	0.0	14.0	5.0	0.0	6.0	2.4	0.0	4.7	1.6	0.0	7.1
Cycle Q Clear(g_c), s	0.0	0.0	14.0	19.0	0.0	6.0	2.4	0.0	4.7	1.6	0.0	7.1
Prop In Lane	1.00		0.37	1.00		0.14	1.00		0.29	1.00		0.02
Lane Grp Cap(c), veh/h	145	0	827	298	0	859	357	0	427	405	0	406
V/C Ratio(X)	0.00	0.00	0.74	0.30	0.00	0.39	0.32	0.00	0.46	0.19	0.00	0.70
Avail Cap(c_a), veh/h	181	0	888	326	0	922	412	0	683	455	0	666
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	10.7	18.5	0.0	8.6	13.4	0.0	16.2	13.9	0.0	17.9
Incr Delay (d2), s/veh	0.0	0.0	3.0	0.6	0.0	0.3	0.5	0.0	0.8	0.2	0.0	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 Back of Q (50%), veh/ln	0.0	0.0	5.8	1.0	0.0	2.3	1.0	0.0	2.0	0.6	0.0	3.2
Lane Grp Delay (d), s/veh	0.0	0.0	13.8	19.0	0.0	8.9	13.9	0.0	17.0	14.1	0.0	20.0
Lane Grp LOS			B	B		A	B		B	B		C
Approach Vol, veh/h		610			428			312			358	
Approach Delay, s/veh		13.8			11.0			15.9			18.8	
Approach LOS		B			B			B			B	
Timer												
Assigned Phs		4			8		5	2		1	6	
Phs Duration (G+Y+Rc), s		27.3			27.3		7.5	15.9		6.6	15.0	
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s		25.0			25.0		5.0	19.0		4.0	18.0	
Max Q Clear Time (g_c+I1), s		16.0			21.0		4.4	6.7		3.6	9.1	
Green Ext Time (p_c), s		4.4			2.3		0.0	2.3		0.0	1.9	
Intersection Summary												
HCM 2010 Ctrl Delay			14.5									
HCM 2010 LOS			B									
Notes												



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	8	520	59	59	368	4	25	5	75	2	2	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	9	571	65	65	404	4	27	5	82	2	2	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	409			636			1158	1160	604	1210	1190	407
vC1, stage 1 conf vol							621	621		536	536	
vC2, stage 2 conf vol							536	538		674	654	
vCu, unblocked vol	409			636			1158	1160	604	1210	1190	407
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			93			92	99	84	99	99	100
cM capacity (veh/h)	1161			957			365	372	502	272	339	649

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	9	636	65	409	115	5
Volume Left	9	0	65	0	27	2
Volume Right	0	65	0	4	82	1
cSH	1161	1700	957	1700	454	338
Volume to Capacity	0.01	0.37	0.07	0.24	0.25	0.02
Queue Length 95th (ft)	1	0	5	0	25	1
Control Delay (s)	8.1	0.0	9.0	0.0	15.6	15.8
Lane LOS	A		A		C	C
Approach Delay (s)	0.1		1.2		15.6	15.8
Approach LOS					C	C

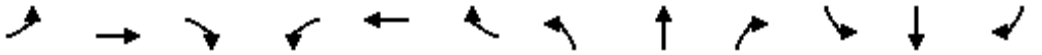
Intersection Summary				
Average Delay	2.1			
Intersection Capacity Utilization	51.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	68	569	16	12	433	16	3	12	11	8	5	50
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	72	599	17	13	456	17	3	13	12	8	5	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	473			616			1287	1248	607	1249	1248	464
vC1, stage 1 conf vol							751	751		489	489	
vC2, stage 2 conf vol							536	498		760	759	
vCu, unblocked vol	473			616			1287	1248	607	1249	1248	464
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			99			99	96	98	97	98	91
cM capacity (veh/h)	1100			974			294	329	500	306	333	602

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	72	616	13	473	27	66
Volume Left	72	0	13	0	3	8
Volume Right	0	17	0	17	12	53
cSH	1100	1700	974	1700	378	507
Volume to Capacity	0.07	0.36	0.01	0.28	0.07	0.13
Queue Length 95th (ft)	5	0	1	0	6	11
Control Delay (s)	8.5	0.0	8.7	0.0	15.3	13.2
Lane LOS	A		A		C	B
Approach Delay (s)	0.9		0.2		15.3	13.2
Approach LOS					C	B

Intersection Summary				
Average Delay	1.6			
Intersection Capacity Utilization	49.4%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	108	400	34	9	307	153	89	168	9	176	198	89
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	190.0	188.1	188.1	190.0	190.0	188.2	190.0	190.0	188.7	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	435	817	69	465	567	282	388	587	30	486	408	184
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	921	1712	144	944	1187	590	1097	1775	91	1219	1232	556
Grp Volume(v), veh/h	112	0	452	9	0	479	93	0	184	183	0	299
Grp Sat Flow(s),veh/h/ln	921	0	1856	944	0	1777	1097	0	1866	1219	0	1789
Q Serve(g_s), s	4.1	0.0	7.0	0.3	0.0	8.0	3.1	0.0	3.1	5.5	0.0	5.6
Cycle Q Clear(g_c), s	12.2	0.0	7.0	7.3	0.0	8.0	8.7	0.0	3.1	8.5	0.0	5.6
Prop In Lane	1.00		0.08	1.00		0.33	1.00		0.05	1.00		0.31
Lane Grp Cap(c), veh/h	435	0	886	465	0	848	388	0	617	486	0	592
V/C Ratio(X)	0.26	0.00	0.51	0.02	0.00	0.56	0.24	0.00	0.30	0.38	0.00	0.51
Avail Cap(c_a), veh/h	635	0	1291	670	0	1236	630	0	1029	756	0	987
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.1	0.0	7.5	10.0	0.0	7.8	14.7	0.0	10.4	13.5	0.0	11.2
Incr Delay (d2), s/veh	0.3	0.0	0.5	0.0	0.0	0.6	0.3	0.0	0.3	0.5	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	0.0	2.5	0.1	0.0	2.8	0.8	0.0	1.2	1.5	0.0	2.2
Lane Grp Delay (d), s/veh	12.5	0.0	8.0	10.1	0.0	8.4	15.0	0.0	10.6	14.0	0.0	11.9
Lane Grp LOS	B		A	B		A	B		B	B		B
Approach Vol, veh/h		564			488			277			482	
Approach Delay, s/veh		8.9			8.4			12.1			12.7	
Approach LOS		A			A			B			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		23.9			23.9			17.8			17.8	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		29.0			29.0			23.0			23.0	
Max Q Clear Time (g_c+I1), s		14.2			10.0			10.7			10.5	
Green Ext Time (p_c), s		5.7			6.4			3.1			3.1	

Intersection Summary												
HCM 2010 Ctrl Delay			10.3									
HCM 2010 LOS			B									

Notes

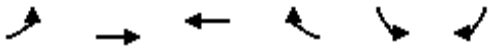
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	2	552	48	0	445	27	5	124	47	1	178	26
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	190.0	190.0	188.1	190.0	190.0	190.0	190.0	190.0	190.0	190.0
Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Cap, veh/h	73	784	68	0	807	49	79	499	184	73	616	90
Arrive On Green	0.46	0.46	0.46	0.00	0.46	0.46	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	1	1705	148	0	1756	106	12	1311	484	1	1621	235
Grp Volume(v), veh/h	627	0	0	0	0	492	183	0	0	213	0	0
Grp Sat Flow(s),veh/h/ln	1854	0	0	0	0	1862	1807	0	0	1858	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.8	0.0	0.0	0.0	0.0	9.7	3.5	0.0	0.0	4.0	0.0	0.0
Prop In Lane	0.00		0.08	0.00		0.06	0.03		0.27	0.00		0.13
Lane Grp Cap(c), veh/h	924	0	0	0	0	856	761	0	0	779	0	0
V/C Ratio(X)	0.68	0.00	0.00	0.00	0.00	0.57	0.24	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1296	0	0	0	0	1230	761	0	0	779	0	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)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.0	0.0	0.0	0.0	0.0	9.9	10.7	0.0	0.0	10.8	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.6	0.7	0.0	0.0	0.9	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 Back of Q (50%), veh/ln	5.5	0.0	0.0	0.0	0.0	3.8	1.5	0.0	0.0	1.8	0.0	0.0
Lane Grp Delay (d), s/veh	11.9	0.0	0.0	0.0	0.0	10.5	11.4	0.0	0.0	11.7	0.0	0.0
Lane Grp LOS	B					B	B			B		
Approach Vol, veh/h		627			492			183			213	
Approach Delay, s/veh		11.9			10.5			11.4			11.7	
Approach LOS		B			B			B			B	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		27.0			27.0			23.0			23.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		33.0			33.0			19.0			19.0	
Max Q Clear Time (g_c+I1), s		15.8			11.7			5.5			6.0	
Green Ext Time (p_c), s		7.2			7.9			1.9			1.9	
Intersection Summary												
HCM 2010 Ctrl Delay			11.4									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	79	142	16	132	69	40	9	435	122	34	635	90
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	190.0	190.0	190.0	190.0	190.0	188.1	188.1	188.1	188.1	186.3	188.1
Lanes	0	1	0	0	1	1	1	1	1	1	1	1
Cap, veh/h	135	242	28	265	139	354	409	1123	955	540	1112	955
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	616	1104	127	1207	633	1615	686	1881	1599	814	1863	1599
Grp Volume(v), veh/h	261	0	0	221	0	44	10	478	134	37	698	99
Grp Sat Flow(s),veh/h/ln	1847	0	0	1840	0	1615	686	1881	1599	814	1863	1599
Q Serve(g_s), s	5.6	0.0	0.0	4.6	0.0	1.0	0.4	6.0	1.6	1.1	10.5	1.2
Cycle Q Clear(g_c), s	5.6	0.0	0.0	4.6	0.0	1.0	10.9	6.0	1.6	7.1	10.5	1.2
Prop In Lane	0.33		0.07	0.66		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	405	0	0	403	0	354	409	1123	955	540	1112	955
V/C Ratio(X)	0.64	0.00	0.00	0.55	0.00	0.12	0.02	0.43	0.14	0.07	0.63	0.10
Avail Cap(c_a), veh/h	679	0	0	676	0	593	409	1123	955	540	1112	955
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	0.0	15.1	0.0	13.6	9.2	4.7	3.9	6.7	5.7	3.8
Incr Delay (d2), s/veh	1.7	0.0	0.0	1.2	0.0	0.2	0.1	1.2	0.3	0.1	1.1	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 Back of Q (50%), veh/ln	2.4	0.0	0.0	2.0	0.0	0.3	0.1	2.2	0.5	0.2	3.6	0.3
Lane Grp Delay (d), s/veh	17.2	0.0	0.0	16.2	0.0	13.8	9.3	5.9	4.2	6.7	6.8	3.8
Lane Grp LOS	B			B		B	A	A	A	A	A	A
Approach Vol, veh/h		261			265			622			834	
Approach Delay, s/veh		17.2			15.8			5.6			6.4	
Approach LOS		B			B			A			A	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		13.5			13.5			30.0			30.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		16.0			16.0			26.0			26.0	
Max Q Clear Time (g_c+I1), s		7.6			6.6			12.9			12.5	
Green Ext Time (p_c), s		2.0			2.1			7.2			7.3	

Intersection Summary		
HCM 2010 Ctrl Delay	8.8	
HCM 2010 LOS	A	

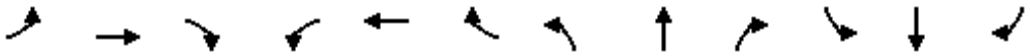
Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	210	374	608	8	0	253
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	219	390	633	8	0	264
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	642				1465	638
vC1, stage 1 conf vol					638	
vC2, stage 2 conf vol					827	
vCu, unblocked vol	642				1465	638
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	77				100	45
cM capacity (veh/h)	933				290	481

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	219	390	642	264
Volume Left	219	0	0	0
Volume Right	0	0	8	264
cSH	933	1700	1700	481
Volume to Capacity	0.23	0.23	0.38	0.55
Queue Length 95th (ft)	23	0	0	81
Control Delay (s)	10.0	0.0	0.0	21.2
Lane LOS	B			C
Approach Delay (s)	3.6		0.0	21.2
Approach LOS				C

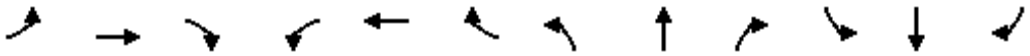
Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	70	357	24	47	683	33	22	14	38	27	14	70
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	76	388	26	51	742	36	24	15	41	29	15	76
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)					536							
pX, platoon unblocked												
vC, conflicting volume	778			414			1110	1434	401	1452	1429	389
vC1, stage 1 conf vol							553	553		862	862	
vC2, stage 2 conf vol							557	880		589	566	
vCu, unblocked vol	778			414			1110	1434	401	1452	1429	389
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)							6.5	5.5		6.5	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			96			91	94	93	87	95	88
cM capacity (veh/h)	841			1141			274	250	604	231	287	615

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	76	414	51	495	283	24	57	121
Volume Left	76	0	51	0	0	24	0	29
Volume Right	0	26	0	0	36	0	41	76
cSH	841	1700	1141	1700	1700	274	437	397
Volume to Capacity	0.09	0.24	0.04	0.29	0.17	0.09	0.13	0.30
Queue Length 95th (ft)	7	0	4	0	0	7	11	32
Control Delay (s)	9.7	0.0	8.3	0.0	0.0	19.4	14.4	18.0
Lane LOS	A		A			C	B	C
Approach Delay (s)	1.5		0.5			15.9		18.0
Approach LOS						C		C

Intersection Summary				
Average Delay	3.0			
Intersection Capacity Utilization	47.0%	ICU Level of Service		A
Analysis Period (min)	15			

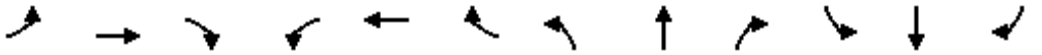


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	424	51	19	514	12	25	28	28	2	31	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	18	437	53	20	530	12	26	29	29	2	32	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		944			684							
pX, platoon unblocked	0.79						0.79	0.79		0.79	0.79	0.79
vC, conflicting volume	542			490			1132	1080	463	1117	1100	536
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	287			490			1034	968	463	1015	993	279
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			80	85	95	99	83	93
cM capacity (veh/h)	1016			1084			132	195	603	142	188	602

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	507	562	84	76
Volume Left	18	20	26	2
Volume Right	53	12	29	42
cSH	1016	1084	213	300
Volume to Capacity	0.02	0.02	0.39	0.25
Queue Length 95th (ft)	1	1	44	25
Control Delay (s)	0.5	0.5	32.3	21.1
Lane LOS	A	A	D	C
Approach Delay (s)	0.5	0.5	32.3	21.1
Approach LOS			D	C

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	321	66	14	402	249	102	108	9	293	109	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	188.1	190.0	188.1	186.3	188.1	190.0	190.0	190.0	190.0	188.1	190.0
Lanes	0	2	0	1	1	1	0	1	0	0	1	0
Cap, veh/h	0	1249	254	518	766	658	324	341	29	480	178	23
Arrive On Green	0.00	0.41	0.41	0.41	0.41	0.41	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	0	3036	617	976	1863	1599	859	906	78	1273	473	61
Grp Volume(v), veh/h	0	212	204	15	432	268	236	0	0	447	0	0
Grp Sat Flow(s),veh/h/ln	0	1881	1772	976	1863	1599	1843	0	0	1807	0	0
Q Serve(g_s), s	0.0	2.8	2.9	0.4	6.7	4.5	3.5	0.0	0.0	7.7	0.0	0.0
Cycle Q Clear(g_c), s	0.0	2.8	2.9	3.3	6.7	4.5	3.5	0.0	0.0	7.7	0.0	0.0
Prop In Lane	0.00		0.35	1.00		1.00	0.47		0.04	0.70		0.03
Lane Grp Cap(c), veh/h	0	774	729	518	766	658	694	0	0	681	0	0
V/C Ratio(X)	0.00	0.27	0.28	0.03	0.56	0.41	0.34	0.00	0.00	0.66	0.00	0.00
Avail Cap(c_a), veh/h	0	1645	1549	969	1629	1398	1123	0	0	1532	0	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.4	7.4	8.5	8.5	7.9	8.4	0.0	0.0	9.7	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.7	0.4	0.3	0.0	0.0	1.1	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 Back of Q (50%), veh/ln	0.0	1.1	1.1	0.1	2.5	1.5	1.3	0.0	0.0	2.9	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	7.6	7.6	8.5	9.2	8.3	8.7	0.0	0.0	10.8	0.0	0.0
Lane Grp LOS		A	A	A	A	A	A			B		
Approach Vol, veh/h		416			715			236			447	
Approach Delay, s/veh		7.6			8.8			8.7			10.8	
Approach LOS		A			A			A			B	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		19.5			19.5			18.2			18.2	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		33.0			33.0			23.0			32.0	
Max Q Clear Time (g_c+I1), s		4.9			8.7			5.5			9.7	
Green Ext Time (p_c), s		7.1			6.8			4.1			4.5	
Intersection Summary												
HCM 2010 Ctrl Delay			9.0									
HCM 2010 LOS			A									
Notes												



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	33	348	231	83	461	5	141	0	71	5	2	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	188.1	188.1	188.1	190.0	190.0	190.0	190.0	190.0	190.0	190.0
Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Cap, veh/h	430	680	578	495	733	7	375	21	112	151	72	267
Arrive On Green	0.03	0.36	0.36	0.07	0.39	0.39	0.22	0.00	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1792	1881	1599	1792	1859	19	902	94	504	117	325	1199
Grp Volume(v), veh/h	35	370	246	88	0	495	226	0	0	26	0	0
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	0	1878	1500	0	0	1640	0	0
Q Serve(g_s), s	0.4	5.4	4.0	1.0	0.0	7.4	4.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	5.4	4.0	1.0	0.0	7.4	4.7	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.66		0.34	0.19		0.73
Lane Grp Cap(c), veh/h	430	680	578	495	0	741	509	0	0	490	0	0
V/C Ratio(X)	0.08	0.54	0.43	0.18	0.00	0.67	0.44	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	580	933	793	637	0	986	869	0	0	874	0	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)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.0	8.7	8.3	5.9	0.0	8.5	12.1	0.0	0.0	10.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.5	0.2	0.0	1.1	0.6	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	2.0	1.2	0.3	0.0	2.8	1.5	0.0	0.0	0.2	0.0	0.0
Lane Grp Delay (d), s/veh	7.1	9.4	8.8	6.1	0.0	9.6	12.7	0.0	0.0	10.6	0.0	0.0
Lane Grp LOS	A	A	A	A		A	B			B		
Approach Vol, veh/h		651			583			226			26	
Approach Delay, s/veh		9.0			9.1			12.7			10.6	
Approach LOS		A			A			B			B	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	5.1	16.4		6.3	17.5			11.6			11.6	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	4.0	17.0		5.0	18.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s	2.4	7.4		3.0	9.4			6.7			2.4	
Green Ext Time (p_c), s	0.0	4.4		0.0	4.1			1.0			1.2	

Intersection Summary												
HCM 2010 Ctrl Delay			9.6									
HCM 2010 LOS			A									

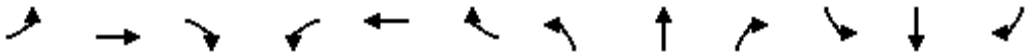
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	148	70	74	3	94	16	48	39	5	12	73	137
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	188.1	186.3	186.3	186.3	190.0	190.0	190.0	190.0	187.5	190.0
Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Cap, veh/h	600	468	398	471	271	231	385	253	22	162	163	282
Arrive On Green	0.11	0.25	0.25	0.00	0.15	0.15	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1792	1881	1599	1774	1863	1583	615	931	82	42	599	1035
Grp Volume(v), veh/h	159	75	80	3	101	17	99	0	0	238	0	0
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1774	1863	1583	1629	0	0	1676	0	0
Q Serve(g_s), s	1.5	0.8	1.0	0.0	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.8	1.0	0.0	1.2	0.2	1.0	0.0	0.0	3.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.53		0.05	0.05		0.62
Lane Grp Cap(c), veh/h	600	468	398	471	271	231	661	0	0	606	0	0
V/C Ratio(X)	0.26	0.16	0.20	0.01	0.37	0.07	0.15	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	978	1641	1395	746	1329	1130	1516	0	0	1603	0	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)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.8	7.4	7.5	9.1	9.7	9.3	7.1	0.0	0.0	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.2	0.2	0.0	0.8	0.1	0.1	0.0	0.0	0.4	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 Back of Q (50%), veh/ln	0.4	0.3	0.3	0.0	0.5	0.1	0.3	0.0	0.0	0.9	0.0	0.0
Lane Grp Delay (d), s/veh	6.0	7.6	7.7	9.1	10.6	9.4	7.2	0.0	0.0	8.2	0.0	0.0
Lane Grp LOS	A	A	A	A	B	A	A			A		
Approach Vol, veh/h		314			121			99			238	
Approach Delay, s/veh		6.8			10.4			7.2			8.2	
Approach LOS		A			B			A			A	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	6.7	10.3		4.1	7.7			10.9			10.9	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	8.0	22.0		4.0	18.0			22.0			22.0	
Max Q Clear Time (g_c+I1), s	3.5	3.0		2.0	3.2			3.0			5.0	
Green Ext Time (p_c), s	0.2	1.2		0.0	1.1			1.9			1.9	

Intersection Summary												
HCM 2010 Ctrl Delay			7.8									
HCM 2010 LOS			A									

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	25	27	16	32	42	459	54	31	534	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	17	17	27	29	17	34	45	494	58	33	574	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1281	1296	588	1289	1281	523	601			552		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1281	1296	588	1289	1281	523	601			552		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	89	95	75	89	94	95			97		
cM capacity (veh/h)	116	151	513	116	154	558	986			1028		

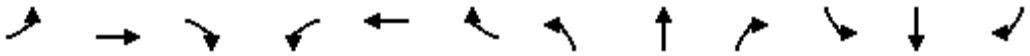
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	61	81	45	552	33	601
Volume Left	17	29	45	0	33	0
Volume Right	27	34	0	58	0	27
cSH	195	190	986	1700	1028	1700
Volume to Capacity	0.31	0.42	0.05	0.32	0.03	0.35
Queue Length 95th (ft)	32	48	4	0	3	0
Control Delay (s)	31.7	37.2	8.8	0.0	8.6	0.0
Lane LOS	D	E	A		A	
Approach Delay (s)	31.7	37.2	0.7		0.5	
Approach LOS	D	E				

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	36	93	283	50	120	470
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	41	107	325	57	138	540
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1170	354			383	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1170	354			383	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	78	85			88	
cM capacity (veh/h)	190	694			1187	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	148	383	138	540
Volume Left	41	0	138	0
Volume Right	107	57	0	0
cSH	399	1700	1187	1700
Volume to Capacity	0.37	0.23	0.12	0.32
Queue Length 95th (ft)	42	0	10	0
Control Delay (s)	19.3	0.0	8.4	0.0
Lane LOS	C		A	
Approach Delay (s)	19.3	0.0	1.7	
Approach LOS	C			

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	166	24	22	167	25	32	106	62	19	106	51
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	36	198	29	26	199	30	38	126	74	23	126	61
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	570	478	157	568	471	163	187			200		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	570	478	157	568	471	163	187			200		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	87	58	97	90	58	97	97			98		
cM capacity (veh/h)	273	467	892	274	472	887	1400			1372		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	262	255	238	210
Volume Left	36	26	38	23
Volume Right	29	30	74	61
cSH	447	463	1400	1372
Volume to Capacity	0.59	0.55	0.03	0.02
Queue Length 95th (ft)	92	82	2	1
Control Delay (s)	23.9	21.9	1.4	1.0
Lane LOS	C	C	A	A
Approach Delay (s)	23.9	21.9	1.4	1.0
Approach LOS	C	C		

Intersection Summary				
Average Delay	12.8			
Intersection Capacity Utilization	40.7%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

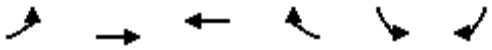
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	13	183	2	11	194	16	5	10	10	11	19	25
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	16	223	2	13	237	20	6	12	12	13	23	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.3	9.5	8.2	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	7%	5%	20%
Vol Thru, %	40%	92%	88%	35%
Vol Right, %	40%	1%	7%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	25	198	221	55
LT Vol	10	183	194	19
Through Vol	10	2	16	25
RT Vol	5	13	11	11
Lane Flow Rate	30	241	270	67
Geometry Grp	1	1	1	1
Degree of Util (X)	0.042	0.297	0.327	0.09
Departure Headway (Hd)	4.918	4.429	4.362	4.83
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	726	811	825	740
Service Time	2.961	2.455	2.388	2.871
HCM Lane V/C Ratio	0.041	0.297	0.327	0.091
HCM Control Delay	8.2	9.3	9.5	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.1	1.2	1.4	0.3

Notes

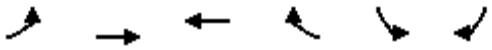
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	56	141	133	74	113	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	68	172	162	90	138	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	252				516	207
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	252				516	207
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				72	90
cM capacity (veh/h)	1325				496	838

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	240	252	223
Volume Left	68	0	138
Volume Right	0	90	85
cSH	1325	1700	588
Volume to Capacity	0.05	0.15	0.38
Queue Length 95th (ft)	4	0	44
Control Delay (s)	2.6	0.0	14.8
Lane LOS	A		B
Approach Delay (s)	2.6	0.0	14.8
Approach LOS			B

Intersection Summary			
Average Delay		5.5	
Intersection Capacity Utilization		42.6%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	121	133	136	21	13	71
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	134	148	151	23	14	79
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	174				579	163
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	174				579	163
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	90				97	91
cM capacity (veh/h)	1414				435	887

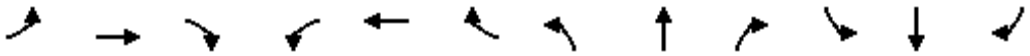
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	282	174	93
Volume Left	134	0	14
Volume Right	0	23	79
cSH	1414	1700	764
Volume to Capacity	0.10	0.10	0.12
Queue Length 95th (ft)	8	0	10
Control Delay (s)	4.1	0.0	10.4
Lane LOS	A		B
Approach Delay (s)	4.1	0.0	10.4
Approach LOS			B

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	37.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	13	97	399	44	156	181
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	17	128	525	58	205	238
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1203	554			583	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1203	554			583	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	76			79	
cM capacity (veh/h)	163	534			996	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	145	583	205	238
Volume Left	17	0	205	0
Volume Right	128	58	0	0
cSH	420	1700	996	1700
Volume to Capacity	0.34	0.34	0.21	0.14
Queue Length 95th (ft)	38	0	19	0
Control Delay (s)	18.0	0.0	9.5	0.0
Lane LOS	C		A	
Approach Delay (s)	18.0	0.0	4.4	
Approach LOS	C			

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	47	43	19	72	13	30	145	89	13	267	85
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	20	87	80	35	133	24	56	269	165	24	494	157
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1174	1166	573	1206	1162	351	652			433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1174	1166	573	1206	1162	351	652			433		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	67	52	84	56	26	97	94			98		
cM capacity (veh/h)	62	180	504	80	181	697	944			1137		

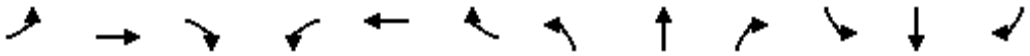
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	187	193	489	676
Volume Left	20	35	56	24
Volume Right	80	24	165	157
cSH	193	159	944	1137
Volume to Capacity	0.97	1.21	0.06	0.02
Queue Length 95th (ft)	200	271	5	2
Control Delay (s)	106.8	195.8	1.7	0.6
Lane LOS	F	F	A	A
Approach Delay (s)	106.8	195.8	1.7	0.6
Approach LOS	F	F		

Intersection Summary				
Average Delay	38.1			
Intersection Capacity Utilization	42.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	15.0
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	187	192	490	675
Demand Flow Rate, veh/h	195	192	503	715
Vehicles Circulating, veh/h	593	358	131	224
Vehicles Exiting, veh/h	346	276	657	326
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.3	7.2	10.0	22.1
Approach LOS	B	A	B	C

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	195	192	503	715
Cap Entry Lane, veh/h	624	790	991	903
Entry HV Adj Factor	0.959	1.000	0.973	0.945
Flow Entry, veh/h	187	192	490	675
Cap Entry, veh/h	599	790	965	853
V/C Ratio	0.312	0.243	0.507	0.792
Control Delay, s/veh	10.3	7.2	10.0	22.1
LOS	B	A	B	C
95th %tile Queue, veh	1	1	3	8



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	438	51	19	522	12	25	28	28	2	31	41
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	18	452	53	20	538	12	26	29	29	2	32	42
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		944			684							
pX, platoon unblocked	0.78						0.78	0.78		0.78	0.78	0.78
vC, conflicting volume	551			504			1155	1103	478	1140	1123	544
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	287			504			1059	992	478	1040	1018	279
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			98			79	85	95	98	82	93
cM capacity (veh/h)	1007			1071			125	187	592	134	181	597

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	522	570	84	76
Volume Left	18	20	26	2
Volume Right	53	12	29	42
cSH	1007	1071	204	290
Volume to Capacity	0.02	0.02	0.41	0.26
Queue Length 95th (ft)	1	1	46	26
Control Delay (s)	0.5	0.5	34.4	21.8
Lane LOS	A	A	D	C
Approach Delay (s)	0.5	0.5	34.4	21.8
Approach LOS			D	C

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

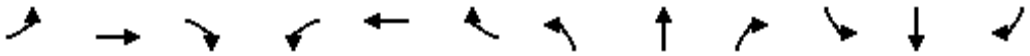
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	334	66	14	410	257	102	108	9	306	109	14
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	0.0	188.1	190.0	188.1	186.3	188.1	190.0	190.0	190.0	190.0	188.1	190.0
Lanes	0	2	0	1	1	1	0	1	0	0	1	0
Cap, veh/h	0	1265	247	507	770	661	327	345	30	491	175	22
Arrive On Green	0.00	0.41	0.41	0.41	0.41	0.41	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	0	3058	598	963	1863	1599	859	906	78	1289	458	59
Grp Volume(v), veh/h	0	219	211	15	441	276	236	0	0	461	0	0
Grp Sat Flow(s),veh/h/ln	0	1881	1776	963	1863	1599	1843	0	0	1806	0	0
Q Serve(g_s), s	0.0	3.0	3.1	0.4	7.1	4.8	3.5	0.0	0.0	8.3	0.0	0.0
Cycle Q Clear(g_c), s	0.0	3.0	3.1	3.5	7.1	4.8	3.5	0.0	0.0	8.3	0.0	0.0
Prop In Lane	0.00		0.34	1.00		1.00	0.47		0.04	0.71		0.03
Lane Grp Cap(c), veh/h	0	778	734	507	770	661	702	0	0	688	0	0
V/C Ratio(X)	0.00	0.28	0.29	0.03	0.57	0.42	0.34	0.00	0.00	0.67	0.00	0.00
Avail Cap(c_a), veh/h	0	1595	1505	926	1579	1356	1089	0	0	1485	0	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	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	7.6	7.6	8.8	8.8	8.1	8.6	0.0	0.0	10.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.2	0.0	0.7	0.4	0.3	0.0	0.0	1.1	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 Back of Q (50%), veh/ln	0.0	1.1	1.1	0.1	2.6	1.5	1.4	0.0	0.0	3.3	0.0	0.0
Lane Grp Delay (d), s/veh	0.0	7.8	7.8	8.8	9.4	8.5	8.8	0.0	0.0	11.2	0.0	0.0
Lane Grp LOS		A	A	A	A	A	A			B		
Approach Vol, veh/h		430			732			236			461	
Approach Delay, s/veh		7.8			9.1			8.8			11.2	
Approach LOS		A			A			A			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		20.1			20.1			18.8			18.8	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		33.0			33.0			23.0			32.0	
Max Q Clear Time (g_c+I1), s		5.1			9.1			5.5			10.3	
Green Ext Time (p_c), s		7.3			7.0			4.2			4.6	

Intersection Summary												
HCM 2010 Ctrl Delay			9.3									
HCM 2010 LOS			A									

Notes

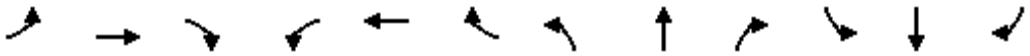
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	33	348	259	83	461	5	157	0	71	5	2	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	188.1	188.1	188.1	190.0	190.0	190.0	190.0	190.0	190.0	190.0
Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Cap, veh/h	422	675	574	482	728	7	393	19	109	151	75	281
Arrive On Green	0.03	0.36	0.36	0.07	0.39	0.39	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1792	1881	1599	1792	1859	19	943	82	467	124	320	1206
Grp Volume(v), veh/h	35	370	276	88	0	495	243	0	0	26	0	0
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	0	1878	1492	0	0	1650	0	0
Q Serve(g_s), s	0.4	5.5	4.7	1.0	0.0	7.6	4.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.4	5.5	4.7	1.0	0.0	7.6	5.2	0.0	0.0	0.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.69		0.31	0.19		0.73
Lane Grp Cap(c), veh/h	422	675	574	482	0	735	521	0	0	507	0	0
V/C Ratio(X)	0.08	0.55	0.48	0.18	0.00	0.67	0.47	0.00	0.00	0.05	0.00	0.00
Avail Cap(c_a), veh/h	567	912	775	620	0	964	849	0	0	858	0	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)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	9.0	8.7	6.1	0.0	8.8	12.2	0.0	0.0	10.5	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.6	0.2	0.0	1.2	0.6	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.1	2.1	1.6	0.3	0.0	3.0	1.6	0.0	0.0	0.2	0.0	0.0
Lane Grp Delay (d), s/veh	7.3	9.7	9.3	6.3	0.0	10.0	12.9	0.0	0.0	10.5	0.0	0.0
Lane Grp LOS	A	A	A	A		B	B			B		
Approach Vol, veh/h		681			583			243			26	
Approach Delay, s/veh		9.4			9.4			12.9			10.5	
Approach LOS		A			A			B			B	
Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	5.2	16.6		6.3	17.7			12.2			12.2	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	4.0	17.0		5.0	18.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s	2.4	7.5		3.0	9.6			7.2			2.4	
Green Ext Time (p_c), s	0.0	4.5		0.0	4.1			1.0			1.3	
Intersection Summary												
HCM 2010 Ctrl Delay			10.0									
HCM 2010 LOS			A									
Notes												



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	16	16	25	27	16	32	42	465	54	31	544	25
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	17	17	27	29	17	34	45	500	58	33	585	27
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1298	1313	598	1306	1298	529	612			558		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1298	1313	598	1306	1298	529	612			558		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	85	88	95	74	89	94	95			97		
cM capacity (veh/h)	113	147	506	112	151	554	977			1023		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	61	81	45	558	33	612
Volume Left	17	29	45	0	33	0
Volume Right	27	34	0	58	0	27
cSH	190	185	977	1700	1023	1700
Volume to Capacity	0.32	0.44	0.05	0.33	0.03	0.36
Queue Length 95th (ft)	33	50	4	0	3	0
Control Delay (s)	32.7	38.6	8.9	0.0	8.6	0.0
Lane LOS	D	E	A		A	
Approach Delay (s)	32.7	38.6	0.7		0.4	
Approach LOS	D	E				

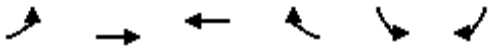
Intersection Summary				
Average Delay	4.2			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	30	180	24	22	175	25	32	106	62	19	106	51
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	36	214	29	26	208	30	38	126	74	23	126	61
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	575	478	157	577	471	163	187			200		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	575	478	157	577	471	163	187			200		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	86	54	97	90	56	97	97			98		
cM capacity (veh/h)	264	467	892	259	472	887	1400			1372		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	279	264	238	210
Volume Left	36	26	38	23
Volume Right	29	30	74	61
cSH	445	459	1400	1372
Volume to Capacity	0.63	0.58	0.03	0.02
Queue Length 95th (ft)	105	89	2	1
Control Delay (s)	25.7	23.0	1.4	1.0
Lane LOS	D	C	A	A
Approach Delay (s)	25.7	23.0	1.4	1.0
Approach LOS	D	C		

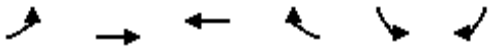
Intersection Summary				
Average Delay	13.9			
Intersection Capacity Utilization	41.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	56	172	151	90	141	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	68	210	184	110	172	85
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	294				585	239
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	294				585	239
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				62	89
cM capacity (veh/h)	1279				451	805

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	278	294	257
Volume Left	68	0	172
Volume Right	0	110	85
cSH	1279	1700	528
Volume to Capacity	0.05	0.17	0.49
Queue Length 95th (ft)	4	0	66
Control Delay (s)	2.3	0.0	18.1
Lane LOS	A		C
Approach Delay (s)	2.3	0.0	18.1
Approach LOS			C

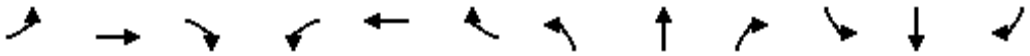
Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	180	133	136	32	19	105
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	200	148	151	36	21	117
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	187				717	169
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	187				717	169
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				94	87
cM capacity (veh/h)	1400				342	880

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	348	187	138
Volume Left	200	0	21
Volume Right	0	36	117
cSH	1400	1700	710
Volume to Capacity	0.14	0.11	0.19
Queue Length 95th (ft)	12	0	18
Control Delay (s)	5.1	0.0	11.3
Lane LOS	A		B
Approach Delay (s)	5.1	0.0	11.3
Approach LOS			B

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	51	43	19	85	13	30	145	89	13	267	85
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	20	94	80	35	157	24	56	269	165	24	494	157
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1186	1166	573	1210	1162	351	652			433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1186	1166	573	1210	1162	351	652			433		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	49	48	84	53	13	97	94			98		
cM capacity (veh/h)	40	180	504	75	181	697	944			1137		

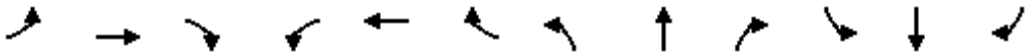
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	194	217	489	676
Volume Left	20	35	56	24
Volume Right	80	24	165	157
cSH	163	158	944	1137
Volume to Capacity	1.19	1.37	0.06	0.02
Queue Length 95th (ft)	268	335	5	2
Control Delay (s)	186.8	256.6	1.7	0.6
Lane LOS	F	F	A	A
Approach Delay (s)	186.8	256.6	1.7	0.6
Approach LOS	F	F		

Intersection Summary				
Average Delay	59.1			
Intersection Capacity Utilization	42.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	194	216	490	675
Demand Flow Rate, veh/h	202	216	503	715
Vehicles Circulating, veh/h	593	358	138	248
Vehicles Exiting, veh/h	370	283	657	326
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	10.5	7.6	10.2	24.0
Approach LOS	B	A	B	C

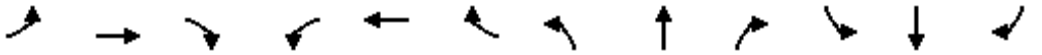
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	202	216	503	715
Cap Entry Lane, veh/h	624	790	984	882
Entry HV Adj Factor	0.960	1.000	0.973	0.945
Flow Entry, veh/h	194	216	490	675
Cap Entry, veh/h	600	790	958	833
V/C Ratio	0.323	0.273	0.511	0.811
Control Delay, s/veh	10.5	7.6	10.2	24.0
LOS	B	A	B	C
95th %tile Queue, veh	1	1	3	9



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	11	44	43	19	66	13	30	145	89	13	267	85
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54	0.54
Hourly flow rate (vph)	20	81	80	35	122	24	56	269	165	24	494	157
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1169	1166	573	1204	1162	351	652			433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1169	1166	573	1204	1162	351	652			433		
tC, single (s)	7.1	6.5	6.3	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.4	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	72	55	84	58	33	97	94			98		
cM capacity (veh/h)	72	180	504	84	181	697	944			1137		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	181	181	489	676
Volume Left	20	35	56	24
Volume Right	80	24	165	157
cSH	203	161	944	1137
Volume to Capacity	0.89	1.13	0.06	0.02
Queue Length 95th (ft)	175	242	5	2
Control Delay (s)	86.7	167.6	1.7	0.6
Lane LOS	F	F	A	A
Approach Delay (s)	86.7	167.6	1.7	0.6
Approach LOS	F	F		

Intersection Summary				
Average Delay	31.0			
Intersection Capacity Utilization	41.9%	ICU Level of Service	A	
Analysis Period (min)	15			

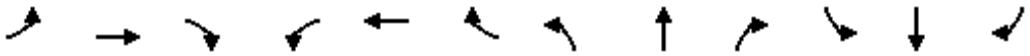


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	493	273	108	369	67	142	166	70	99	334	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	190.0	188.1	188.1	190.0	188.1	188.1	190.0	184.5	184.5	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	130	513	283	130	697	127	353	341	144	413	450	9
Arrive On Green	0.00	0.45	0.45	0.45	0.45	0.45	0.08	0.27	0.27	0.06	0.25	0.25
Sat Flow, veh/h	942	1140	630	685	1549	282	1792	1257	530	1757	1802	36
Grp Volume(v), veh/h	0	0	798	112	0	454	148	0	246	103	0	355
Grp Sat Flow(s),veh/h/ln	942	0	1770	685	0	1831	1792	0	1788	1757	0	1838
Q Serve(g_s), s	0.0	0.0	25.0	0.0	0.0	10.1	3.2	0.0	6.5	2.4	0.0	10.0
Cycle Q Clear(g_c), s	0.0	0.0	25.0	25.0	0.0	10.1	3.2	0.0	6.5	2.4	0.0	10.0
Prop In Lane	1.00		0.36	1.00		0.15	1.00		0.30	1.00		0.02
Lane Grp Cap(c), veh/h	130	0	796	130	0	824	353	0	485	413	0	459
V/C Ratio(X)	0.00	0.00	1.00	0.86	0.00	0.55	0.42	0.00	0.51	0.25	0.00	0.77
Avail Cap(c_a), veh/h	130	0	796	130	0	824	363	0	611	429	0	596
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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	15.3	27.8	0.0	11.2	13.9	0.0	17.1	14.2	0.0	19.4
Incr Delay (d2), s/veh	0.0	0.0	32.4	41.5	0.0	0.8	0.8	0.0	0.8	0.3	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.0	0.0	16.7	3.0	0.0	4.1	1.3	0.0	2.8	1.0	0.0	4.8
Lane Grp Delay (d), s/veh	0.0	0.0	47.6	69.2	0.0	12.0	14.7	0.0	17.9	14.5	0.0	24.1
Lane Grp LOS			F	E		B	B		B	B		C
Approach Vol, veh/h		798			566			394			458	
Approach Delay, s/veh		47.6			23.3			16.7			21.9	
Approach LOS		D			C			B			C	

Timer												
Assigned Phs		4			8		5	2		1	6	
Phs Duration (G+Y+Rc), s		29.0			29.0		8.7	19.1		7.5	17.9	
Change Period (Y+Rc), s		4.0			4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s		25.0			25.0		5.0	19.0		4.0	18.0	
Max Q Clear Time (g_c+I1), s		27.0			27.0		5.2	8.5		4.4	12.0	
Green Ext Time (p_c), s		0.0			0.0		0.0	2.7		0.0	1.9	

Intersection Summary		
HCM 2010 Ctrl Delay	30.6	
HCM 2010 LOS	C	

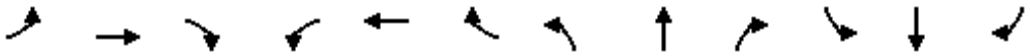
Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	9	693	71	73	492	5	31	7	94	3	3	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	10	762	78	80	541	5	34	8	103	3	3	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			TWLTL							
Median storage veh)		2			2							
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	546			840			1524	1527	801	1592	1563	543
vC1, stage 1 conf vol							820	820		704	704	
vC2, stage 2 conf vol							704	707		888	859	
vCu, unblocked vol	546			840			1524	1527	801	1592	1563	543
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			90			87	97	73	98	99	100
cM capacity (veh/h)	1033			804			270	287	388	151	248	543

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	10	840	80	546	145	8
Volume Left	10	0	80	0	34	3
Volume Right	0	78	0	5	103	1
cSH	1033	1700	804	1700	346	207
Volume to Capacity	0.01	0.49	0.10	0.32	0.42	0.04
Queue Length 95th (ft)	1	0	8	0	50	3
Control Delay (s)	8.5	0.0	10.0	0.0	22.7	23.0
Lane LOS	A		A		C	C
Approach Delay (s)	0.1		1.3		22.7	23.0
Approach LOS					C	C

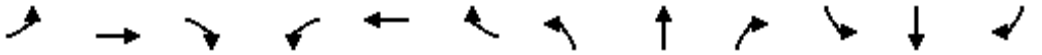
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	85	754	20	15	573	20	4	15	13	9	7	62
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	89	794	21	16	603	21	4	16	14	9	7	65
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		TWLTL			None							
Median storage veh)		2										
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	624			815			1687	1639	804	1639	1639	614
vC1, stage 1 conf vol							983	983		645	645	
vC2, stage 2 conf vol							704	656		994	994	
vCu, unblocked vol	624			815			1687	1639	804	1639	1639	614
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)							6.1	5.5		6.1	5.5	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			98			98	93	96	95	97	87
cM capacity (veh/h)	967			821			197	242	386	208	246	496

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	89	815	16	624	34	82
Volume Left	89	0	16	0	4	9
Volume Right	0	21	0	21	14	65
cSH	967	1700	821	1700	276	396
Volume to Capacity	0.09	0.48	0.02	0.37	0.12	0.21
Queue Length 95th (ft)	8	0	1	0	10	19
Control Delay (s)	9.1	0.0	9.5	0.0	19.9	16.4
Lane LOS	A		A		C	C
Approach Delay (s)	0.9		0.2		19.9	16.4
Approach LOS					C	C

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	60.3%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	134	543	43	11	416	213	112	210	11	247	248	111
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	190.0	188.1	188.1	190.0	190.0	188.2	190.0	190.0	188.7	190.0
Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Cap, veh/h	287	861	68	333	587	301	322	642	32	442	446	201
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	783	1720	137	815	1173	602	1024	1777	89	1169	1234	555
Grp Volume(v), veh/h	140	0	611	11	0	655	117	0	230	257	0	374
Grp Sat Flow(s),veh/h/ln	783	0	1857	815	0	1775	1024	0	1866	1169	0	1789
Q Serve(g_s), s	10.0	0.0	14.2	0.6	0.0	16.9	6.0	0.0	5.2	11.9	0.0	9.8
Cycle Q Clear(g_c), s	26.9	0.0	14.2	14.8	0.0	16.9	15.8	0.0	5.2	17.1	0.0	9.8
Prop In Lane	1.00		0.07	1.00		0.34	1.00		0.05	1.00		0.31
Lane Grp Cap(c), veh/h	287	0	929	333	0	888	322	0	675	442	0	647
V/C Ratio(X)	0.49	0.00	0.66	0.03	0.00	0.74	0.36	0.00	0.34	0.58	0.00	0.58
Avail Cap(c_a), veh/h	288	0	930	333	0	889	358	0	741	484	0	710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.1	0.0	10.8	16.3	0.0	11.5	21.3	0.0	13.5	19.7	0.0	14.9
Incr Delay (d2), s/veh	1.3	0.0	1.7	0.0	0.0	3.3	0.7	0.0	0.3	1.5	0.0	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 Back of Q (50%), veh/ln	1.9	0.0	5.9	0.1	0.0	7.0	1.5	0.0	2.2	3.5	0.0	4.0
Lane Grp Delay (d), s/veh	23.4	0.0	12.5	16.3	0.0	14.7	22.0	0.0	13.8	21.2	0.0	15.9
Lane Grp LOS	C		B	B		B	C		B	C		B
Approach Vol, veh/h		751			666			347			631	
Approach Delay, s/veh		14.5			14.7			16.5			18.1	
Approach LOS		B			B			B			B	
Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		33.0			33.0			24.9			24.9	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		29.0			29.0			23.0			23.0	
Max Q Clear Time (g_c+I1), s		28.9			18.9			17.8			19.1	
Green Ext Time (p_c), s		0.1			6.2			2.3			1.8	
Intersection Summary												
HCM 2010 Ctrl Delay			15.8									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	3	760	61	0	610	34	7	155	59	1	222	32
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	188.1	190.0	190.0	188.1	190.0	190.0	190.0	190.0	190.0	190.0	190.0
Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Cap, veh/h	63	915	74	0	943	52	69	429	158	63	534	76
Arrive On Green	0.53	0.53	0.53	0.00	0.53	0.53	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	1	1716	138	0	1767	97	16	1307	481	1	1626	231
Grp Volume(v), veh/h	859	0	0	0	0	670	229	0	0	265	0	0
Grp Sat Flow(s),veh/h/ln	1855	0	0	0	0	1864	1804	0	0	1858	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.2	0.0	0.0	0.0	0.0	15.2	5.6	0.0	0.0	6.5	0.0	0.0
Prop In Lane	0.00		0.07	0.00		0.05	0.03		0.27	0.00		0.12
Lane Grp Cap(c), veh/h	1052	0	0	0	0	995	656	0	0	672	0	0
V/C Ratio(X)	0.82	0.00	0.00	0.00	0.00	0.67	0.35	0.00	0.00	0.39	0.00	0.00
Avail Cap(c_a), veh/h	1120	0	0	0	0	1063	656	0	0	672	0	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)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.7	0.0	0.0	0.0	0.0	9.8	14.9	0.0	0.0	15.2	0.0	0.0
Incr Delay (d2), s/veh	4.6	0.0	0.0	0.0	0.0	1.6	1.5	0.0	0.0	1.7	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 Back of Q (50%), veh/ln	10.2	0.0	0.0	0.0	0.0	6.2	2.6	0.0	0.0	3.0	0.0	0.0
Lane Grp Delay (d), s/veh	16.3	0.0	0.0	0.0	0.0	11.4	16.4	0.0	0.0	17.0	0.0	0.0
Lane Grp LOS	B					B	B			B		
Approach Vol, veh/h		859			670			229			265	
Approach Delay, s/veh		16.3			11.4			16.4			17.0	
Approach LOS		B			B			B			B	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		34.9			34.9			23.0			23.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		33.0			33.0			19.0			19.0	
Max Q Clear Time (g_c+I1), s		25.2			17.2			7.6			8.5	
Green Ext Time (p_c), s		5.6			9.8			2.3			2.2	

Intersection Summary												
HCM 2010 Ctrl Delay			14.8									
HCM 2010 LOS			B									

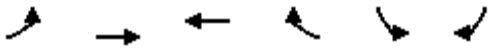
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	98	180	20	193	91	44	11	544	186	34	793	113
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	190.0	190.0	190.0	190.0	190.0	190.0	188.1	188.1	188.1	188.1	186.3	188.1
Lanes	1	1	0	1	1	0	1	1	1	1	1	1
Cap, veh/h	308	286	32	308	207	99	367	1330	1130	500	1317	1130
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	1810	1680	187	1810	1214	583	569	1881	1599	682	1863	1599
Grp Volume(v), veh/h	108	0	220	212	0	148	12	598	204	37	871	124
Grp Sat Flow(s),veh/h/ln	1810	0	1867	1810	0	1797	569	1881	1599	682	1863	1599
Q Serve(g_s), s	3.4	0.0	7.2	7.2	0.0	4.8	0.8	8.9	2.8	1.6	16.7	1.6
Cycle Q Clear(g_c), s	3.4	0.0	7.2	7.2	0.0	4.8	17.5	8.9	2.8	10.5	16.7	1.6
Prop In Lane	1.00		0.10	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	308	0	318	308	0	306	367	1330	1130	500	1317	1130
V/C Ratio(X)	0.35	0.00	0.69	0.69	0.00	0.48	0.03	0.45	0.18	0.07	0.66	0.11
Avail Cap(c_a), veh/h	445	0	459	445	0	442	367	1330	1130	500	1317	1130
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	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	23.8	0.0	25.4	25.4	0.0	24.4	10.1	4.1	3.2	6.3	5.2	3.0
Incr Delay (d2), s/veh	0.7	0.0	2.7	2.7	0.0	1.2	0.2	1.1	0.4	0.1	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.5	0.0	3.5	3.4	0.0	2.2	0.1	3.6	0.9	0.2	6.3	0.5
Lane Grp Delay (d), s/veh	24.5	0.0	28.1	28.1	0.0	25.6	10.2	5.2	3.6	6.4	6.5	3.1
Lane Grp LOS	C		C	C		C	B	A	A	A	A	A
Approach Vol, veh/h		328			360			814			1032	
Approach Delay, s/veh		26.9			27.1			4.9			6.1	
Approach LOS		C			C			A			A	

Timer												
Assigned Phs		4			8			2			6	
Phs Duration (G+Y+Rc), s		15.1			15.1			50.0			50.0	
Change Period (Y+Rc), s		4.0			4.0			4.0			4.0	
Max Green Setting (Gmax), s		16.0			16.0			46.0			46.0	
Max Q Clear Time (g_c+I1), s		9.2			9.2			19.5			18.7	
Green Ext Time (p_c), s		1.9			1.9			14.5			14.7	

Intersection Summary												
HCM 2010 Ctrl Delay			11.4									
HCM 2010 LOS			B									

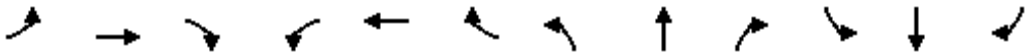
Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	258	467	760	9	0	308
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	269	486	792	9	0	321
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	TWLTL			
Median storage veh)			2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	801				1820	796
vC1, stage 1 conf vol					796	
vC2, stage 2 conf vol					1024	
vCu, unblocked vol	801				1820	796
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)	2.2				3.5	3.3
p0 queue free %	67				100	18
cM capacity (veh/h)	813				207	390

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	269	486	801	321
Volume Left	269	0	0	0
Volume Right	0	0	9	321
cSH	813	1700	1700	390
Volume to Capacity	0.33	0.29	0.47	0.82
Queue Length 95th (ft)	36	0	0	187
Control Delay (s)	11.6	0.0	0.0	45.1
Lane LOS	B			E
Approach Delay (s)	4.1		0.0	45.1
Approach LOS				E

Intersection Summary			
Average Delay	9.4		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	88	459	30	59	864	52	27	18	47	49	18	88
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	96	499	33	64	939	57	29	20	51	53	20	96
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					536							
pX, platoon unblocked												
vC, conflicting volume	996			532			1410	1830	266	1597	1818	498
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	996			532			1410	1830	266	1597	1818	498
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	86			94			45	69	93	0	69	82
cM capacity (veh/h)	697			1032			54	63	739	44	64	523

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	NB 2	SB 1
Volume Total	96	333	199	64	626	370	29	71	168
Volume Left	96	0	0	64	0	0	29	0	53
Volume Right	0	0	33	0	0	57	0	51	96
cSH	697	1700	1700	1032	1700	1700	54	185	99
Volume to Capacity	0.14	0.20	0.12	0.06	0.37	0.22	0.55	0.38	1.70
Queue Length 95th (ft)	12	0	0	5	0	0	53	42	334
Control Delay (s)	11.0	0.0	0.0	8.7	0.0	0.0	134.0	36.0	426.7
Lane LOS	B			A			F	E	F
Approach Delay (s)	1.7			0.5			64.8		426.7
Approach LOS							F		F

Intersection Summary				
Average Delay	40.9			
Intersection Capacity Utilization	56.1%	ICU Level of Service		B
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	22	586	63	24	687	15	31	35	35	3	39	51
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	23	604	65	25	708	15	32	36	36	3	40	53
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)		944			684							
pX, platoon unblocked												
vC, conflicting volume	724			669			1158	1455	335	1167	1480	362
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	724			669			1158	1455	335	1167	1480	362
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	6.9
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	97			97			68	71	95	97	67	92
cM capacity (veh/h)	888			930			100	124	667	107	120	638

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	NB 1	SB 1
Volume Total	23	403	266	25	472	252	104	96
Volume Left	23	0	0	25	0	0	32	3
Volume Right	0	0	65	0	0	15	36	53
cSH	888	1700	1700	930	1700	1700	157	215
Volume to Capacity	0.03	0.24	0.16	0.03	0.28	0.15	0.66	0.45
Queue Length 95th (ft)	2	0	0	2	0	0	94	53
Control Delay (s)	9.2	0.0	0.0	9.0	0.0	0.0	64.1	34.5
Lane LOS	A			A			F	D
Approach Delay (s)	0.3			0.3			64.1	34.5
Approach LOS							F	D

Intersection Summary				
Average Delay	6.4			
Intersection Capacity Utilization	39.0%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM 2010 Computation does not support turning movement with Shared and Exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	637	211	104	718	7	132	0	89	7	3	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	188.1	188.1	188.1	190.0	190.0	190.0	190.0	190.0	190.0	190.0
Lanes	1	1	1	1	1	0	0	1	0	0	1	0
Cap, veh/h	292	780	663	358	830	8	317	21	132	140	74	255
Arrive On Green	0.04	0.41	0.41	0.07	0.45	0.45	0.22	0.00	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1792	1881	1599	1792	1861	17	804	95	610	148	342	1177
Grp Volume(v), veh/h	45	678	224	111	0	771	235	0	0	34	0	0
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1792	0	1878	1509	0	0	1668	0	0
Q Serve(g_s), s	0.6	13.3	3.8	1.3	0.0	15.5	5.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.6	13.3	3.8	1.3	0.0	15.5	5.8	0.0	0.0	0.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.01	0.60		0.40	0.21		0.71
Lane Grp Cap(c), veh/h	292	780	663	358	0	838	470	0	0	469	0	0
V/C Ratio(X)	0.15	0.87	0.34	0.31	0.00	0.92	0.50	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	399	794	675	454	0	839	737	0	0	752	0	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)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.9	10.8	8.0	8.2	0.0	10.5	14.6	0.0	0.0	12.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	10.1	0.3	0.5	0.0	15.2	0.8	0.0	0.0	0.1	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 Back of Q (50%), veh/ln	0.2	7.1	1.2	0.4	0.0	9.3	2.0	0.0	0.0	0.2	0.0	0.0
Lane Grp Delay (d), s/veh	9.1	20.8	8.3	8.7	0.0	25.6	15.4	0.0	0.0	12.7	0.0	0.0
Lane Grp LOS	A	C	A	A		C	B			B		
Approach Vol, veh/h		947			882			235			34	
Approach Delay, s/veh		17.3			23.5			15.4			12.7	
Approach LOS		B			C			B			B	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	5.6	20.7		6.8	22.0			12.7			12.7	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	4.0	17.0		5.0	18.0			16.0			16.0	
Max Q Clear Time (g_c+I1), s	2.6	15.3		3.3	17.5			7.8			2.6	
Green Ext Time (p_c), s	0.0	1.4		0.0	0.4			1.0			1.3	

Intersection Summary			
HCM 2010 Ctrl Delay		19.6	
HCM 2010 LOS		B	

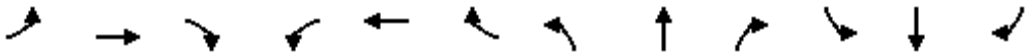
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	211	93	98	4	124	20	68	38	4	15	73	208
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	188.1	188.1	188.1	186.3	186.3	186.3	190.0	190.0	190.0	190.0	187.2	190.0
Lanes	1	1	1	1	1	1	0	1	0	0	1	0
Cap, veh/h	595	549	467	443	315	268	404	193	14	135	140	359
Arrive On Green	0.13	0.29	0.29	0.00	0.17	0.17	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1792	1881	1599	1774	1863	1583	689	624	46	35	453	1164
Grp Volume(v), veh/h	227	100	105	4	133	22	118	0	0	318	0	0
Grp Sat Flow(s),veh/h/ln	1792	1881	1599	1774	1863	1583	1359	0	0	1653	0	0
Q Serve(g_s), s	2.3	1.2	1.5	0.1	1.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.3	1.2	1.5	0.1	1.9	0.4	1.5	0.0	0.0	5.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.62		0.03	0.05		0.70
Lane Grp Cap(c), veh/h	595	549	467	443	315	268	611	0	0	634	0	0
V/C Ratio(X)	0.38	0.18	0.23	0.01	0.42	0.08	0.19	0.00	0.00	0.50	0.00	0.00
Avail Cap(c_a), veh/h	840	1363	1159	669	1104	939	1152	0	0	1316	0	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)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.9	8.0	8.1	10.4	11.3	10.6	7.7	0.0	0.0	9.0	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.2	0.2	0.0	0.9	0.1	0.2	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.7	0.4	0.5	0.0	0.8	0.1	0.5	0.0	0.0	1.6	0.0	0.0
Lane Grp Delay (d), s/veh	6.3	8.2	8.4	10.4	12.2	10.8	7.9	0.0	0.0	9.6	0.0	0.0
Lane Grp LOS	A	A	A	B	B	B	A			A		
Approach Vol, veh/h		432			159			118			318	
Approach Delay, s/veh		7.2			11.9			7.9			9.6	
Approach LOS		A			B			A			A	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	7.9	12.9		4.1	9.1			13.4			13.4	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	8.0	22.0		4.0	18.0			22.0			22.0	
Max Q Clear Time (g_c+I1), s	4.3	3.5		2.1	3.9			3.5			7.0	
Green Ext Time (p_c), s	0.2	1.6		0.0	1.4			2.6			2.4	

Intersection Summary												
HCM 2010 Ctrl Delay			8.8									
HCM 2010 LOS			A									

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	20	20	31	34	20	40	53	595	67	39	694	31
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	22	22	33	37	22	43	57	640	72	42	746	33
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1654	1673	763	1664	1653	676	780			712		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1654	1673	763	1664	1653	676	780			712		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	60	75	92	31	76	91	93			95		
cM capacity (veh/h)	54	86	408	53	88	457	847			897		

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	76	101	57	712	42	780
Volume Left	22	37	57	0	42	0
Volume Right	33	43	0	72	0	33
cSH	104	98	847	1700	897	1700
Volume to Capacity	0.73	1.03	0.07	0.42	0.05	0.46
Queue Length 95th (ft)	97	158	5	0	4	0
Control Delay (s)	102.2	177.5	9.6	0.0	9.2	0.0
Lane LOS	F	F	A		A	
Approach Delay (s)	102.2	177.5	0.7		0.5	
Approach LOS	F	F				

Intersection Summary				
Average Delay	15.1			
Intersection Capacity Utilization	58.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	44	122	354	62	151	587
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87
Hourly flow rate (vph)	51	140	407	71	174	675
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1464	443			478	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1464	443			478	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	58	77			84	
cM capacity (veh/h)	120	619			1095	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	191	478	174	675
Volume Left	51	0	174	0
Volume Right	140	71	0	0
cSH	295	1700	1095	1700
Volume to Capacity	0.65	0.28	0.16	0.40
Queue Length 95th (ft)	104	0	14	0
Control Delay (s)	37.1	0.0	8.9	0.0
Lane LOS	E		A	
Approach Delay (s)	37.1	0.0	1.8	
Approach LOS	E			

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	329	323	297	261
Demand Flow Rate, veh/h	331	323	297	266
Vehicles Circulating, veh/h	222	248	325	334
Vehicles Exiting, veh/h	378	374	228	237
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	8.1	8.3	8.7	8.4
Approach LOS	A	A	A	A

Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	331	323	297	266
Cap Entry Lane, veh/h	905	882	816	809
Entry HV Adj Factor	0.992	1.000	1.000	0.981
Flow Entry, veh/h	329	323	297	261
Cap Entry, veh/h	898	882	816	793
V/C Ratio	0.366	0.366	0.364	0.329
Control Delay, s/veh	8.1	8.3	8.7	8.4
LOS	A	A	A	A
95th %tile Queue, veh	2	2	2	1

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

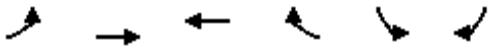
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	254	3	13	270	20	7	12	12	13	24	31
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	20	310	4	16	329	24	9	15	15	16	29	38
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.1	11.6	8.8	9.1
HCM LOS	B	B	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	23%	6%	4%	19%
Vol Thru, %	39%	93%	89%	35%
Vol Right, %	39%	1%	7%	46%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	31	273	303	68
LT Vol	12	254	270	24
Through Vol	12	3	20	31
RT Vol	7	16	13	13
Lane Flow Rate	38	333	370	83
Geometry Grp	1	1	1	1
Degree of Util (X)	0.057	0.428	0.468	0.122
Departure Headway (Hd)	5.409	4.627	4.556	5.278
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	655	776	787	673
Service Time	3.5	2.68	2.607	3.36
HCM Lane V/C Ratio	0.058	0.429	0.47	0.123
HCM Control Delay	8.8	11.1	11.6	9.1
HCM Lane LOS	A	B	B	A
HCM 95th-tile Q	0.2	2.2	2.5	0.4

Notes

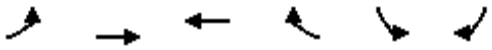
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	70	201	194	47	64	88
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82
Hourly flow rate (vph)	85	245	237	57	78	107
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	294				681	265
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	294				681	265
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				80	86
cM capacity (veh/h)	1279				391	778

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	330	294	185
Volume Left	85	0	78
Volume Right	0	57	107
cSH	1279	1700	549
Volume to Capacity	0.07	0.17	0.34
Queue Length 95th (ft)	5	0	37
Control Delay (s)	2.5	0.0	14.9
Lane LOS	A		B
Approach Delay (s)	2.5	0.0	14.9
Approach LOS			B

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	110	155	163	4	3	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	122	172	181	4	3	87
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	186				600	183
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	186				600	183
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				99	90
cM capacity (veh/h)	1401				426	864

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	294	186	90
Volume Left	122	0	3
Volume Right	0	4	87
cSH	1401	1700	833
Volume to Capacity	0.09	0.11	0.11
Queue Length 95th (ft)	7	0	9
Control Delay (s)	3.7	0.0	9.8
Lane LOS	A		A
Approach Delay (s)	3.7	0.0	9.8
Approach LOS			A

Intersection Summary			
Average Delay	3.5		
Intersection Capacity Utilization	38.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	814	708	261
Demand Flow Rate, veh/h	814	708	261
Vehicles Circulating, veh/h	86	190	562
Vehicles Exiting, veh/h	812	633	86
Follow-Up Headway, s	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	7.1	18.6	11.4
Approach LOS	A	C	B

Lane	Left	Bypass	Left	Left
Designated Moves	T	R	LT	LR
Assumed Moves	T	R	LT	LR
RT Channelized		Free		
Lane Util	1.000		1.000	1.000
Critical Headway, s	5.193		5.193	5.193
Entry Flow, veh/h	562	252	708	261
Cap Entry Lane, veh/h	1037	1900	934	644
Entry HV Adj Factor	1.000	1.000	1.000	1.000
Flow Entry, veh/h	562	252	708	261
Cap Entry, veh/h	1037	1900	934	644
V/C Ratio	0.542	0.133	0.758	0.405
Control Delay, s/veh	10.2	0.0	18.6	11.4
LOS	B	A	C	B
95th %tile Queue, veh	3	0	7	2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	16	118	498	55	196	226
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.76	0.76	0.76	0.76	0.76	0.76
Hourly flow rate (vph)	21	155	655	72	258	297
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1505	691			728	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1505	691			728	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	78	65			71	
cM capacity (veh/h)	95	446			880	

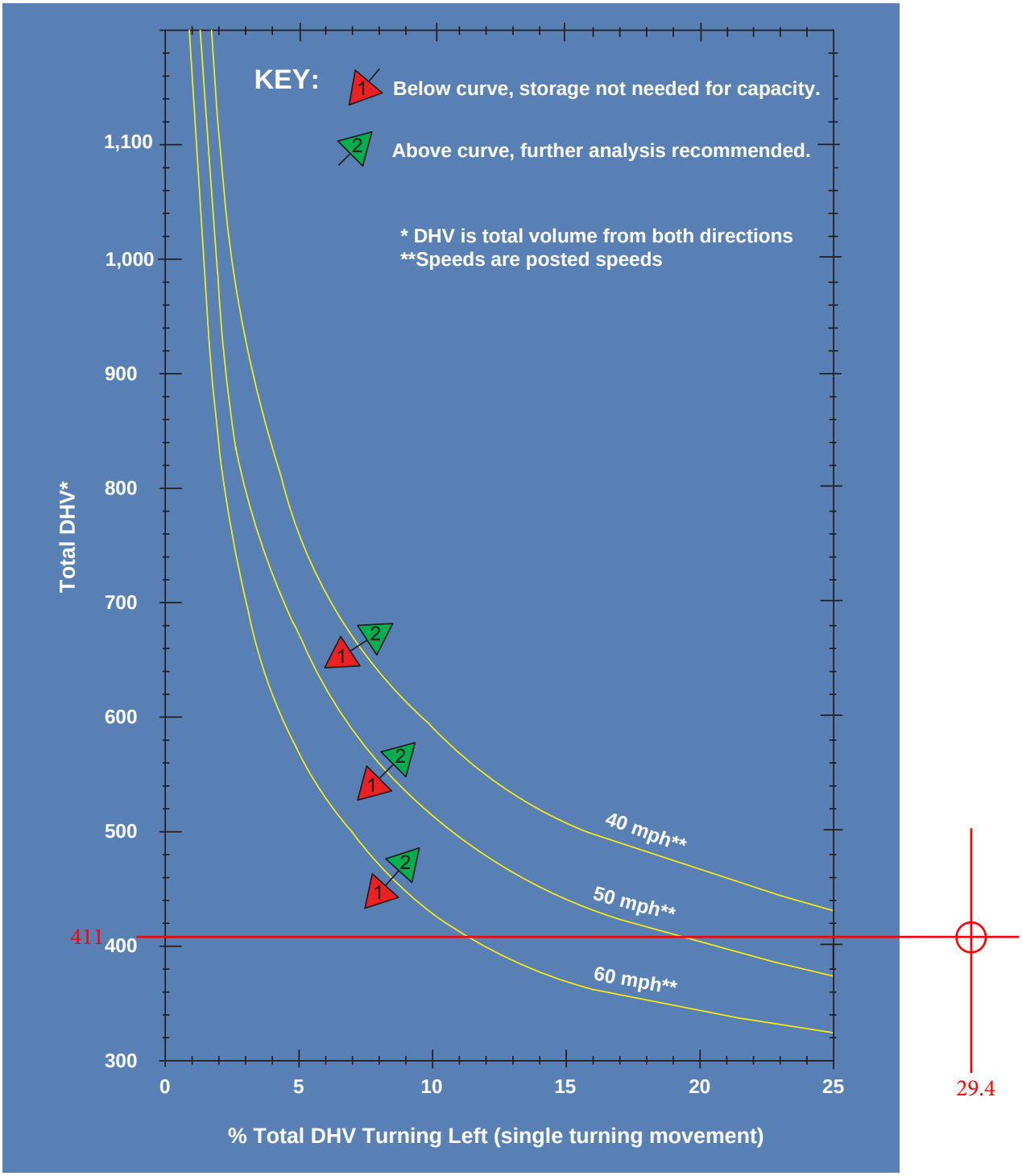
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	176	728	258	297
Volume Left	21	0	258	0
Volume Right	155	72	0	0
cSH	309	1700	880	1700
Volume to Capacity	0.57	0.43	0.29	0.17
Queue Length 95th (ft)	83	0	31	0
Control Delay (s)	31.0	0.0	10.8	0.0
Lane LOS	D		B	
Approach Delay (s)	31.0	0.0	5.0	
Approach LOS	D			

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	35.4
Intersection LOS	E

Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	235	235	612	841
Demand Flow Rate, veh/h	245	235	629	890
Vehicles Circulating, veh/h	738	446	165	275
Vehicles Exiting, veh/h	427	348	818	406
Follow-Up Headway, s	3.186	3.186	3.186	3.186
Ped Vol Crossing Leg, #/h	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000
Approach Delay, s/veh	14.9	9.0	14.2	64.0
Approach LOS	B	A	B	F

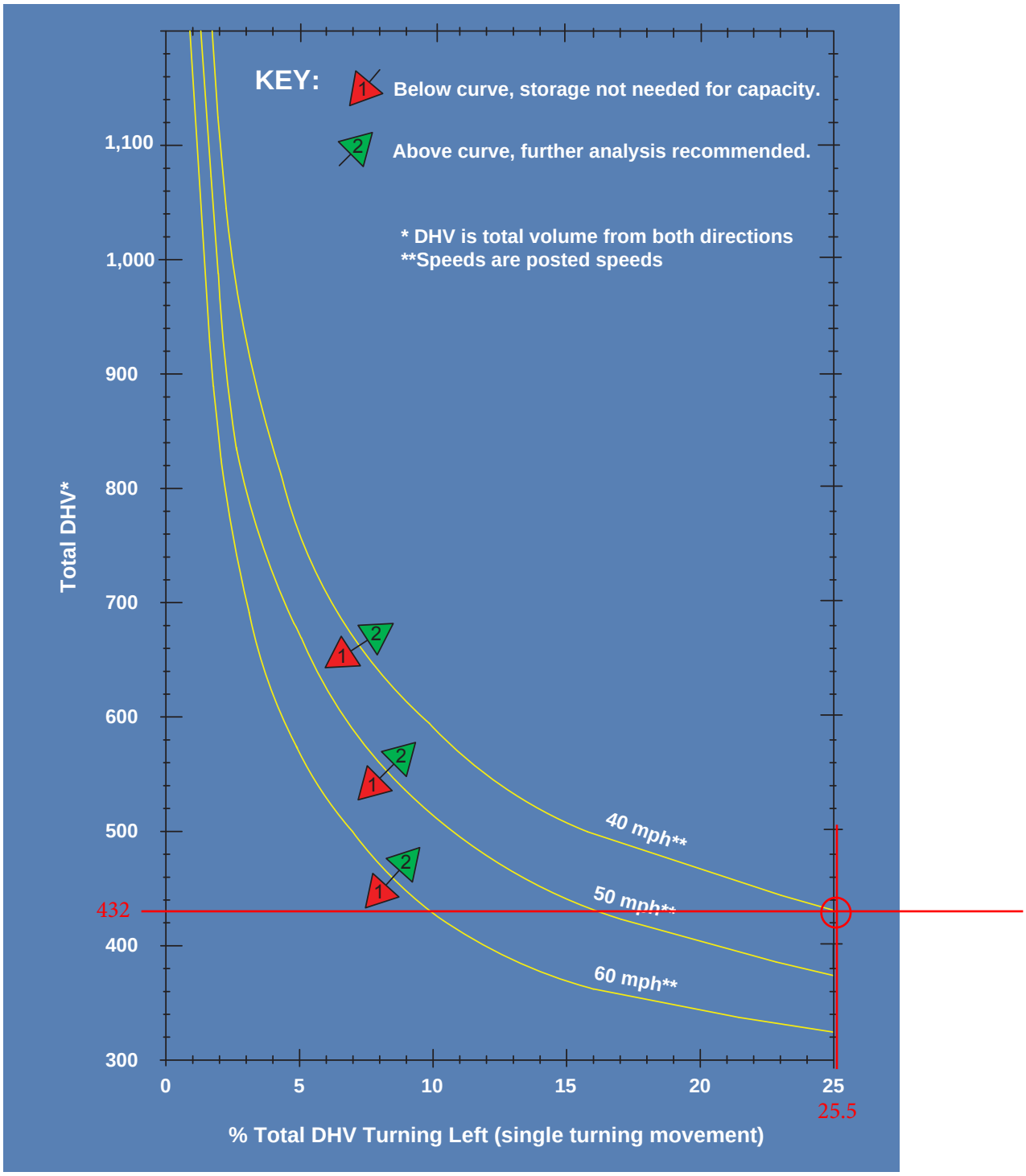
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Critical Headway, s	5.193	5.193	5.193	5.193
Entry Flow, veh/h	245	235	629	890
Cap Entry Lane, veh/h	540	723	958	858
Entry HV Adj Factor	0.959	1.000	0.973	0.945
Flow Entry, veh/h	235	235	612	841
Cap Entry, veh/h	518	723	933	811
V/C Ratio	0.454	0.325	0.657	1.037
Control Delay, s/veh	14.9	9.0	14.2	64.0
LOS	B	A	B	F
95th %tile Queue, veh	2	1	5	20



Warner Avenue & Suntop Drive
2018 PM Peak Hour Volumes With Divisions 1 & 2
Total DHV: 411vph
Left Turn %: 121/411 = 29.4%
Speed Limit: 35 MPH

Left-Turn Storage Guidelines: Two-Lane, Unsignalized

Exhibit 1310-7a



Warner Avenue & Suntop Drive
2033 PM Peak Hour Volumes With Full Buildout
Total DHV: 432vph
Left Turn %: 110/432 = 25.5%
Speed Limit: 35 MPH

Left-Turn Storage Guidelines: Two-Lane, Unsignalized

Exhibit 1310-7a

October 6, 2016

DATE RECEIVED
OCT 10 2016
CITY OF ENUMCLAW

Mr. Ken Krueger
3207 West Lk Sammamish Pkwy NE
Redmond, WA 98052

Subject: Trip Generation Comparison Suntop Project

Dear Mr. Krueger:

Per the city request this letter will quantify the difference between the trip generation originally studied and the trip generation for the current project.

Original Analysis

The original unit mix for the Suntop Planned Unit Development at full build-out included a total of 286 single family units, 220 multifamily units, and roughly 84,000 of commercial/retail space. The trip generation for the project and analyzed as part of the original comprehensive traffic impact analysis is found in the table below. Table 1 is the same as Table 4 in the original traffic impact analysis.

TABLE 1
Project Trip Generation – Original Analysis

	Weekday	*AM Pk Hour*		*PM Pk Hour*	
ITE Land Use	*2-Way Volume*	*Enter*	*Exit*	*Enter*	*Exit*
Single Family (286 Units)	2723	54	161	180	106
Apartments (220 Units)	1463	22	90	88	48
Shopping Center (~84 ksf)	3587	50	31	150	162
Total Driveway Volume	7773	126	282	418	316
Total Pk Hr Pass-By Trips		0	0	51	55
Total Pk Hr Volumes added to Streets		126	282	367	261

Current Proposed Unit Mix

The current proposal for the site consists of 293 single family units, 113 multi-family units and 84,000 square feet of commercial space.

Table2 below provides the trip generation for this unit mix.

TABLE 2
Project Trip Generation – Current Proposal

	Weekday	*AM Pk Hour*		*PM Pk Hour*	
ITE Land Use	*2-Way Volume*	*Enter*	*Exit*	*Enter*	*Exit*
Single Family (293 Units)	2789	56	164	185	108
Apartments (113 Units)	751	11	47	45	25
Shopping Center (~84 ksf)	3587	50	31	150	162
Total Driveway Volume	7127	117	242	380	295
Total Pk Hr Pass-By Trips		0	0	51	55
Total Pk Hr Volumes added to Streets		117	242	329	240

Conclusions

Based on the new configuration, the project is expected to generate 49 fewer AM peak trips, 59 fewer PM peak trips and 646 fewer daily trips.

Please contact me if anything further is required by the city.

Sincerely,

Gregary B. Heath, P.E., P.T.O.E.

Detailed Average Rate Trip Calculations
For 286 Dwelling Units of Single Family Detached Housing(210) - [R]

Project: Suntop
Phase:

Open Date:
Analysis Date:

Description: Previously proposed

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	9.52	3.70	1.00	2723
7-9 AM Peak Hour Enter	0.19	0.00	1.00	54
7-9 AM Peak Hour Exit	0.56	0.00	1.00	161
7-9 AM Peak Hour Total	0.75	0.90	1.00	215
4-6 PM Peak Hour Enter	0.63	0.00	1.00	180
4-6 PM Peak Hour Exit	0.37	0.00	1.00	106
4-6 PM Peak Hour Total	1.00	1.05	1.00	286
AM Pk Hr, Generator, Enter	0.20	0.00	1.00	57
AM Pk Hr, Generator, Exit	0.57	0.00	1.00	163
AM Pk Hr, Generator, Total	0.77	0.91	1.00	220
PM Pk Hr, Generator, Enter	0.65	0.00	1.00	186
PM Pk Hr, Generator, Exit	0.37	0.00	1.00	106
PM Pk Hr, Generator, Total	1.02	1.05	1.00	292
Saturday 2-Way Volume	9.91	3.72	1.00	2834
Saturday Peak Hour Enter	0.50	0.00	1.00	143
Saturday Peak Hour Exit	0.43	0.00	1.00	123
Saturday Peak Hour Total	0.93	0.99	1.00	266
Sunday 2-Way Volume	8.62	3.36	1.00	2465
Sunday Peak Hour Enter	0.46	0.00	1.00	132
Sunday Peak Hour Exit	0.40	0.00	1.00	114
Sunday Peak Hour Total	0.86	0.95	1.00	246

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Detailed Average Rate Trip Calculations
For 220 Dwelling Units of Apartments(220) - [R]

Project: Suntop
Phase:

Open Date:
Analysis Date:

Description: Previously proposed

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	6.65	3.07	1.00	1463
7-9 AM Peak Hour Enter	0.10	0.00	1.00	22
7-9 AM Peak Hour Exit	0.41	0.00	1.00	90
7-9 AM Peak Hour Total	0.51	0.73	1.00	112
4-6 PM Peak Hour Enter	0.40	0.00	1.00	88
4-6 PM Peak Hour Exit	0.22	0.00	1.00	48
4-6 PM Peak Hour Total	0.62	0.82	1.00	136
AM Pk Hr, Generator, Enter	0.16	0.00	1.00	35
AM Pk Hr, Generator, Exit	0.39	0.00	1.00	86
AM Pk Hr, Generator, Total	0.55	0.76	1.00	121
PM Pk Hr, Generator, Enter	0.41	0.00	1.00	90
PM Pk Hr, Generator, Exit	0.26	0.00	1.00	57
PM Pk Hr, Generator, Total	0.67	0.85	1.00	147
Saturday 2-Way Volume	6.39	2.99	1.00	1406
Saturday Peak Hour Enter	0.00	0.00	1.00	0
Saturday Peak Hour Exit	0.00	0.00	1.00	0
Saturday Peak Hour Total	0.52	0.74	1.00	114
Sunday 2-Way Volume	5.86	2.73	1.00	1289
Sunday Peak Hour Enter	0.00	0.00	1.00	0
Sunday Peak Hour Exit	0.00	0.00	1.00	0
Sunday Peak Hour Total	0.51	0.75	1.00	112

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Detailed Average Rate Trip Calculations
For 293 Dwelling Units of Single Family Detached Housing(210) - [R]

Project: Suntop
Phase:

Open Date:
Analysis Date:

Description: Current proposal

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	9.52	3.70	1.00	2789
7-9 AM Peak Hour Enter	0.19	0.00	1.00	56
7-9 AM Peak Hour Exit	0.56	0.00	1.00	164
7-9 AM Peak Hour Total	0.75	0.90	1.00	220
4-6 PM Peak Hour Enter	0.63	0.00	1.00	185
4-6 PM Peak Hour Exit	0.37	0.00	1.00	108
4-6 PM Peak Hour Total	1.00	1.05	1.00	293
AM Pk Hr, Generator, Enter	0.20	0.00	1.00	59
AM Pk Hr, Generator, Exit	0.57	0.00	1.00	167
AM Pk Hr, Generator, Total	0.77	0.91	1.00	226
PM Pk Hr, Generator, Enter	0.65	0.00	1.00	190
PM Pk Hr, Generator, Exit	0.37	0.00	1.00	109
PM Pk Hr, Generator, Total	1.02	1.05	1.00	299
Saturday 2-Way Volume	9.91	3.72	1.00	2904
Saturday Peak Hour Enter	0.50	0.00	1.00	147
Saturday Peak Hour Exit	0.43	0.00	1.00	125
Saturday Peak Hour Total	0.93	0.99	1.00	272
Sunday 2-Way Volume	8.62	3.36	1.00	2526
Sunday Peak Hour Enter	0.46	0.00	1.00	135
Sunday Peak Hour Exit	0.40	0.00	1.00	117
Sunday Peak Hour Total	0.86	0.95	1.00	252

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

Detailed Average Rate Trip Calculations
For 113 Dwelling Units of Apartments(220) - [R]

Project: Suntop
Phase:

Open Date:
Analysis Date:

Description: Current proposal

	Average Rate	Standard Deviation	Adjustment Factor	Driveway Volume
Avg. Weekday 2-Way Volume	6.65	3.07	1.00	751
7-9 AM Peak Hour Enter	0.10	0.00	1.00	11
7-9 AM Peak Hour Exit	0.41	0.00	1.00	47
7-9 AM Peak Hour Total	0.51	0.73	1.00	58
4-6 PM Peak Hour Enter	0.40	0.00	1.00	45
4-6 PM Peak Hour Exit	0.22	0.00	1.00	25
4-6 PM Peak Hour Total	0.62	0.82	1.00	70
AM Pk Hr, Generator, Enter	0.16	0.00	1.00	18
AM Pk Hr, Generator, Exit	0.39	0.00	1.00	44
AM Pk Hr, Generator, Total	0.55	0.76	1.00	62
PM Pk Hr, Generator, Enter	0.41	0.00	1.00	46
PM Pk Hr, Generator, Exit	0.26	0.00	1.00	30
PM Pk Hr, Generator, Total	0.67	0.85	1.00	76
Saturday 2-Way Volume	6.39	2.99	1.00	722
Saturday Peak Hour Enter	0.00	0.00	1.00	0
Saturday Peak Hour Exit	0.00	0.00	1.00	0
Saturday Peak Hour Total	0.52	0.74	1.00	59
Sunday 2-Way Volume	5.86	2.73	1.00	662
Sunday Peak Hour Enter	0.00	0.00	1.00	0
Sunday Peak Hour Exit	0.00	0.00	1.00	0
Sunday Peak Hour Total	0.51	0.75	1.00	58

Note: A zero indicates no data available.
Source: Institute of Transportation Engineers
Trip Generation Manual, 9th Edition, 2012

TRIP GENERATION 2013, TRAFFICWARE, LLC

CEDAROCK CONSULTANTS, INC.
Environmental Consulting

CRITICAL AREAS STUDY - FISHERIES

SUNTOP
PLANNED UNIT DEVELOPMENT

Enumclaw, Washington

Prepared for:
Suntop PUD
c/o Ken Krueger
3207 W Lk Sammamish Parkway NE
Redmond, Washington 98052

Prepared by:
Cedarock Consultants, Inc.
19609 244th Avenue NE
Woodinville, Washington 98077

January 17, 2014

TABLE OF CONTENTS

Page

1. Proposed Activity 1
2. Drawings 1
3. Date 1
4. Applicant 1
5. Agent 1
6. Project Name 1
7. Location of Activity 1
8. Existing Environmental Conditions 3
9. Effects Analysis 5
10. Mitigation Measures 7
11. Conclusions 10
12. References 10

LIST OF FIGURES

Page

Figure 1. Site map showing basin divide, watercourses, and wetlands 2
Figure 2. Ditch A photo 3
Figure 3. Ditch B photo 3
Figure 4. Proposed action on north portion of site 5
Figure 5. Photo looking south at existing Ditch A crossing 5

LIST OF TABLES

Page

Table 1. Watercourse Buffer Functions under Existing and Proposed Conditions 9

1. Proposed Activity

Under the proposed action, the landowner is proposing to develop a portion of a 105-acre parcel located in Enumclaw, Washington. The mixed use development will include single family lots, multi-family units, future development tracts, a park, storm drainage facility, roads, sensitive areas buffers and other open space (Rykels Engineering 2013). The land is currently managed as a dairy farm and contains a mix of pasture, crop fields, ditches, and farm buildings.

The property contains or is near several ditched watercourses and three wetlands (Figure 1). The two on-site watercourses are presumed to be fish-bearing and are further described in Section 8 of this report. A wetland delineation was completed by Sewell Wetland Consulting (2013).

The proposed action will affect watercourses and their buffers. Two watercourses wil be directly affected by the proposed action. Standard City of Enumclaw buffers (EMC 19.02.100) will be provided to all remaining watercourses. Some grading will occur in stream buffers as needed to create suitable elevations. No native shrubs or trees will be affected and disturbed areas will be replanted.

2. Drawings: Project drawings are provided separately by Rykles Engineering Group, Inc.

3. Date: January 17, 2014

4. Applicant: Suntop PUD
Attn: Ken Krueger
3207 W Lk Sammamish Parkway NE
Redmond, Washington 98052

5. Agent: Carl Hadley
Cedarock Consultants, Inc.
19609 244th Avenue NE
Woodinville, Washington 98077

6. Project Name: Suntop PUD

7. Location of Activity

Section: NE¼ Sec 25 Township: 20N Range: 6E; and
Section: NW¼ Sec 30 Township: 20N Range: 7E
Waterbody: WRIA 9 – Drainages north to Newaukum Creek;
WRIA 10 – Drainages south to Boise Creek

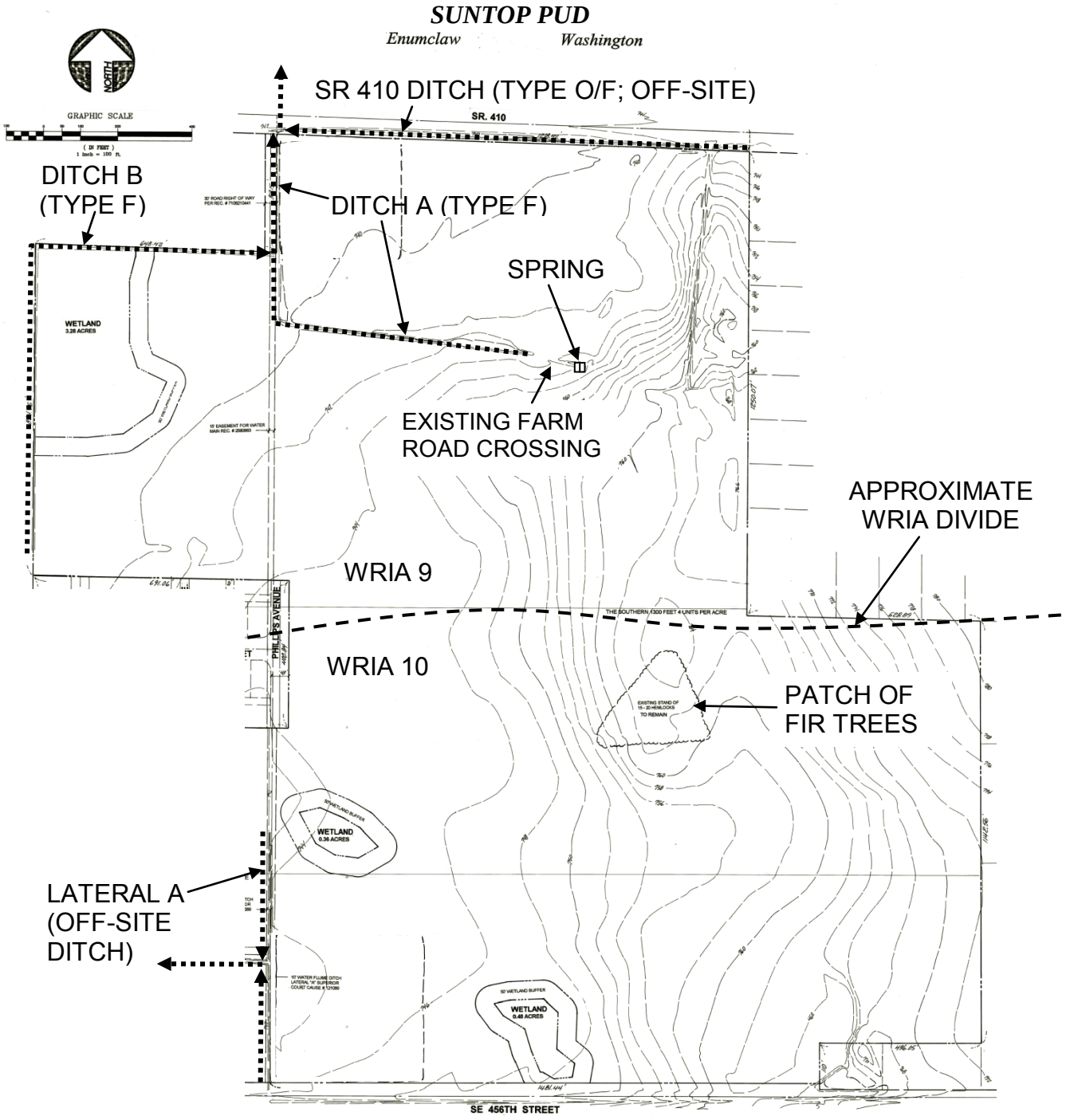


Figure 1. Site map showing existing conditions with basin divide, watercourses, and wetlands.

8. Existing Environmental Conditions:

Watercourses

The project is divided roughly in half between WRIA 9 (Green River Watershed) and WRIA 10 (White River Watershed) (Figure 1). The north part of the property drains north and west to a ditched watercourse system along the property boundary (Ditch B).

A natural spring located near the middle of the northern parcel drains west through a ditched watercourse (Ditch A) to the western property boundary and then north to SR 410 (Figure 2). The natural spring was developed long ago as a source of domestic water and irrigation for the farm. Excess flow was piped about 50-feet west to a drainage ditch. The existing ditch is most correctly termed a "ditched watercourse". All other ditches on the site were dug where needed to drain stormwater runoff and interflow from adjacent fields and roads.

Figure 2. Ditch A from spring.

Figure 3. Ditch B.

Ditch B (Figure 3) drains the west side of the parcel before discharging to Ditch A.

The SR 410 ditch was evaluated to the headwaters and found to drain only the highway surface and a few small developed lots along the highway north and east of the property. There does not appear to be any "natural" contributors of flow such as springs, wetlands, or other watercourses. The ditch is intermittently wet, relatively flat, silt bedded, and heavily congested with pasture grass. No pools, riffles, or spawning habitat commonly used as salmon habitat was observed. However, the ditch is connected directly to fish-bearing waters and no obstacles to fish access were noted. Some salmonid fish use could potentially occur during the winter when the ditch is flooded.

A culvert under SR 410 carries the combined flow of Ditches A, Ditch B, and the SR 410 Ditch north to a larger drainage ditch that continues north approximately 2.0 miles to Newaukum Creek. Newaukum Creek is a tributary of the Green River. This culvert appears to be fish-passable.

The south part of the property in WRIA 10 drains via sheet flow and interflow to off-site drainage ditches located south and west (Lateral A) of the property. Lateral A and its downstream watercourse were evaluated during processing of applications for adjacent developments.

Fish Use

The on-site ditch system in the WRIA 9 basin is connected to known fish-bearing watercourses north of SR 410. Coho salmon and resident trout are found in these watercourses. There are no natural barriers that would prevent fish from accessing the property, nor from moving throughout the ditched system once they were on the property. Habitat in both on-site ditches (A and B) is potentially suitable for winter rearing (though the quality is relatively poor). Because of the perennial flow source from the on-site spring, habitat in Ditch A is also suitable for summer rearing. Under existing conditions, the two on-site ditches are considered fish-bearing (Type F). No good quality spawning habitat was observed though small patches of gravel might offer some resident trout and possibly coho spawning opportunities. Small resident fish have been observed in Ditch A (Sewell 2013) but there are no reports of spawning ever having been observed on the property.

The SR 410 Ditch is a manmade feature dug in an area where no natural feature previously existed, and is not located downstream from any natural stream reach. Fish presence is possible due to the absence of barriers between the ditch and known fish-bearing waters. Under the Enumclaw Municipal Code (EMC 19.02) "Stream" means an aquatic area where surface water produces a channel, not including a wholly artificial channel, unless it is used by salmonids. It is unknown if fish use occurs in the ditch. Any use would probably be very temporary due to the absence of good habitat and intermittent flows. While the SR 410 Ditch could nominally be defined as a Type F stream under the assumption of potential use, in reality it likely functions most frequently as a Type O water under EMC 19.02.100.C.

A number of temporary (seasonal) ditches dug by the farmer to drain fields during the winter are also present. These manmade features were dug in areas where no natural feature previously existed, are not located downstream from any natural stream reach, are not considered natural waters, and are not regulated by the state (WAC 222-16-031) or the City of Enumclaw (EMC 19.02.100.C).

Riparian Vegetation

The property was cleared of almost all native vegetation and graded for use as pasture and crop lands long ago. The exception is a small patch of hemlock trees far from any watercourses (Figure 1). Watercourses were dug along the lower edges of the property and in other locations where needed to efficiently move drainage to the property boundary. Under existing conditions there is no vegetation adjacent to the watercourses other than pasture grasses and the occasional young shrub. Watercourses are regularly maintained to remove growing vegetation. The rest of the site is farmed for crops or grazed by cattle.

9. Effects Analysis

The proposed action includes one crossing of Ditch A and one crossing of the SR 410 Ditch as needed for the access road (Suntop Blvd N) to the property (Figure 4). Much of the rest of the SR 410 Ditch in this area will be converted to a piped stormwater system as needed to widen the highway (see Rykels Sheet P5).

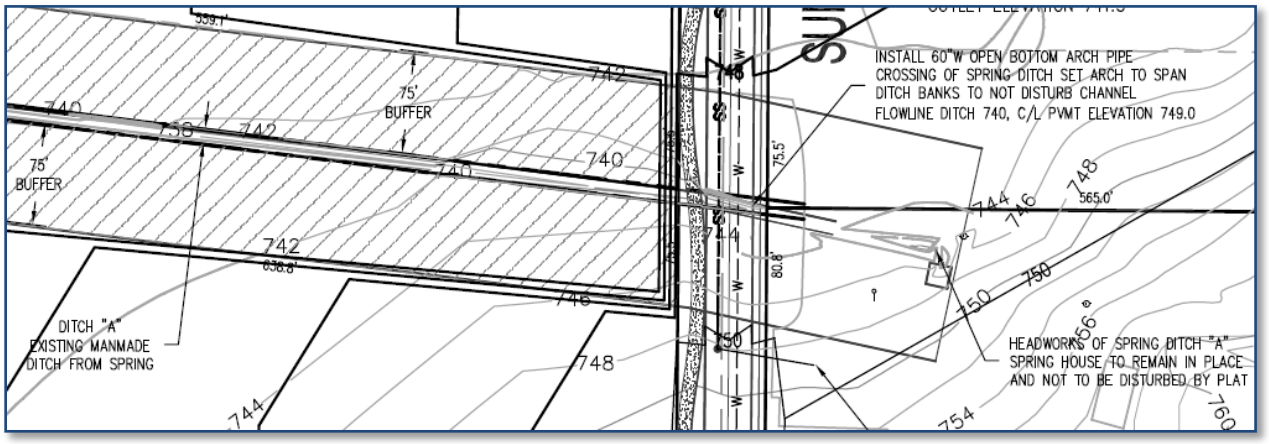


Figure 4. Proposed full span crossing of Ditch A (Detail from Rykels Sheet P5).

The Ditch A crossing will be located at the site of an existing farm road crossing of the watercourse where overflow from the springs is piped about 60 feet west to the ditch (Figure 5).

Figure 5. Photo looking south at existing Ditch A crossing adjacent to spring.

The new access road alignment over Ditch A is designed to take advantage of as much of the existing water crossing as possible. A bottomless arch culvert will be used to avoid any disturbance below ordinary high water where the future expanded road width must cross the ditch. All Washington Department of Fish and Wildlife (WDFW) requirements for this crossing structure will be met though there is no habitat upstream of this point.

Standard City of Enumclaw buffers (EMC 19.02.100) will be provided for proposed development near all on-site watercourses. Some grading within the buffers could occur in the area around the future stormwater detention pond (Tract B) as needed to create suitable elevations. However, no native shrubs or trees will be affected and the area will be replanted.

The SR 410 Ditch will largely be converted to a piped stormwater system along the property frontage to allow widening of the highway and connection of the new access road to the property. A curb and gutter system will be installed along the road. Catch basins will collect and divert surface water runoff to the stormwater system where it will be treated and detained. The water will eventually outlet at the existing confluence with Stream A.

Direct Aquatic Habitat Impacts

No in-water work is proposed to any of the on-site watercourses for this project. A full spanning culvert will be built outside of the ordinary high water mark of Ditch A. The SR-410 Ditch located off-site will be eliminated. All work will be completed under terms of a Hydraulic Project Approval (HPA) to be issued by WDFW.

Some manmade salmonid habitat in the SR 410 Ditch and in Ditch A will be eliminated or affected by development along the immediate stream bank. This habitat is of very low quality so the overall impact to regional fisheries resources will be negligible. Mitigation is proposed to improve salmonid habitat conditions within the plat as a compensatory measure.

Prey Species Impacts

Neither Ditch A or the SR-410 Ditch contain spawning habitat for any fish species. Both ditches have highly degraded riparian buffers consisting of nearly 100 percent non-native grasses. So insect production is minimal. No significant effect on prey habitat or food supply for fish is expected.

Water Quality Impacts

All work that affects streams will be conducted under terms of the HPA to be issued for the project and under City of Enumclaw Critical Areas requirements. Restrictions would normally limit work to a window between about July 15 through October 31. Ditch A is spring fed and will continue to contain flow all summer. The SR-410 Ditch will likely be dry or damp. While no in-water work is proposed, work immediately adjacent to a channel poses some water quality risk. It is recommended that all flow be bypassed around the work area during the period the new culvert is being installed. With normal TESC measures, the potential for impacts to water quality in Ditch A and downstream will be low.

The project site is relatively flat and poses no major erosion risks during site grading. Site grading will require an NPDES permit from the Department of Ecology and use of Ecology mandated TESC measures. The overall risk to water quality on this site is minor.

Water Quantity Impacts

Groundwater under the site flows generally from east to west based on exploration pits completed by Associated Earth Sciences, Inc. (AESI 2008). Seepage was found at depths between 2.5 and 6 feet below existing ground level with a static piezometric surface level of about 740 feet. Site grading and excavation has the potential in some areas to intercept groundwater. The quantity of flow from where groundwater is intercepted will depend on the location, depth, soil grain size, topography, and season. Any proposed excavation to the west of the existing spring will almost certainly intercept groundwater. Per recommendations made by

AESI (2008) it is assumed that groundwater intercepted during construction will be removed. We recommend that water intercepted in WRIA 9 be pumped west to Ditch A (after treatment if necessary) so that little change to instream flow in Ditch A would be expected.

A stormwater pond in the WRIA 9 basin could interfere with groundwater movement if the pond is excavated below about elevation 740. AESI (2008) recommended that any pond be planned above this elevation to reduce impacts from ground water on pond storage and liner materials.

The onsite spring contributes virtually all of the flow in Ditch A. Because the source of flow for the spring is located east of the spring itself, grading and trenching in that area has a significant potential to influence water volumes. It is assumed that if groundwater is intercepted, a permanent and dedicated underground piping system will be installed to collect the groundwater and deliver it to the natural receiving waterbody. Assuming the water is kept cold and clean, and is delivered to the natural daylighting location at a relatively unobstructed rate, the overall effect on surface flows is expected to be minor.

Riparian Function

Under existing conditions there is no native vegetation within on-site riparian buffers and the SR off-site 410 Ditch other than forbs and a few young shrubs. The vast majority of riparian vegetation consists of reed canarygrass, Himalayan blackberry, and pasture grasses (Figures 2, 3, and 5). While some regrading may be completed within the Ditch A buffer, impacts will be temporary and no significant long term effects on the quality or quantity of the buffers relative to existing conditions will occur. Standard City of Enumclaw buffers (EMC 19.02.100) will be provided. A comparison of functions and values of the riparian buffer pre-and post-development is provided in Table 1.

10. Mitigation Measures

Mitigation measures are listed below for the proposed activity.

Impact Avoidance and Reduction Measures

- All spring water intercepted during construction shall be collected at the source and piped to the natural receiving waterbody downslope. If necessary, a permanent collection system will be constructed to collect and transport intercepted groundwater to the natural receiving water. Groundwater transport shall occur via dedicated buried pipes to protect the temperature and quality of the water. Groundwater shall not be mixed with stormwater and there is no need for detention or treatment.
- All instream work shall be completed in the dry during the summer low flow season or as specified in the HPA required for the project from WDFW.
- Disturbances to riparian buffers will be mitigated by replanting with appropriate native species.
- All work in the channel shall be completed with clean equipment in good condition with no evidence of petroleum product leakage. All equipment shall be inspected, serviced, and cleaned in an upland site as necessary to prevent leakage or any contamination of the

water or substrate.

- Emergency spill response and clean-up equipment shall be available on site during all work activities near a watercourse. At a minimum, this kit will include material for containment and clean-up of petroleum products.
- All potentially hazardous material (e.g. fuel, lubricating fluids) shall be stored in an upland staging area.
- No fueling or servicing of construction vehicles shall be permitted within 100 feet of a watercourse.
- Telephone numbers of appropriate agency/department contacts shall be readily available on-site in case a spill should occur (e.g., Ecology, Fire Department Hazmat Team, Fire and Rescue).
- Work shall follow all requirements of the HPA to be issued by the WDFW.

Compensatory Measures

The only potentially direct impact to fisheries resources is the loss of the SR 410 Ditch when the manmade watercourse is converted to a piped stormwater system. While few if any fish are believed to use the channel under existing conditions due to very poor habitat, there will be a change in nutrient input. Indirect and temporary effects of construction have also been identified. The following measures should be considered to mitigate for the minor loss of habitat productivity that will occur with development of the project:

- Installing native riparian vegetation along the Ditch A channel between Suntop Blvd N. and SR 410 will provide additional protection of the high quality water, new wildlife habitat, and new sources of native riparian nutrients and woody debris. All of these factors will have year-round positive benefits to fish habitat in Ditch A and downstream. A new riparian buffer will also help to offset the loss of vegetation that currently contributes nutrients to the SR 410 Ditch.
- Stormwater runoff from the south half of SR 410 should be detained and treated to help offset the current functions provided by the SR 410 Ditch.

Table 1
Comparison of Watercourse Buffer Functions
under Existing and Proposed (Mitigated) Conditions

Buffer Function	Existing Conditions	Proposed Conditions	Expected Change in Buffer Value
Woody Debris Recruitment	Any trees near the watercourses were eliminated long ago when the site was cleared and graded for farming. The grazed and tilled fields down to waters edge preclude future development of natural woody debris contribution.	Future native buffer will remain undisturbed in perpetuity and should develop into mature condition over time. Seventy five foot buffer could ultimately provide a high percentage of the natural large woody debris contribution rate.	Significant increase in potential for woody debris recruitment over time as Ditch A buffer vegetation matures.
Temperature and Shade	Overhanging grasses and blackberry provides poor to moderate shade. Entrenchment provides natural terrain shading in some locations. No natural tree canopy. Ditches B and C are intermittent stream so summer shade is less important.	Permanent riparian buffer should provide nearly 100 percent of the natural shade and temperature control as the buffer matures. Stream planting of native species would significantly decrease the time required to provide a functional buffer.	Significant increase in shade and aquatic temperature protection over time as buffer vegetation matures.
Beneficial Nutrient Sources	Minimal natural productivity based on degraded buffers with low diversity and exotic plant species.	Future buffer could provide nearly 100 percent of the natural nutrient productivity.	Potential significant increase in vegetative matter and terrestrial insect contribution.
Sediment and Pollutant Control	Fields and pasture drain directly to watercourses. Ag-chemical, fine sediment, and manure input.	All surface water collected and treated to state standards before discharge.	Improved water quality. Reduced fine sediment, heavy metal, and fecal coliform input.
Bank Stability	Steep, poorly vegetated ditched banks in places. Cattle use of stream erodes banks.	Increased root strength and elimination of cattle will help protect banks.	Increased bank stability.

11. Conclusions

The project site consists of an existing dairy farm. Two fish-bearing watercourses are located on the site. One potentially fish-bearing water located off-site will be impacted by the development. All three watercourses consist of manmade ditches with minimal functional riparian vegetation.

Under the proposed action approximately 90-feet of Ditch A will pass through a new bottomless culvert designed to avoid direct impacts to the existing channel. The crossing will meet WDFW fish passage requirements.

All of the SR410 Ditch adjacent to the site will be converted to a piped stormwater system. Some low quality seasonal potential fish habitat will be eliminated. Compensatory mitigation designed to improve salmonid habitat throughout approximately 1,200 feet of Ditch A is expected to compensate for any loss in the SR 410 Ditch by improving riparian function.

The site is relatively flat and poses no unusual erosion hazards. Development using standard Ecology and Enumclaw TESC measures are reasonably expected to be fully protective of water quality and aquatic habitat during the construction phase.

Under the future developed condition, stormwater runoff will be collected, detained, and treated before release. This will replace the existing condition where runoff from the fields and pastures drains directly to the watercourses. Standard City of Enumclaw buffers will be provided. Some grading may occur within buffers but impacts will be limited to grazed pasture grasses or tilled fields. All stream and wetland buffers will be permanently protected and the Ditch A buffer will be planted with native species. Elimination of grazing and tilling from near the watercourses ensures future buffers will meet or exceed functions and values provided by the existing buffers.

Any groundwater that is intercepted will be collected, piped underground, and released at its natural destination. This will help protect the quantity and quality of spring water that makes up a large percentage of the flow in Ditches A and B.

Based on the absence of potentially problematic construction issues, proposed and required mitigation measures, and a comparison between existing and future developed site conditions, development of the Suntop PUD site is not expected to have any significant adverse effects on fisheries resources or aquatic habitat.

12. References

Associated Earth Sciences, Inc. 2008. Surface exploration, geologic hazard, and preliminary geotechnical engineering report for Suntop Farms. Consultant report prepared for Investco Financial Corporation. March 20, 2008.

Sewell Wetland Consulting. 2013. Suntop Farms Division I – Critical Areas Report. Consultant report prepared for Ken Krueger, Redmond, WA.

Rykels Engineering, Inc. 2013. Preliminary PUD Plan. September 5, 2013.

Sewall Wetland Consulting, Inc.
27641 Covington Way SE #2
Covington WA 98042
Phone: 253-859-0515
Fax: 253-852-4732

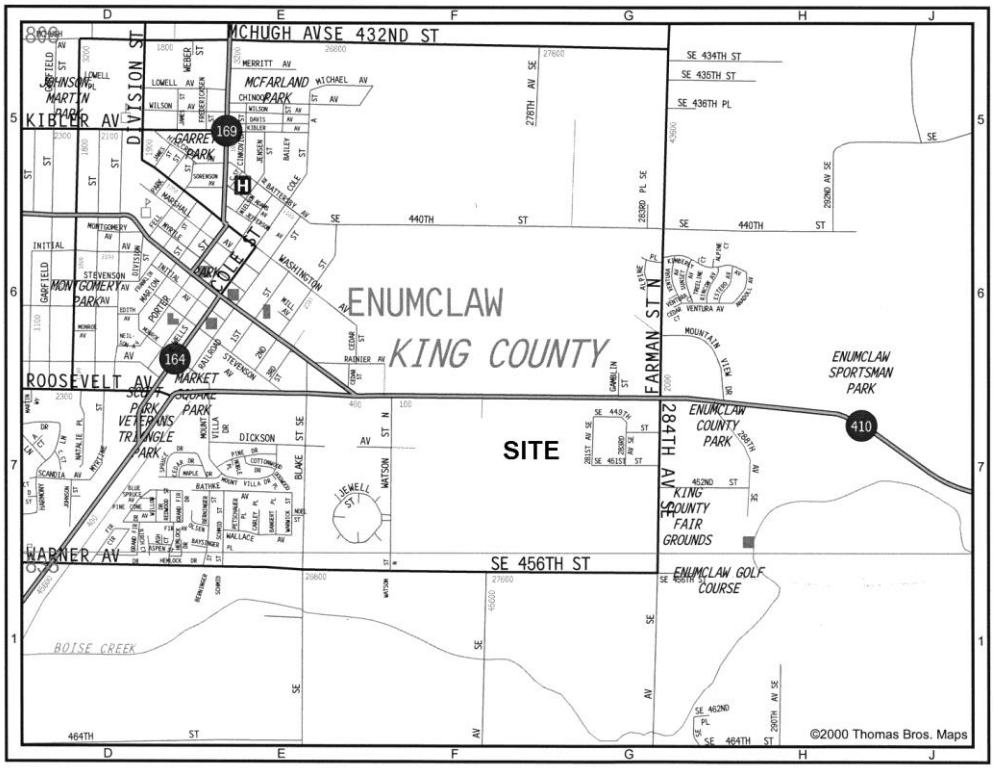
October 3, 2013

Ken Krueger
3207 W Lk Sammamish Parkway NE
Redmond, Washington 98052

RE: Suntop Farms Division I – Critical Areas Report
SWC Job #13-148

1.0 INTRODUCTION

This report describes jurisdictional wetlands and streams on the Suntop Farms property located on the south side of SR 410 in the City of Enumclaw, Washington (the "site"). Specifically, the property consists of 4 abutting parcels with a total acreage of approximately 100 acres located in a portion of the South 1/2 of the NW 1/4 of Section 30, Township 20 North, Range 7 east of the Willamette Meridian.



The property contains a working dairy farm that utilizes the entire property for grazing, and growing hay and corn. The property also contains numerous barns, sheds, outbuildings and a single family home all concentrated on the northeast corner and east side of the site. The rest of the property with the exception of one small stand of 15-20 firs located near the center of the site is managed agricultural fields.

The north side of the site is bordered by SR 410 and several commercial properties, the south side by SE 456th Street, the east side by residential properties, and the west side by an apartment complex and several agricultural fields. These abutting fields to the west have approved developments proposed on them and will be both single family and multi-family residential developments in the near future.

The proposed use of the site is the development of a residential subdivision with associated streets, storm water facilities and open space tracts.

2.0 METHODS

Ed Sewall of Sewall Wetland Consulting, Inc. most recently inspected the site in July of 2013.

The site was reviewed using methodology described in the *Washington State Wetlands Identification Manual* (WADOE, March 1997). This is the methodology currently recognized by the City of Enumclaw and the State of Washington for wetland determinations and delineations. The site was also inspected using the methodology described in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987), and the *Western Mountains, Valleys and Coast region Supplement* (Version 2.0) dated June 24, 2010, as required by the US Army Corps of Engineers. Soil colors were identified using the 1990 Edited and Revised Edition of the Munsell Soil Color Charts (Kollmorgen Instruments Corp. 1990).

The Washington State Wetlands Identification and Delineation Manual and the Corps of Engineers Wetlands Delineation Manual/Regional Supplement all require the use of the three-parameter approach in identifying and delineating wetlands. A wetland should support a predominance of hydrophytic vegetation, have hydric soils and display wetland hydrology. To be considered hydrophytic vegetation, over 50% of the dominant species in an area must have an indicator status of facultative (FAC), facultative wetland (FACW), or obligate wetland (OBL), according to the National List of Plant Species That Occur in Wetlands: Northwest (Region 9) (Reed, 1988). A hydric soil is "a soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper part". Anaerobic conditions are indicated in the field by soils with low chromas (2 or less), as determined by using the Munsell Soil Color Charts; iron oxide mottles; hydrogen sulfide odor and other indicators. Generally, wetland hydrology is defined by inundation or saturation to the surface for a consecutive

period of 12.5% or greater of the growing season. Areas that contain indicators of wetland hydrology between 5%-12.5% of the growing season may or may not be wetlands depending upon other indicators. Field indicators include visual observation of soil inundation, saturation, oxidized rhizospheres, water marks on trees or other fixed objects, drift lines, etc. Under normal circumstances, indicators of all three parameters will be present in wetland areas.

Ed Sewall also conducted the field investigation of the site between January and April of 2004, as well as an earlier reconnaissance of the site in July of 1994. In 1994 several inclusions of hydric soil were observed on the site but no wetland hydrology was observed as it was a mid summer site inspection. It was determined that based upon the farmed character of the property, the presence of numerous ditches and drain tiles and general historic alteration of the hydrology of the site and this portion of Enumclaw, only through an early growing season monitoring an delineation of the site would an accurate delineation be acquired.

Starting in late January of 2004, Ed Sewall conducted a hydrologic monitoring of the areas of the site with hydric soil characteristics. A total of 69 hydrologic monitoring points were located on the site. At each point a soil pit was excavated to a depth of 18" and the pits were observed into the start of the growing season based upon soil

Site Hydrology Monitoring Methods

The site was visited between the period of January 2004-March 2, 2004 as well as again in that same period in 2008. Generally the growing season in Enumclaw according to the Soil Survey starts on March 15th. Based upon soil temperature >5 degrees Celsius (41 degrees F) at a depth of 19.7" below the surface, the site was in the growing season on February 23 of 2004, although no active plant growth was noted, we used this as a conservative start time to monitor site hydrology based on the soil temperature criteria. The site was monitored through April 2, 2004. At that point in time areas that had contained the required continuous wetland hydrology were mapped as wetland and flagged in the field.

A total of 69 data points were located on the site. At each point a soil pit was excavated at least 16" deep. At each pit observations of the level of standing water and soil saturation (if any) were recorded. Additionally, general notes on irrigation water flow and direction were noted and photographs were also taken throughout the site.

Ed Sewall conducted all of the fieldwork and used the hydrology criteria as described in the ***Washington State Wetlands Identification Manual*** (WADOE, March 1997) to determine the presence of any wetlands on the site. This is the methodology currently recognized by The US Army Corps of Engineers, City of Enumclaw and the State of Washington for wetland determinations and delineations. Not all data points were permanently marked as problems with cattle trampling and plowing for corn planting

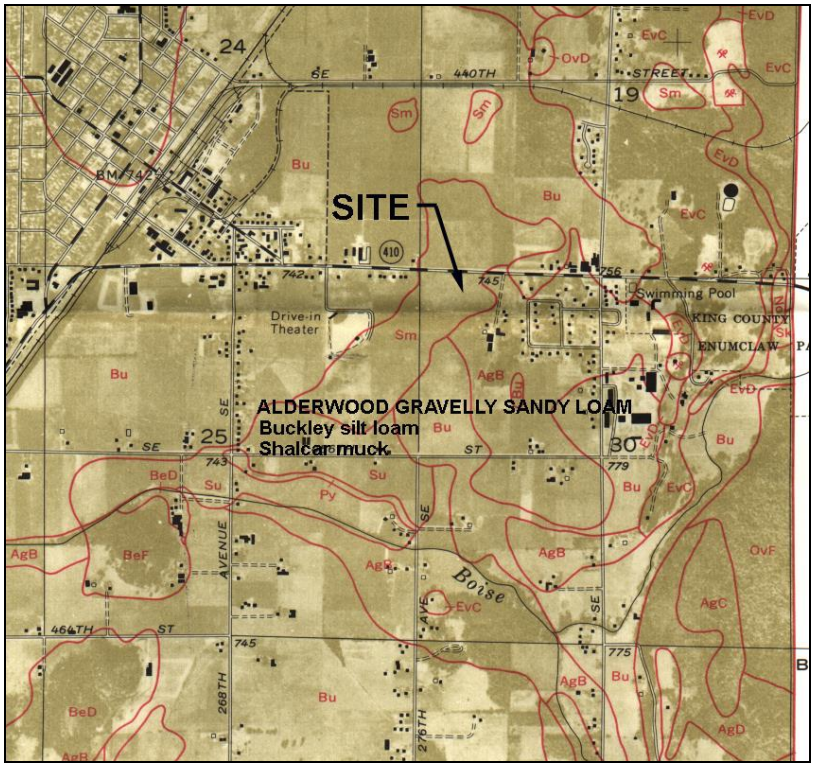
removed any flagging on the site. Data points were plotted and mapped on several transects through the site and are readily relocated.

3.0 OBSERVATIONS

Prior to conducting fieldwork, a review of the various natural resource inventories was conducted. Resources reviewed included the USDA Soil Survey for the site, the National Wetlands Inventory (NWI) map for the site, and the King County Sensitive Areas Folio and iMap website.

Soil Survey

According to the Soil Survey of King County, Washington (USDA SCS Snyder 1973), the site contains three types of soils, Shalcar muck, Buckley Loam and Alderwood gravelly sandy loam. The extreme north and norwest end of the site contains a unit of Shalcar muck soils (map symbol Sm). Shalcar muck soils are very poorly drained organic soils that consists of deposits of sedge peat Organic soils such as Shalcar series are considered hydric or wetland soils. However, many areas of Shalcar soils have been drained through the use of ditching and drain tiles to grow row crops and pasture grasses. In these areas the hydrology has been altered enough so that generally wetland hydrology criteria are no longer met.



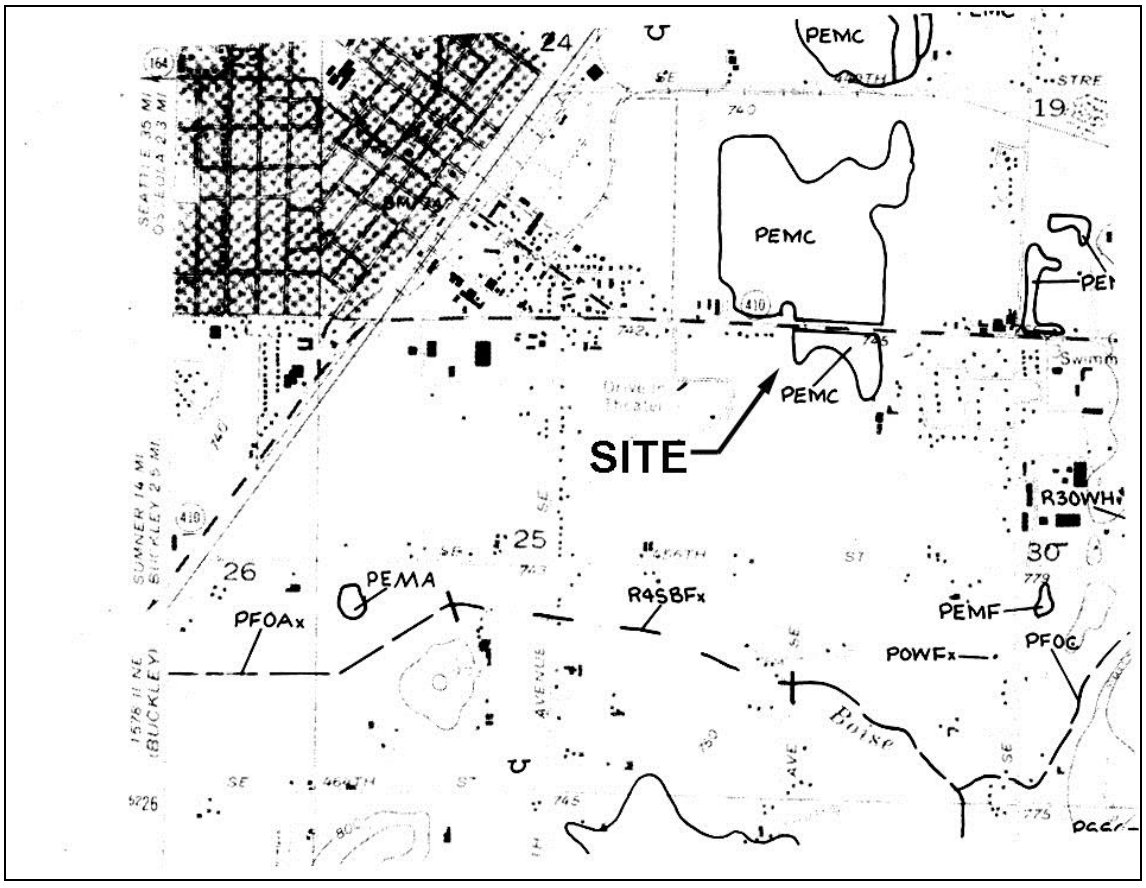
The south side of the site is mapped as Buckley loam, a poorly drained soil formed in the Osceola mud flow. .

Buckley series are considered hydric or wetland soils. However, many areas of Buckley soils have been drained through the use of ditching and drain tiles to grow row crops and pasture grasses. In these areas the hydrology has been altered enough so that generally wetland hydrology criteria are no longer met.

The east and southeast sides of the site are mapped as Alderwood gravelly sandy loam soils. Alderwood soils are moderately well drained soils formed in glacial till. Alderwood soils are not considered wetland or "hydric" soils.

National Wetland Inventory Map

The National Wetland Inventory (NWI) map depicts a crescent-shaped area of emergent wetland in the area of Shalcar muck soils and extending from the spring on the north side of the site. This is noted to be a wetland that was not field checked during this inventory process.



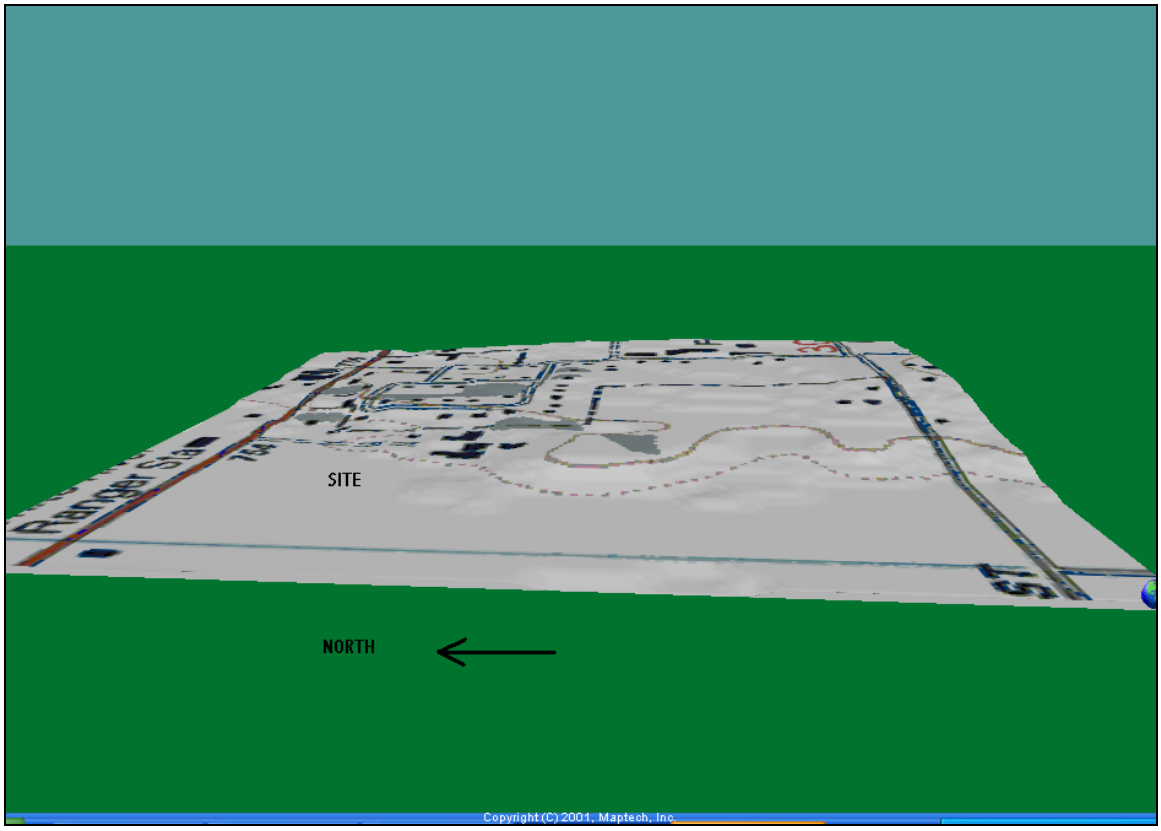
King County iMap

According to the King County iMap website, no wetlands or streams are on or near the site.

3.1 Field Observations

As previously mentioned, the site consists entirely of grazed and mowed pasture with the exception of the gravel roads and driveway, homes and farm buildings, and a small cluster of Douglas fir near the center of the site.

The topography of the site generally slopes from a high point along the east boundary down towards the western boundary. The site is located on the topographical divide between areas that drain to the north and south from a highpoint near the middle of the site. The pastures on the site have extensive "tile" drainage systems located within them, many of them recently refurbished to maintain drainage. Several ditches are also located on the site primarily along the north and west borders of the property.



A significant feature on the property is the artesian spring located near the north side of the site just west of the farm buildings. This spring is located at the toe of the hill and is very near the easternmost point of the mapped Shalcar soil series. According to the owner Martin Holdener, his parents built the small building that contains the spring in the early 1950's, and used it to irrigate the pastures. This irrigation practice continues to this day. At that time (early 1950's), the Hodeners also placed the overflow from the spring into the ditch that heads west then north towards SR 410. This appears to have done two things, it directed water that historically seeped or flowed out on the surface into the north pasture, away from this area and off the site more quickly. The ditch it was placed in also acted to some degree to drain this area. The Holdeners placed clay drain tile throughout the lower parts of the property to drain the soil for hay and crop production. It is evident that the large area of poorly drained Shalcar soils are a relic of a wetland hydrologic condition that existed prior to the early 1950's when this spring containment, and ditch construction occurred. As a result of historic hydrologic alteration, the north pasture, as well as several other low spots on the pasture throughout the property have had their hydrology significantly altered from that which the underlying soil series suggest. As a result, an early growing season hydrologic monitoring program was undertaken to determine the areas of the site that would meet wetland criteria under the 1987 Corps Manual.

WETLANDS

Three separate areas containing both hydric soils and wetland hydrology during the early growing season were found to exist on the site. All of these areas are farmed and contain row crops and planted pasture grasses. Two small isolated depressions in the corn field on the south side of the site, was well as a single un-drained area in the northwest corner of the site were determined to meet wetland criteria. All other areas had no evidence of wetland hydrology. Surprisingly, the area of organic Shalcar soils on the north end of the site was one of the driest with soil saturation at depths generally >18" with the exception of one monitoring point which had soil saturation at a depth of 14" following a period of heavy rain. The drainage system in the north pasture has effectively drained this area. The outlets of drain tiles in this area were observed to have flowing water discharging into the spring/ditch throughout the winter and early growing season.

Wetland A

Wetland A is an area of un-drained pasture located on the northwest corner of the site. A clear demarcation of the area of functioning drainage tiles on the south end formed a near straight line along this edge in this area. The area was flagged with flags A1-A11 and is 3.28 acres on-site. A ditch borders this wetland along the property lines and drains water to the east towards the spring/ditch. Water was generally stagnant in the ditch and no visible flow was observed. Old clay tile outlets were observed along the edges of the ditch bordering Wetland A but no flow was observed coming out of them, clearly they no longer function in the area of Wetland A.

As with the rest of the site other than those areas planted in corn, Wetland A is primarily tall fescue (*Festuca arundinacea*). However, as this area has not been maintained as much as most of the site, a mix of hydrophytes including reed canary grass (*Phalaris arundinacea*), dock (*Rumex crispus*), and meadow foxtail (*Alopecuris geniculatus*) are also present. Soil pits excavated within this area revealed soils similar to the Buckley loam soil series with a dark (10YR 3/2), mottled B-horizon was saturated within 6" of the surface in the early growing season.

Using the US Fish and Wildlife Wetland Classification system, Wetland A would be classified as PEM1C (palustrine, emergent, persistent, seasonally flooded).

Using the Department of Ecology's Wetland Rating Form for Western Washington (WADOE Version 2, updated July 2006 & October 2008) as required by the City of Enumclaw, this depressional wetland scored a total of 34 points with 10 points for habitat. This indicates a Category III wetland. According to City of Enumclaw Municipal Code (EMC) Chapter 19.02.090C, Category III wetlands with a low habitat score with a high have a 50' buffer measured from the wetland edge.

Wetlands B & C

Wetlands B and C consist of two isolated depressions in a corn field and are 0.48 and 0.36 acres in size, respectively. Both wetlands had corn stubble, as well as creeping buttercup, foxtail, and reed canary grass in them for vegetation during the delineation but soils were saturated to the surface in the centers of the wetlands and at -12" near the edges. Wetland B was flagged with wire flags B1-B12, and Wetland C was flagged with wire flags C1-C9.

Soil pits excavated within these wetlands revealed an Ap horizon with an average depth of 9" having a soil color of 10YR 2/2. The underlying B-horizon has a color of 10YR 3/2 with common, medium, distinct redoximorphic concentrations.

Using the US Fish and Wildlife Wetland Classification system, Wetlands B & C would be classified as PEM1C (palustrine, emergent, persistent, seasonally flooded).

Using the Department of Ecology's Wetland Rating Form for Western Washington (WADOE Version 2, updated July 2006 & October 2008) as required by the City of Enumclaw, Wetlands B & C scored a total of 20 points with 6 points for habitat. This indicates a Category IV wetland. According to City of Enumclaw Municipal Code (EMC) Chapter 19.02.090C, Category IV wetlands with a low habitat score with a high have a 25' buffer measured from the wetland edge.

STREAMS

The ditch system that carries runoff from the spring on-site acts as the headwater to Clear Creek. The ditch is a straight line feature that varies in depth from 8' deep near the spring to approximately 3' deep near the north end of the ditch where it exits to the north under SR 410. The bottom of the ditch is a mix of sand, mud and patches of gravel. The east end of the ditch has heavy Himalayan blackberry cover on its edges. The rest of the ditch has only grasses. Some areas of the ditch have a dense cover of water cress (*Rorippa* spp.) and the north end has a dense cover of reed canary grass along its banks and edge. Small fish which appear to be salmonids (presumably cutthroat trout) were observed in the channel during a site visit in August, 2004 with Travis Nelson, Habitat Biologist with Washington Department of Fish and Wildlife.

Although the ditch offers little habitat, the spring itself is the headwater of this creek system and provides clear, cool water to this stream.

Based upon the use of the ditch by fish, perennial flow, and bank width, this stream would be considered a Type F water under City of Enumclaw Code. Typically Type F waters have a 75' buffer measured from the ordinary high water mark.

BUFFERS

The buffers of these wetlands are all farmed and offer some ability to treat water quality through filtering in the case of Wetland A where the buffer is vegetated with a pasture grass mix. The buffers of Wetlands CB & C are of little function as they are corn stubble.

FUNCTIONS AND VALUES

The wetlands on site are low value features with the exception of the current function of the production of crops and forage. The wetlands do store a small amount of surface water, which in the case of Wetland A may attenuate some flood events along the Spring/Ditch. Wetlands B & C are isolated s they do not provide this function. All of these wetlands may provide some groundwater recharge. Habitat use of the wetlands is limited to small rodents and some foraging in the winter by waterfowl.

4.0 REGULATIONS

In addition to the wetland regulations previously described for wetlands and streams, certain activities (filling and dredging) within "waters of the United States" may fall under the jurisdiction of the US Army Corps of Engineers (ACOE). The ACOE regulates all discharges into "waters of the United States" (wetlands) under Section 404(b) of the Clean Water Act.

Due to the increasing emphasis on Endangered Species Act compliance for all fills of Waters of the United State and Waters of the State, both the Corps of Engineers and Washington Department of Ecology should be contacted regarding permit conditions, compliance, and processing prior to commitment to any fill of wetlands or streams for this project.

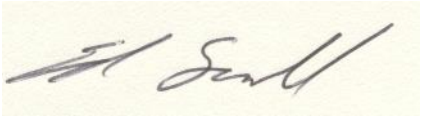
5.0 PROPOSED PROJECT & CONCEPTUAL MITIGATION

The proposed project is the subdivision of the site into single-family residential lots. Currently, no impacts to wetlands, streams or their buffers are proposed.

As required by Code, wetlands with degraded buffers must be restored. As a result the current Phase 1 will include a native vegetation restoration planting plan for the buffers of Wetlands B & C to be prepared prior to final approval of the plat.

If you have any questions or require any additional information, please feel free to contact me at (253) 859-0515 or by email at esewall@sewallwc.com .

Sincerely,
Sewall Wetland Consulting, Inc.

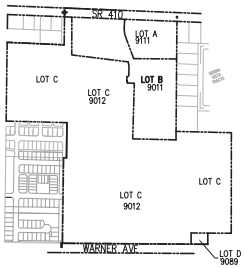


Ed Sewall
Senior Wetland Ecologist
PWS#212

Attached: Site Plans/Wetland Mapping
Wetland Rating Forms

SUNTOP PLANNED UNIT DEVELOPMENT DIVISION 1

PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA

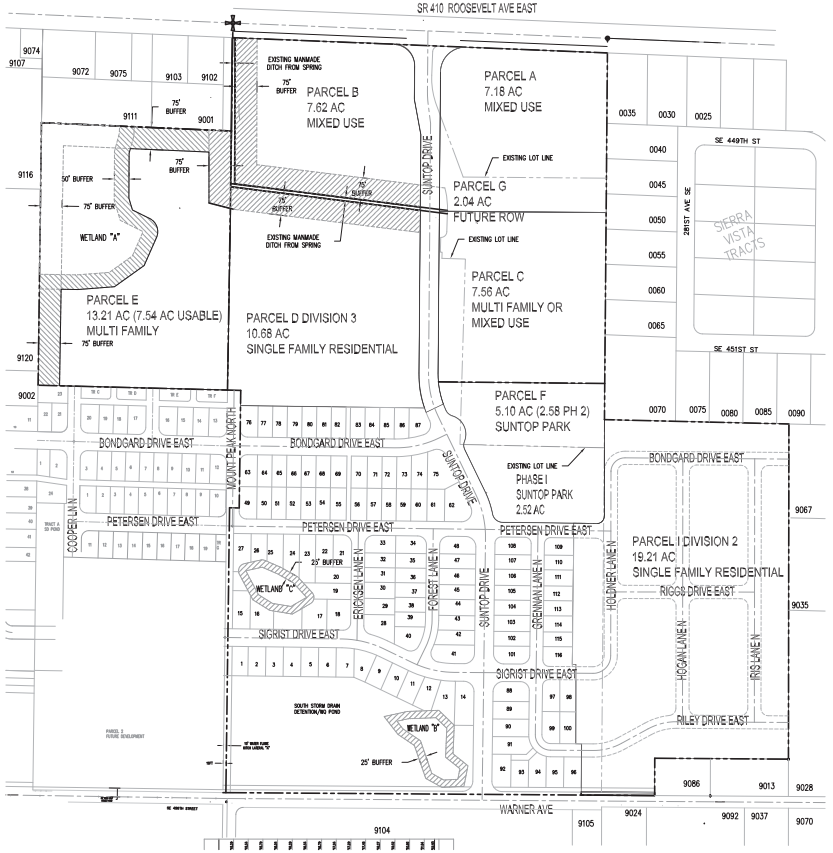


EXISTING PARCELS

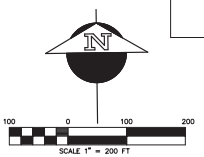
Suntop PUD - Land Use Summary		Area/Acres	Maximum # Units
Parcel A - HWY Commercial or Mixed Use		7.18	0
Parcel B - HWY Commercial or Mixed Use		7.62	0
Parcel C - Mixed Use/Multi Family		7.56	140
Parcel D - SF Detached Division 3		10.68	60
Parcel E - Multi Family		13.21	80
Parcel F - City Park		5.10	0
Parcel G - Right of Way		2.04	0
Parcel H - SF Detached Division 1		32.44	116
Parcel I - SF Detached Division 2		19.21	110
	Total	105.04	506
Existing Parcels			
	302007-9012	82.19	
	302007-9011	17.24	
	302007-9111	5.61	
	Total	105.04	

SHEET INDEX

PRELIMINARY PUD PLAN AND COVER SHEET	P-1
PRELIMINARY LOT LAYOUT, DIVISION 1	P-2
PRELIMINARY LOT LAYOUT NORTH LOTS	P-3
PRELIMINARY ROADWAY AND UTILITY PLAN SOUTH	P-4
PRELIMINARY ROADWAY AND UTILITY PLAN NORTH	P-5
ROADWAY PROFILES	P-6
SOUTH DETENTION POND PRELIMINARY PLAN	P-7



SUNTOP PUD PRELIMINARY PLAT MAP



PROJECT LOCATION

REVISED LEGAL DESCRIPTIONS

REVISED LOT A:

COMMENCING AT THE SOUTHEAST CORNER OF GOVERNMENT LOT 1 OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN;
THENCE NORTH 00°27'23" EAST ALONG THE EAST LINE OF SAID LOT, 822.98 FEET TO THE POINT OF BEGINNING;
THENCE CONTINUING NORTH 00°27'23" EAST, 427.09 FEET TO THE SOUTHERLY MARGIN OF STATE ROUTE 410;
THENCE NORTH 87°40'38" WEST ALONG SAID SOUTHERLY MARGIN, 572.69 FEET TO THE BEGINNING OF A 20.00 FOOT RADIUS CURVE CONCAVE TO THE SOUTHEAST;
THENCE ALONG SAID CURVE 31.42 FEET, THROUGH A CENTRAL ANGLE OF 90°00'00";
THENCE SOUTH 00°19'20" WEST, 80.00 FEET TO THE BEGINNING OF 264.00 FOOT RADIUS CURVE, CONCAVE EASTERLY;
THENCE ALONG SAID CURVE 104.65 FEET, THROUGH A CENTRAL ANGLE OF 22°42'45";
THENCE SOUTH 20°23'23" EAST, 248.84 FEET TO THE BEGINNING OF 336.00 FOOT RADIUS CURVE, CONCAVE TO THE SOUTHWEST;
THENCE ALONG SAID CURVE 12.10 FEET, THROUGH A CENTRAL ANGLE OF 02°03'47";
THENCE SOUTH 89°32'37" EAST, 486.84 FEET TO THE POINT OF BEGINNING.

REVISED LOT B:

BEGINNING AT THE NORTHEAST CORNER OF GOVERNMENT LOT 2 OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN;
THENCE SOUTH 00°27'23" WEST ALONG THE EAST LINE OF SAID LOT, 96.11 FEET;
THENCE NORTH 88°39'16" WEST PARALLEL WITH THE NORTH LINE OF SAID LOT, 492.01 FEET;
THENCE NORTH 01°40'27" EAST, 632.22 FEET;
THENCE NORTH 88°19'33" WEST, 80.00 FEET;
THENCE NORTH 01°40'27" EAST, 21.00 FEET;
THENCE NORTH 88°19'33" WEST, 6.00 FEET;
THENCE NORTH 01°40'27" EAST, 50.00 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, FROM WHICH THE RADIUS POINT BEARS NORTH 01°40'27" EAST, 20.00 FEET;
THENCE ALONG SAID CURVE 31.42 FEET, THROUGH A CENTRAL ANGLE OF 90°00'00";
THENCE NORTH 01°40'27" EAST, 73.21 FEET TO THE BEGINNING OF 264.00 FOOT RADIUS CURVE, CONCAVE TO THE WEST;
THENCE ALONG SAID CURVE 76.90 FEET, THROUGH A CENTRAL ANGLE OF 16°41'19";
THENCE NORTH 86°56'39" WEST, 646.23 FEET;
THENCE NORTH 00°10'24" EAST, 429.52 FEET TO THE SOUTHERLY MARGIN OF STATE ROUTE 410;
THENCE NORTH 87°40'38" WEST ALONG SAID SOUTHERLY MARGIN, 83.20 FEET TO THE WEST LINE OF SAID SECTION 30;
THENCE SOUTH 00°44'15" WEST ALONG SAID WEST LINE, 318.28 FEET;
THENCE NORTH 87°29'57" WEST PARALLEL WITH AND 368.10 FEET DISTANT FROM THE NORTH LINE OF SECTION 25, TOWNSHIP 20 NORTH, RANGE 5 EAST OF THE WILLAMETTE MERIDIAN, 648.42 FEET;
THENCE SOUTH 00°44'15" WEST ALONG THE WEST LINE OF THE EAST HALF OF THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 25, 894.85 FEET;
THENCE SOUTH 88°32'00" EAST, 691.06 FEET;
THENCE SOUTH 00°44'15" WEST PARALLEL WITH THE WEST LINE OF THE EAST HALF OF THE SOUTHEAST QUARTER OF THE NORTHEAST QUARTER OF SAID SECTION 25, 400.84 FEET;
THENCE NORTH 88°32'00" WEST, 32.90 FEET;
THENCE SOUTH 00°44'15" WEST PARALLEL WITH THE WEST LINE OF SAID SECTION 30, 871.17 FEET TO THE NORTHERLY MARGIN OF SOUTHEAST 456TH STREET;
THENCE SOUTH 89°36'49" EAST ALONG SAID NORTHERLY MARGIN, 1461.68 FEET;
THENCE NORTH 00°04'52" EAST PARALLEL WITH AND 455.80 FEET DISTANT FROM THE EAST LINE OF THE WEST HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 30, 127.22 FEET;
THENCE SOUTH 89°36'49" EAST PARALLEL WITH AND 147.22 FEET DISTANT FROM THE SOUTH LINE OF THE NORTHWEST QUARTER OF SAID SECTION 30, 455.80 FEET TO THE EAST LINE OF THE WEST HALF OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 30;
THENCE NORTH 00°04'52" EAST ALONG SAID EAST LINE, 1142.56 FEET TO THE NORTH LINE OF THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SAID SECTION 30;
THENCE NORTH 88°39'16" WEST ALONG SAID NORTH LINE, 628.89 FEET TO THE POINT OF BEGINNING.

REVISED LOT C:

BEGINNING AT THE NORTHEAST CORNER OF GOVERNMENT LOT 2 OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN;
THENCE SOUTH 00°27'23" WEST ALONG THE EAST LINE OF SAID LOT, 96.11 FEET;
THENCE NORTH 88°39'16" WEST PARALLEL WITH THE NORTH LINE OF SAID LOT, 492.01 FEET;
THENCE NORTH 01°40'27" EAST, 632.22 FEET;
THENCE NORTH 88°19'33" WEST, 80.00 FEET;
THENCE NORTH 01°40'27" EAST, 21.00 FEET;
THENCE NORTH 88°19'33" WEST, 6.00 FEET;
THENCE NORTH 01°40'27" EAST, 50.00 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, FROM WHICH THE RADIUS POINT BEARS NORTH 01°40'27" EAST, 20.00 FEET;
THENCE ALONG SAID CURVE 31.42 FEET, THROUGH A CENTRAL ANGLE OF 90°00'00";
THENCE NORTH 01°40'27" EAST, 73.21 FEET TO THE BEGINNING OF 264.00 FOOT RADIUS CURVE, CONCAVE TO THE WEST;
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THENCE NORTH 88°39'16" WEST ALONG SAID NORTH LINE, 628.89 FEET TO THE POINT OF BEGINNING.

PROJECT DATA

1. EXISTING PARCEL AREAS: LOT A: 5.61 AC, LOT B: 17.24 AC, LOT C: 82.19 AC TOTAL 105.04 ACRES
2. EXISTING ZONING: HOLDNER FARMS PLANNED UNIT DEVELOPMENT
3. PROPOSED LAND USE: PUD, MIXED USE
4. NUMBER OF LOTS : DIVISION 1: 116 LOTS; DIVISION 2: 116 LOTS – 232 TOTAL LOTS DIVISION 3: 5 LARGE MULTI FAMILY MIXED USE LOTS
5. COUNTY PARCEL NUMBERS: 302007-9011, -9012, & -9111
6. APPROXIMATE AREA SMALLEST LOT: 5,000 SqFt
8. SCS SOILS TYPE: BUCKLEY LOAM, SHALCAR MUCK, SULTAN SILT LOAM
9. SOURCE OF WATER SUPPLY: CITY OF ENUMCLAW
10. SOURCE OF SEWAGE DISPOSAL: CITY OF ENUMCLAW
11. EXISTING GROUND COVER: GRASSY PASTURE W/ SOME GROVES OF TREES

PROPERTY OWNER/APPLICANT:
MRS FRANCES HOLDNER
1009 WARNER AVE
ENUMCLAW, WA 98023

AGENT/REPRESENTATIVE:
KEN KRUEGER PH 253-753-2985
3207 W LK SAMMAMISH PARKWAY NE
REDMOND, WA 98052

ANDREW L. RYKELS STATE OF WASHINGTON 19985 REGISTERED PROFESSIONAL ENGINEER

RYKELS ENGINEERING GROUP, INC.
Consulting Engineers – Civil, Municipal, Subdivisions, Land Development
3206 NW Fairway Hts Dr, Bend, OR 97701 253-951-4217 rykelsengineering@gmail.com

Attachment H

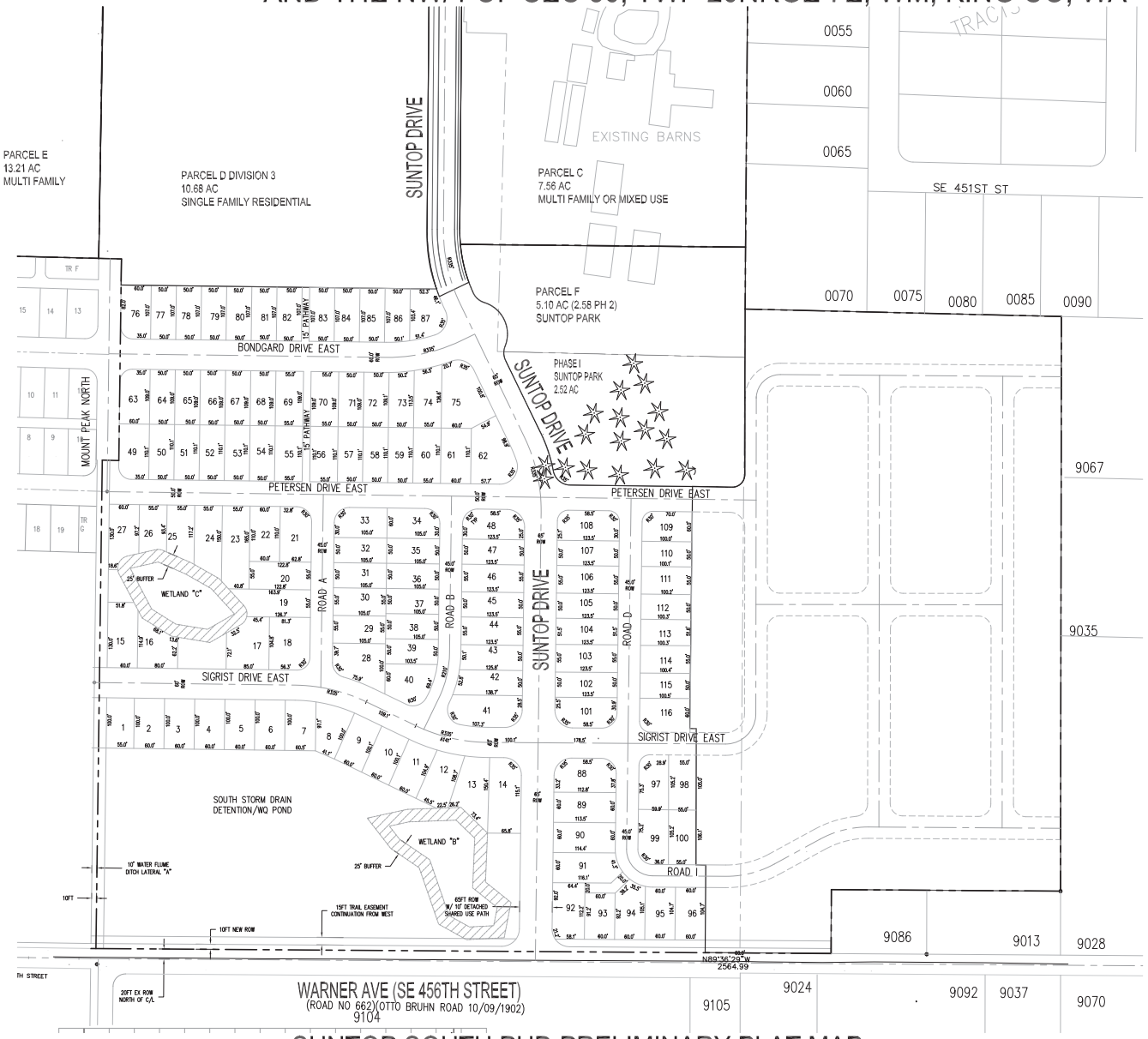
NO	REVISIONS	DATE

PRELIMINARY PUD PLAN & COVER SHEET
SUNTOP PUD, DIVISION 1, PRELIMINARY PLAT, ENUMCLAW, WA
CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
3207 WEST LAKE SAMMAMISH PARKWAY NE, REDMOND, WA 98052
PH 425-753-2985

A. RYKELS
DESIGNED BY
09/05/2013
DATE
05-2001
PROJECT NO.
SHEET P1
OF 7

SUNTOP PLANNED UNIT DEVELOPMENT DIVISION 1

PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E
AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA



SUNTOP SOUTH PUD PRELIMINARY PLAT MAP

PRELIMINARY PLAT LOT AREAS

LOT #	AREA (SF)	LOT #	AREA (SF)	LOT #	AREA (SF)	LOT #	AREA (SF)
1	5,500	31	5,250	61	6,606	91	7,720
2	6,000	32	5,250	62	9,732	92	7,184
3	6,000	33	6,107	63	6,406	93	5,502
4	6,000	34	6,107	64	5,450	94	6,549
5	6,000	35	5,250	65	5,450	95	6,291
6	6,000	36	5,250	66	5,450	96	6,282
7	6,080	37	5,250	67	5,450	97	6,352
8	5,922	38	5,250	68	5,450	98	5,780
9	6,006	39	5,239	69	5,995	99	6,415
10	6,006	40	7,006	70	5,995	100	5,814
11	6,100	41	8,687	71	5,450	101	7,046
12	6,688	42	6,562	72	5,450	102	6,175
13	7,885	43	6,200	73	5,534	103	6,792
14	9,469	44	6,793	74	6,559	104	6,360
15	7,740	45	6,175	75	10,879	105	6,175
16	6,513	46	6,793	76	6,406	106	6,792
17	8,103	47	6,175	77	5,350	107	6,175
18	8,385	48	6,954	78	5,350	108	7,206
19	7,694	49	6,474	79	5,350	109	5,822
20	6,754	50	5,505	80	5,350	110	5,005
21	6,713	51	5,505	81	5,350	111	5,511
22	6,600	52	5,505	82	5,350	112	5,015
23	8,969	53	5,505	83	5,350	113	5,175
24	7,291	54	5,505	84	5,350	114	5,522
25	5,774	55	6,055	85	5,350	115	5,025
26	5,057	56	6,055	86	5,296	116	6,653
27	6,718	57	5,505	87	6,295		
28	8,123	58	5,505	88	7,943		
29	5,775	59	5,505	89	6,786		
30	5,775	60	6,055	90	6,780		

SCALE 1" = 100 FT CONTOUR INTERVAL 1 FOOT

ANDREW J. RYKELS
STATE OF WASHINGTON
19985
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PROFESSIONAL ENGINEER

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NO. REVISIONS DATE

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PH 425-753-2985

A. RYKELS
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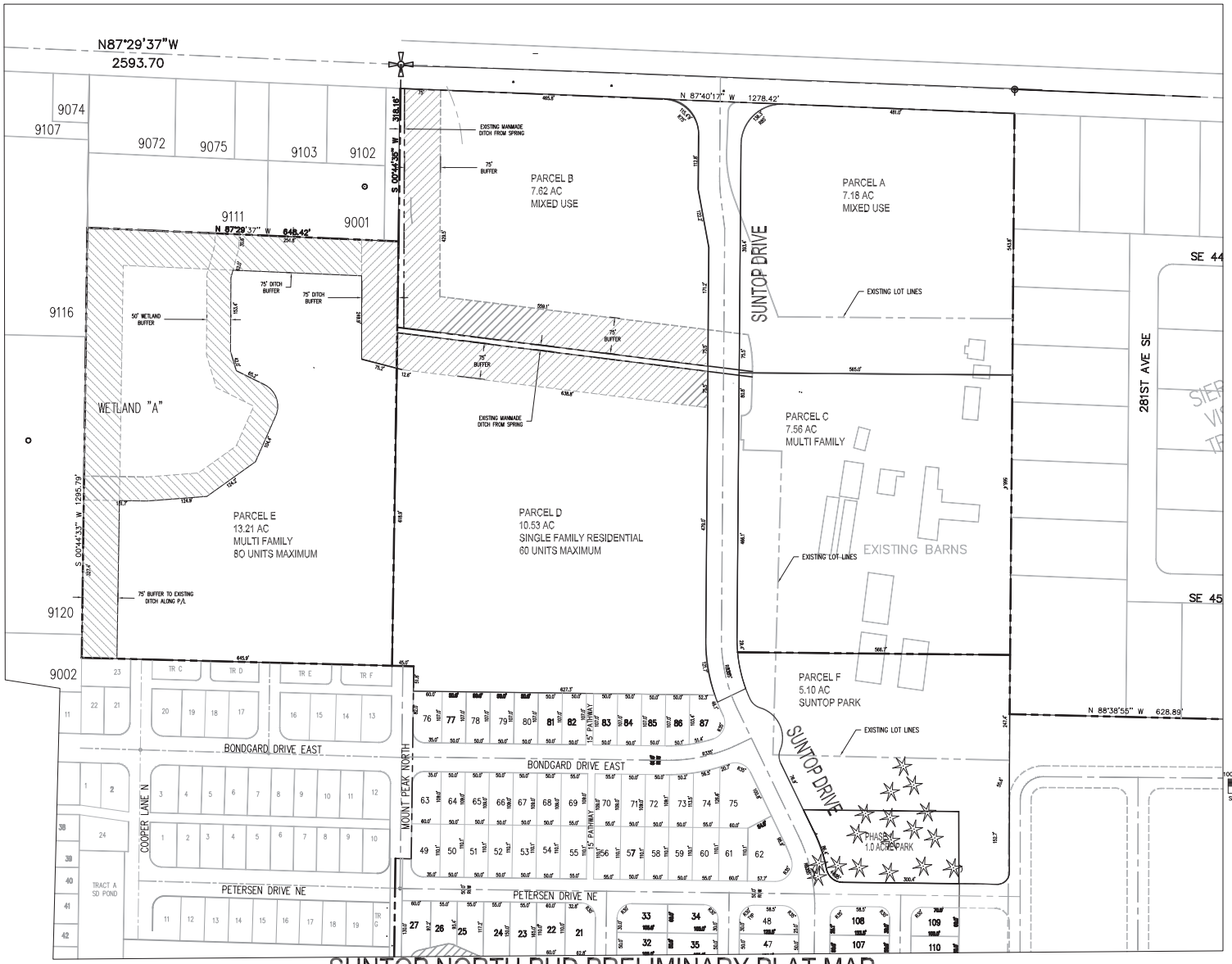
09/05/2013
DATE
05-2001
PROJECT NO.
SHEET P2
OF 7

SUNTOP PLANNED UNIT DEVELOPMENT DIVISION 2

PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA



SUNTOP NORTH PUD PRELIMINARY PLAT MAP

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PRELIMINARY SITE DEVELOPMENT PLAN
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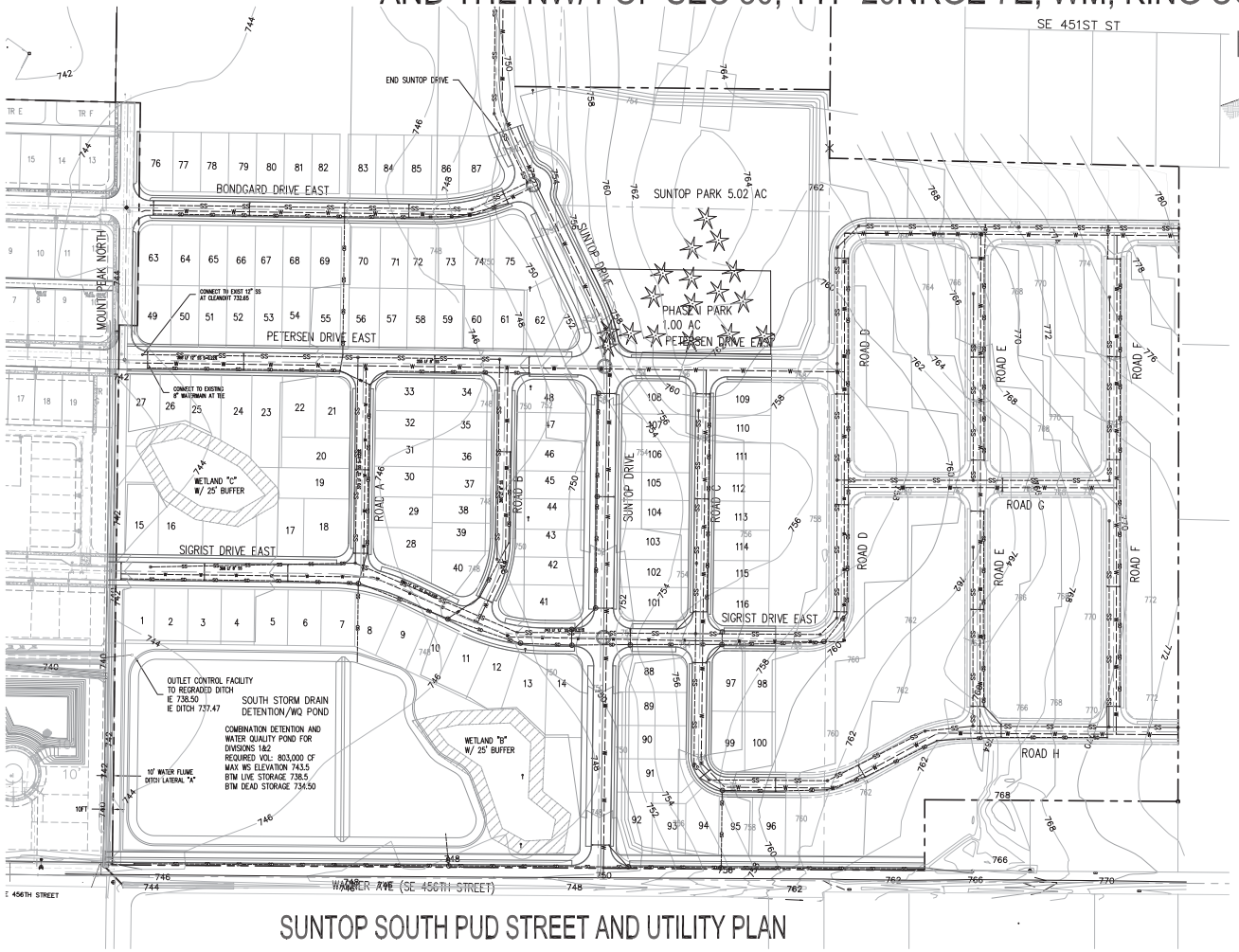
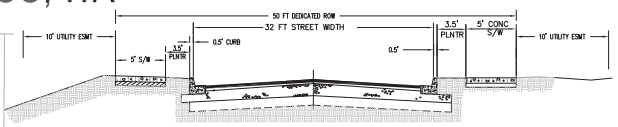
A. RYKELS
DESIGNED BY
09/05/2013
DATE
05-2001
PROJECT NO.
SHEET P3
OF 7

SUNTOP PLANNED UNIT DEVELOPMENT DIVISION 1

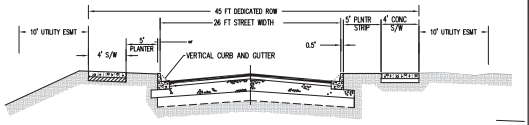
PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E AND THE NW/4 OF SEC 30, TYP 20NRGE 7E, WM, KING CO, WA



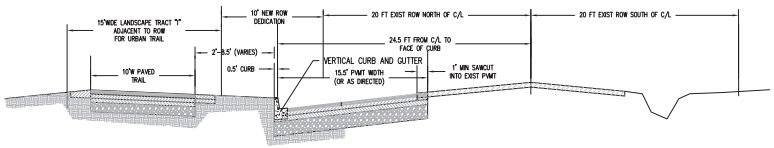
SUNTOP SOUTH PUD STREET AND UTILITY PLAN



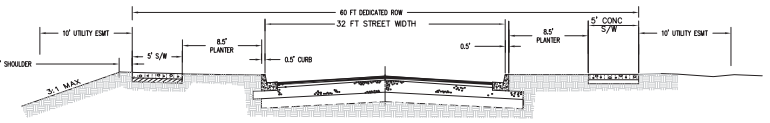
TYPE 6 LOCAL STREET SECTION
PETERSEN & ROAD H



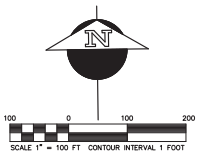
TYPE 7 LOCAL STREET SECTION
ROADS A–G



TYPICAL PAVEMENT SECTION WARNER AVENUE



TYPE 5 COLLECTOR STREET SECTION
BONDGARD & SIGRIST



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DATE	
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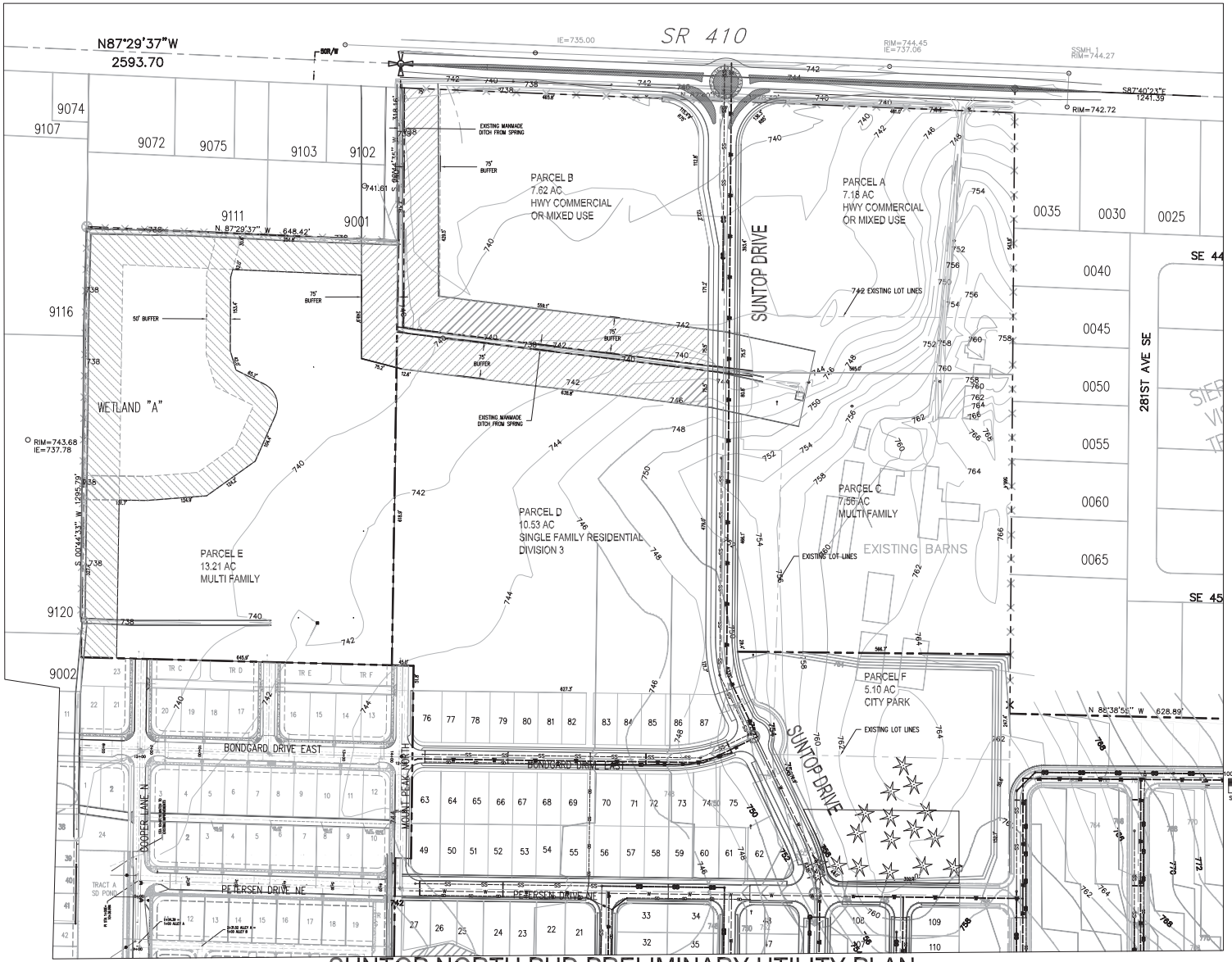
OF	7

SUNTOP PLANNED UNIT DEVELOPMENT

PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA



SUNTOP NORTH PUD PRELIMINARY UTILITY PLAN

Attachment H

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PRELIMINARY ROADWAY AND UTILITY PLAN
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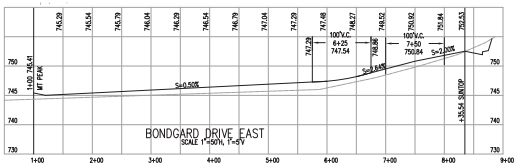
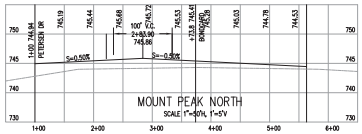
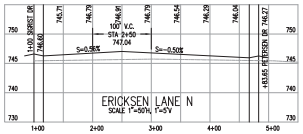
A. RYKELS	
DESIGNED BY	09/05/2013
DATE	05-2001
PROJECT NO.	
SHEET	P5
OF	7

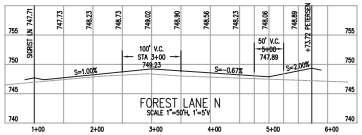
SUNTOP PLANNED UNIT DEVELOPMENT DIVISION 1

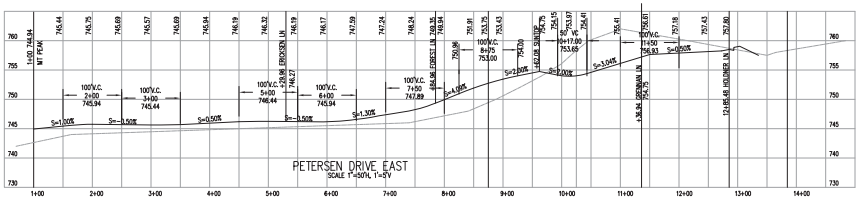
PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E
AND THE NW/4 OF SEC 30, TYP 20NRGE 7E, WM, KING CO, WA

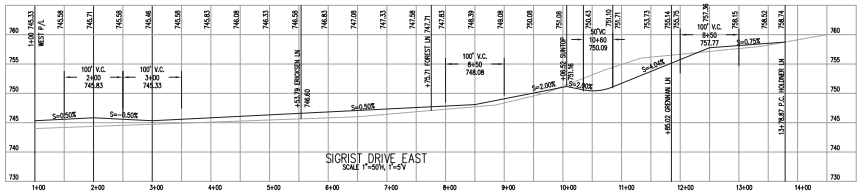


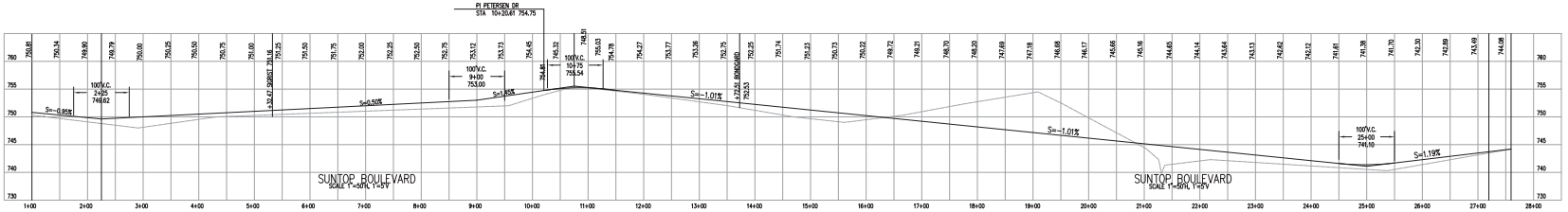


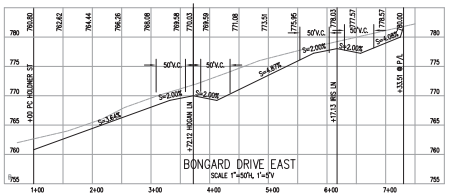


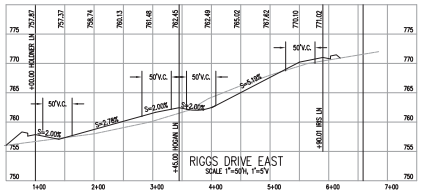


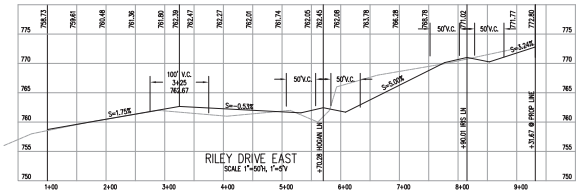


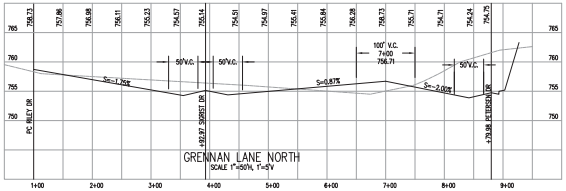


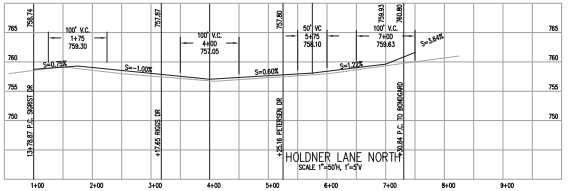


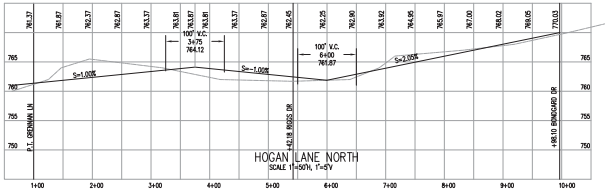


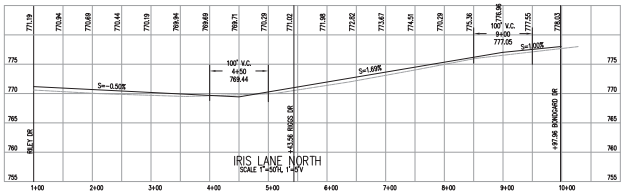


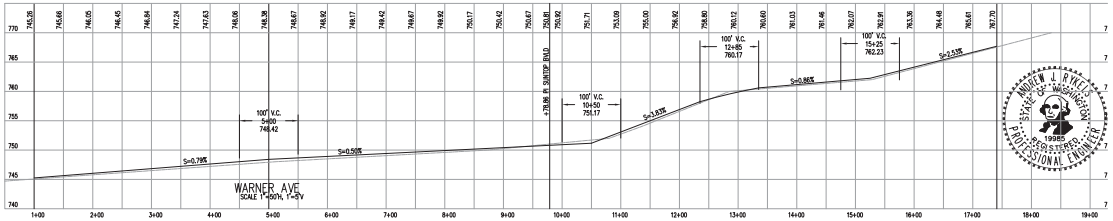












Attachment H

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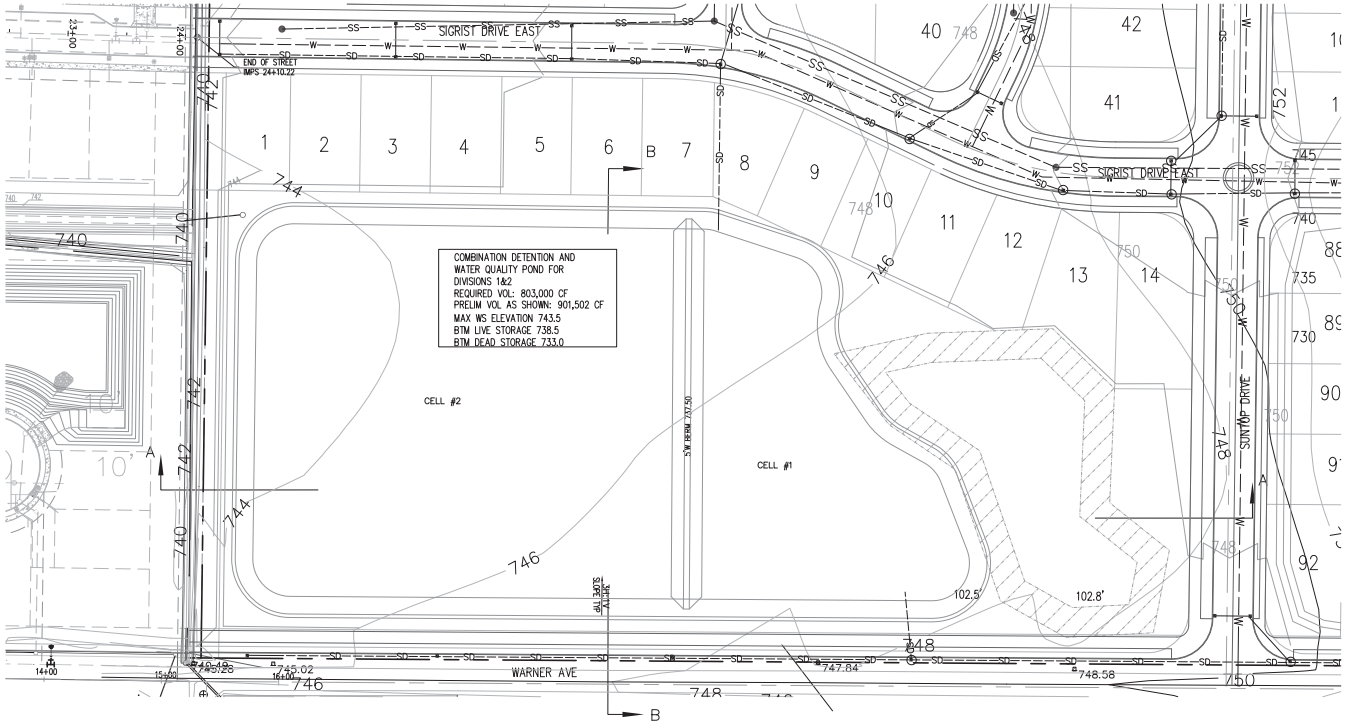
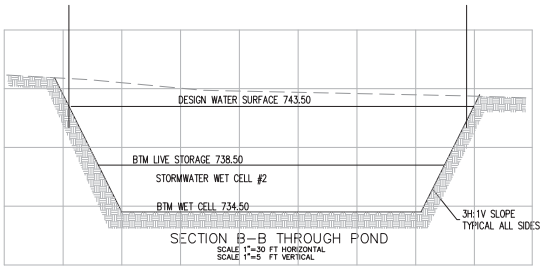
A. RYKELS
DESIGNED BY
9/05/2013
DATE
05-2001
PROJECT NO.
SHEET P6
OF 7

SUNTOP FARM PLANNED UNIT DEVELOPMENT DIVISION 1

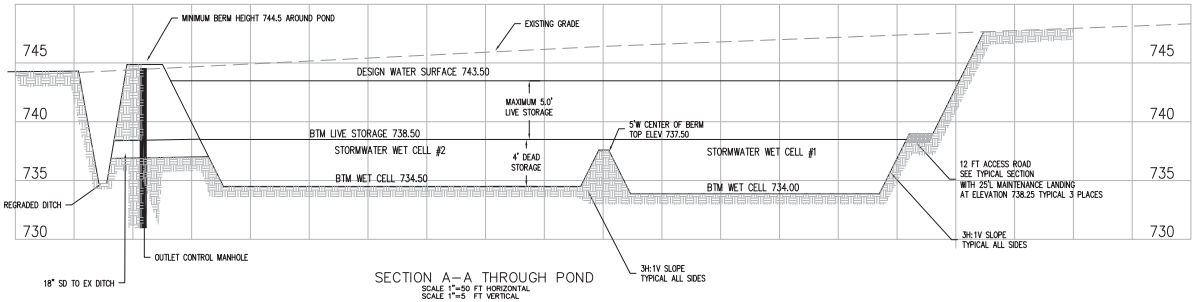
PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E
AND THE NW/4 OF SEC 30, TYP 20NRGE 7E, WM, KING CO, WA



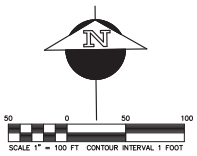


SECTION B–B THROUGH POND
SCALE 1"=30 FT HORIZONTAL
SCALE 1"=5 FT VERTICAL

COMBINATION DETENTION AND STORMWATER QUALITY POND



SECTION A–A THROUGH POND
SCALE 1"=50 FT HORIZONTAL
SCALE 1"=5 FT VERTICAL



SCALE 1" = 100 FT CONTOUR INTERVAL 1 FOOT

ANDREW L. RYKELS
STATE OF WASHINGTON
19985
REGISTERED
PROFESSIONAL ENGINEER

Attachment H

NO. REVISIONS DATE

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SOUTH DETENTION POND PRELIMINARY PLAN
SUNTOP FARM PUD, DIVISION 1, PRELIMINARY PLAT, ENUMCLAW, WA
CONTACT PERSON: KEN KRUEGER & ROBERT STRIKER
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PH 425-753-2985

A. RYKELS
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9/05/2013
DATE
05-2001
PROJECT NO.
SHEET P7
OF 7

Wetland name or number A

Surface

WETLAND RATING FORM – WESTERN WASHINGTON
Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetland A Date of site visit: July 15 - 2013

Rated by SJ Swl Trained by Ecology? Yes__No___ Date of training_____

SEC: ___ TWNSHP: ____ RNGE: ____ Is S/T/R in Appendix D? Yes___ No___

Map of wetland unit: Figure ____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III✓ IV___

Category I = Score >=70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	8
Score for Hydrologic Functions	16
Score for Habitat Functions	10
TOTAL score for Functions	34

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply✓

Final Category (choose the "highest" category from above) III

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		Depressional	✓
Natural Heritage Wetland		Riverine	
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	✓	Check if unit has multiple HGM classes present	

Wetland name or number A

Does the wetland unit being rated meet any of the criteria below?
If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		✓
SP4. *Does the wetland unit have a local significance in addition to its functions?* For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Wetland name or number _____

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
___The wetland is on a slope (*slope can be very gradual*),
___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
___The water leaves the wetland **without being impounded**?
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than 1 foot deep).*
NO - go to 5 **YES** – The wetland class is **Slope**

5. Does the entire wetland unit **meet all** of the following criteria?
___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river
___The overbank flooding occurs at least once every two years.
NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.
NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*
NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Attachment H

Wetland name or number _____

	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Provide photo or drawing	Figure ___ 2
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	4
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** *(see p. 44)* Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland ✓ Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other_____ YES multiplier is 2 NO multiplier is 1	multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 *Add score to table on p. 1*	8

Wetland name or number A

	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	Points (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	3
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	3
D	**Total for D 3** *Add the points in the boxes above*	8
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** *(see p. 49)* Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems ✓ Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other_____ YES multiplier is 2 NO multiplier is 1	multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 *Add score to table on p. 1*	16

Attachment H

Wetland name or number _____

These questions apply to wetlands of all HGM classes. **Points** (only 1 score per box)

HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Vegetation structure ***(see p. 72)*** **Figure ___**

Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.

___Aquatic bed
___Emergent plants
___Scrub/shrub (areas where shrubs have >30% cover)
___Forested (areas where trees have >30% cover)

If the unit has a forested class check if:

___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation structures that qualify. If you have:

	4 structures or more	points = 4
Map of Cowardin vegetation classes	3 structures	points = 2
	2 structures	points = 1
	1 structure	points = 0

0

H 1.2. Hydroperiods ***(see p. 73)*** **Figure ___**

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

___Permanently flooded or inundated	4 or more types present	points = 3
___Seasonally flooded or inundated	3 types present	points = 2
___Occasionally flooded or inundated	2 types present	point = 1
___Saturated only	1 type present	points = 0

___Permanently flowing stream or river in, or adjacent to, the wetland
___Seasonally flowing stream in, or adjacent to, the wetland
___***Lake-fringe wetland* = 2 points**
___***Freshwater tidal wetland* = 2 points** **Map of hydroperiods**

1

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle

If you counted:	> 19 species	points = 2
List species below if you want to:	5 - 19 species	points = 1
	< 5 species	points = 0

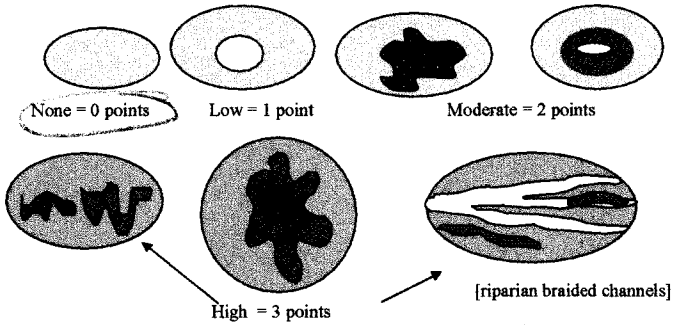
0

Total for page 1

Wetland name or number A

H 1.4. Interspersion of habitats ***(see p. 76)*** **Figure ___**

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". **Use map of Cowardin vegetation classes**

0

H 1.5. Special Habitat Features: ***(see p. 77)***

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

___Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
___Standing snags (diameter at the bottom > 4 inches) in the wetland
___Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
___Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*
___Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5 1

Comments

Attachment H

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** — Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 2
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? *(dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor).* YES = **4 points** *(go to H 2.3)* NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR** a **Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** *(go to H 2.3)* NO = H 2.2.3 H 2.2.3 Is the wetland: within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within 1 mi of a lake greater than 20 acres? YES = **1 point** NO = **0 points**	

Total for page 3

Wetland name or number A

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ___**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ___**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife *(full descriptions in WDFW PHS report p. 152)*. ___**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ___**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ___**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important *(full descriptions in WDFW PHS report p. 158)*. ✓**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ___**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie *(full descriptions in WDFW PHS report p. 161)*. ___**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ___**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. *(full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ___**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ___**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ___**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	1

4

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)***	
There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5	
There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3	
The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3	
There is at least 1 wetland within ½ mile. points = 2	
There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	9
TOTAL for H 1 from page 14	1
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	10

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ✓	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands *(see p. 87)* — **Cat. I**

Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*

S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___

YES____ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ___

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?

YES = Category I NO ___not a Heritage Wetland

SC 3.0 Bogs *(see p. 87)*

Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.***

1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2
2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?

   Yes - go to Q. 3 No - Is not a bog for purpose of rating
3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?

   Yes – Is a bog for purpose of rating No - go to Q. 4

   NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.

1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?*

2. YES = Category I No___ Is not a bog for purpose of rating — **Cat. I**

SC 4.0 Forested Wetlands *(see p. 90)*

Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*

— **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.

NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.

— **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.

YES = Category I NO ___not a forested wetland with special characteristics — **Cat. I**

SC 5.0 Wetlands in Coastal Lagoons *(see p. 91)*

Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks

— The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*

YES = Go to SC 5.1 NO___not a wetland in a coastal lagoon

SC 5.1 Does the wetland meets all of the following three conditions?

— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).

— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — **Cat. I**

— The wetland is larger than 1/10 acre (4350 square feet)

YES = Category I NO = Category II — **Cat. II**

Wetland name or number A

SC 6.0 Interdunal Wetlands *(see p. 93)* Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1 NO – not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p.1	NA

Wetland name or number ____

Surtop

WETLAND RATING FORM – WESTERN WASHINGTON

Version 2 - Updated July 2006 to increase accuracy and reproducibility among users
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known): Wetlands A+B Date of site visit: 7-15-13

Rated by Ed Sewall Trained by Ecology? Yes__No___ Date of training_____

SEC: ___ TWNSHP: ____ RNGE: ____ Is S/T/R in Appendix D? Yes___ No___

Map of wetland unit: Figure ____ Estimated size _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV__✓__

Category I = Score >=70	Score for Water Quality Functions: 10
Category II = Score 51-69	Score for Hydrologic Functions: 4
Category III = Score 30-50	Score for Habitat Functions: 6
Category IV = Score < 30	**TOTAL score for Functions: 20**

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ Does not Apply__✓__

Final Category (choose the "highest" category from above) ✓

Summary of basic information about the wetland unit

Wetland Unit has Special Characteristics		Wetland HGM Class used for Rating	
Estuarine		**Depressional**	✓
Natural Heritage Wetland		**Riverine**	
Bog		**Lake-fringe**	
Mature Forest		**Slope**	
Old Growth Forest		**Flats**	
Coastal Lagoon		**Freshwater Tidal**	
Interdunal			
None of the above	✓	Check if unit has multiple HGM classes present	

Wetland name or number B+C

Does the wetland unit being rated meet any of the criteria below?

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. *Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered **animal or plant** species (T/E species)?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		✓
SP2. *Has the wetland unit been documented as habitat for any State listed Threatened or Endangered **animal** species?* For the purposes of this rating system, "documented" means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		✓
SP3. *Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?*		✓
SP4. *Does the wetland unit have a local significance in addition to its functions*? For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		✓

To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.

The hydrogeomorphic classification groups wetlands into those that function in similar ways. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

Attachment H

Wetland name or number _____

Classification of Wetland Units in Western Washington

If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in questions 1-7 apply, and go to Question 8.

1. Are the water levels in the entire unit usually controlled by tides (i.e. except during floods)?
NO – go to 2 **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland.* Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term "Estuarine" wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p.).

2. The entire wetland unit is flat and precipitation is the only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit.
NO – go to 3 **YES** – The wetland class is **Flats**

If your wetland can be classified as a "Flats" wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?
___The vegetated part of the wetland is on the shores of a body of permanent open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;
___At least 30% of the open water area is deeper than 6.6 ft (2 m)?
NO – go to 4 **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?
___The wetland is on a slope (*slope can be very gradual*),
___The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.
___The water leaves the wetland **without being impounded?**
NOTE: *Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).*
NO - go to 5 **YES** – The wetland class is **Slope**

Wetland name or number B + C

5. Does the entire wetland unit **meet all** of the following criteria?
___The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river
___The overbank flooding occurs at least once every two years.
NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.
NO - go to 6 **YES** – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*
NO – go to 7 **YES** – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.
NO – go to 8 **YES** – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM clases. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. NOTE: Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit; classify the wetland using the class that represents more than 90% of the total area.

HGM Classes within the wetland unit being rated	*HGM Class to Use in Rating*
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or if you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Attachment H

Wetland name or number _____

D	Depressional and Flats Wetlands **WATER QUALITY FUNCTIONS** - Indicators that the wetland unit functions to improve water quality	Points (only 1 score per box)
D	**D 1. Does the wetland unit have the potential to improve water quality?**	*(see p.38)*
D	D 1.1 Characteristics of surface water flows out of the wetland: Unit is a depression with no surface water leaving it (no outlet) points = 3 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 1 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Provide photo or drawing	Figure ___ 3
D	S 1.2 The soil 2 inches below the surface (or duff layer) is clay or organic *(use NRCS definitions)* YES points = 4 NO points = 0	0
D	D 1.3 Characteristics of persistent vegetation (emergent, shrub, and/or forest Cowardin class) Wetland has persistent, ungrazed, vegetation > = 95% of area points = 5 Wetland has persistent, ungrazed, vegetation > = 1/2 of area points = 3 Wetland has persistent, ungrazed vegetation > = 1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0 Map of Cowardin vegetation classes	Figure ___ 0
D	D1.4 Characteristics of seasonal ponding or inundation. *This is the area of the wetland unit that is ponded for at least 2 months, but dries out sometime during the year. Do not count the area that is permanently ponded. Estimate area as the average condition 5 out of 10 yrs.* Area seasonally ponded is > ½ total area of wetland points = 4 Area seasonally ponded is > ¼ total area of wetland points = 2 Area seasonally ponded is < ¼ total area of wetland points = 0 Map of Hydroperiods	Figure ___ 2
D	**Total for D 1** *Add the points in the boxes above*	5
D	**D 2. Does the wetland unit have the opportunity to improve water quality?** Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland. *Note which of the following conditions provide the sources of pollutants. A unit may have pollutants coming from several sources, but any single source would qualify as opportunity.* — Grazing in the wetland or within 150 ft — Untreated stormwater discharges to wetland — Tilled fields or orchards within 150 ft of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — Residential, urban areas, golf courses are within 150 ft of wetland — Wetland is fed by groundwater high in phosphorus or nitrogen — Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 44)* multiplier 2
D	**TOTAL - Water Quality Functions** Multiply the score from D1 by D2 *Add score to table on p. 1*	10

Wetland name or number B + C

D	Depressional and Flats Wetlands HYDROLOGIC FUNCTIONS - Indicators that the wetland unit functions to reduce flooding and stream degradation	Points (only 1 score per box)
	D 3. Does the wetland unit have the potential to reduce flooding and erosion?	*(see p.46)*
D	D 3.1 Characteristics of surface water flows out of the wetland unit Unit is a depression with no surface water leaving it (no outlet) points = 4 Unit has an intermittently flowing, OR highly constricted permanently flowing outlet points = 2 Unit is a "flat" depression (Q. 7 on key), or in the Flats class, with permanent surface outflow and no obvious natural outlet and/or outlet is a man-made ditch points = 1 *(If ditch is not permanently flowing treat unit as "intermittently flowing")* Unit has an unconstricted, or slightly constricted, surface outlet (*permanently flowing*) points = 0	2
D	D 3.2 Depth of storage during wet periods *Estimate the height of ponding above the bottom of the outlet. For units with no outlet measure from the surface of permanent water or deepest part (if dry).* Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 The wetland is a "headwater" wetland points = 5 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 Unit is flat (yes to Q. 2 or Q. 7 on key) but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft points = 0	0
D	D 3.3 Contribution of wetland unit to storage in the watershed *Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.* The area of the basin is less than 10 times the area of unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire unit is in the FLATS class points = 5	0
D	**Total for D 3** *Add the points in the boxes above*	2
D	**D 4. Does the wetland unit have the opportunity to reduce flooding and erosion?** Answer YES if the unit is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. Answer NO if the water coming into the wetland is controlled by a structure such as flood gate, tide gate, flap valve, reservoir etc. OR you estimate that more than 90% of the water in the wetland is from groundwater in areas where damaging groundwater flooding does not occur. *Note which of the following indicators of opportunity apply.* — Wetland is in a headwater of a river or stream that has flooding problems — Wetland drains to a river or stream that has flooding problems — Wetland has no outlet and impounds surface runoff water that might otherwise flow into a river or stream that has flooding problems — Other _____ YES multiplier is 2 NO multiplier is 1	*(see p. 49)* multiplier 2
D	**TOTAL - Hydrologic Functions** Multiply the score from D 3 by D 4 *Add score to table on p. 1*	4

Attachment H

Wetland name or number _____

These questions apply to wetlands of all HGM classes. **Points** (only 1 score per box)

HABITAT FUNCTIONS - Indicators that unit functions to provide important habitat

H 1. Does the wetland unit have the potential to provide habitat for many species?

H 1.1 Vegetation structure ***(see p. 72)*** — Figure ___

Check the types of vegetation classes present (as defined by Cowardin)- Size threshold for each class is ¼ acre or more than 10% of the area if unit is smaller than 2.5 acres.

___Aquatic bed
___Emergent plants
___Scrub/shrub (areas where shrubs have >30% cover)
___Forested (areas where trees have >30% cover)

If the unit has a forested class check if:

___The forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon

Add the number of vegetation structures that qualify. If you have:

Map of Cowardin vegetation classes	4 structures or more	points = 4
	3 structures	points = 2
	2 structures	points = 1
	1 structure	points = 0

0

H 1.2. Hydroperiods ***(see p. 73)*** — Figure ___

Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)

___Permanently flooded or inundated	4 or more types present	points = 3
___Seasonally flooded or inundated	3 types present	points = 2
___Occasionally flooded or inundated	2 types present	point = 1
___Saturated only	1 type present	points = 0

___Permanently flowing stream or river in, or adjacent to, the wetland
___Seasonally flowing stream in, or adjacent to, the wetland
___***Lake-fringe wetland*** **= 2 points**
___***Freshwater tidal wetland*** **= 2 points**

Map of hydroperiods

1

H 1.3. Richness of Plant Species ***(see p. 75)***

Count the number of plant species in the wetland that cover at least 10 ft^2. *(different patches of the same species can be combined to meet the size threshold)*

You do not have to name the species.

Do not include Eurasian Milfoil, reed canarygrass, purple loosestrife, Canadian Thistle

If you counted:	> 19 species	points = 2
	5 - 19 species	points = 1
List species below if you want to:	< 5 species	points = 0

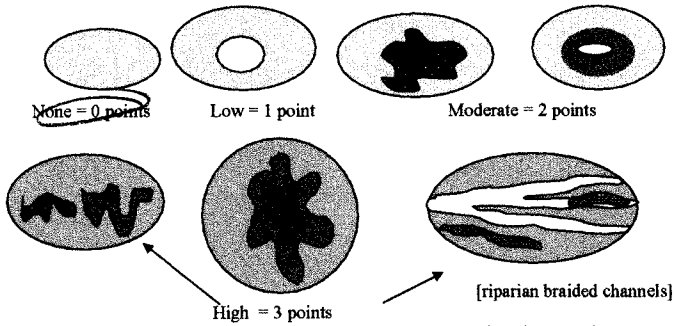
0

Total for page 1

Wetland name or number BTC

H 1.4. Interspersion of habitats ***(see p. 76)*** — Figure ___

Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.



NOTE: If you have four or more classes or three vegetation classes and open water the rating is always "high". **Use map of Cowardin vegetation classes**

0

H 1.5. Special Habitat Features: ***(see p. 77)***

Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.

___Large, downed, woody debris within the wetland (>4in. diameter and 6 ft long).
___Standing snags (diameter at the bottom > 4 inches) in the wetland
___Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream (or ditch) in, or contiguous with the unit, for at least 33 ft (10m)
___Stable steep banks of fine material that might be used by beaver or muskrat for denning (>30degree slope) OR signs of recent beaver activity are present *(cut shrubs or trees that have not yet turned grey/brown)*
___At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. *(structures for egg-laying by amphibians)*
___Invasive plants cover less than 25% of the wetland area in each stratum of plants

NOTE: The 20% stated in early printings of the manual on page 78 is an error.

0

H 1. TOTAL Score - potential for providing habitat
Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5

1

Comments

Attachment H

Wetland name or number _____

H 2. Does the wetland unit have the opportunity to provide habitat for many species?	
H 2.1 Buffers ***(see p. 80)*** *Choose the description that best represents condition of buffer of wetland unit. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."* — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% of circumference. No structures are within the undisturbed part of buffer. (relatively undisturbed also means no-grazing, no landscaping, no daily human use) **Points = 5** — 100 m (330 ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** — 100 m (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** — 50 m (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the criteria above** — No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** — Heavy grazing in buffer. **Points = 1** — Vegetated buffers are <2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland **Points = 0.** ✓ Buffer does not meet any of the criteria above. **Points = 1** Aerial photo showing buffers	Figure ___ 1
H 2.2 Corridors and Connections ***(see p. 81)*** H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (*dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor*). YES = **4 points** (*go to H 2.3*) NO = go to H 2.2.2 H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? **OR a Lake-fringe** wetland, if it does not have an undisturbed corridor as in the question above? YES = **2 points** (*go to H 2.3*) NO = H 2.2.3 H 2.2.3 Is the wetland: ✓ within 5 mi (8km) of a brackish or salt water estuary OR within 3 mi of a large field or pasture (>40 acres) OR within ~~1 mi of a lake~~ greater than 20 acres? YES = **1 point** NO = **0 points**	1

Total for page 2

B + C

Wetland name or number _____

H 2.3 Near or adjacent to other priority habitats listed by WDFW ***(see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report http://wdfw.wa.gov/hab/phslist.htm)*** Which of the following priority habitats are within 330ft (100m) of the wetland unit? *NOTE: the connections do not have to be relatively undisturbed.* ___**Aspen Stands:** Pure or mixed stands of aspen greater than 0.4 ha (1 acre). ___**Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report p. 152*). ___**Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock. ___**Old-growth/Mature forests:** (Old-growth west of Cascade crest) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) > 81 cm (32 in) dbh or > 200 years of age. (Mature forests) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest. ___**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158*). ___**Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other. ___**Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161*). ___**Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources. ___**Nearshore**: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A).* ___**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human. ___**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ___**Talus:** Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs. ___**Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 51 cm (20 in) in western Washington and are > 2 m (6.5 ft) in height. Priority logs are > 30 cm (12 in) in diameter at the largest end, and > 6 m (20 ft) long. If wetland has **3 or more** priority habitats = **4 points** If wetland has **2** priority habitats = **3 points** If wetland has **1** priority habitat = **1 point** No habitats = 0 points *Note: All vegetated wetlands are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H 2.4)*	0

Wetland name or number _____

H 2.4 Wetland Landscape *(choose the **one** description of the landscape around the wetland that best fits)* ***(see p. 84)***	2
There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. points = 5	
The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile points = 5	
There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed points = 3	
The wetland is Lake-fringe on a lake **with** disturbance and there are 3 other lake-fringe wetland within ½ mile points = 3	
There is at least 1 wetland within ½ mile. points = 2	
There are no wetlands within ½ mile. points = 0	3
H 2. TOTAL Score - opportunity for providing habitat *Add the scores from H2.1,H2.2, H2.3, H2.4*	5
TOTAL for H 1 from page 14	1
Total Score for Habitat Functions – add the points for H 1, H 2 and record the result on p. 1	6

Wetland name or number B+C

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate answers and Category.

Wetland Type *Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.*	**Category**
SC 1.0 Estuarine wetlands ***(see p. 86)*** Does the wetland unit meet the following criteria for Estuarine wetlands? — The dominant water regime is tidal, — Vegetated, and — With a salinity greater than 0.5 ppt. YES = Go to SC 1.1 NO ✓	
SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? YES = Category I NO go to SC 1.2	**Cat. I**
SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions? YES = Category I NO = Category II — The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native *Spartina* spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II). The area of Spartina would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of Spartina in determining the size threshold of 1 acre. — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least 2 of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	**Cat. I** **Cat. II** **Dual rating I/II**

SC 2.0 Natural Heritage Wetlands *(see p. 87)*
Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.

SC 2.1 Is the wetland unit being rated in a Section/Township/Range that contains a Natural Heritage wetland? *(this question is used to screen out most sites before you need to contact WNHP/DNR)*
S/T/R information from Appendix D ___ or accessed from WNHP/DNR web site ___

YES ____ – contact WNHP/DNR (see p. 79) and go to SC 2.2 NO ✓

SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?
YES = Category I NO ✓ not a Heritage Wetland

Cat. I

SC 3.0 Bogs *(see p. 87)*
Does the wetland unit (**or any part of the unit**) meet both the criteria for soils and vegetation in bogs? *Use the key below to identify if the wetland is a bog.* ***If you answer yes you will still need to rate the wetland based on its functions.***

1. Does the unit have organic soil horizons (i.e. layers of organic soil), either peats or mucks, that compose 16 inches or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils)? Yes - go to Q. 3 No - go to Q. 2
2. Does the unit have organic soils, either peats or mucks that are less than 16 inches deep over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on a lake or pond?
   Yes - go to Q. 3 No - Is not a bog for purpose of rating
3. Does the unit have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the "bog" species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists of species in Table 3)?
   Yes – Is a bog for purpose of rating No - go to Q. 4
   NOTE: If you are uncertain about the extent of mosses in the understory you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16" deep. If the pH is less than 5.0 and the "bog" plant species in Table 3 are present, the wetland is a bog.

1. Is the unit forested (> 30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann's spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover *(> 30% coverage of the total shrub/herbaceous cover)?*

2. YES = Category I No___ Is not a bog for purpose of rating

Cat. I

SC 4.0 Forested Wetlands *(see p. 90)*
Does the wetland unit have at least 1 acre of forest that meet one of these criteria for the Department of Fish and Wildlife's forests as priority habitats? *If you answer yes you will still need to rate the wetland based on its functions.*

— **Old-growth forests**: (west of Cascade crest) Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/acre (20 trees/hectare) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 inches (81 cm) or more.

NOTE: The criterion for dbh is based on measurements for upland forests. Two-hundred year old trees in wetlands will often have a smaller dbh because their growth rates are often slower. The DFW criterion is and "OR" so old-growth forests do not necessarily have to have trees of this diameter.

— **Mature forests**: (west of the Cascade Crest) Stands where the largest trees are 80 – 200 years old OR have average diameters (dbh) exceeding 21 inches (53cm); crown cover may be less that 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth.

YES = Category I NO ✓ not a forested wetland with special characteristics

Cat. I

SC 5.0 Wetlands in Coastal Lagoons *(see p. 91)*
Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?

— The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks
— The lagoon in which the wetland is located contains surface water that is saline or brackish (> 0.5 ppt) during most of the year in at least a portion of the lagoon *(needs to be measured near the bottom)*

YES = Go to SC 5.1 NO___ not a wetland in a coastal lagoon

SC 5.1 Does the wetland meets all of the following three conditions?

— The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing), and has less than 20% cover of invasive plant species (see list of invasive species on p. 74).
— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland.
— The wetland is larger than 1/10 acre (4350 square feet)

YES = Category I NO = Category II

Cat. I

Cat. II

Attachment H

Wetland name or number B + C

SC 6.0 Interdunal Wetlands *(see p. 93)* Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? YES - go to SC 6.1 NO – not an interdunal wetland for rating ***If you answer yes you will still need to rate the wetland based on its functions.*** In practical terms that means the following geographic areas: • Long Beach Peninsula- lands west of SR 103 • Grayland-Westport- lands west of SR 105 • Ocean Shores-Copalis- lands west of SR 115 and SR 109 SC 6.1 Is the wetland one acre or larger, or is it in a mosaic of wetlands that is once acre or larger? YES = Category II NO – go to SC 6.2 SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre? YES = Category III	**Cat. II** **Cat. III**
Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories, and record on p. 1.* If you answered NO for all types enter "Not Applicable" on p.1	NA

CITY OF ENUMCLAW

M E M O R A N D U M **DEPARTMENT OF PUBLIC WORKS**

ENGINEERING DIVISION

TO: **Dan Catron, File**

FROM: **Lindsey Winborn / City Engineer**

DATE: **November 23, 2016**

SUBJECT: **Comments on Suntop Divisions 4 and 5 preliminary plat layouts**

General

1. Construction activities will be inspected by use of a third party professional engineering/inspection firm(s). All site fills and trench backfills will be subject to control density testing and reporting by a professional geotechnical engineer. Reports will be provided at a frequency satisfactory to the public works department.
2. Near project's end, perform video inspections of all sanitary and storm mains including any roof and foundation drain manifolds that are typical in residential plats. Said videos shall be provided on a DVD(s) along with a report to the City of Enumclaw.

Water

1. The Comprehensive Water System Plan (CWSP) adopted by the City has a fire flow goal of 1000 gpm for residential development. All water system design shall be in accordance with the CWSP. There is sufficient fire flow available in the surrounding water line system.
2. Residential fire sprinkler systems, if used, must be separate from the domestic water service (flow through systems are not allowed).
3. Fire hydrant locations will be subject to review and approval by FD28.
4. A 5/8"x3/4" meter is considered having a capacity of 1 ERU per the EMC.
5. All water system design and main sizing shall be in accordance with the CWSP.

Drainage

1. The Department of Ecology 2005 Stormwater Management Manual for Western Washington is required by Enumclaw Municipal Code Section 16.24.010 and shall be used as the standard for the design of all drainage facilities including stormwater runoff quality and stormwater best management practices (BMPs).
2. An off-site, detailed downstream drainage analysis is required when designing detention facilities. Outlet invert elevations (and hence live storage) from any proposed detention/retention facility shall be above the 50-year flood elevation of the receiving drainage system where it discharges, unless it is shown that it is not physically and/or economically possible. The reasoning is that backwater from the receiving system can reduce the effectiveness of the stormwater detention storage facility.
3. Stormwater runoff from the south half of SR 410 shall be detained and treated to help offset the current functions provided by the SR 410 Ditch. Plans for detention and treatment shall

be submitted concurrent with right-of-construction permit for SR 410 frontage improvements.

4. The spring source for Ditch "A" shall be set aside in a critical area tract and protected to ensure that the flow of water into Ditch "A" continues as recommended in the Fisheries Critical Area Study by Cedarock Consulting (*Attachment I*).
5. A "French drain" and swale, per City detail, must be provided along the back of lots that do not border a street.
6. A storm drainage "manifold" system will be required to provide a drainage connection for each lot and shall be shown on the construction plan submittal.
7. A foundation soils report by a licensed Washington State geotechnical engineer will be required at the time of building permit submittal. The report shall address groundwater conditions and provisions for collecting and conveying and spring water sources.

Sanitary Sewer

1. Sewer system extensions shall be demonstrated to be at a sufficient depth to serve the future development of upstream properties. Unless otherwise allowed by the City, future development parcels north of Bondgard Ave E shall be provided service by gravity sewer from Roosevelt Ave E. as much as physically possible.
2. The Elk Meadows sewer lift station latecomer agreement shall be segregated prior to Final Plat Approval to apportion the estimated cost share to each of the parcels in the latecomer agreement to the newly created lots that will drain to the lift station.

Transportation

1. Street improvements shall be constructed to current city standards including but not limited to curb, gutter, sidewalks, driveway approach, landscaping, street trees, street lighting and associated storm drainage conveyance, storm water detention, and storm water quality facilities as required by the City's adopted drainage manual. The street improvements shall be designed by a Washington State registered engineer.
2. Unless otherwise allowed under a development agreement approved by the City Council, development of any one of Parcels A, B, C, D, and E (Division 5) shall only be allowed if Suntop Boulevard north of Division 1 and the intersection with SR 410 are constructed concurrent with the parcel(s) development. This shall be a plat condition specific to Parcels A-E (Division 5) shown on the face of the plat. Additional right-of-way shall be dedicated, if required, from Parcels A and B to accommodate the final design of Suntop Boulevard/SR410 roundabout intersection called for in the City's adopted Comprehensive Plan and SR410 Channelization Plan. Half street improvements to Roosevelt Avenue East shall be constructed at the same time.

Natural Gas

1. Provided that the developer agrees to install a minimum of 2 gas appliances in each new home the City would complete gas main and service installation for the plat, with trenching provided by the developer. The developer would reimburse costs incurred by the City. Gas utility lines would be in a joint trench with phone, electric, and cable. Contact Ed Hawthorne, Gas Utility Manager, at 360-615-5787 for more information.

Solid Waste

1. The City will provide solid waste service.

City of Enumclaw
Department of Public Works
Water Utility Division

CERTIFICATE OF WATER AVAILABILITY

Purpose:	This certificate provides the Community Development Department with information necessary to evaluate development proposals.

Applicant:	Francis Holdener		
Proposal:	Suntop Planned Unit Development (PUD) Division 4 and 5		
Location:	Parcels 3020079011 and 3020079111		
Map #:	E-3	Pressure Zone:	888
Class:	Mixed	CIP Projects:	N/A

Supply

Adequate supply is available for the density that will result from the proposed subdivision. The proposal is for 175 single family lots (1 equivalent residential unit or ERU each).

The Comprehensive Water System Plan (CWSP) adopted by the City has fire flow goals that depend upon the density of the development. Sufficient supply is available from water mains surrounding the proposed development that will allow the PUD to meet those goals, provided properly sized main extensions are installed within the PUD.

Facilities

Service is available from the 8-inch water mains in the adjoining developments and a 12-inch main in Suntop Blvd and Roosevelt Ave E. Static pressure in the PUD will vary from approximately 51 to 64 psi. Facility capacity issues for development of the property include the following:

1. Water main extensions are required within the development. All water mains and service lines up to the meter within the development must be within right-of-way or easements dedicated to the City.
2. All water system design and main sizing shall be in accordance with the CWSP and plat conditions.

Current connection fees are based on the amount of equivalent residential units (ERU) or meter size, whichever is larger as set forth in EMC 14.04.195. The charge for an ERU is currently $3,110.

Facility capacity is available subject to the following conditions:

1. The main extension and service line work noted above would be required in order to subdivide the property.

City of Enumclaw
Department of Public Works
Wastewater Utility Division

CERTIFICATE OF WASTEWATER AVAILABILITY

Purpose:	This certificate provides the Community Development Department with information necessary to evaluate development proposals.

Applicant:	Francis Holdener		
Proposal:	Suntop Planned Unit Development (PUD) Division 4 and 5		
Location:	Parcels 3020079111 and 3020079011		
Map #:	E-3	Lift Station:	Elk Meadows
Class:	Mixed	CIP Projects:	N/A

Wastewater Treatment
Adequate wastewater treatment capacity is available for the density that will result from the proposed PUD subdivision. The proposal is for 175 single family lots (1 equivalent residential unit or ERU each).

Wastewater Collection
Service is available from the sewer mains adjoining the proposed PUD and from the sewer main in Roosevelt Ave E on the north. Sewers from the Suntop Farms and Suntop 3 Div 1 subdivisions convey wastewater to the Elk Meadows Lift Station.

Wastewater collection capacity is available subject to the following conditions:

1. Sewer system extensions shall be demonstrated to be at a sufficient depth to serve the future development of upstream properties. Unless otherwise allowed by the City, future development parcels north of Bondgard Ave E shall as much as possible be provided service by gravity sewer from Roosevelt Ave E.
2. Prior geotechnical reports indicate shallow groundwater conditions which suggest the potential for contamination of the aquifer and potential infiltration into sewer. Special construction requirements for the sewer may be required.

ORDINANCE NO. 2551

AN ORDINANCE OF THE CITY OF ENUMCLAW, KING COUNTY, WASHINGTON, APPROVING THE PRELIMINARY PLAT KNOWN AS SUNTOP PUD DIVISION 1, LOCATED IN THE GENERAL VICINITY SOUTH OF SR 410/ROOSEVELT, NORTH OF WARNER AVENUE AND EAST OF MT PEAK STREET NORTH, OWNED BY FRANCES HOLDENER CONSISTING OF APPROXIMATELY 105 ACRES, PROPOSED TO BE ULTIMATELY SUBDIVIDED INTO 116 LOTS, 6 FUTURE DEVELOPMENT TRACTS, 1 PARK AND 1 STORMWATER TRACT

Whereas, a request for preliminary approval of a 122 lot subdivision has been submitted, known as Suntop Planned Unit Development Division 1 and owned by Frances Holdener of Enumclaw, located in NW ¼ of Section 30, Township 20 N, Range 6 E, WM. (APN 3020007-9012, 302007-9011 and 3020070-9111) more fully described in Exhibit "B" attached hereto and incorporated by reference as if set out in full, and

Whereas, the subject property is zoned Planned Unit Development and

Whereas, the preliminary plat has been found to be in conformance with the City's Comprehensive Plan and the Enumclaw Municipal Code, titles 15-19, subject to certain conditions, and

Whereas, the preliminary plat has found to be in conformance with the requirements of Chapter 58.17 RCW, and

Whereas, the preliminary plat has been found to be in conformance with Enumclaw Municipal Code Title 17 *Subdivisions*, and

Whereas, an environmental review was completed under the State Environmental Policy Act (SEPA) and the City issued on July 30, 2014, a mitigated determination of non-significance (MDNS), and

Whereas, the Hearing Examiner held a public hearing to accept public testimony on September 17, 2014, and

Whereas, on October 3, 2014, the Hearing Examiner made findings of fact a recommendation of approval to the City Council subject to certain conditions as set forth in Section 2 of this ordinance and attached hereto in Exhibit "B", and

Whereas, the City Council intends that the type of intersection improvement required at the intersection of Suntop Boulevard and SR 410/Roosevelt Avenue East should be any

improvement permitted or required by the Washington State Department of Transportation at that location, and

Now, therefore, the City Council of the City of Enumclaw, King County, Washington do ordain as follows:

Section 1: The City Council hereby adopts the findings of facts and conclusions contained in the October 3, 2014 Hearing Examiner recommendation attached as Exhibit "B".

Section 2: The preliminary plat of Suntop Planned Unit Development Division 1, consisting of approximately 105.04 acres, described in Exhibit "A" attached hereto and incorporated by reference, consisting of a 122 lot subdivision with a park tract and a stormwater tract, is hereby approved, subject to the following conditions:

1) All mitigated conditions of SEPA MDNS, dated July 30, 2014, shall be met.

2) All development on Division 1, Parcel I and Parcel E shall be in conformance with the Design Guidelines (Attachment E).

3) Prior to Final Plat Approval, a detailed landscaping, planting, and street tree plan shall be submitted prior to final plat approval (EMC 17.12.070), and shall be consistent with EMC Chapter 19.08 *Landscaping regulations*. The plan shall includes a 20 foot wide site obscuring bermed landscape buffer extending along the east boundary of Parcel C.

4) Native riparian vegetation shall be installed along the Ditch A channel between Suntop Boulevard N. and SR 410 and within the buffers of Wetlands B & C at sufficient densities to ensure full coverage within three years. A detailed mitigation and monitoring plan prepared by a qualified professional consistent with the requirements of EMC 19.02.240 Mitigation Plans and 19.02.270 Mitigation Area Performance Standards shall be submitted with the final plat construction plans prior to final plat approval.

5) Prior to or concurrent with Final plat approval, all on-site streams, wetlands and buffers shall be permanently protected in critical area management tracts protected by easement in perpetuity. The management tracts will be owned by the City and maintained by the Suntop PUD Homeowners Association.

6) The boundaries on-site streams, wetlands and buffers shall be marked during construction to prevent disturbance per EMC 19.02.210.C and permanently marked per EMC

19.02.21.D prior to Final Plat approval. Signage shall be shown on final landscape plans submitted with plat construction plans.

7) If temporary impacts to buffers will occur, a mitigation plan shall be submitted for review for consistency with EMC 19.02 concurrent with final plat construction plans.

8) Stormwater runoff from the south half of SR 410 shall be detained and treated to help offset the current functions provided by the SR 410 Ditch. Plans for detention and treatment shall be submitted concurrent with right-of-construction permit for SR 410 frontage improvements.

9) The 90 foot crossing of Ditch A by Suntop Boulevard shall be accomplished by a new bottomless culvert designed to avoid direct impacts to the existing channel and shall meet WDFW fish passage requirements.

10) A Hydraulic Permit Approval (HPA) and, if necessary, Section 404 permit shall be required prior to any work below the ordinary high water mark of any stream, specifically Ditch "A" or the SR 410 Ditch.

11) Building setbacks of 15 feet from the edge of buffers shall be shown on the face of the final plat as required by EMC 19.02.220.B.1.

12) The ditch section along the west boundary of Suntop Division 1 shall be regarded and culvert installed under Sigrist Drive East as approved in the HPA (Attachment U) issued by the Department of Fish and Wildlife.

13) The spring source for Ditch "A" shall be set aside in a critical area tract and protected to ensure that the flow of water into Ditch "A" continues as recommended in the Fisheries Critical Area Study by Cedarock Consulting (*Attachment I*).

14) The Phase 1 park and recreation space area in the amount of 2.52 acres shall be constructed prior to Final Plat approval and dedicated to the City with the Final Plat Approval. Detailed construction drawings shall be submitted with the final plat construction drawings.

15) A conceptual plan for Phase 2 park and recreation space that includes parking area, play fields and perimeter walking trail shall be submitted prior to Final Plat approval. In the event that phasing is proposed, the Phase 2 park and recreation space shall be constructed

and dedicated prior to development on Parcels C, D or E. This should be a plat condition noted on the face of the final plat.

16) The stormwater drainage analysis shall be updated to meet the requirements of the 2012 manual prior to final plat approval and to identify upstream tributary areas and how they will be addressed.

17) A downstream analysis of Drainage District #6 Lateral "A" starting at least as far as Blake Street culvert and as far upstream as Warner Avenue is required. Unless otherwise allowed by the City, the detention pond discharge pipe elevation shall be set above the 50 year storm downstream backwater elevation.

18) A 15 foot wide gravel access drive from either Sigrist Drive East or Warner Avenue to the pond's control structure is required for maintenance purposes.

19) Provide a maintenance vehicle access to Wetland C buffer.

20) A "French drain" and swale, per City detail, must be provided along the back of lots that do not border a street.

21) A storm drainage "manifold" system will be required to provide a drainage connection for each lot and shall be shown on the construction plan submittal.

22) A foundation soils report by a licensed Washington State geotechnical engineer will be required at the time of building permit submittal. The report shall address groundwater conditions and provisions for collecting and conveying and spring water sources.

23) The previous phases of Elk Meadows Phase 1 and Suntop Phase 1 along Bondgard Ave E from Watson St N to Mt. Peak St N has a 34 foot, not a 32 foot street design as shown. The continuity with this 34 foot standard on Bondgard Ave E shall continue between Mount Peak St N and Suntop Boulevard with a curb bulbout provided at the SW corner of the Mt. Peak Intersection.

24) Unless otherwise allowed under a development agreement approved by the City Council, development of any one of Parcels A, B, C, D and E shall only be allowed if Suntop Boulevard north of Division 1 and the intersection with SR 410 are constructed concurrent with the parcel(s) development. This should be a plat condition specific to Parcels A-E

shown on the face of the plat. Additional right-of-way shall be dedicated if required from Parcels A and B to accommodate the final design of Suntop Boulevard/SR410 roundabout intersection called for in the City's adopted Comprehensive Plan and SR410 Channelization Plan. Half street improvements to Roosevelt Avenue East shall be constructed at the time of and as part of the development of Parcels A and B.

25) The 70 foot diameter "traffic circle" as shown on the preliminary plat at the intersection of Bondgard and Suntop Boulevard is not to a modern roundabout (RAB) design and will not function properly. This issue shall be resolved during the civil review phase prior to final plat approval, and may affect lot layout. The applicant is strongly encouraged to refer to professional design references to provide a modern single lane RAB, such as suggested in WSDOT Design Manual Chapter 1320.

26) Water main extensions are required within the development. All water mains and service lines up to the meter within the development must be within right-of-way or easements dedicated to the City.

27) All water system design and main sizing shall be in accordance with the CWSP.

28) Sewer system extensions shall be demonstrated to be at a sufficient depth to serve the future development of upstream properties. Unless otherwise allowed by the City, future development parcels north of Bondgard Ave E shall be provided service by gravity sewer from Roosevelt Ave E.

29) The Elk Meadows sewer lift station latecomer agreement shall be segregated prior to Final Plat Approval to apportion the estimated cost share to each of the parcels in the latecomer agreement to the newly created lots that will drain to the lift station.

30) The improvement required at the intersection of Suntop Boulevard and SR 410/Roosevelt Avenue East is allowed to be any intersection type permitted or required by the Washington State Department of Transportation for that location.

Section 3: If any provision of this ordinance is determined to be invalid or unenforceable for any reason, the remaining provisions of this ordinance shall remain in force and effect.

Section 4: This ordinance shall take effect and be in force five (5) days from and after its passage, approval and publication as required by law.

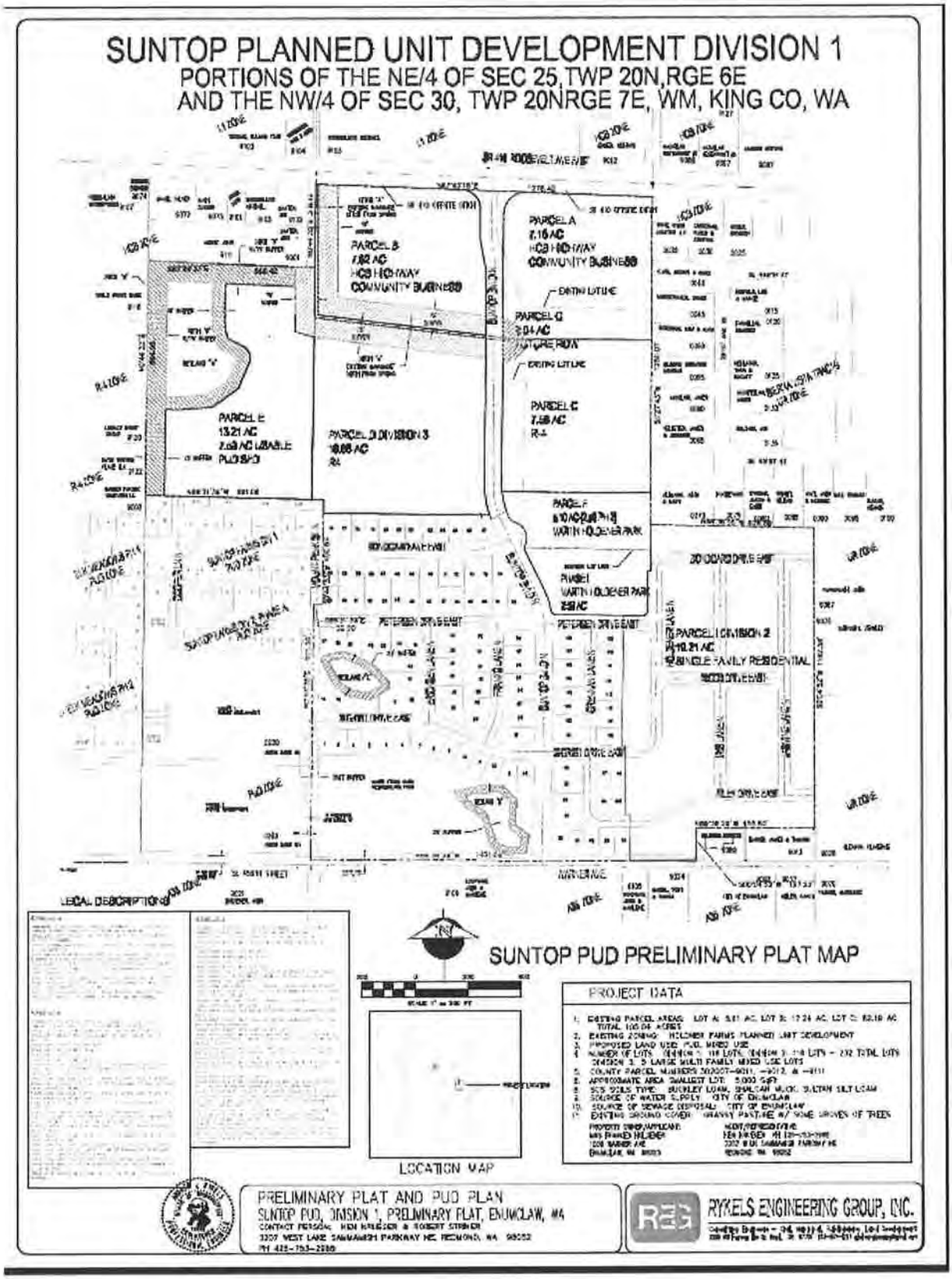
Mayor Liz Reynolds
Introduced: 11-10-14
Passed: 11-24-14
Approved: 11-25-14
Published: 12-10-14

Attested:

Meredith Shirey
City Clerk

Approved as to Form:

Michael J. Reynolds
City Attorney


SUNTOP PLANNED UNIT DEVELOPMENT DIVISION 1
PORTIONS OF THE NE/4 OF SEC 25,TWP 20N,RGE 6E
AND THE NW/4 OF SEC 30, TWP 20NRGE 7E, WM, KING CO, WA
PARCEL A
2.16 AC
HCB HIGHWAY
COMMUNITY BUSINESS
PARCEL B
7.82 AC
HCB HIGHWAY
COMMUNITY BUSINESS
PARCEL C
7.58 AC
R-4
PARCEL D DIVISION 3
10.66 AC
R4
PARCEL E
13.21 AC
2.58 AC USABLE
PUD R-3
PARCEL F
4.10 AC R-4 & 3
MARTIN GLOEKLER PARK
PARCEL I DIVISION 2
10.21 AC
SINGLE FAMILY RESIDENTIAL
LEGAL DESCRIPTION
SUNTOP PUD PRELIMINARY PLAT MAP
PROJECT DATA
LOCATION MAP
PRELIMINARY PLAT AND PUD PLAN
SUNTOP PUD, DIVISION 1, PRELIMINARY PLAT, ENUMCLAW, WA
RYKELS ENGINEERING GROUP, INC.

CITY OF ENUMCLAW
WASHINGTON
ORDINANCE NO. 2552

AN ORDINANCE OF THE CITY OF ENUMCLAW, KING COUNTY, WASHINGTON REZONING PORTIONS OF PARCEL NUMBERS 3020007-9012, -9011, 3020007-9111 AND 302007-9001 FROM PLANNED UNIT DEVELOPMENT TO HIGHWAY AND COMMUNITY BUSINESS AND DENYING REZONE FROM PLANNED UNIT DEVELOPMENT TO MULTIFAMILY (R4), PROVIDING FOR SEVERABILITY AND ESTABLISHING AN EFFECTIVE DATE.

Whereas, a subdivision and rezone application (SUB/Z) #13305 has been considered to rezone assessor parcel numbers 3020007-9012, 3020007-9011, and 3020007-9111, legally described in Exhibit "A," further illustrated in Exhibit "B" (map), attached hereto and incorporated by reference; and

Whereas, the requested rezone of Parcels A and B as described in Exhibit A from Planned Unit Development to Highway and Community Business is consistent with the City's adopted Comprehensive Plan, and

Whereas, the requested rezone of Parcels C and D as described in Exhibit A from Planned Unit Development to R4 is not consistent with the rezone criteria found in EMC 15.32.038.B.1 as there are existing vacant lands zoned R4 and therefore there is not an existing significant need or public necessity for additional areas zoned R4, and

Whereas, an environmental review of the proposed rezone has been conducted in accordance with the requirements of the State Environmental Policy Act (SEPA), and a SEPA threshold determination of nonsignificance (DNS) and notice of adoption was issued on July 30, 2014 and sent to state agencies and interested parties; and

Whereas, the public process for the proposed rezone has provided for early and continuous public participation opportunities including a mailing to affected property owners and

property owners within 300 feet on March 5, 2014 and again on July 30, 2014 notifying them of the public hearing and SEPA public comment period; and

Whereas, the Hearing Examiner held a public hearing to accept public testimony on September 17, 2014; and

Whereas, after considering the public testimony, comments, data and analysis received, the Hearing Examiner forwarded a recommendation to the City Council to approve the rezone subject to conditions; and

Whereas, the City Council held a closed record hearing on November 10, 2014; and

Whereas, the findings and conclusions in the Hearing Examiner recommendation dated October 3, 2014 are hereby incorporated by reference to provide the meeting of the criterion for the justification of the rezone as set forth herein.

Now, therefore, the City Council of the City of Enumclaw, King County, Washington do ordain as follows:

Section 1: Findings, Conclusions, and Analysis. In support of the proposed rezone of the subject properties from Planned Unit Development to Highway and Community Business (HCB) the City Council finds that the application to amend the Zoning Map is consistent with and conforms to the Comprehensive Plan, met all applicable state laws and the City's Decision Criteria set forth in EMC 15.32.038 *Review standards for comprehensive plan amendments.*

Section 2: Amendment to Zoning Map Parcels A & B Approved. The City Council hereby adopts the proposed zoning map amendment rezoning parcels A and B as described in Exhibit "A" from Planned Unit Development to Highway and Community Business as shown on Exhibit "B," attached hereto and incorporated by reference.

Section 3: Amendment to Zoning Map Parcels C & D is denied. The rezone of parcels C & D from Planned Unit Development to Multi-Family Residential (R4) is denied.

Section 4: Consistent with Comprehensive Plan. That this action, as set forth in Sections 2 and 3 above, is consistent with the Comprehensive Plan, the findings of fact as set forth above are incorporated by reference and the findings of fact as set forth in Ordinance No. 2551 are hereby incorporated by reference.

Section 5: Severability. If any provision of this Ordinance, the attached exhibits, the Enumclaw Comprehensive Plan, the Enumclaw Zoning Map, and/or Ordinance No. 2551 are declared unconstitutional or otherwise determined to be invalid or unenforceable for any reason, the remaining provisions of this Ordinance, the Enumclaw Comprehensive Plan, the Enumclaw Zoning Map, and/or Ordinance No. 2551, shall remain in force and affect.

Section 6: Effective Date. This Ordinance shall take effect and be in force five (5) days from and after its passage, approval and publication as required by law.

PASSED IN REGULAR AND OPEN SESSION this 24th day of November, 2014.

Mayor Liz Reynolds
INTRODUCED 11-10-14
PASSED 11-24-14
APPROVED 11-25-14
PUBLISHED 12-10-14

Attested:

Meredith Shirey
City Clerk

Approved as to form:

Michael J. Reynolds
City Attorney

ORDINANCE NO. 2552 - EXHIBIT A

Legal Description for Suntop PUD Division 1

PARCEL A

THAT PORTION OF LAND LYING WITHIN THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN BEING DESCRIBED AS FOLLOWS;

COMMENCING AT A CASED MONUMENT MARKING THE NORTHWEST CORNER OF THE ABOVE DESCRIBED SECTION; THENCE SOUTH 87°40'18" EAST ALONG THE NORTH LINE OF THE NORTHWEST QUARTER THEREOF, A DISTANCE OF 1278.17 FEET; THENCE LEAVING THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN, SOUTH 00°27'43" WEST, A DISTANCE OF 50.03 FEET TO THE SOUTHERLY RIGHT OF WAY MARGIN OF STATE ROUTE 410 (ROOSEVELT AVENUE EAST)AND THE TRUE POINT OF BEGINNING; THENCE NORTH 87°40'17" WEST ALONG SAID RIGHT OF WAY MARGIN, A DISTANCE OF 480.99 FEET TO THE BEGINNING OF A CURVE TANGENT TO SAID LINE; THENCE LEAVING THE SOUTHERLY RIGHT OF WAY MARGIN OF STATE ROUTE 410 (ROOSEVELT AVENUE EAST)WESTERLY, SOUTHWESTERLY AND SOUTHERLY A DISTANCE OF 136.29 FEET ALONG THE CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 85.00 FEET AND A CENTRAL ANGLE OF 91°51'59"; THENCE SOUTH 00°27'43" WEST TANGENT FROM SAID CURVE, A DISTANCE OF 474.87 FEET; THENCE SOUTH 89°32'17" EAST, A DISTANCE OF 568.50 FEET; THENCE NORTH 00°27'43" EAST, A DISTANCE OF 544.16 FEET TO THE TRUE POINT OF BEGINNING AND THE TERMINUS OF THIS DESCRIPTION.

SITUATE IN THE TOWN OF ENUMCLAW, COUNTY OF KING, STATE OF WASHINGTON.

10/9/14

PARCEL B

THAT PORTION OF LAND LYING WITHIN THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN BEING DESCRIBED AS FOLLOWS;

COMMENCING AT A CASED MONUMENT MARKING THE NORTHWEST CORNER OF THE ABOVE DESCRIBED SECTION; THENCE SOUTH 00°44'35" WEST ALONG THE WEST LINE OF THE AFOREMENTIONED SUBDIVISION, A DISTANCE OF 50.02 FEET TO THE SOUTHERLY RIGHT OF WAY MARGIN OF STATE ROUTE 410 (ROOSEVELT AVENUE EAST)AND THE TRUE POINT OF BEGINNING; THENCE SOUTH 87°40'18" EAST ALONG SAID SOUTHERLY RIGHT OF WAY MARGIN, A DISTANCE OF 548.98 FEET TO THE BEGINNING OF A CURVE TANGENT TO SAID LINE; THENCE LEAVING THE SOUTHERLY RIGHT OF WAY MARGIN OF STATE ROUTE 410 (ROOSEVELT AVENUE EAST)EASTERLY, SOUTHEASTERLY AND SOUTHERLY A DISTANCE OF 115.37 FEET ALONG THE CURVE CONCAVE TO THE SOUTHWEST, HAVING A RADIUS OF 75.00 FEET AND A CENTRAL ANGLE OF 88°08'01"; THENCE SOUTH 00°27'43" WEST TANGENT FROM SAID CURVE, A DISTANCE OF 112.81 FEET; THENCE SOUTH 10°23'17" EAST, A DISTANCE OF 122.18 FEET; THENCE SOUTH 00°11'42" WEST, A DISTANCE OF 247.95 FEET; THENCE NORTH 82°54'19" WEST, A DISTANCE OF 652.20 FEET TO THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN; THENCE NORTH 00°44'35" EAST ALONG SAID WEST LINE, A DISTANCE OF 498.26 FEET TO THE TRUE POINT OF BEGINNING AND THE TERMINUS OF THIS DESCRIPTION.

SITUATE IN THE TOWN OF ENUMCLAW, COUNTY OF KING, STATE OF WASHINGTON.

10/9/14

PARCEL C

THAT PORTION OF LAND LYING WITHIN THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN BEING DESCRIBED AS FOLLOWS;

COMMENCING AT A CASED MONUMENT MARKING THE NORTHWEST CORNER OF THE ABOVE DESCRIBED SECTION; THENCE SOUTH 87°40'18" EAST ALONG THE NORTH LINE OF THE NORTHWEST QUARTER OF THE ABOVE DESCRIBED SUBDIVISION, A DISTANCE OF 1278.17 FEET; THENCE LEAVING SAID NORTH LINE SOUTH 00°27'43" WEST, A DISTANCE OF 594.18 FEET TO THE TRUE POINT OF BEGINNING; THENCE NORTH 89°32'17" WEST, A DISTANCE OF 568.50 FEET; THENCE SOUTH 00°27'43" WEST, A DISTANCE OF 552.13 FEET TO THE BEGINNING OF A CURVE TANGENT TO SAID LINE; THENCE SOUTHERLY A DISTANCE OF 30.01 FEET ALONG THE CURVE CONCAVE TO THE EAST, HAVING A RADIUS OF 302.50 FEET AND A CENTRAL ANGLE OF 5°41'03"; THENCE SOUTH 89°25'50" EAST, A DISTANCE OF 567.01 FEET; THENCE NORTH 00°27'43" EAST, A DISTANCE OF 583.15 FEET TO THE TRUE POINT OF BEGINNING AND THE TERMINUS OF THIS DESCRIPTION.

SITUATE IN THE TOWN OF ENUMCLAW, COUNTY OF KING, STATE OF WASHINGTON.

10/9/14

PARCEL D

THAT PORTION OF LAND LYING WITHIN THE NORTHWEST QUARTER OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN BEING DESCRIBED AS FOLLOWS;

COMMENCING AT A CASED MONUMENT MARKING THE NORTHWEST CORNER OF THE ABOVE DESCRIBED SECTION; THENCE SOUTH 00°44'35" WEST ALONG THE WEST LINE OF SAID SUBDIVISION; A DISTANCE OF 558.34 FEET TO THE TRUE POINT OF BEGINNING; THENCE LEAVING THE WEST LINE OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST OF THE WILLAMETTE MERIDIAN, SOUTH 82°54'19" EAST, A DISTANCE OF 651.09 FEET; THENCE SOUTH 00°27'43" WEST, A DISTANCE OF 554.40 FEET TO THE BEGINNING OF A CURVE TANGENT TO SAID LINE; THENCE SOUTHERLY A DISTANCE OF 121.16 FEET ALONG THE CURVE CONCAVE TO THE EAST, HAVING A RADIUS OF 367.50 FEET AND A CENTRAL ANGLE OF 18°53'21" TO A POINT OF CUSP; THENCE NORTH 89°15'54" WEST, A DISTANCE OF 627.31 FEET; THENCE NORTH 00°45'42" EAST, A DISTANCE OF 51.77 FEET; THENCE NORTH 88°31'39" WEST, A DISTANCE OF 42.90 FEET; THENCE NORTH 00°44'35" EAST, A DISTANCE OF 693.08 FEET TO THE TRUE POINT OF BEGINNING AND THE TERMINUS OF THIS DESCRIPTION.

SITUATE IN THE TOWN OF ENUMCLAW, COUNTY OF KING, STATE OF WASHINGTON.

ORDINANCE NO. 2552 - EXHIBIT B

Exhibit "B" to Ordinance 2552

EXISTING

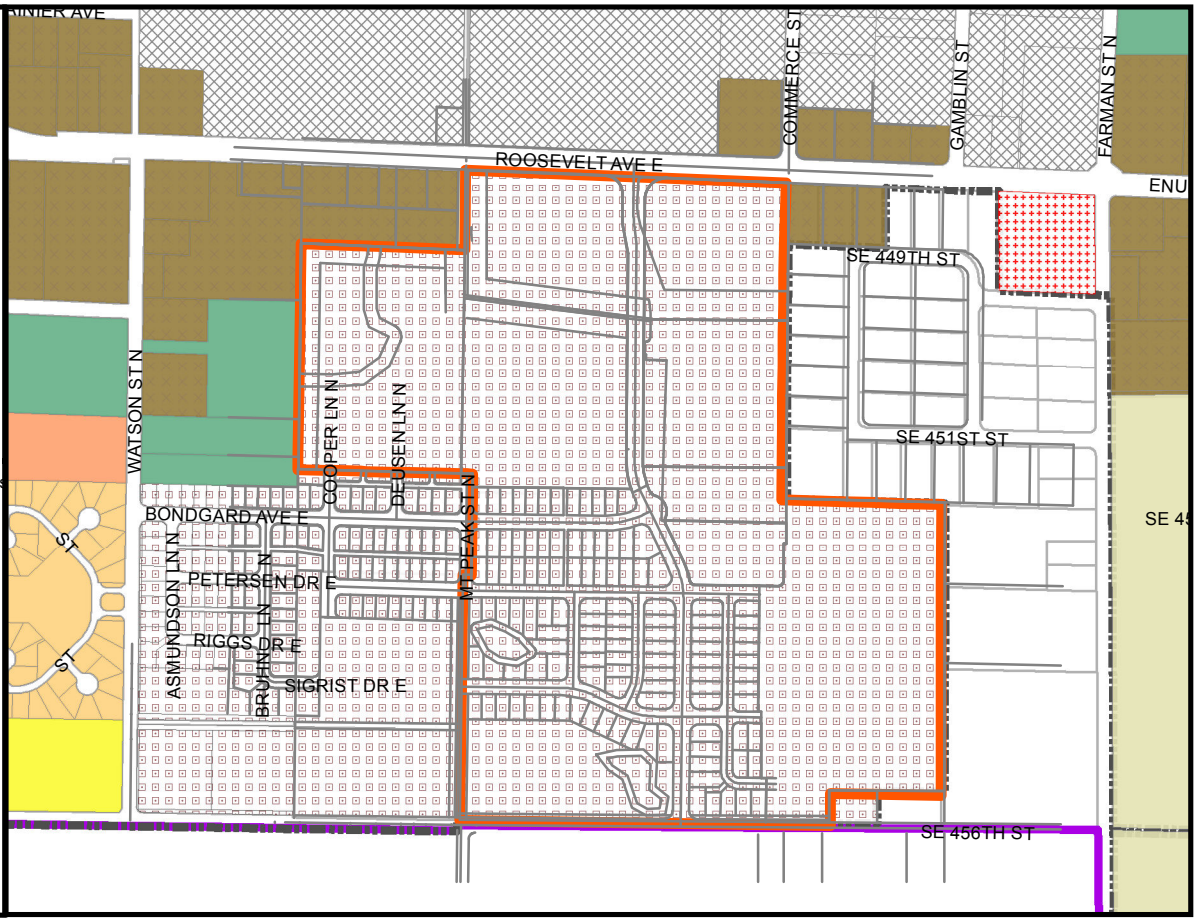
CITY OF Enumclaw
DEPARTMENT OF PLANNING

Legend

- Residential 1 (15,000 sq. ft.)
- Residential 2 (8,400 sq. ft.)
- Residential 3 (6,200 sq. ft.)
- Residential 4 (6,200 sq. ft.)
- Residential Mobile Home Park
- Planned Unit Development
- Central Business 1
- Central Business 2
- Neighborhood Business
- Highway and Community Business
- General Office
- General Office-Hospital
- Hospital
- Light Industrial
- Public
- City Limits
- Urban Growth Boundary
- Enumclaw Parcels
- Suntop PUD Boundary

The City of Enumclaw makes every effort to provide correct information, but makes no representation as to the completeness or accuracy of the map

Date: October 2014



PROPOSED

CITY OF Enumclaw
DEPARTMENT OF PLANNING

Legend

- Residential 1 (15,000 sq. ft.)
- Residential 2 (8,400 sq. ft.)
- Residential 3 (6,200 sq. ft.)
- Residential 4 (6,200 sq. ft.)
- Residential Mobile Home Park
- Planned Unit Development
- Central Business 1
- Central Business 2
- Neighborhood Business
- Highway and Community Business
- General Office
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- Hospital
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The City of Enumclaw makes every effort to provide correct information, but makes no representation as to the completeness or accuracy of the map

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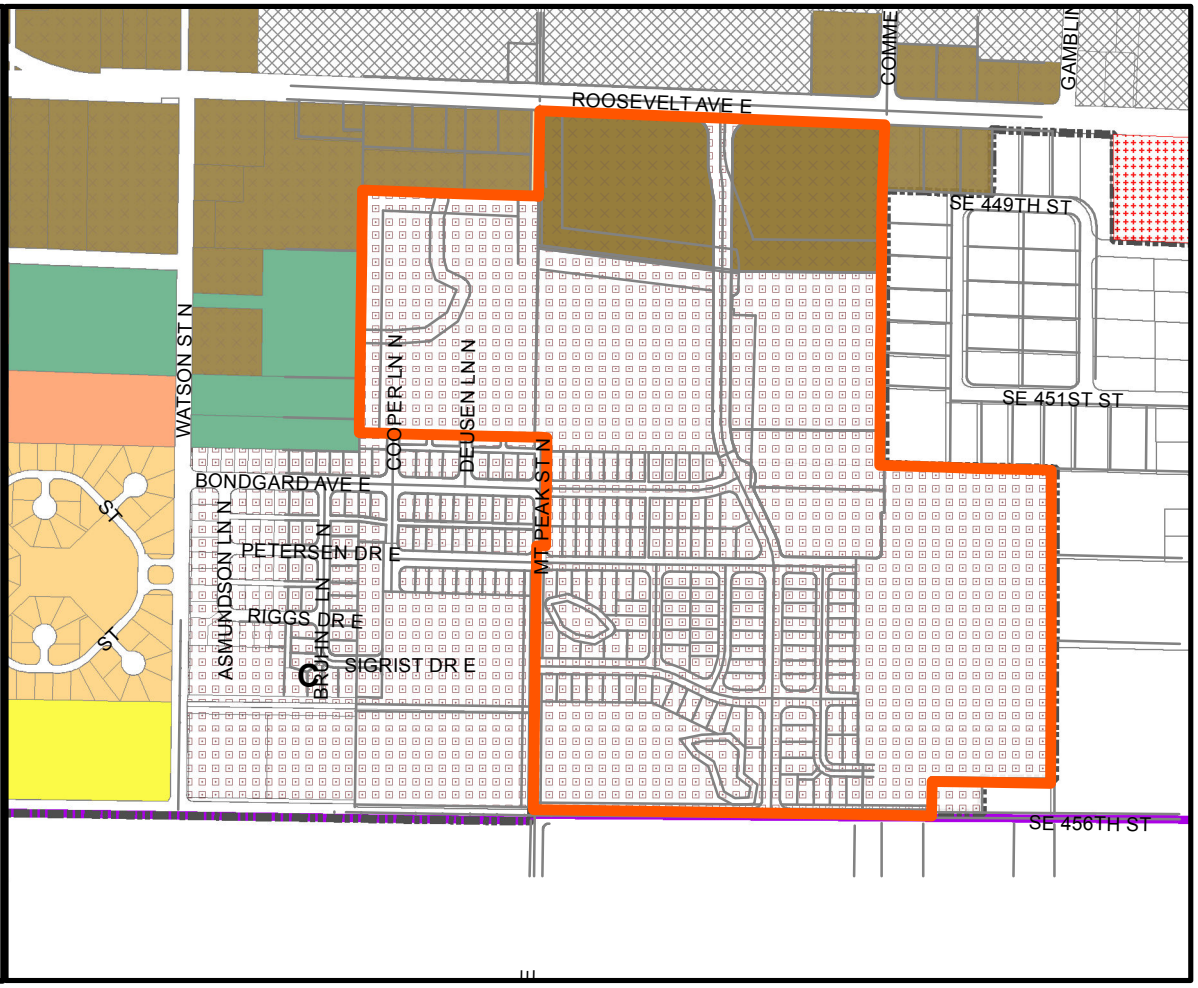

Return To:
Enumclaw School District
2929 McDougall Avenue
Enumclaw, WA 98022
Attn: Tim Madden

Name of Document:	MITIGATION AGREEMENT
Grantor:	HOLDENER, FRANCES M.
Grantee:	ENUMCLAW SCHOOL DISTRICT NO. 216
Abbreviated Legal Description:	Portions of the NE ¼ of Section 25, Township 20 N, Range 6 E and the NW ¼ of Section 30, Township 20 N, Range 6 E, W.M. (See Pages 6-8 for full legal description)
Assessor's Property Tax Parcel Account Number(s):	302007-9011; 302007-9012; 302007-9111
Reference number(s) of related/assigned/released document(s):	N/A

MITIGATION AGREEMENT

THIS MITIGATION AGREEMENT ("Agreement") is made this 22nd day of December, 2015, between ENUMCLAW SCHOOL DISTRICT NO. 216, Enumclaw, Washington (the "District") and FRANCES M. HOLDENER (the "Owner").

RECITALS

A. The Owner has received approval from the City of Enumclaw for a plat of 122 lots, with 116 single family lots, commonly known as Suntop PUD Division 1, Hearing Examiner File No. 13305/Ordinance No. 2551 (the "Project"), on property that lies within District boundaries, more particularly described on Exhibit A, attached hereto and incorporated herein by reference.

B. The State Environmental Policy Act, Chapter 43.21C RCW, provides processes and procedures whereby major actions by state and local agencies, including, but not limited to, plat or PUD approval or the issuance of building permits, may be reviewed to determine the nature and extent of their impact on the environment. Impacts on public services, including schools, are environmental impacts.

C. The State Subdivision Act, Chapter 58.17 RCW, provides that subdivision approval shall be depending upon a finding that appropriate provisions are made for schools. Chapter 17.04 of the Enumclaw Municipal Code implements these provisions of State law for proposed subdivisions in the City.

D. The District's student population and growth projections indicate that the District will not have the capacity to serve all of the expected additional students from the Project, when cumulative impacts of other projects are considered.

E. Finding 21 of the October 3, 2014, Hearing Examiner recommendation (the "Hearing Examiner's recommendation") regarding the subdivision of the Project recognized that, when cumulative impacts of other projects are considered, the District will not have the capacity to serve all of the expected additional students from the Project. Conclusion 1(A) of the Hearing Examiner's recommendation conditions the project upon execution of a voluntary mitigation agreement for the payment of school mitigation fees as recommended by City staff. The Enumclaw City Council adopted the Hearing Examiner's recommendation, including the findings of fact and conclusions, with Ordinance 2551.

F. RCW 82.02.020 authorizes the District to enter into a voluntary agreement with the Owner for payment to mitigate the impacts of the Project.

G. It is the policy of the District to recommend that direct impacts of development be voluntarily mitigated by the payment of fees and other mitigation measures where appropriate.

H. The Owner has agreed to mitigate in part, on a voluntary basis, the adverse impacts caused by the Project on the District.

AGREEMENT

NOW, THEREFORE, in consideration of the above recitals and the mutual promises and covenants below, the District and the Owner agree as follows:

1. The Owner acknowledges and agrees that there is a direct impact as a result of the Project and that this Agreement is necessary as a result of that impact.

2. The Owner agrees to pay the following sum of money as mitigation for the direct impact that has been identified as a consequence of the Project: ONE THOUSAND NINETY-SEVEN AND NO/100 DOLLARS ($1,097.00) for each lot or a total sum of ONE HUNDRED TWENTY-SEVEN THOUSAND TWO HUNDRED FIFTY-TWO AND NO/100 DOLLARS ($127,252.00) for 116 new lots (the "Mitigation Payment").

3. Any extension, renewal, modification, or amendment to the Project that results in an adjustment in the number of residential lots shall result in a corresponding pro rata adjustment in the Mitigation Payment.

4. The Owner acknowledges and agrees that the Mitigation Payment is authorized to be used for capital improvements that may increase capacity at school facilities and/or the purchase of portable facilities.

5. The Owner agrees that payment of the Mitigation Payment for each lot in the Project shall be due at the time the building permit is issued for the lot.

6. The Owner agrees that the District has five (5) years from the payment date(s) to spend the Mitigation Payment for the capital improvements described in paragraph 4. In the event that the Mitigation Payment is not expended within those five (5) years, the monies will be refunded with interest at the rate applied to judgments to the property owners of record at the time of refund; however, if the Mitigation Payment is not expended within five (5) years due to delay which is attributable to the Owner, the Payment shall be refunded without interest.

7. The Owner waives and relinquishes its right to protest or challenge the payment of the Mitigation Payment pursuant to this Agreement and hereby covenants and undertakes that it forever refrains and desists from instituting, asserting, filing or bringing any lawsuits, litigation, claim or challenge or proceeding to challenge this Agreement, claim any repayment or reimbursement of funds, performance or improvements provided for therein, or any of its terms and conditions, on any ground or basis whatsoever.

8. The District hereby waives any objection to the Project as presently proposed.

9. This Agreement shall be binding upon and inure to the benefit of the heirs, executors, administrators, successors, and assigns of both of the Owner and the District. Neither party shall assign the obligations under this Agreement without the written consent of the other; provided, that in the event any future owner of all or any portion of the property described on Exhibit A attached hereto makes the Mitigation Payment, such owner shall be entitled to rely on this Agreement.

10. If an action must be brought to enforce the terms of this Agreement, such action shall be brought in King County Superior Court. The prevailing party shall be entitled to payment of its costs and reasonable attorneys' fees.

11. This Agreement constitutes the entire agreement between the parties and any other agreement either written or oral shall be null and void.

ENUMCLAW SCHOOL DISTRICT NO. 216

DATED: 12.22.15

By: Michael Nelson, Superintendent

FRANCES M. HOLDENER

DATED: 12-28-15

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I certify that I know or have satisfactory evidence that MICHAEL NELSON is the person who appeared before me, and said person acknowledged that he signed this instrument, on oath stated that he was authorized to execute the instrument and acknowledged it as the Superintendent of ENUMCLAW SCHOOL DISTRICT NO. 216, to be the free and voluntary act and deed of such school district, for the uses and purposes mentioned in the instrument.

WITNESS my hand and official seal hereto affixed on December 22, 2015.

RACHEL L. McMULLEN
Notary Public
State of Washington
My Commission Expires
July 16, 2016

Rachel L McMullen
(Signature of Notary)
Rachel L. McMullen
(Print or stamp name of Notary)
NOTARY PUBLIC in and for the State of Washington
My Appointment Expires: July 16, 2016

STATE OF WASHINGTON)
) ss.
COUNTY OF KING)

I certify that I know or have satisfactory evidence that FRANCES M. HOLDENER is the person who appeared before me, and said person acknowledged that she signed this instrument and acknowledged it to be her free and voluntary act for the uses and purposes mentioned in the instrument.

WITNESS my hand and official seal hereto affixed on December 28, 2015.

VICKIE FORLER
NOTARY
PUBLIC
STATE OF WASHINGTON
COMMISSION EXPIRES
MARCH 01, 2019

Vickie Forler
(Signature of Notary)
Vickie Forler
(Print or stamp name of Notary)
NOTARY PUBLIC in and for the State of Washington
My Appointment Expires: 03/01/2019.

EXHIBIT A

LEGAL DESCRIPTION

LOT "A"

THOSE PORTIONS OF GOVERNMENT LOTS 1 AND 2 OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., AND THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 25, TOWNSHIP 20 NORTH, RANGE 6 EAST,W.M., DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M. IN KING COUNTY, WASHINGTON;
THENCE SOUTH 00° 44' 15" WEST ALONG THE WEST LINE OF SAID SECTION 7, FOR 50.02 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH 87° 40' 38" EAST PARALLEL WITH THE NORTH LINE OF GOVERNMENT LOT 1, FOR 1278.42 FEET;
THENCE SOUTH 00° 27' 23" WEST FOR 1346.18 FEET;
THENCE NORTH 88° 39' 16" WEST FOR 479.98 FEET TO THE BEGINNING POINT OF A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 20° 22' 58" FROM WHICH THE RADIUS POINT BEARS NORTH 84° 24' 44" EAST;
THENCE RIGHT ALONG SAID CURVE FOR AN ARC LENGTH OF 19.57 FEET TO A POINT OF REVERSE CURVATURE,
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 80° 54' 40" FOR AN ARC LENGTH OF 84.73 FEET TO A POINT OF REVERSE CURVATURE,
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 42° 10' 11" FOR AN ARC LENGTH OF 40.48 FEET,
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 302.50 FEET AND A CENTRAL ANGLE OF 05° 31' 57" FOR AN ARC LENGTH OF 29.21 FEET;
THENCE SOUTH 71° 35' 10" WEST FOR 65.00 FEET;
THENCE NORTH 89° 14' 39" WEST FOR 627.72 FEET;
THENCE NORTH 00° 44' 13" EAST FOR 51.76 FEET;
THENCE NORTH 88° 32' WEST FOR 691.06 FEET;
THENCE NORTH 00° 44' 13" EAST FOR 894.85 FEET;
THENCE SOUTH 87° 29' 57" EAST FOR 648.42 FEET;
THENCE NORTH 00° 44' 15" EAST FOR 318.26 FEET,
TO THE TRUE POINT OF BEGINNING,

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

LOT "B"

THAT PORTION OF GOVERNMENT LOTS 1 AND 2 OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., DESCRIBED AS FOLLOWS:

COMMENCING AT THE WEST QUARTER CORNER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M.
THENCE NORTH 00° 44' 15" EAST ALONG THE WEST LINE OF THE NORTHWEST QUARTER, FOR 20.00 FEET;
THENCE SOUTH 89° 36' 49" EAST PARALLEL WITH THE SOUTH LINE OF THE NORTHWEST QUARTER FOR 10.01 FEET TO THE TRUE POINT OF BEGINNING;
THENCE NORTH 00° 44' 15" EAST FOR 878.87 FEET;
THENCE SOUTH 88° 19' 10" EAST FOR 32.89 FEET;
THENCE NORTH 00° 44' 17" EAST FOR 441.50 FEET;
THENCE SOUTH 89° 14' 39" EAST FOR 627.72 FEET;
THENCE NORTH 71° 35' 10" EAST FOR 65.00 FEET TO THE BEGINNING POINT OF A CURVE TO THE LEFT HAVING A RADIUS OF 302.50 FEET AND A CENTRAL ANGLE OF 05° 31' 57" FROM WHICH THE RADIUS POINT BEARS NORTH 71° 35' 10" EAST;
THENCE LEFT ALONG SAID CURVE FOR AN ARC LENGTH OF 29.21 FEET TO;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 42° 10' 11" FOR AN ARC LENGTH OF 40.48 FEET TO A POINT OF REVERSE CURVATURE;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 80° 54' 40" FOR AN ARC LENGTH OF 84.73 FEET TO A POINT OF REVERSE CURVATURE;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 20° 22' 58"FOR AN ARC LENGTH OF 19.57 FEET;
THENCE SOUTH 88° 39' 16" EAST FOR 479.98 FEET;
THENCE SOUTH 00° 27' 23" WEST FOR 81.89 FEET;
THENCE NORTH 88° 14' 10" WEST FOR 7.67 FEET;
THENCE SOUTH 00° 05' 38" WEST FOR 147.52 FEET TO THE BEGINNING POINT OF A CURVE TO THE RIGHT HAVING A RADIUS OF 20.00 FEET AND A CENTRAL ANGLE OF 90° 22' 04" FROM WHICH THE RADIUS POINT BEARS NORTH 89° 36' 43" WEST;
THENCE RIGHT ALONG SAID CURVE FOR AN ARC LENGTH OF 31.54 FEET;
THENCE NORTH 89° 32' 18" WEST FOR 74.61 FEET;
THENCE SOUTH 00° 40' 06" WEST FOR 497.65 FEET;
THENCE SOUTH 89° 35' 43" EAST FOR 12.91 FEET;
THENCE SOUTH 00° 05' 20" WEST FOR 263.14 FEET;
THENCE NORTH 89° 59' 56" EAST FOR 19.62 FEET;
THENCE SOUTH 00° 28' 31" WEST FOR 174.30 FEET;
THENCE NORTH 89° 36' 49" WEST FOR 1211.23 FEET, TO THE TRUE POINT OF BEGINNING.

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

LOT "C"

THAT PORTION OF GOVERNMENT LOT 2, AND THE SOUTHEAST QUARTER OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M. DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHEAST CORNER OF SAID GOVERNMENT LOT 2;
THENCE SOUTH 88° 39' 16" EAST ALONG THE NORTHLINE OF THE SE QUARTER OF THE NORTHWEST QUARTER FOR 628.89 FEET;
THENCE SOUTH 00° 04' 52" WEST FOR 1142.56 FEET;
THENCE NORTH 89° 36' 49" WEST FOR 455.80 FEET;
THENCE SOUTH 00° 04' 52" WEST FOR 127.22 FEET;
THENCE NORTH 89° 36' 49" WEST FOR 250.46 FEET;
THENCE NORTH 00° 28' 31" EAST FOR 174.30 FEET;
THENCE SOUTH 89° 59' 56" WEST FOR 19.62 FEET;
THENCE NORTH 00° 05' 20" EAST FOR 263.14 FEET;
THENCE NORTH 89° 35' 43" WEST FOR 12.91 FEET;
THENCE NORTH 00° 40' 06" EAST FOR 497.65 FEET;
THENCE SOUTH 89° 32' 18" EAST FOR 74.61 FEET;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 20.10 FEET AND A CENTRAL ANGLE OF 90° 04' 25" FOR AN ARC LENGTH OF 31.60 FEET;
THENCE NORTH 00° EAST FOR 0.00 FEET;
THENCE NORTH 00° 05' 38" EAST FOR 147.52 FEET;
THENCE SOUTH 88° 14' 10" EAST FOR 7.67 FEET;
THENCE NORTH 00° 27' 23" EAST FOR 178.00 FEET, TO THE TRUE POINT OF BEGINNING.

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

City of **Enumclaw**

LLA No. 15- 01

ASSESSOR PARCEL No.(s) 3020079011 & 3020079012 & 3020079111

A PORTION OF NW 1/4 SEC 30, TWP 20 N., RGE. 7 E., W.M. &
A PORTION OF NE1/4, NE1/4 SEC 25, TWP 20 N., RGE 6 E,W.M.

DECLARATION

KNOW ALL MEN BY THESE PRESENTS THAT I THE UNDER-SIGNED OWNER OF THE LAND HEREIN DESCRIBED DO HEREBY MAKE A LOT LINE ADJUSTMENT THEREOF PURSUANT TO RCW 58.17.040 AND DECLARE THIS ADJUSTMENT TO BE THE GRAPHIC REPRESENTATION OF THE SAME, AND THAT SAID ADJUSTMENT IS MADE WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE OWNER IN WITNESS WHEREOF WE HAVE SET OUR HANDS AND SEALS.

Frances Holdener
FRANCES HOLDENER

VICKIE FORLER NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES MARCH 01, 2019

STATE OF Wa)
COUNTY OF King) SS

I CERTIFY THAT I KNOW OR HAVE SATISFACTORY EVIDENCE THAT
Frances Holdener
SIGNED THIS DECLARATION AND ACKNOWLEDGED IT TO BE (HIS/HER) FREE AND VOLUNTARY ACT FOR THE USES AND PURPOSES MENTIONED IN THE INSTRUMENT.

NOTARY STAMP

DATED 11/23/2015
SIGNATURE OF NOTARY PUBLIC Vickie Forler
PRINTED NAME OF NOTARY PUBLIC Vickie Forler
TITLE Admin Asst.
MY APPOINTMENT EXPIRES 03/01/2019

CITY OF ENUMCLAW

EXAMINED AND FOUND TO BE IN CONFORMITY WITH CURRENT CITY OF ENUMCLAW LAND USE REGULATIONS AND REQUIREMENTS.

APPROVED THIS 18TH DAY OF NOVEMBER, 2015

PLANNING ADMINISTATOR

11-18-2015
DATE

KING COUNTY ASSESSOR

EXAMINED AND APPROVED THIS 24TH DAY OF NOVEMBER, 2015

KING COUNTY ASSESSOR

DEPUTY ASSESSOR

ORIGINAL LEGAL DESCRIPTIONS

REVISED LOTS A, B AND C OF CITY OF ENUMCLAW BOUNDARY LINE ADJUSTMENT NUMBER 08-07, RECORDED UNDER RECORDING NUMBER 20090416900001, IN KING COUNTY, WASHINGTON;

EXCEPT THAT PORTION OF LOT C CONVEYED TO THE CITY OF ENUMCLAW BY DEED RECORDED UNDER RECORDING NUMBER 20100126000872.

RECORDING NO.

VOL./PAGE 334 / 160

APPROVAL NOTES:

THIS REQUEST QUALIFIES FOR EXEMPTION UNDER KCC 19A.28. IT DOES NOT GUARANTEE THAT THE LOTS WILL BE SUITABLE FOR DEVELOPMENT NOW OR IN THE FUTURE. THE LEGAL TRANSFER OF THE PROPERTY MUST BE DONE BY SEPARATE INSTRUMENT UNLESS ALL LOTS HEREIN ARE UNDER THE SAME OWNERSHIP.

REVISED LEGAL DESCRIPTION

LOT "A"

THOSE PORTIONS OF GOVERNMENT LOTS 1 AND 2 OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., AND THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 25, TOWNSHIP 20 NORTH, RANGE 6 EAST W.M., DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTHWEST CORNER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M. IN KING COUNTY, WASHINGTON:
THENCE SOUTH 00° 44' 15" WEST ALONG THE WEST LINE OF SAID SECTION 7, FOR 50.02 FEET TO THE TRUE POINT OF BEGINNING;
THENCE SOUTH 87° 40' 38" EAST PARALLEL WITH THE NORTH LINE OF GOVERNMENT LOT 1, FOR 1278.42 FEET;
THENCE SOUTH 00° 27' 23" WEST FOR 1346.18 FEET;
THENCE NORTH 88° 39' 16" WEST FOR 479.98 FEET TO THE BEGINNING POINT OF A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 20° 22' 58" FROM WHICH THE RADIUS POINT BEARS NORTH 84° 24' 44" EAST;
THENCE RIGHT ALONG SAID CURVE FOR AN ARC LENGTH OF 19.57 FEET TO A POINT OF REVERSE CURVATURE,
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 80° 54' 40" FOR AN ARC LENGTH OF 84.73 FEET TO A POINT OF REVERSE CURVATURE,
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 42° 10' 11" FOR AN ARC LENGTH OF 40.48 FEET,
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 302.50 FEET AND A CENTRAL ANGLE OF 05° 31' 57" FOR AN ARC LENGTH OF 29.21 FEET;
THENCE SOUTH 71° 35' 10" WEST FOR 65.00 FEET;
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SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

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THENCE NORTH 00° 05' 20" EAST FOR 263.14 FEET;
THENCE NORTH 89° 35' 43" WEST FOR 12.91 FEET;
THENCE NORTH 00° 40' 06" EAST FOR 497.65 FEET;
THENCE SOUTH 89° 32' 18" EAST FOR 74.61 FEET;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 20.10 FEET AND A CENTRAL ANGLE OF 90° 04' 25" FOR AN ARC LENGTH OF 31.60 FEET;
THENCE NORTH 00° EAST FOR 0.00 FEET;
THENCE NORTH 00° 05' 38" EAST FOR 147.52 FEET;
THENCE SOUTH 88° 14' 10" EAST FOR 7.67 FEET;
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SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

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THAT PORTION OF GOVERNMENT LOTS 1 AND 2 OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., DESCRIBED AS FOLLOWS:

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THENCE LEFT ALONG SAID CURVE FOR AN ARC LENGTH OF 29.21 FEET TO;
THENCE ALONG A CURVE TO THE LEFT HAVING A RADIUS OF 55.00 FEET AND A CENTRAL ANGLE OF 42° 10' 11" FOR AN ARC LENGTH OF 40.48 FEET TO A POINT OF REVERSE CURVATURE;
THENCE ALONG A CURVE TO THE RIGHT HAVING A RADIUS OF 60.00 FEET AND A CENTRAL ANGLE OF 80° 54' 40" FOR AN ARC LENGTH OF 84.73 FEET TO A POINT OF REVERSE CURVATURE;
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THENCE SOUTH 00° 40' 06" WEST FOR 497.65 FEET;
THENCE SOUTH 89° 35' 43" EAST FOR 12.91 FEET;
THENCE SOUTH 00° 05' 20" WEST FOR 263.14 FEET;
THENCE NORTH 89° 59' 56" EAST FOR 19.62 FEET;
THENCE SOUTH 00° 28' 31" WEST FOR 174.30 FEET;
THENCE NORTH 89° 36' 49" WEST FOR 1211.23 FEET, TO THE TRUE POINT OF BEGINNING.

SITUATE IN THE COUNTY OF KING, STATE OF WASHINGTON.

EXCEPTIONS PER PLAT CERTIFICATE

ORDER NUMBER 1371836 (CHICAGO TITLE COMPANY) SCHEDULE B

EASEMENTS LISTED IN SCEDULE B HAVE BEEN PLOTTED ON PAGE 3 OR AS NOTED BELOW

DRAINAGE DITCH EASEMENT REC#333161 DESCRIPTION NOT SUFFICIENT TO DETERMINE THE EXACT LOCATION WITHIN LOT A.

WATER PIPE LINE EASEMENT REC#510743 DESCRIPTION NOT SUFFICIENT TO DETERMINE THE EXACT LOCATION WITHIN LOT A.

HOLDENER
BOUNDARY LINE ADJUSTMENT

DWN BY:	DATE:	JOB NAME:
P. KUHNLE	10/30/2015	HOLDENER
CHKD BY:	SCALE:	SHEET
P. KUHNLE	N/A	1 OF 3

RECORDING CERTIFICATE:

20151125900002
STRIKER ROBER BLAM 167.00
PAGE-001 OF 003 VOL 334 PG 160
11/25/2015 09:07
KING COUNTY, WA

Norm Alberg

MANAGER SUPT. OF RECORDS

SURVEYOR'S CERTIFICATE:

THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING ACT, AT THE

REQUEST OF *FRANCES HOLDENER*

THIS 30TH DAY OF *OCTOBER* 2015.

CERTIFICATE NO. L.S. 45788

PROFESSIONAL LAND SURVEYOR PAUL KUHNLE

10-30-15

PAUL KUHNLE STATE OF WASHINGTON 45788 REGISTERED PROFESSIONAL LAND SURVEYOR

HOLMVIG, DEWITT, GALLION & ASSOC., LLC.
LAND SURVEYING & ENGINEERING SUPPORT
1036 COLE STREET, ENUMCLAW, WA 98022 (360) 825-6963
www.hdgallion.com

City of Enumclaw

LLA No. 15-01

RECORDING NO.	VOL./PAGE
	334 / 161

ASSESSOR PARCEL No.(s) 3020079011 & 3020079012 & 3020079111

A PORTION OF NW 1/4 SEC 30, TWP 20 N., RGE. 7 E., W.M. &
A PORTION OF NE1/4, NE1/4 SEC 25, TWP 20 N., RGE 6 E,W.M.

ORIGINAL LOT LAYOUT

LEGEND

- FOUND SECTION CORNER AS SHOWN
- FOUND 1/4 CORNER AS SHOWN
- REBAR W/ CAP LS 45788 SET
- OTHER CORNERS FOUND
- FOUND MONUMENT AS SHOWN

REFERENCE SURVEY

ELLA 08-07 REC# 20090416900001
RECORD OF SURVEY # 20080522900003
ELLA 03-10 REC# 20031119900005
ELLA 03-02 REC# 20030717900006

BASIS OF BEARING

N89°36'49"W

SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., IN KING COUNTY, WASHINGTON. (ASSUMED)

EQUIPMENT USED

LEICA TCRP 1203 ROBOTIC TOTAL STATION & LEICA CS15 FIELD CONTROLLER

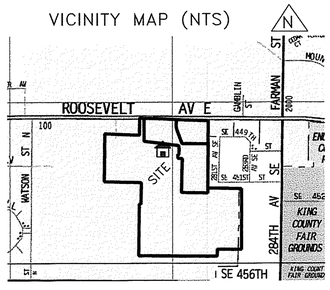
NOTES

THIS SURVEY WAS PERFORMED BY FIELD TRAVERSE WITH FINAL RESULTS MEETING OR EXCEEDING THE CURRENT TRAVERSE STANDARDS CONTAINED IN W.A.C. 332-130-090

THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF A CURRENT TITLE REPORT AND THEREFORE DOES NOT PURPORT TO SHOW ALL EASEMENTS OR RESTRICTIONS OF RECORD, IF ANY.

THE BOUNDARY CORNERS AND LINES DEPICTED ON THIS MAP REPRESENT DEED LINES ONLY. THEY DO NOT PURPORT TO SHOW OWNERSHIP LINES THAT MAY OTHERWISE BE DETERMINED BY A COURT OF LAW.

VICINITY MAP (NTS)



NW CORNER S30-T20N-R7EWM CASE MON FND 07/94

NE CORNER GOVERMENT LOT 1 S30-T20N-R7EWM CASE MON FND 07/94

N1/4 CORNER S30-T20N-R7EWM CASE MON FND 07/94

ROOSEVELT AVE E
SR 410

50' R/W

N 87°40'38" W 621.53'

N 87°40'38" W 1278.17'

N 87°40'38" W 573.69'

N 87°40'43" W 1241.39'

S 0°44'15" W 318.26'

S 0°10'24" W 429.52'

BUILDING SETBACK LINES FOR PUD ZONING WILL BE DETERMINED AS EACH PHASE IS ZONED.

TPN# 3020079111 LOT A (ORIGINAL) 244,340 SQFT 5.61 ACRES M/L

S 20°23'23" E 248.84'

S 82°56'39" E 646.23'

S 89°32'37" E 486.84'

TPN# 3020079011 LOT B (ORIGINAL) 750,905 SQFT 17.24 ACRES M/L

N 0°27'23" E 427.09'

N 0°27'23" E 919.09'

W.R. EQUITIES TL#7792000035 VACANT

CLARE MICHAEL TL#7792000040 44903

VANWIERINGER GREGG TL#7792000045 44911

DICKERSON DALE&ALICIA TL#7792000050 44925

HILBERG BENJAMIN TL#7792000055 44937

ABSOLOR, JAMES TL#7792000060 45009

PELLETIER, JAMES TL#7792000065 45021

ALLMAN JOHN TL#7792000070 45101

SIERRA VISTA TRACTS VOL. 55/ PGS75-76

KOCHEVAR GREG TL#7792000075 28101

DVORAK, JASON TL#7792000080 28115

WRIGHT WILLIAM H TL#7792000085 28203

SANNES, JOHN TL#7792000090 28213

N 0°18'01" W 2558.65'

1257.78

628.78

628.89' N 88°39'16" W

492.01' N 88°39'16" W

CONCRETE MON W/ BRASS SCREW FND 07/94 PER ROS#9410049003

CAVANAUGH JOHN E TL#302007-9067 45201

SULKOSKY STANLEY P TL#302007-9035 45309

GLEASON CLARENCE J TL#302007-9028 45425

1142.56' N 0°04'52" E

ABBOTT, JOHN TL#252006-9111

BAXTER, JERI TL#252006-9001

648.42' N 87°29'57" W

WELLS FARGO BANK TL#252006-9116

RAINIER GLEN APTS TL#252006-9120

S 0°44'13" W 894.85'

S 0°44'15" W 2643.62'

WATSON, HAYS TL#252006-9122

S 88°32'00" E 691.06'

S 1°40'27" W 632.22'

GOV'T LOT 1

TPN# 3020079012 LOT C (ORIGINAL) 3,576,992 SQFT 82.11 ACRES M/L

MT TEAK ST N

400.84' S 0°44'13" W

SUNTOP FARMS DIV NO.1

LOT 12

LOT 11

LOT 10

LOT 9

TRACT G

SUNTOP FARMS DIV NO.2 PHASE A 20100126000871

PETERSON DR E

PORTION OF LOT "D" EN BLA 03-02 DEEDED TO CITY OF ENUMCLAW FOR ROAD UNDER RECORDING 20100126000872

SUNTOP FARMS DIV NO.2 PHASE B 20150122100037

RANGE 6 EAST, W.M.

RANGE 7 EAST, W.M.

S 0°44'15" W 787.87'

GOV'T LOT 2

10' 10'

W1/4 CORNER S30-T20N-R7EWM CASE MON FND 07/94

EX.20' R/W

S 89°36'49" E 1461.69'

S 89°36'49" E 455.80'

HOLDENER FRANCES TL#302007-9089

HARRIS JAMES & TAMARA TL#302007-9013 28178

2564.98' S 89°36'49" E

WARNER AVE E
(ROAD NO 662)(OTTO BRUHN ROAD 10/09/1902)

CENTER SECTION S30-T20N-R7EWM CASE MON W/ I.P. FND 07/94

GRAPHIC SCALE 1"=200'

0 200' 400' 600'

LINE TABLE

LINE	BEARING	HORIZ DIST
L1	S2°19'22"W	80.00'
L2	S1°40'27"W	73.21'
L3	S1°40'27"W	50.00'
L4	S88°19'33"E	6.00'
L5	S1°40'27"W	21.00'
L6	S88°19'33"E	80.00'
L7	N87°40'38"W	83.20'
L8	N88°32'00"W	32.90'
L9	N0°04'52"E	127.22'
L10	S0°27'23"W	96.11'
L11	S88°19'10"E	32.89'
L12	N0°44'17"E	92.42'

CURVE TABLE

CURVE	RADIUS	ARC	DELTA
C1	20.00'	31.42'	90°00'00"
C2	264.00'	104.65'	22°42'45"
C3	336.00'	12.10'	2°03'47"
C4	264.00'	76.90'	16°41'19"
C5	20.00'	31.42'	90°00'00"

THIS SURVEY COMPLIES WITH ALL STANDARDS AND GUIDELINES OF THE "SURVEY RECORDING ACT" CHAPTER 58.09 RCW, AND 332-130 WAC.

10-30-15

PAUL KUHNLE STATE OF WASHINGTON 45788 REGISTERED PROFESSIONAL LAND SURVEYOR

HOLMVIG, DEWITT, GALLION & ASSOC., LLC.
LAND SURVEYING & ENGINEERING SUPPORT
1036 COLE STREET, ENUMCLAW, WA 98022 (360) 825-6963
www.hdgallion.com

HOLDENER BOUNDARY LINE ADJUSTMENT

DWN BY:	DATE:	JOB NAME:
P. KUHNLE	10/30/2015	HOLDENER
CHKD BY:	SCALE:	SHEET
P. KUHNLE	1"=200'	2 OF 3

20151125900002
STRIKER ROBER BLAM
PAGE-002 OF 003
11/25/2015 15:07
KING COUNTY, WA
167.00
VOL 334 PG 160

City of Enumclaw

LLA No. 15- 01

RECORDING NO.

VOL./PAGE 334 / 162

ASSESSOR PARCEL No.(s) 3020079011 & 3020079012 & 3020079111

A PORTION OF NW 1/4 SEC 30, TWP 20 N., RGE. 7 E., W.M. &
A PORTION OF NE1/4, NE1/4 SEC 25, TWP 20 N., RGE 6 E,W.M.

REVISED LOT LAYOUT

LEGEND

- FOUND SECTION CORNER AS SHOWN
- FOUND 1/4 CORNER AS SHOWN
- REBAR W/ CAP LS 45788 SET
- OTHER CORNERS FOUND
- FOUND MONUMENT AS SHOWN

REFERENCE SURVEY

ELLA 08-07 REC# 20090416900001
RECORD OF SURVEY # 20080522900003
ELLA 03-10 REC# 20031119900005
ELLA 03-02 REC# 20030717900006

BASIS OF BEARING

N89°36'49"W

SOUTH LINE OF THE NORTHWEST QUARTER OF SECTION 30, TOWNSHIP 20 NORTH, RANGE 7 EAST, W.M., IN KING COUNTY, WASHINGTON. (ASSUMED)

EQUIPMENT USED

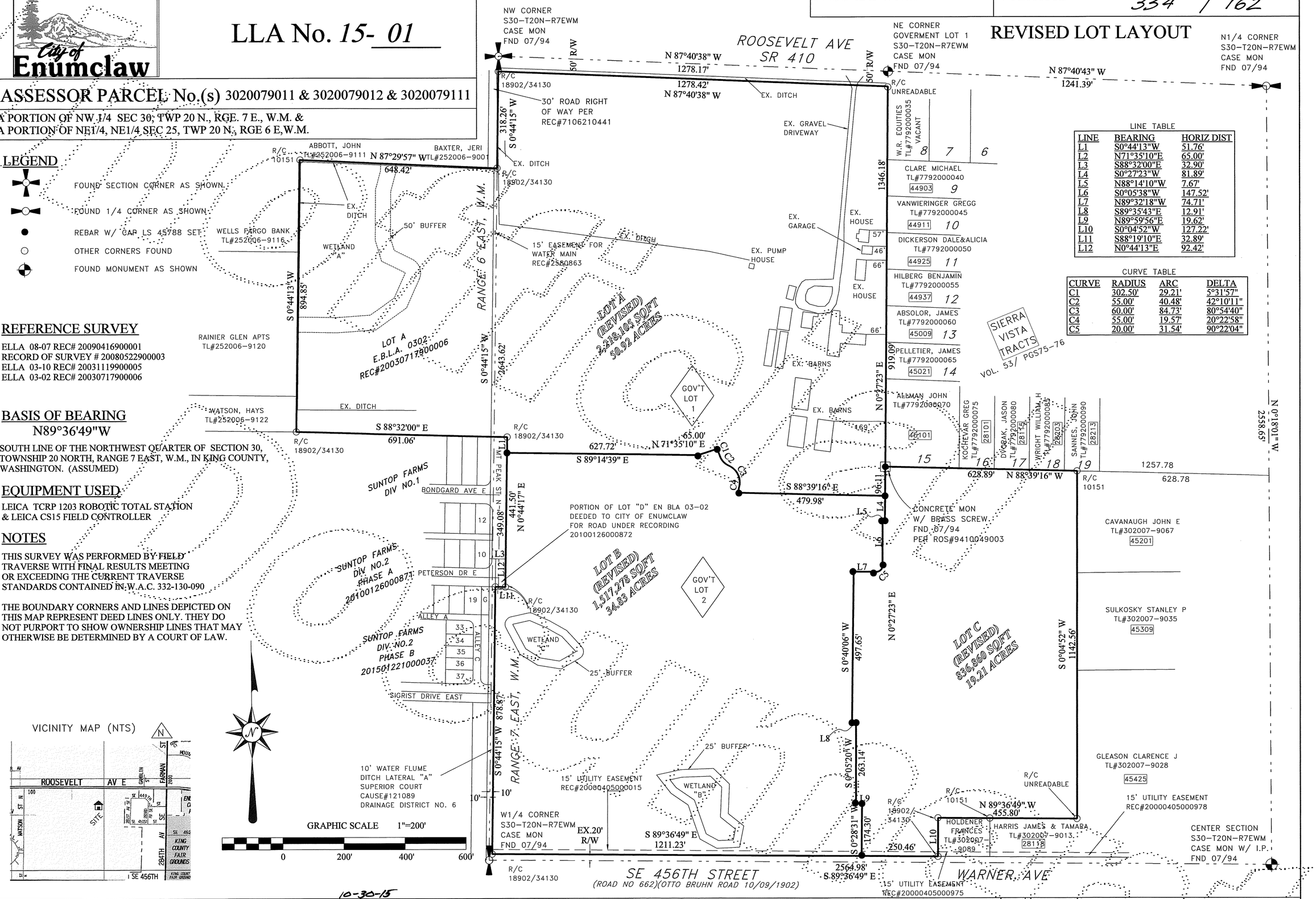
LEICA TCRP 1203 ROBOTIC TOTAL STATION
& LEICA CS15 FIELD CONTROLLER

NOTES

THIS SURVEY WAS PERFORMED BY FIELD TRAVERSE WITH FINAL RESULTS MEETING OR EXCEEDING THE CURRENT TRAVERSE STANDARDS CONTAINED IN W.A.C. 332-130-090

THE BOUNDARY CORNERS AND LINES DEPICTED ON THIS MAP REPRESENT DEED LINES ONLY. THEY DO NOT PURPORT TO SHOW OWNERSHIP LINES THAT MAY OTHERWISE BE DETERMINED BY A COURT OF LAW.

VICINITY MAP (NTS)



LINE TABLE		
LINE	BEARING	HORIZ DIST
L1	S0°44'13"W	51.76'
L2	N71°35'10"E	65.00'
L3	S88°32'00"E	32.90'
L4	S0°27'23"W	81.89'
L5	N88°14'10"W	7.67'
L6	S0°05'38"W	147.52'
L7	N89°32'18"W	74.71'
L8	S89°35'43"E	12.91'
L9	N89°59'56"E	19.62'
L10	S0°04'52"W	127.22'
L11	S88°19'10"E	32.89'
L12	N0°44'13"E	92.42'

CURVE TABLE			
CURVE	RADIUS	ARC	DELTA
C1	302.50'	29.21'	5°31'57"
C2	55.00'	40.48'	42°10'11"
C3	60.00'	84.73'	80°54'40"
C4	55.00'	19.57'	20°22'58"
C5	20.00'	31.54'	90°22'04"

10-30-15

PAUL KUHNLE STATE OF WASHINGTON 45788 REGISTERED PROFESSIONAL LAND SURVEYOR

THIS SURVEY COMPLIES WITH ALL STANDARDS AND GUIDELINES OF THE "SURVEY RECORDING ACT" CHAPTER 58.09 RCW, AND 332-130 WAC.

HOLMVIG, DEWITT, GALLION & ASSOC., LLC.
LAND SURVEYING & ENGINEERING SUPPORT
1036 COLE STREET, ENUMCLAW, WA 98022 (360) 825-6963
www.hdgallion.com

HOLDENER
BOUNDARY LINE ADJUSTMENT

DWN BY:	DATE:	JOB NAME:
P. KUHNLE	10/30/2015	HOLDENER
CHKD BY:	SCALE:	SHEET
P. KUHNLE	1"=200'	3 OF 3

201511259000002
STRIKER, ROBER BLAM
PAGE-003 OF 003
10/15/2015 09:07
KING COUNTY, WA
167.00
VOL 334 PG 160

SUBDIVISION

Guarantee/Certificate Number:

0073672-06

Issued By:

CHICAGO TITLE INSURANCE COMPANY

CHICAGO TITLE INSURANCE COMPANY

a corporation, herein called the Company

GUARANTEES

Ken Krueger and the City of Enumclaw

herein called the Assured, against actual loss not exceeding the liability amount stated in Schedule A which the Assured shall sustain by reason of any incorrectness in the assurances set forth in Schedule A.

LIABILITY EXCLUSIONS AND LIMITATIONS

1. No guarantee is given nor liability assumed with respect to the identity of any party named or referred to in Schedule A or with respect to the validity, legal effect or priority of any matter shown therein.
2. The Company's liability hereunder shall be limited to the amount of actual loss sustained by the Assured because of reliance upon the assurance herein set forth, but in no event shall the Company's liability exceed the liability amount set forth in Schedule A.

Please note carefully the liability exclusions and limitations and the specific assurances afforded by this guarantee. If you wish additional liability, or assurances other than as contained herein, please contact the Company for further information as to the availability and cost.

Chicago Title Insurance Company

By:

President

Attest:

Secretary

Chicago Title Company of Washington
701 5th Avenue, Suite 2700
Seattle, WA 98104

Countersigned By:

Authorized Officer or Agent

ISSUING OFFICE:
Title Officer: Commercial / Unit 6
Chicago Title Company of Washington
701 5th Avenue, Suite 2700
Seattle, WA 98104
Main Phone: (206)628-5610
Email: CTISeaTitleUnit6@ctt.com

SCHEDULE A

Liability	Premium	Tax
$1,000.00	$350.00	$33.60

Effective Date: July 14, 2016 at 08:00 AM

The assurances referred to on the face page are:

That, according to those public records which, under the recording laws, impart constructive notice of matter relative to the following described property:

SEE EXHIBIT "A" ATTACHED HERETO AND MADE A PART HEREOF

Title to said real property is vested in:

Frances M. Holdener, who also appears of record as Frances Holdener, as her separate estate, Frances M. Holdener, Trustee of The Martin L. Holdener Credit Shelter Trust, and Frances M. Holdener. Trustee of The Martin L. Holdener QTIP Trust, each as their interests may appear

subject to the matters shown below under Exceptions, which Exceptions are not necessarily shown in the order of their priority.

END OF SCHEDULE A

EXHIBIT "A"

Legal Description

Lots A and C, City of Enumclaw Boundary Line Adjustment Number 15-01 (Holdener), recorded under recording number 20151125900002, in King County, Washington.

SCHEDULE B

GENERAL EXCEPTIONS

H. Reservations and exceptions in United States Patents or in Acts authorizing the issuance thereof.

SCHEDULE B
(continued)

SPECIAL EXCEPTIONS

1. Covenants, conditions, restrictions, recitals, reservations, easements, easement provisions, dedications, building setback lines, notes, statements, and other matters, if any, but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth on Boundary Line Adjustment :

   Recording No: 20030717900006

2. Covenants, conditions, restrictions, recitals, reservations, easements, easement provisions, dedications, building setback lines, notes, statements, and other matters, if any, but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth on Boundary Line Adjustment :

   Recording No: 20031119900005

3. Covenants, conditions, restrictions, recitals, reservations, easements, easement provisions, dedications, building setback lines, notes, statements, and other matters, if any, but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth on City of Enumclaw BLA No. 08-07:

   Recording No: 20090416900001

4. Covenants, conditions, restrictions, recitals, reservations, easements, easement provisions, dedications, building setback lines, notes, statements, and other matters, if any, but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth on City of Enumcaw BLA No. 15-01:

   Recording No: 20151125900002

5. Easement(s) for the purpose(s) shown below and rights incidental thereto as shown in the document

Recording Date:	April 7, 1905
Recording No.:	333161
Purpose:	Right to construct a ditch from the spring
Affects:	Portion of said premises and other property

   The exact location and extent of said easement is not disclosed of record.

SCHEDULE B
(continued)

6. Easement(s) for the purpose(s) shown below and rights incidental thereto as shown in the document

Disclosed By:	Warranty Deed
Recording Date:	September 25, 1907
Recording No.:	510743
Purpose:	Water pipe line
Affects:	Portion of said premises and other property

The exact location and extent of said easement is not disclosed of record.

7. Easement(s) for the purpose(s) shown below and rights incidental thereto as shown in the document

Recording Date:	January 10, 1930
Recording No.:	2580863
Purpose:	The right ot lay install and perpetually maintain a water main
Affects:	Northwesterly portion of Lot A

The exact location and extent of said easement is not disclosed of record.

8. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	City of Enumclaw
Purpose:	Utilities
Recording Date:	April 5, 2000
Recording No.:	20000405000015
Affects:	The Southerly 15 of a portion of Lot C

9. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	City of Enumclaw
Purpose:	utilties
Recording Date:	April 5, 2000
Recording No.:	20000405000975
Affects:	A Southerly portion of Lot C, and other property

10. Easement(s) for the purpose(s) shown below and rights incidental thereto, as granted in a document:

Granted to:	City of Enumclaw
Purpose:	Utilities
Recording Date:	April 5, 2000
Recording No.:	20000405000978
Affects:	A Southerly portion of Lot C and other property

SCHEDULE B
(continued)

11. Reservations and exceptions contained in the deed

    Grantor: Northern Pacific Railroad Company
    Recording No.: 10231

    Reserving and excepting from said Lands so much or such portions thereof as are or may be mineral lands or contain coal or iron, and also the use and the right and title to the use of such surface ground as may be necessary for ground operations and the right of access to such reserved and excepted mineral lands, including lands containing coal or iron, for the purpose of exploring, developing and working the land.

    The Company makes no representations about the present ownership of these reserved and excepted interests.

    Affects: A Westerly portion of Lot A and other property

12. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, source of income, gender, gender identity, gender expression, medical condition or genetic information, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

    Recording Date: June 20, 2003
    Recording No.: 20030620001089
    Regarding: Existing Well

    Affects: A Southerly portion of Lot C and other property

13. Matters contained in that certain document

    Entitled: Unrecorded Water Agreement and the terms and conditions thereof:
    Recording Date: July 22, 1918
    Recording No.: 1230898
    Disclosed By: Warranty Deed

    Reference is hereby made to said document for full particulars.

14. Matters contained in that certain document

    Entitled: Notice of Potential Late-comer Connection Charges for Water and Sewer Service and the terms and conditions thereof:
    Recording Date: April 19, 1978
    Recording No.: 7804190908

    Reference is hereby made to said document for full particulars.

SCHEDULE B
(continued)

15. Matters contained in that certain document

Entitled: Agreement and the terms and conditions thereof:
Recording Date: May 24, 2006
Recording No.: 20060524000698
Which provides for among other things: Latecomer charges for Sanitary Lift Station Improvement

Reference is hereby made to said document for full particulars.

16. Agreement Mitigation Agreement, including the terms and conditions thereof:

Executed by: Frances M. Holdener
And: Enumclaw School District No. 216
Recording Date: December 29, 2015
Recording No.: 20151229000356

17. Any rights, interests, or claims which may exist or arise by reason of the following matters disclosed by survey,

Recording Date: May 22, 2008
Recording No.: 20080522900003
Matters shown: Discrepancies between property boundaries of said premises and the location of fence lines.

18. General and special taxes and charges, payable February 15, delinquent if first half unpaid on May 1, second half delinquent if unpaid on November 1 of the tax year (amounts do not include interest and penalties):

Year:	2016
Tax Account No.:	302007-9011-01
Levy Code:	1180
Assessed Value-Land:	$164,301.00
Assessed Value-Improvements:	$463,000.00

General and Special Taxes:

Billed:	$8,034.26
Paid:	$4,017.13
Unpaid:	$4,017.13

Affects: Lot A

SCHEDULE B
(continued)

19. General and special taxes and charges, payable February 15, delinquent if first half unpaid on May 1, second half delinquent if unpaid on November 1 of the tax year (amounts do not include interest and penalties):

Year:	2016
Tax Account No.:	302007-9111-00
Levy Code:	1180
Assessed Value-Land:	$23,970.00
Assessed Value-Improvements:	$0.00

General and Special Taxes:	
Billed:	$454.61
Paid:	$227.31
Unpaid:	$227.30

Affects: Lot C

20. The search did not disclose any open mortgages or deeds of trust of record, therefore the Company reserves the right to require further evidence to confirm that the property is unencumbered, and further reserves the right to make additional requirements or add additional items or exceptions upon receipt of the requested evidence.

Note: FOR INFORMATIONAL PURPOSES ONLY:

The following may be used as an abbreviated legal description on the documents to be recorded, per Amended RCW 65.04.045. Said abbreviated legal description is not a substitute for a complete legal description within the body of the document:

Lots A and C Enumclaw BLA No 15-01; 20151125900002
Tax Account No.: 302007-9011-01 and 302007-9111-00

Note: Any map furnished with this Commitment is for convenience in locating the land indicated herein with reference to streets and other land. No liability is assumed by reason of reliance thereon.

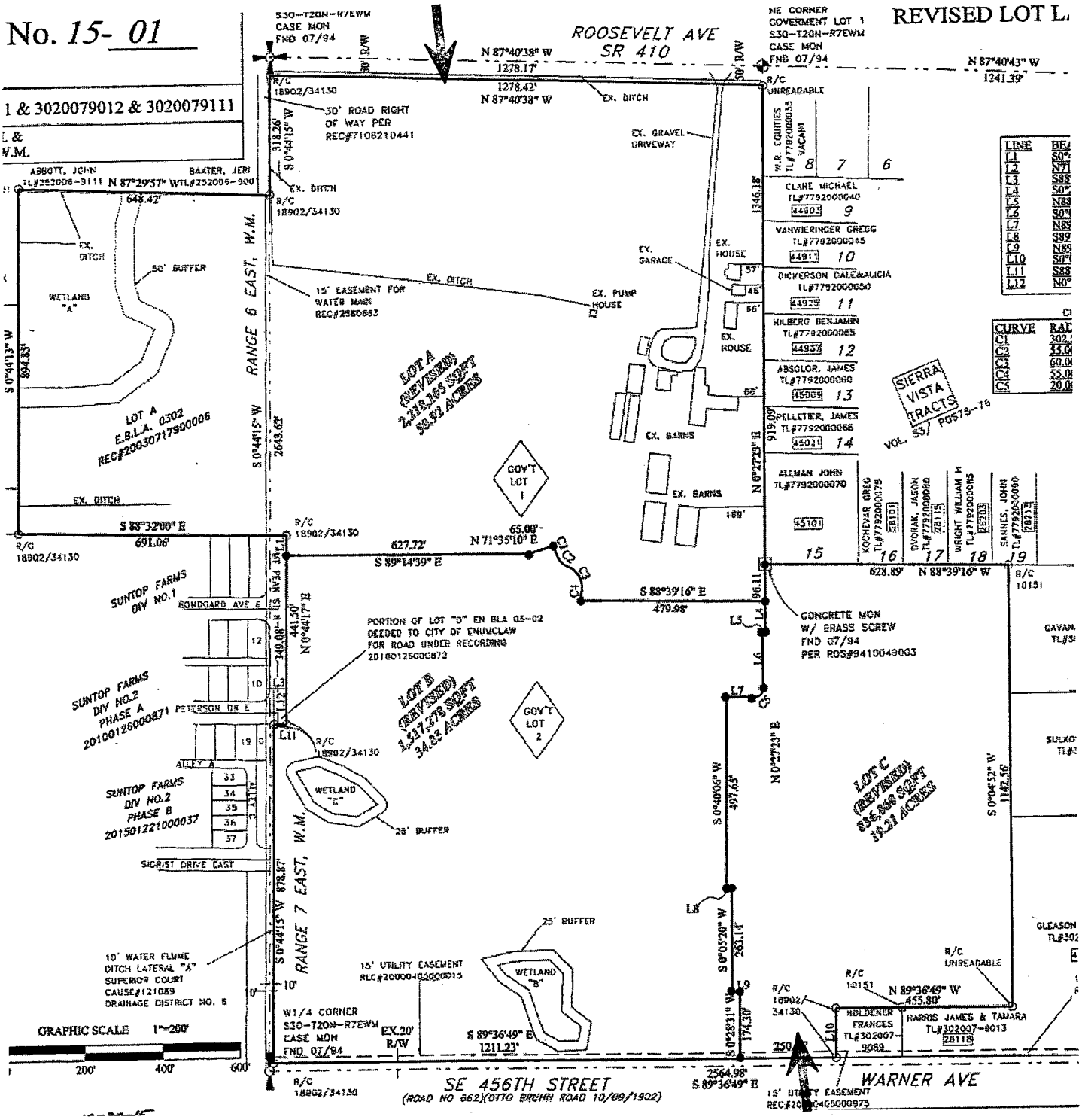
END OF SCHEDULE B

No. 15- 01

REVISED LOT L

1 & 3020079012 & 3020079111

L &
V.M.



KING COUNTY FIRE DISTRICT #28

ENUMCLAW FIRE DEPARTMENT

1330 Wells Street Enumclaw, WA 98022
Telephone (360) 825-5544 Fax: (360) 825-9442
www.enumclawfire.com

Impact/Mitigation Fees

King County Fire District #28 (KCFD #28) is requesting mitigation through the SEPA process (state environmental protection act). KCFD #28 is currently at capacity and any additional development will decrease our ability to maintain service levels to members of our community.

The State Growth Management Act (GMA) recognizes that new development creates additional demands for public facilities and services, GMA authorizes municipalities to collect impact/mitigation fees to help pay for the additional capital needs in order to maintain the quality of service to existing residence as well as new development.

The City of Enumclaw will reference our Capital Facilities plan in there comprehensive plan, upon its adoption.

Commissioners of KCFD #28 have approved impact/mitigation fees to be collected.

Impact fees are required as part of any new construction or reconstruction both residential and commercial.

Fees are due upon issuance of a building permit.

Fees have been calculated based on an extensive study of capital expenses, such as equipment costs, life expectancies of equipment based on the increasing call volume, and structure needs for the growing population.

Cost per dwelling unit----------$ 2,383.13 d.u.
Cost Per sq ft for non-dwelling----------$ 0.35 s.f.

For further questions and information please contact KCFD #28/Enumclaw Fire Department 360-825-5544.

KING COUNTY FIRE DISTRICT #28

ENUMCLAW FIRE DEPARTMENT

1330 Wells Street Enumclaw, WA 98022
Telephone (360) 825-5544 Fax: (360) 825-9442
www.enumclawfire.com

SUNTOP Divisions 4 & 5

King County Fire District #28 will be requesting Mitigation fees through SEPA. This amount is based on the added dwelling units proposed.

Division 4

96 lots @ 2383.13 per dwelling unit- $228,780.48

Division 5

79 lots @ 2383.13 per dwelling unit- $188,267.27

Total Fee's requested through SEPA- $417,047.54

Please contact the KCFD #28 with any questions or concerns. 360-825-5544