Clackamas County Planning and Zoning Division
Department of Transportation and Development

Development Services Building
150 Beavercreek Road | Oregon City, OR 97045

503-742-4500 | zoninginfo@clackamas.us
www.clackamas.us/planning

NOTICE OF LAND USE APPLICATION IN YOUR AREA

Date: 12/19/2019

Permit Number: Z0474-19

Application: Design Review

From: Clackamas County Planning and Zoning

Notice Mailed To: Property owners within 300 feet
Community Planning Organizations (CPO)
Interested Citizens and Agencies

Application Proposal:

DESIGN REVIEW - The proposal is to develop the subject property with a new speculative commercial center with drive through services. The project includes new site access, parking, landscaping and other site improvements.

This project has been scheduled to be presented to the Design Review Committee on Tuesday, January 21, 2020 at 8:30 am. The meeting will be held in the Room 115 of Clackamas County's Development Services Building, located at 150 Beavercreek Road in Oregon City.

Property Owner: CCX NORTH LLC

Applicant: MCKECHNIE, MARK

Address: 15526 SE 135TH AVE
CLACKAMAS, OR 97015

Location: SE 135th and Highway 224

Legal Description: 22E11D 00400 **Acres:** .89

Zone: C2-COMMUNITY COMMERCIAL

Staff: Anthony Riederer 503-742-4528 **E-mail:** ariederer@co.clackamas.or.us,

How to Comment on this Application:

1. To be sure your comments will be considered prior to the decision, we need to have them within 20 days of the date of this notice.

Permit Number: Z0474-19

2. You may use the space provided below, mail a separate letter or e-mail the information. Please include the permit number, address the information to the staff member handling this matter, and focus your comments on the approval criteria for the application.

3. Return your mailed comments to: Clackamas County Planning and Zoning, 150 Beavercreek Rd, Oregon City, OR 97045; FAX to (503) 742-4550.

Community Planning Organization: The following recognized Community Planning Organization (CPO) has been notified of this application. This organization may develop a recommendation on this application. You are welcome to contact this organization and attend their meeting. If this Community Planning Organization is currently inactive, and you are interested in becoming involved in Land Use Planning in your area, please contact the Citizen Involvement Office at (503) 655-8552.

CLACKAMAS (INACTIVE)

OR

Decision Process: In order to be approved, this proposal must meet the approval criteria in the Zoning and Development Ordinance, Section(s)

510, 827, 100 series, 1102, 1307.

The Ordinance criteria for evaluating this application can be obtained from this office or viewed at www.clackamas.us/planning/zdo.html. You may view the submitted application at the following link, https://accela.clackamas.us/citizenaccess/ within five days of the date of this notice, or at our office during weekday lobby hours, 8:00 am to 4:00 pm, Monday through Thursday and 8:00 am to 3:00 pm Friday.

A decision on this proposal will be made and a copy will be mailed to you. If you disagree with the decision you may appeal to the Land Use Hearings Officer who will conduct a public hearing. There is a $250 appeal fee.

Comments:

_____

_____

_____

_____ _____

Your Name/Organization Telephone Number

Clackamas County is committed to providing meaningful access and will make reasonable accommodations, modifications, or provide translation, interpretation or other services upon request. Please contact us at 503-742-4545 or email DRenhard@clackamas.us.

503-742-4696: ¿Traducción e interpretación? |Требуется ли вам устный или письменный перевод? | 翻译或口译？| Cần Biên dịch hoặc Phiên dịch? | 번역 또는 통역?

Planning & Zoning
Development Services Building
150 Beavercreek Road | Oregon City, OR | 97045
Phone: (503) 742-4500 | Fax: (503) 742-4550
E-mail: zoninginfo@co.clackamas.or.us
Web: http://www.clackamas.us/transportation/planning/

CLACKAMAS COUNTY

LAND USE APPLICATION

DEEMED COMPLETE

ORIGINAL DATE SUBMITTED: 10/28/2019

FILE NUMBER: Z0474-19-D

APPLICATION TYPE: DESIGN REVIEW

The Planning and Zoning Division staff deemed this application complete for the purposes of Oregon Revised Statutes (ORS) 215.427 on 12/18/19

Signature

Sr Planner
Title

Anthony Riederer
Print Name

Comments: _____

Check one:

☒ The subject property is located inside an urban growth boundary. The 120-day deadline for final action on the application pursuant to ORS 215.427(1) is:

Thursday, April 16, 2020

☐ The subject property is not located inside an urban growth boundary. The 150-day deadline for final action on the application pursuant to ORS 215.427(1) is:

_____

NOTICE

Your application will be considered Void if, on the 181st day after the date the application was first submitted, you have been mailed this notice and have not provided the information requested in Options 1 – 3 above. In this case, no further action will be taken on your application.

Applicant or authorized representative, please check one of the following and return this notice to: Clackamas County Planning Division; 150 Beavercreek Road, Oregon City, Oregon, 97045

☒ I am submitting the required information (attached); or.

☐ I am submitting some of the information requested (attached) and no other information will be submitted; or

☐ I will not be submitting the requested information. Please accept the application as submitted for review and decision.

Mark McKechnie
Signed

12-13-19
Date

MARK McKECHNIE
Print Name

RECEIVED

DEC 18 2019

Clackamas County
Planning & Zoning Division

CLACKAMAS COUNTY PLANNING AND ZONING DIVISION
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DEVELOPMENT SERVICES BUILDING
150 BEAVERCREEK ROAD | OREGON CITY, OR 97045
503-742-4500 | ZONINGINFO@CLACKAMAS.US

Application for Design Review

RECEIVED May 2018

********A Pre-Application Conference is required prior to filing this application.********

Date Received: OCT 26 2019 File No.: Z0474-19-D

Staff Member: _____ Design Review Fee: $ _____

Zone: _____ .384% of Construction Cost: $ 800,000

Comp. Plan: _____ ($650.00 Minimum / $36,835.00 Maximum Fee)

Development No.: _____ Project No.: _____

Clackamas County Planning & Zoning Division

Name of Applicant: OREGON ARCHITECTURE, INC. MARK MCKECHNIE

Mailing Address: 132 W MAIN ST, STE 101 MEDFORD, OR 97501

Phone: 541-772-4372 Email: MARK@OREGONARCHITECTURE.BIZ

What is proposed?:
2 - 4,000 SF SHELL RETAIL BUILDINGS

Proposed title: _____ Sq. ft. of each structure: 4,000

Estimated completion date: 6/2020 Estimated cost of constr (labor & materials): $ _____

Site Address: _____

Total Land Area : .88 Acres

Legal Description: T 22 E R 11 D Section: _____ Tax Lot(s): 00400

Adjacent Properties Under Same Ownership: T____ R____ Section_____ Tax Lot(s)_____

Other persons (if any) to be mailed notices regarding this application:

Name	Address	Relationship
MARK TROETTMEYER	15956 S. NEIBUR RD OREGON CITY OR 97045	(PROPERTY OWNER)

Name	Address	Relationship
		(DEVELOPER)

I hereby certify the statements contained herein, along with the evidence submitted, are in all respects true and correct to the best of my knowledge.

MARK TROETTMEYER — Property Owner's Name (Print)

MARK MCKECHNIE — Applicant's Name (Print)

Property Owner's Signature — Date 7.1.19

Applicant's Signature — Date 7-10-19

CLACKAMAS CROSSING LLC

TP CK# 1654
$3072.00

OREGON ARCHITECTURE INC.

(541) 772-4372

132 WEST MAIN STREET, SUITE 101 MEDFORD, OREGON 97501 www.oregonarchitecture.biz

Owner	☐	Date	December 13, 2019
Architect	☒	Job Name	Clackamas Corners
Engineer	☐		SE 135th Ave. & Hwy 212
Consultant	☐		
Contractor	☐		
Other			

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Anthony Reiderer
Clackamas County – Planning and Zoning Division
150 Beavercreek Road
Oregon City, OR 97045

Attached is additional Application materials required for a complete Design Review submittal, including:

1. (1) Full size 24x36 set of drawings.
2. (1) reduced 11x17 set of drawings.
3. Revised Development Narrative with a request for two exceptions from County standards
4. A Preliminary Statement of feasibility letter from Clackamas water Services
5. A preliminary Statement of Feasibility letter from WES
6. (1) 11 x 17 sheet showing the typical building materials and siding colors

The Traffic Study will be transmitted under separate cover.

Thank you.

Signed: Mark McKechnie

(Mark McKechnie, AIA - Architect)

OREGON ARCHITECTURE INC.
(541) 772-4372
132 WEST MAIN STREET, SUITE 101 MEDFORD, OREGON 97501 www.oregonarchitecture.biz

October 25, 2019
Revised December 12, 2019

DESIGN REVIEW APPLICATION NARRATIVE FOR THE DEVELOPMENT OF CLACKAMAS CORNERS CENTER

BRIEF PROJECT DESCRIPTION:

The Clackamas Corners Development consists of two existing platted lots, each approximately .9AC that will be redeveloped in two Phases, approximately two years apart. Phase I will have one 4,000 square foot building of which half will be occupied by a Starbucks Coffee shop. The second structure will also be 4,000 square feet. It is expected to have multiple tenants, none of which have been identified.

Phase II will also have two approximately 4,000 square foot buildings. Building 3 is expected to have multiple tenants, very similar to Building 2. Building 4 is being planned with a drive-thru, but no tenant has been identified for this location.

Total construction when complete – 16,000 square feet.

TOTAL DEVELOPABLE SITE AREA:

Phase I: 38,894 sf. (.89AC)
Phase II: 42,790 sf. (.98AC)

The site is zoned C-2 – Retail Commercial. It abuts a parcel along the west zoned MR-1 – Multifamily Residential, and a parcel to the south also zoned C-2.
Setbacks:
Front – minimum 15 feet, maximum 20 feet
Side – minimum 0 feet, no maximum
Side – abutting a residential zone 15 feet
One loading space is required.
Minimum parking requirements range from 4.1 to 15 spaces per 1,000 square feet, depending on the use.

DATE OF PRE-APPLICATION CONFERENCE:

Pre-Application Conference was held September 4, 2019.

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Planning & Zoning Division

EXISTING AND PROPOSED STREET IMPROVEMENTS AND SITE ACCESS:
The existing site has a fully improved roadway along both Highway 212 and 135th Street SE, including curb, gutter and sidewalk. The County is requiring the accessible crossing at 135th Street to the eastern edge of the through lanes be upgraded to meet current standards.

Also, access to the site (currently two separate tax lots) will be limited to one driveway access on Lot 500 designed to mirror the access for the lot across 135th Street.

No additional public improvements are proposed. The existing site has a recently constructed curb tight sidewalk that was installed when ODOT upgraded the intersection of Highway 212 and 135th Street. At that time there were other upgrades installed, including several utility structures located immediately behind the existing sidewalk. One of those is the signalization cabinet for the intersection. These structures would be very expensive, if not impossible, to relocate. Having a meandering sidewalk that is curb tight for a portion and behind a park strip for a portion is equally awkward. Further, the developed sites abutting this project site have curb tight sidewalks, so there would be an awkward transition to the abutting properties. For those reasons, the developer is proposing to maintain the sidewalk in its existing location.

ZONING DEVELOPMENT ORDINANCE STANDARDS
Section 827 – Drive thru windows
This proposed center has two buildings with drive-thrus. Both drive-thrus meet the additional conditions of Section 827, in that the windows are located away from pedestrian access to the buildings, have minimal and controlled access at pedestrian crossing interfaces and have more than adequate stacking area so cars waiting in line will not impede vehicular circulation through the site or pedestrian access to the buildings.

Section 1005 – Site and Building Design
This development is on a long, narrow site located at the SE corner of 135th Street and Highway 212. A 57 foot power line easement separates the interior of the site from 135th Street and there is a 15 foot landscape buffer required against the residential use along the eastern property line. That leaves 98 feet in which to locate a building, a driveway, building pedestrian access and site circulation.

The development supports pedestrian friendly development to the extent it is able, given the depth of the powerline easement affecting one third of the site and the entire 135th Street frontage. It also will include site lighting that does not cast any light above the horizontal plane in keeping with the dark skies initiative.

Section 1005.03 – General Site Design Standards
A. Where feasible, cluster buildings within single and adjacent developments for efficient sharing of walkways, on-site vehicular circulation, connections to adjoining sites, parking, loading, transit-related facilities, plazas, recreation areas, and similar amenities.
The building footprint is divided into 4 roughly equal areas of approximately 4,000 sf each. Each building has the opportunity for a small public plaza space, and the buildings are interconnected to each other, to 135th street and to the bus stop located on the Highway 212 frontage.

B. Where feasible, design the site so that so that the longest building elevations can be oriented within 20 degrees of true south in order to maximize the south-facing dimensions.
Given the tight nature of the buildable footprint of the site, it is not feasible to orient the buildings so the long side is within 20 degrees of true south.

C. Minimum setbacks may be reduced by up to 50 percent as needed to allow improved solar access when solar panels or other active or passive solar use is incorporated into the building plan.
This Section is not Applicable.

D. A continuous, interconnected on-site walkway system meeting the following standards shall be provided.
We have provided a continuous interconnected on-site walkway system that begins on 135th Street, loops through the property and connects back to 135th Street. It also connects to the outdoor patios on the north and south building, as well as the open space between the middle buildings.

E. Inside the UGB, except for industrial developments, a minimum of 50 percent of the street frontage of the development site shall have buildings located at the minimum front yard depth line.
The applicant is seeking a modification to this standard for this particular parcel. The 57 foot powerline easement along the entire 135th Street frontage makes it impossible for any design on this parcel to meet this standard as written. If we were to locate the building fronts on the edge of the easement that would require parking on both sides of all buildings and additional driveways. This would be an inefficient parking design, leading to more impervious surface on the site. We are proposing to have the building entry doors face 135th Street across the easement. The fourth building has a plaza and entry space facing 135th Street. We believe the proposed site plan is the best design available.

F. Inside the UGB, parking lots larger than three acres in size shall be built with major on-site vehicular circulation ways that include raised walkways with curbs, a minimum four-foot-wide landscape strip and shade trees planted a maximum of 30 feet on center.
This Section is not applicable. The site is less than 3 Acres.

G. New retail, office, mixed use, and institutional buildings located on major transit streets shall have at least one public entrance facing a major transit street, or street intersecting a major transit street.
The plan provides for a public entrance and plaza close to the intersection of Highway 212 and NE 135th Street. Highway 212 is not a major transit street, but the plaza is reasonably close to the bus stop.

H. New retail, office, mixed use, multifamily, and institutional buildings located at a major transit stop shall be set back a maximum of 20 feet from at least one of the following: the major transit stop, the major transit street or an intersecting street, or a pedestrian plaza at the major transit stop or a street intersection.
This design, as presented, provides a plaza and building entrance as close as possible to the intersection of Highway 212 and 135th Street. The Pacific Power easement along the 135th Street frontage and the elevation change along Highway 212 make it impossible to get any closer to either street.

I. In the PMU District, there shall be no vehicular parking or circulation within the front yard setback.
This Section is not applicable.

J. In the OC District the design and siting of structures shall control public access points into office buildings, utilizing a central lobby design, entrance courtyard, internal pedestrian walkway or mall, or similar designs that protect business/professional uses from the disturbances of direct public access.
This Section is not applicable.

K. Where a minimum floor area ratio (FAR) is required by the standards of the applicable zoning district, it shall be calculated as follows:
This Section is not applicable.

Section 1005.04 – Building Design
The Clackamas County Development Code requires all buildings to meet certain minimum requirements, described as follows:

> **Building entries shall be clearly defined and recognizable.**
> **Building frontages shall have windows occupying 60% of the linear frontage, of which 40% of the linear frontage shall be transparent.**
> **The building roof edge shall have a cornice treatment at the parapet for flat roofed buildings.**
> **Walls shall be surfaced with brick, tile, masonry, stucco, stone or synthetic equivalent, pre-cast masonry, gypsum reinforced fiber concrete, wood lap siding, architecturally treated concrete, glass, wood, or a combination of these or other high-image materials.**
> **Rooftop mechanical equipment shall be screened from view by means of a parapet.**

The four buildings all have a main entrance facing 135th Street. The corner building (northmost) has an additional entrance facing the parking area)
The building frontages and linear window areas are as follows, from the northmost building, and frontages facing 135th Street: Building 1 – 45 feet in length, 28 linear feet of glazing (62%); Building 2 and 3 – 84 feet in length, 51 linear feet of glazing (60%); Building 4 – 91 feet in length, 55 linear feet of glazing (60%).
The four buildings exterior walls will be topped above the roof with a parapet that will be tall enough to hide mechanical equipment. The parapet will be topped with a cornice.

Section 1005.05 – Outdoor Lighting
The site lighting will meet the requirements of this section of the Development Code.

Section 1005.06 – Additional Requirements
One additional site amenity is required for every 20,000 square feet of site area, with at least one and a maximum of five additional features required. This site is 66,767 square feet, thus requiring 4 project amenities. The amenities selected are as follows:

C. Use highly reflective (high albedo) materials on roof surfaces.

D. Place major outdoor use areas such as plazas, playgrounds, gardens, etc. on the south side of buildings.

K. Lay out sites and locate buildings and on-site vehicular circulation to create functional open areas such as plazas, courtyards, outdoor recreation areas, miniparks, and accessways that are open to the general public.

X. Locate buildings at the minimum side yard setback or within 10 feet of the side setback line, whichever is greater.

Section 1021 – Solid Waste and Recyclable Material Collection
The trash enclosures will be constructed of solid concrete masonry units, painted, and constructed to a height of 6 feet. The enclosures will have solid painted metal gates and will have bollards installed inside to prevent the trash containers from running into and damaging the enclosures. The enclosures are located to allow for easy truck access.

Exception Request to the County Standard requiring a park strip between the sidewalk and the paved street surface.

This site is currently improved with a curb-tight public sidewalk, which was installed when the roadway was improved in the recent past. This sidewalk connects to adjacent development to the east along Highway 212 that also has a curb-tight sidewalk. Recent development along the west side of 135th Street has a curb-tight sidewalk, as does recent development along the east side of 135th Street further south of this property. The adjacent parcels are fully developed and in excellent condition, and unlikely to be redeveloped any time in the foreseeable future.

In addition to the realities of existing developed improvements there are two major PG&E electrical vaults immediately behind the existing sidewalk. These vaults are access to underground transmission lines that cannot be moved. A new sidewalk placed behind a park strip along the frontage would be located in such a way that the walk path would run right into the side of the above-grade fittings of the vaults. The only way to address this site condition with a new sidewalk would be to go around the vaults, which is an awkward and unnecessary site movement.

In addition to the vaults, there is also a major valve for the water main in 135th Street this is located immediately behind the existing sidewalk near the intersection. Relocating the sidewalk will create the same condition as the electrical vaults, again requiring an awkward transition around this in-ground access.

These utility improvements were carefully designed and considered when they were installed a few years ago, and cannot easily or readily be relocated. The prudent thing to do is to leave them in place and work with the public improvements as they exist and are present on all the surrounding properties.

CLACKAMAS COUNTY PLANNING AND ZONING DIVISION
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
DEVELOPMENT SERVICES BUILDING
150 BEAVERCREEK ROAD | OREGON CITY, OR 97045
503-742-4500 | ZONINGINFO@CLACKAMAS.US

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Planning & Zoning Division

PRELIMINARY STATEMENT OF FEASIBILITY

To be completed by the applicant:

Applicant's Name: KKLA Contractors, Kirk Wardius

Property Legal Description: T 2 S, R 2E, Section 11, Tax Lot(s) 400, 500

Site Address: 15526, 15606 SE 135th Ave., Clackamas, OR Project Engineer: PLS Engineering

Project Title/Description of Proposed Development:
Clackamas Corners-construct 4 commercial bldgs. with approx 16,000 sq ft retail space.

To be completed by the service provider or surface water management authority:

Check all that apply:

- ☑ Sanitary sewer capacity in the wastewater treatment system and the sanitary sewage collection system is available to serve the development or can be made available through improvements completed by the developer or the system owner.
- ☑ Adequate surface water treatment and conveyance is available to serve the development or can be made available through improvements completed by the developer or the system owner.
- ☐ Water service is available in levels appropriate for the development, and adequate water system capacity is available in source, supply, treatment, transmission, storage and distribution or such levels and capacity can be made available through improvements completed by the developer or the system owner. This statement ☐ applies ☐ does not apply to fire flows.*

  **If water service is adequate with the exception of fire flows, the applicant shall submit a statement from the fire district serving the subject property that states that an alternate method of fire protection, such as an on-site water source or a sprinkler system, is acceptable.*

- ☐ This statement is issued subject to conditions of approval set forth in the attached.
- ☐ Adequate ☐ sanitary sewer service, ☐ surface water management, ☐ water service cannot be provided.

Erik Bertram
Signature of Authorized Representative

12/12/19
Date

DEVELOPMENT REVIEW SPECIALIST
Title

WES
Name of Service Provider or Surface Water Management Authority

Completion of this statement does not reserve capacity for the development and does not alter an applicant's obligation to comply with the service provider's or surface water management authority's regulations. Completion of this statement does not obligate the service provider or surface water management authority to finance or construct improvements necessary to provide adequate service for the proposed development. Completion of this statement does not guarantee that land use approval for the proposed development will be granted.

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503-742-4500 | ZONINGINFO@CLACKAMAS.US

PRELIMINARY STATEMENT OF FEASIBILITY

To be completed by the applicant:

Applicant's Name: Clackamas Crossing

Property Legal Description: T 2 S, R 2E, Section 11D, Tax Lot(s) 00400 & 500

Site Address: 15526 & 15606 SE 135th Ave, Clackamas Project Engineer: _____

Project Title/Description of Proposed Development: Proposed construction of two Drive-Thru restaurants and two retail buildings and associated site work.

To be completed by the service provider or surface water management authority:

Check all that apply:

- ☐ Sanitary sewer capacity in the wastewater treatment system and the sanitary sewage collection system is available to serve the development or can be made available through improvements completed by the developer or the system owner.
- ☐ Adequate surface water treatment and conveyance is available to serve the development or can be made available through improvements completed by the developer or the system owner.
- ☑ Water service is available in levels appropriate for the development, and adequate water system capacity is available in source, supply, treatment, transmission, storage and distribution or such levels and capacity can be made available through improvements completed by the developer or the system owner. This statement ☐ applies ☑ does not apply to fire flows.*

**If water service is adequate with the exception of fire flows, the applicant shall submit a statement from the fire district serving the subject property that states that an alternate method of fire protection, such as an on-site water source or a sprinkler system, is acceptable.*

- ☑ This statement is issued subject to conditions of approval set forth in the attached.
- ☐ Adequate ☐ sanitary sewer service, ☐ surface water management, ☐ water service cannot be provided.

Betty A Johnson
Signature of Authorized Representative

November 8, 2019
Date

Engineering Associate
Title

Clackamas River Water
Name of Service Provider or Surface Water Management Authority

Completion of this statement does not reserve capacity for the development and does not alter an applicant's obligation to comply with the service provider's or surface water management authority's regulations. Completion of this statement does not obligate the service provider or surface water management authority to finance or construct improvements necessary to provide adequate service for the proposed development. Completion of this statement does not guarantee that land use approval for the proposed development will be granted.

J. An approved water system capable of supplying required fire flow for fire protection shall be provided to all premises upon which buildings are to be constructed.

K. If water service is adequate with the exception of fire flows, the applicant shall submit a statement to Clackamas River Water from the fire district serving the subject property that states that if and /or what alternate method of fire protection is acceptable.

L. Upon plan review there may be additional requirements as set forth by the Water District.

Access Engineering

134 E. 13th Ave .Suite 2
Eugene, Oregon 97401
Phone & Fax
541-485-3215
accesseng.com

Clackamas Crossing
Traffic Impact Analysis

15606 SE 135th Avenue
Clackamas, Oregon

Transportation Engineering
Traffic Signal Design
Street Lighting Design
Trip Generation
Access Management
Traffic Impact Studies

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Planning & Zoning Division

December 17, 2019

Clackamas Crossing
Traffic Impact Analysis

15606 SE 135th Avenue
Clackamas, Oregon

REGISTERED PROFESSIONAL ENGINEER
10536
OREGON
JULY 13, 1979
MICHAEL WEISHAR

RENEWS
6/30/20

December 17, 2019

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I. Executive Summary

Clackamas Crossing is a retail commercial development consisting of four buildings totaling 16,028 square feet proposed for the southeast corner of SE Highway 212 and SE 135th Avenue in Clackamas County, Oregon. The site will contain a Starbucks Coffee Shop with drive-through window, 2,184 square feet in size, and 13,844 square feet of shopping center uses. The development is proposed to be built in two phases; Phase 1 to be completed in 2020 containing 8,028 square feet including the Starbucks, and phase 2 to be completed in 2022 adding 8,000 additional square feet. The site will have only one access along the east side of SE 135th Avenue across from an existing driveway serving a developed retail commercial area 400 feet south of the Highway 212 intersection Stop line.

The study area consists of the intersection of Highway 212 and 135th Avenue and 135th Avenue to the south including the Site access driveway. Traffic counts of the Highway 212 and 135th Avenue were taken in November of 2019 and adjusted to design hour volumes following ODOT procedures.

A study of crashes at the Highway 212 and 135th Avenue intersection revealed that the intersection appears on the 2017 top 10% SPIS list for ODOT Region 1. The 5-year study of crash reports found that 86% of all crashes were rear-end collisions, and over 51% of those occurred on the northbound 135th Avenue right-turn slip ramp which is controlled with a Yield sign.

Peak hour trips were generated for each peak hour using the 10th edition of the ITE Trip Generation Manual. Pass-by trips using the 3rd edition of the Trip Generation Handbook account for between two-thirds to five-sixths of all trips generated by the site. Due to the location of the site on the south side of Highway 212, the trip distribution revealed that 85 to 90% of all site trips will pass through the Highway 212 at 135th Avenue intersection.

The results of the operational analysis of the SE Highway 212 at SE 135th Avenue intersection show that the intersection's V/C is within the mobility standard for the Portland Metro Area through buildout in 2022 except for the AM peak hour, where no maximum V/C is specified. Westbound queues were extensive but did not reach the upstream signalized intersection. Queues on the other three approaches to the intersection appear normal for an intersection of two arterial streets. The Noon peak hour operates well under the maximum V/C with no queuing issues through the buildout year, 2022.

During both PM peak hours, the SE Highway 212 at SE 135th Avenue intersection operated within the mobility standard but northbound queues were modeled to extend for 1000+ feet south of the intersection under existing 2019 conditions, and up to 1175 feet under no build and build conditions through buildout in 2022. Queues on the other approaches were long but cleared every cycle. The extensive northbound queues will block the site access under the current lane striping on 135th Avenue and make southbound entries and northbound exits dependent on northbound traffic keeping the intersection clear.

The only effective solution to the northbound queues would be to provide a long acceleration lane eastbound on Highway 212. However, that would require removing and relocating the existing eastbound bus pullout just east of the intersection. Widening 135th Avenue to provide additional northbound lanes would make the site unusable for this development. Northbound queues during the PM peak hours cannot be remedied without a major rebuild of the northbound approach and eastbound lanes leaving the intersection. A measure that would aid inbound left-turns into the site would be to shorten the existing northbound left-turn lane and provide a short southbound left turn pocket as shown on Figure 8 in Appendix A.

II. Background

1. Introduction, Location and Vicinity Map

Clackamas Crossing, a retail commercial development, is planned for 15606 SE 135th Avenue on the southeast corner of SE 135th Avenue and Clackamas Highway (Hwy. 212). Figure 1 in Appendix A shows the location of the site in Clackamas County. The purpose of this study is to document and analyze the potential traffic impacts of new trips generated by the proposed development.

2. Description of Development Site

The development site consists of two tax lots on Assessors' Map 22E11D, tax lots 00400 and 00500 containing 1.90 acres. Both lots are zoned C-2 Community Commercial. Tax lot 400 (0.90 a.) is currently vacant. Tax lot 500 (1.00 a.) contains a residential dwelling on the northern half and a parking lot on the south half.

The site is proposed to be developed in two phases. The site plan is presented on Figure 2 in Appendix A. Phase 1, to be completed in 2020, includes two buildings on the northern half of the site; a 2,186 square feet Starbucks with drive-through window with a 1,840 square feet Mod Pizza along the highway frontage (Bldg. 1) and a 4,000 square feet retail building (Bldg. 2) to the south. Access will be provided to SE 135th Avenue from tax lot 500 across from an existing driveway serving a retail commercial area 400 feet south of the Highway 212 intersection Stop line. Phase 2 will develop the south half of the site with two retail buildings (Bldgs. 3 & 4) each 4,000 square feet in size, the southern building shows an unspecified business with a drive-through window. Phase 2 is planned for completion in 2022. The site plan shows 103 total parking spaces which include six handicap accessible spaces.

3. Existing Study Area Conditions

Properties immediately south of the site and west of SE 135th Avenue and south of Highway 212 are zoned C-2 Community Commercial. East of the site is a large area zoned MR-1, Medium Density Residential. Properties on both sides of SE 135th Avenue north of Highway 212 are zoned L-I, Light Industrial.

Table 1: Existing Study Area Street Conditions

Street	Jurisdiction/Classification	Speed	Street Width	Lanes*	Bike lanes	Sidewalks	Parking
SE Highway 212							
East of 135th	ODOT/Arterial	45	78' - 14' CTL - 8' Shldrs	4	Both Sides	South Side	None
West of 135th	ODOT/Arterial	45	76' - 14' CTL - 7' BL -Curbs	4	Both Sides	Both Sides	None
SE 135th Avenue							
North of Hwy 212	County/Arterial	40	50' - 14' LTL - 6' BL - Curbs	2	Both Sides	Both Sides	None
South of Hwy 212	County/Arterial	35	64'- 50' - 14' LTL - 6' BL - Curbs	2	Both Sides	Both Sides	None

* - Through lanes only

The intersection of Highway 212 at SE 135th Avenue is controlled by an Standard 8-phase fully actuated traffic signal with a northbound right-turn slip lane controlled by a yield sign.

4. Existing Traffic Conditions

Manual traffic classification counts were taken at the study area intersections at Highway 212 and SE 135th Avenue on Tuesday November 12, 2019. The counts were taken from 6:30 to 9:30 AM, 11;30 AM to 1:30 PM and 3:30 to 6:30 PM. The peak hours were found to be 7:15 to 8:15 AM, 12:15 to 1:15 Noon, 4:00 to 5:00 1st Hour PM, 5:00 to 6:00 2nd Hour PM. The traffic counts are attached and include heavy trucks, pedestrian and bicycle movements. Summary traffic count sheets are in Appendix B

5. Seasonal Factor & Growth Rate

The traffic counts were taken on Tuesday, November 12. In order to assess the worst case traffic impacts, these counts should be translated to the highest traffic month of the year. ODOT provides guidelines for determining design hour volumes (DHV). Design hour volumes are the 30th highest hour volume for a given year. ODOT's Analysis Procedures Manual (APM) provides three methods for evaluating the seasonal factor. For Highway 212 and 135th Avenue in the study area, ODOT's 2018 Seasonal Trend Table is used. The seasonal factor for the November 12th traffic counts is 1.057. This factor is applied to all movements in the study area. The growth rate was calculated from ODOT's 2038 Future Volumes Table. The calculation sheet is in Appendix B. Figure 3 in Appendix A shows the resulting design hour volumes for streets in the initial study area.

6. Crash History

Crash records for the study area for the period 2014 through 2018 were obtained from ODOT's Crash Analysis and Reporting Unit. For the five-year period there were 91 reported intersection related crashes. However, the 2018 crash data is not complete. The four-year total was 83 intersection related crashes. The crash reports are in Appendix C.

Table 2: Crash Data for SE Highway 212 @ SE 135th Avenue

Year	Type of Collision					Total	Volume	Crash Rate (mev)*	Injury	PDO
	RearEnd	Turning	Angle	Pedestrian	Bike					
2014	21 (12)	3	1	0	0	**25**	41590	2.96	8	17
2015	14 (7)	1	3	0	0	**18**	42090	1.17	12	6
2016	18 (8)	0	2	0	0	**20**	41650	1.32	15	5
2017	18 (9)	1	1	0	0	**20**	45100	1.21	10	10
Total	**71 (36)**	**5**	**7**	**0**	**0**	**83**	**170430**	**1.33**	**45**	**38**
2018	7 (4)	1	0	0	0	8	Incomplete		8	0

* - million entering vehicles (#) - NB slip ramp crashes

Of the 83 reported crashes at the intersection during the four complete years' data, 71 or 86% were rear-end collisions. Of those 71 rear-end collisions, 36 occurred on the northbound slip ramp Yield controlled approach on 135th Street. No crashes involved pedestrians or bicyclists and there were no serious injuries crashes (Injury-A or Fatalities).

The AADT data for Highway 212 was taken from the State Highway Volume Tables for 2014 - 2018 averaged at MPs 6.80 and 7.62, east and west of 135th Avenue. The AADT for 135th Avenue was obtained from Clackamas County traffic count website. Table 3 compares the intersection crash rate to the critical/90th percentile crash rate in Exhibit 4-1 of ODOT's Analysis Procedure Manual Version 2. Only the 4 years of complete crash data are reported. The AADT for each intersection was the average of the AADTs in Tables 2 and 3 above. The intersection as a whole performs worse than the statewide 90th percentile crash rate. Clearly the rear-end crashes on the northbound slip ramp controlled by a yield sign are the major concern.

Table 3: Critical/90th Percentile Crash Rates (2014 - 2017)

Intersection	Crashes/Year	AADT*	4-Year Rate	Intersection Legs	Critical Rate
Hwy 212 @ 135th Ave.	20.75	42608	**1.33**	4	**0.860**
No NB Yield Crashes	9.0	38178*	**0.646**	4	**0.860**

* Four-year intersection average AADT less northbound right-turns times 10 from PM Peak Hour count.

Rear-end collisions on the northbound 135th Street slip ramp account for 43% of all crashes during the four full years of crash data. The primary cause of the collisions was reported to be following too close or failure to avoid vehicle ahead. These collisions occur on the slip ramp with a yield sign at a pedestrian crossing set back ~45 feet from the nearest through lane of the highway. The slip ramp meets the highway at ~50-degree angle requiring drivers to look back over their shoulders to view on-coming traffic on the highway. Sight distance for right-turn movements at the crosswalk is limited by vehicles in the northbound through lane to 300 feet. No crashes were identified involving right turning vehicles leaving the slip ramp. Right turns accounted for from 60 to 80 percent of all northbound movements at the intersection throughout the analysis periods.

7. Transit

The study area is served by two TriMet bus routes: 30-Estacada and 156-Mather Rd. Bus stops for both routes are located on Highway 212 just east of the SE 135th Avenue intersection. 30-Estacada runs between Estacada and Clackamas Town Center, along Eagle Creek Road, Highway 224, Highway 212 and 82nd. On weekdays, Line 30 also provides one morning rush-hour trip to Milwaukie, which continues to Portland City Center and one evening rush-hour trip from Portland City Center to Milwaukie, which then continues to Estacada. 156-Mather Rd provides weekday service between Clackamas Town Center and Happy Valley, via Sunnyside, 97th, Mather, 122nd, Hubbard, 135th, Hwy 212/224 and 152nd Drive.

8. Pedestrian and Bicycle Facilities

Sidewalks are present on both sides of 135th Avenue and both sides of Highway 212 west of 135th. East of 135th on Highway 212, a sidewalk is present on the south side but no there is no sidewalk on the north side. All pedestrian crosswalks have push buttons and walk/don't walk signals except for the striped crossing of the northbound slip ramp. The Yield sign is beyond the crosswalk striping. There are striped bike lanes on both sides of Highway 212 and 135th Avenue throughout the study area.

III. Traffic Analysis

1. Trip Generation

The trip generation for the proposed Clackamas Crossing development is taken from the Tenth Edition of the Institute of Transportation Engineers' (ITE) Trip Generation Manual using the land use codes 937 - Coffee/Donut Shop with Drive-Through Window and 820 - Shopping Center. Shopping Center is used for all but the coffee shop portion of the site since most of the tenants are unknown at this time. The drive-through retail shown on Bldg. 4 in phase 2 may never become a drive through use and it doesn't fit the proforma of any of the major fast food chains. Table 3 on the following page shows the expected trips generated by phase 1 and Table 4 shows the expected trips generated at completion of phase 2 of the development.

For a shopping center, the ITE Manual provides trip data for developments ranging in size from 2,000 square feet to over 2,000,000 square feet. We have filtered the data to select only sites in the ITE's Pacific Coast category. Appendix A of the 10th Edition of ITE Trip Generation provides a time of day distribution table for shopping centers. The table presents the percentage of daily trips for each hour of the day. This data is used to estimate the trip generation of the Noon and 2nd PM peak hours for shopping centers.

For the Coffee Shop with Drive-through Window, the Pacific Coast filtered data was used for the AM peak hour. There was insufficient Pacific Coast data for Daily and PM peak hour periods. The Noon peak hour percentage is estimated at approximately 90% of the AM peak by Starbucks. We have assumed the 2nd PM peak would have the same trip generation as the 1st PM peak. The pass-by trip data is taken from the 3rd Edition of the Trip Generation Handbook using available data from Table F.9 - Shopping Centers and F.34 Coffee/Donut Shop with Drive - Through Window. The trip generation printouts are attached.

2. Trip Distribution

The site is located on the southeast corner of two arterial streets. As a result, most trips to and from the site will be pass-by trips. Pass-by trips are apportioned in relation to the relative volumes by direction of traffic using the Highway 212 at SE 135th Avenue intersection. At completion, the development will generate more than two-thirds of all trips to and from the site will be pass-by trips.

AM peak hour trips are predominantly from home to work and PM peak hour trips are predominantly work to home. This community type shopping center will attract primary trips from the immediate surrounding area with less emphasis on the direction of the major traffic flows. Based on the density of residential and industrial development surrounding the site within a 1 mile radius, we have assigned primary trips as follows:
40% to and from the north and northwest via 135th Avenue north of Highway 212;
30% to and from the east, northeast, and south via Highway 212 east of 135th Avenue;
20% to and from the southwest via Jennifer/135th Avenue south of the site; and
10% to and from the west via Highway 212 west of 135th Avenue.

Table 3: Phase 1 Trip Generation: Weekday, AM, Noon and PM Peak Hours

Time Period	(937) Coffee Shop w/ Drive Through					(820) Shopping Center				
	Size (1000 SF)	Rate	Total	In	Out	Size (1000 SF)	Rate	Total	In	Out
Daily	2.18	820.38	1788	894	894	5.84	52.71	308	154	154

	AM Peak Hour				Noon Peak Hour			
	Rate	Trips	In	Out	Rate	Trips	In	Out
(937) Coffee Shop w/ Drive Through	61.13	133	68	65	55.45	121	63	58
(820) Shopping Center	1.39	8	5	3	5.19	31	16	15
Total Trips		**141**	**73**	**68**		**152**	**79**	**73**
(937) Pass-by Trips	89%	-119	-61	-58	89%	-108	-56	-52
(820) Pass-by Trips	0%	0	0	0	26%	-8	-4	-4
Total Pass-by Trips	**84%**	**-119**	**-61**	**-58**	**76%**	**-116**	**-60**	**-56**
Total Primary Trips	**16%**	**22**	**12**	**10**	**24%**	**36**	**19**	**17**

	1st PM Peak Hour				2nd PM Peak Hour			
	Rate	Trips	In	Out	Rate	Trips	In	Out
(937) Coffee Shop w/ Drive Through	43.38	95	47	48	43.38	95	47	48
(820) Shopping Center	3.80	23	11	12	4.90	29	14	15
Total Trips		**118**	**58**	**60**		**124**	**61**	**63**
(937) Pass-by Trips	89%	-85	-42	-43	89%	-85	-42	-43
(820) Pass-by Trips	34%	-8	-4	-4	34%	-10	-5	-5
Total Pass-by Trips	**79%**	**-93**	**-46**	**-47**	**77%**	**-95**	**-47**	**-48**
Total Primary Trips	**21%**	**25**	**12**	**13**	**23%**	**29**	**14**	**15**

Table 4: Phase 2 Trip Generation: Weekday, AM, Noon and PM Peak Hours

Time Period	(937) Coffee Shop w/ Drive Through					(820) Shopping Center				
	Size (1000 SF)	Rate	Total	In	Out	Size (1000 SF)	Rate	Total	In	Out
Daily	2.18	820.38	1788	894	894	13.84	52.71	730	365	365

	AM Peak Hour				Noon Peak Hour			
	Rate	Trips	In	Out	Rate	Trips	In	Out
(937) Coffee Shop w/ Drive Through	61.13	133	68	65	55.45	121	63	58
(820) Shopping Center	1.39	19	12	7	5.19	71	37	34
Total Trips		**152**	**80**	**72**		**192**	**100**	**92**
(937) Pass-by Trips	89%	-119	-61	-58	89%	-108	-56	-52
(820) Pass-by Trips	0%	0	0	0	26%	-18	-10	-8
Total Pass-by Trips	**78%**	**-119**	**-61**	**-58**	**66%**	**-126**	**-66**	**-60**
Total Primary Trips	**22%**	**33**	**19**	**14**	**34%**	**66**	**34**	**32**

	1st PM Peak Hour				2nd PM Peak Hour			
	Rate	Trips	In	Out	Rate	Trips	In	Out
(937) Coffee Shop w/ Drive Through	43.38	95	47	48	43.38	95	47	48
(820) Shopping Center	3.80	53	25	27	4.90	68	33	35
Total Trips		**148**	**72**	**75**		**163**	**80**	**83**
(937) Pass-by Trips	89%	-85	-42	-43	89%	-85	-42	-43
(820) Pass-by Trips	34%	-18	-9	-9	34%	-23	-11	-12
Total Pass-by Trips	**70%**	**-103**	**-51**	**-52**	**66%**	**-108**	**-53**	**-55**
Total Primary Trips	**30%**	**45**	**21**	**23**	**34%**	**55**	**27**	**28**

3. Intersection Operations Analysis - General Procedures

For state highway intersections, Clackamas County and ODOT use a mobility standard based on the ratio of the **volume** of traffic using an intersection or approach compared to the **capacity** of the intersection or approach, **V/C**. As the volume of traffic nears capacity, the ratio approaches 1.0.

Within the Portland Metro Area, the maximum V/C ratio is provided by Table 5-2a "Motor Vehicle Standards for the Urban Area - Weekday Mid-day and Weekday PM Peak Periods" in the Clackamas County Comprehensive Plan. For ODOT roadways, OR 212, the maximum V/C ratios are:
Midday One-Hour Peak = 0.90

1st Hour, PM Peak = 0.99

2nd Hour, PM Peak = 0.99

No maximum V/C is specified for the AM Peak.

Clackamas County also requires a determination of the Level-of-Service (LOS). LOS measures the quality of traffic flow at an intersection by estimating the average vehicle delay encountered. It is described by a letter scale from "A" to "F:

Level of Service	Traffic Signal	Stop sign	Level of Service	Traffic Signal	Stop sign
A	≤>10 sec	≤>10 sec	D	35-55 sec	25-35 sec
B	10-20 sec	10-15 sec	E	55-80 sec	35-50 sec
C	20-35 sec	15-25 sec	F	>80 sec	>50 sec

4. 2019 Existing Intersection Operational Analysis

The Synchro program is used to evaluate the operation of the intersections in the study area. For signalized intersection the overall HCM2010 V/C and LOS are reported. The HCM2010 V/C calculations for all analysis years are in Appendix B. For unsignalized intersections, all movements are reported. The saturation flow rate was set to the ODOT standard of 1900 vehicles per hour for all intersection approaches. The existing intersection Peak Hour Factors (PHF's), heavy vehicle percentages, and bike and pedestrian numbers from the traffic counts are used. Figure 3 in Appendix A shows the 2019 existing design hour volumes for both the AM, NOON, and the First and Second PM peak hours. The Synchro and SimTraffic reports in Appendix D.

Table 5: 2019 Intersection Operational Analysis

Intersection Movement	Mobility Standard	AM Peak Hour No Build			NOON Peak Hour No Build		
		V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS
Hwy 212 @ 135th St.	V/C=.90	1.08	89.3	F	0.57	30.0	C

Intersection Movement	Mobility Standard	1st PM Peak Hour No Build			2nd PM Peak Hour No Build		
		V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS
Hwy 212 @ 135th St.	V/C= 0.99	0.87	37.3	D	0.89	41.2	D

5. 2020 Intersection Operational & Queuing Analyses - Phase 1

Synchro was again used to evaluate the operations at the study area intersection. No changes were made to the PHF's or truck, pedestrian or bicycle percentages. The SimTraffic program was used to estimate the 95th percentile queue lengths following the guidelines in Chapter 8 of ODOT's APM. For SimTraffic, five runs with a random seed were averaged. The 95th percentile queues are reported and are rounded to the next nearest 25-foot increment. Tables 6 and 7 show the results of the simulations. The Synchro and SimTraffic reports are in Appendix E.

Table 6: 2020 Intersection Operational Analysis

Intersection Movement	Mobility Standard	AM Peak Hour						NOON Peak Hour					
		No Build			Build			No Build			Build		
		V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS
Hwy 212 @ 135th St.	V/C=.90	1.09	94.1	F	1.12	92.6	F	0.58	23.8	C	0.60	26.1	C
135th St @ Site Access													
Westbound Movements	LOS=E				0.10	10.9	B				0.13	11.8	B
Northbound Movements	LOS=D				—	—	—				—	—	—
Southbound Left turn	LOS=D				0.06	8.1	A				0.06	8.3	A
Southbound Through	LOS=D				—	—	—				—	—	—

Intersection Movement	Mobility Standard	1st PM Peak Hour						2nd PM Peak Hour					
		No Build			Build			No Build			Build		
		V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS
Hwy 212 @ 135th St.	V/C= 0.99	0.88	38.6	D	0.89	40.8	D	0.91	43.0	D	0.91	44.3	D
135th St @ Site Access													
Westbound Movements	LOS=E				0.13	14.0	B				0.15	14.7	B
Northbound Movements	LOS=D				—	—	—				—	—	—
Southbound Left turn	LOS=D				0.05	9.0	A				0.06	9.2	A
Southbound Through	LOS=D				—	—	—				—	—	—

Table 7: 2020 Design Hour 95th %-tile Queues

Intersection Movement	Available Storage (ft)	95th Percentile Queues							
		AM Peak Hour		NOON Peak Hour		1st PM Peak Hour		2nd PM Peak Hour	
		No Build	Build	No Build	Build	No Build	Build	No Build	Build
SE Hwy 212 @ SE 135th Avenue									
Eastbound Left turn	750[1]	150	150	150	175	600	650	600	600
Eastbound Through	750[1]	300	275	300	300	750	975	925	800
Eastbound Right	50	75	75	100	125	75	75	75	100
Westbound Left turn	500[2]	525	500	250	300	325	350	250	250
Westbound Through + Right	375[3]-1725[4]	900	825	350	325	475	500	400	425
Northbound Left turn	400[5]	125	150	125	175	400	450	475	450
Northbound Through + Right	400[5]	125	150	100	100	1175	1075	1175	1050
Southbound Left turn	425[6]	125	150	125	150	500	525	275	300
Southbound Through + Right	1200[7]	325	350	200	225	600	675	225	275
SE 135th Avenue @ Site Access									
Westbound Movements	75		75		75		275		250
Northbound Movements	1500[8]		---		---		650		600
Southbound Left turn	25		50		50		75		75
Southbound Through	400		---		50		75		125

[1] - To first major Dwy N & S [2] - To WBLT into Residential [3] - To Dwy N to RV lot [4] - To 142nd Ave. [5] - To Site Dwy [6] - Includes entry [7] - To 132nd Ave. [8] - To Jennifer

6. 2022 Intersection Operational & Queuing Analyses - Phase 2

The Synchro and SimTraffic programs were again used for the operational and queuing analyses. For the 2022 analyses no changes were made to the intersection Peak Hour Factors (PHF's), heavy vehicle percentages, or bike and pedestrian numbers were made for the future years. Tables 8 and 9 shows the results of the simulations. The Synchro and SimTraffic reports are in Appendix F.

Table 8: 2022 Intersection Operational Analysis

Intersection Movement	Mobility Standard	AM Peak Hour						NOON Peak Hour					
		No Build			Build			No Build			Build		
		V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS
Hwy 212 @ 135th St.	V/C=.90	1.13	103.8	F	1.15	102.1	F	0.60	24.6	C	0.63	27.9	C
135th St @ Site Access													
Westbound Movements	LOS=E				0.11	11.1	B				0.16	12.3	B
Northbound Movements	LOS=D				—	—	—				—	—	—
Southbound Left turn	LOS=D				0.06	8.1	A				0.08	8.4	A
Southbound Through	LOS=D				—	—	—				—	—	—

Intersection Movement	Mobility Standard	1st PM Peak Hour						2nd PM Peak Hour					
		No Build			Build			No Build			Build		
		V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS	V/C	Delay (sec)	LOS
Hwy 212 @ 135th St.	V/C=0.99	0.91	40.6	D	0.92	43.4	D	0.93	45.3	D	0.93	47.4	D
135th St @ Site Access													
Westbound Movements	LOS=E				0.17	14.7	B				0.21	15.6	C
Northbound Movements	LOS=D				—	—	—				—	—	—
Southbound Left turn	LOS=D				0.07	9.2	A				0.08	9.4	A
Southbound Through	LOS=D				—	—	—				—	—	—

Table 9: 2022 Design Hour 95th %-tile Queues

Intersection Movement	Available Storage (ft)	95th Percentile Queues							
		AM Peak Hour		NOON Peak Hour		1st PM Peak Hour		2nd PM Peak Hour	
		No Build	Build	No Build	Build	No Build	Build	No Build	Build
SE Hwy 212 @ SE 135th Avenue									
Eastbound Left turn	750[1]	175	150	175	125	675	675	625	625
Eastbound Through	750[1]	325	325	325	325	875	925	950	975
Eastbound Right	50	25	100	100	125	75	100	125	125
Westbound Left turn	500[2]	500	525	225	325	375	500	275	350
Westbound Through + Right	375[3]-1725[4]	825	850	375	350	550	850	400	375
Northbound Left turn	400[5]	125	125	100	125	300	475	550	250
Northbound Through + Right	400[5]	100	100	100	150	1025	1100	1150	850
Southbound Left turn	425[6]	150	275	150	125	350	500	375	275
Southbound Through + Right	1200[7]	275	525	175	300	375	525	375	275
SE 135th Avenue @ Site Access									
Westbound Movements	75		75		75		275		200
Northbound Movements	1500[8]		---		---		675		375
Southbound Left turn	25		50		50		75		75
Southbound Through	400		---		25		75		125

[1] - To first major Dwy N & S [2] - To WBLT into Residential [3] - To Dwy N to RV lot [4] - To 142nd Ave. [5] - To Site Dwy [6] - Includes entry [7] - To 132nd Ave. [8] - To Jennifer

7. Results of Operational & Queuing Analyses

The results of the operational analysis of the SE Highway 212 at SE 135th Avenue intersection show that the intersection's V/C is within the mobility standard for the Portland Metro Area except for the AM peak hour, where no maximum V/C is specified. The AM peak hour traffic levels are well over capacity currently and will continue to worsen in future years and with the development. Never-the-less, the westbound queuing levels do not extend back to the previous signalized intersection, 142nd Avenue. The queues will extend well past the private drive serving the residential area on the south side of Highway 212 and two minor driveways on the north side for much of the morning peak hour with or without the development. Queues on the other three approaches to the intersection appear normal for an intersection of two arterial streets.

The Noon peak hour operates well under the maximum V/C with no queuing issues through the buildout year, 2022.

Traffic during the two PM peak hours is heavy but the V/C remains within the maximum allowed V/C. Queues on the highway eastbound will reach the major driveway 735 feet west of the intersection serving the Jennifer Distribution Center on the south side of the highway and industrial/commercial uses on the north side. The largest queues are northbound on 135th Avenue which will extend up to 950 to 1000 feet south of the intersection, well past the site driveway, with or without the development.

All of the queuing issues above are existing without the development. This development will add from 45 to 55 new trips to the study area during the two PM peak hours at full development and 33 new trips in the AM peak hour. That is slightly over 1% of the total traffic during the PM periods and slightly less than 1% in the AM. The development does add turning movements on the Highway, left-turns westbound and right-turns eastbound due to pass-by movements at the intersection, which adds 1 to 3 percent to the V/C ratio at the intersection. However, the major movements on the highway are only minimally affected.

The greatest impact in the area will be at the Site Access on SE 135th Avenue during the PM peak hours. The current lane striping on 135th provides one through lane northbound and southbound. At the site driveway the center lane is in transition from a left-turn pocket to the north to a center-turn-lane to the south. The northbound left-turn lane queue reaches up to the left-turn/center-turn-lane transition during the 1st PM peak hour and exceeds it during the 2nd PM peak hour under existing traffic conditions. The northbound through-right lane queue extend passed the site driveway during both PM peak hours. As a consequence, the traffic model shows that southbound queues are restricted from entering the site and queues exiting from the site driveway extend the entire length of the development.

Over 80% of the expected site trips will have origins and destinations north of the site. In order to provide access to the site during the PM peak hours the traffic model was rerun with a southbound left-turn pocket created by reducing the northbound left-turn pocket at Highway 212 to 280 feet with 60-feet of transition between. The model was rerun and indicates that a 60-feet left-turn lane southbound will accommodate inbound trips to the site as long as the intersection is kept clear of the northbound queue. Outbound trips, most of which are northbound to the Highway, will still create long queues on site. Right turns from the driveway can only be made as long as the intersection is kept clear. The Synchro and SimTraffic reports are in Appendix E.

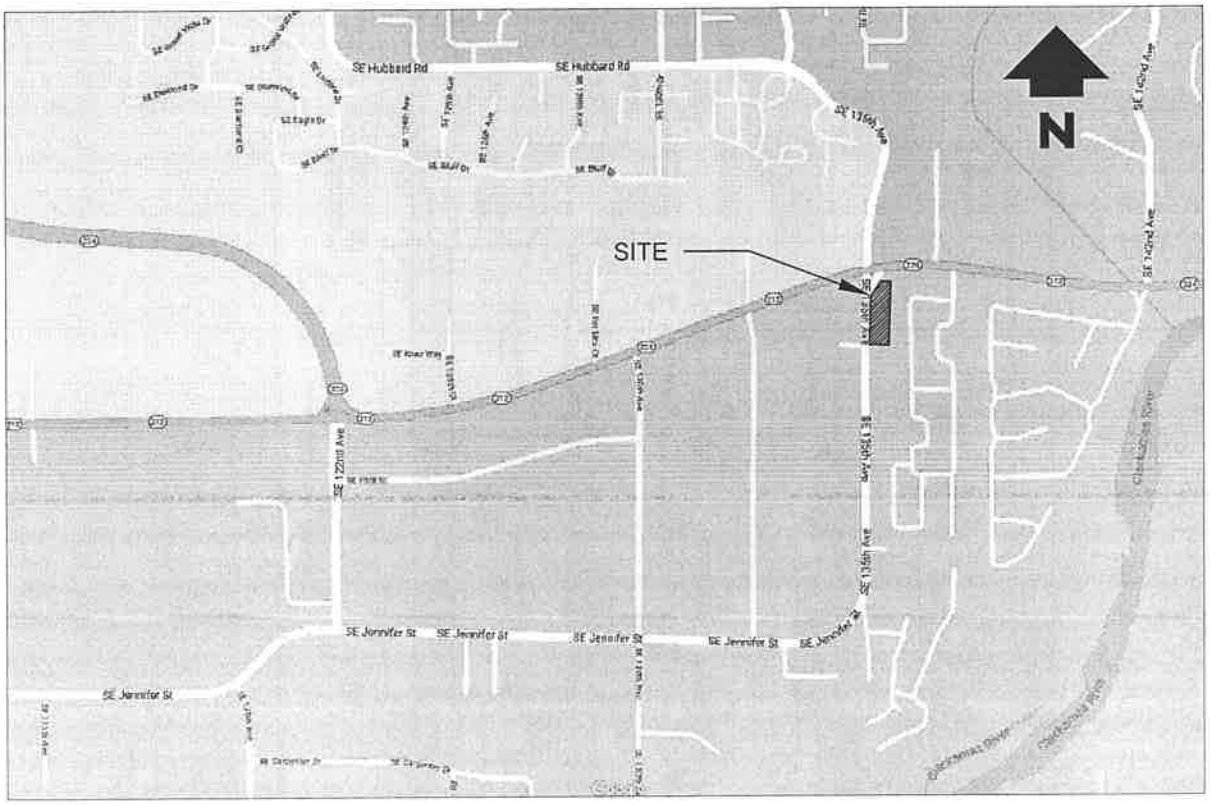
Appendix A

Figures

Figure 1

Clackamas Crossing Traffic Impact Study

Vicinity Map

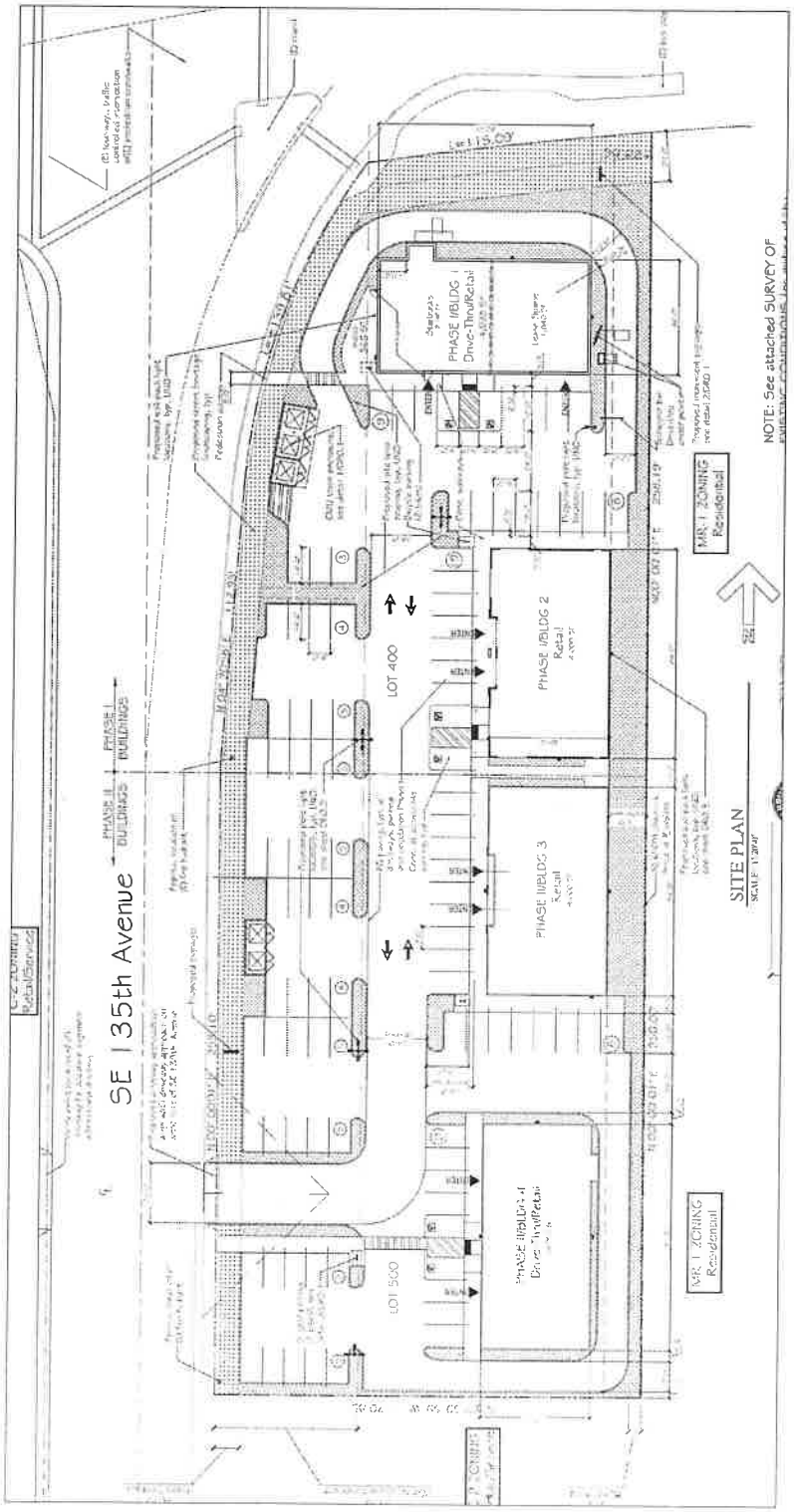


Access Engineering

Figure 2

Clackamas Crossing Traffic Impact Study

Site Plan



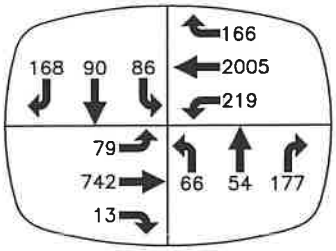
Access Engineering

Figure 3

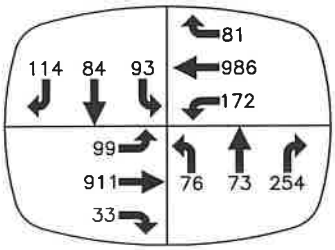
Clackamas Crossing Traffic Impact Study

2019 DHV

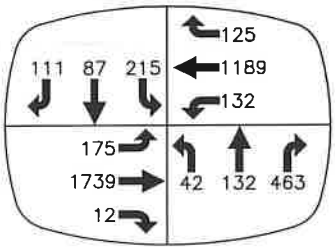
AM 7:15 - 8:15



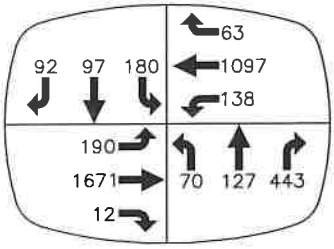
Noon 12:15 - 1:15

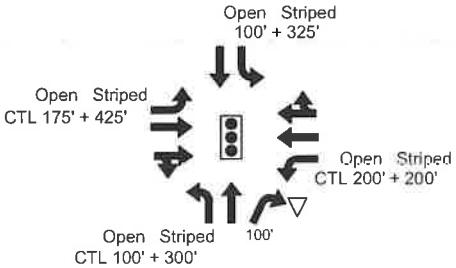


PM1 4:00 - 5:00



PM2 5:00 - 6:00





	PHF	EB	WB	NB	SB
AM Peak	0.97	1	3	2	1
Noon Peak	0.96	2	1	4	0
PM1 Peak	0.99	1	1	0	0
PM2 Peak	0.95	0	0	0	0

Access Engineering

Figure 4

Clackamas Crossing Traffic Impact Study

Phase 1 Trip Distribution

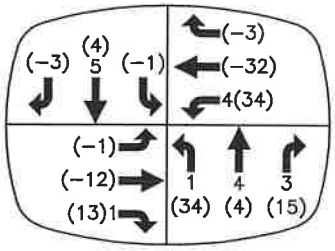
LEGEND

XX - Primary Trips

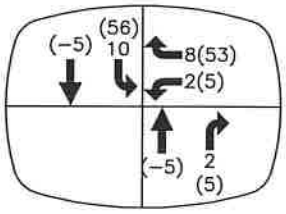
(XX) - Pass-by Trips

1

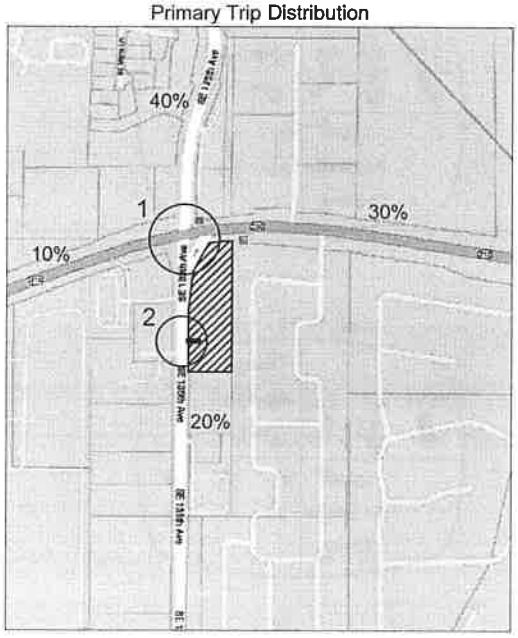
AM 7:15 - 8:15



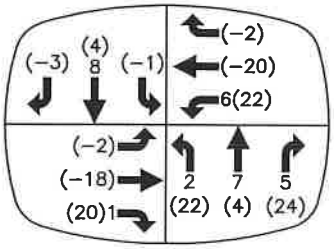
2

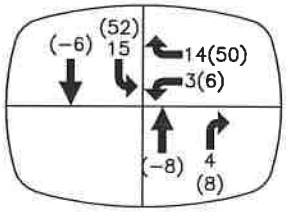


Primary Trip Distribution

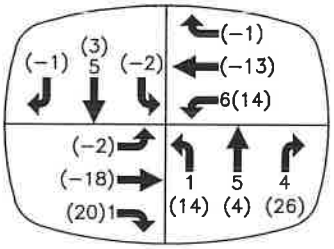


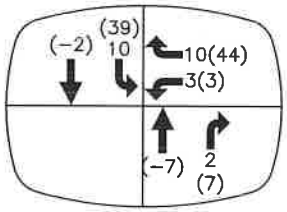
Noon 12:15 - 1:15



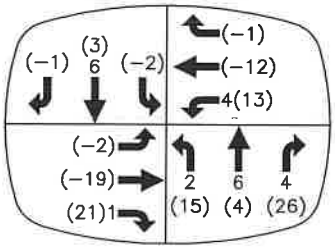


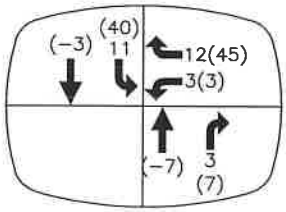
PM1 4:00 - 5:00





PM2 5:00 - 6:00





Access Engineering

Figure 5

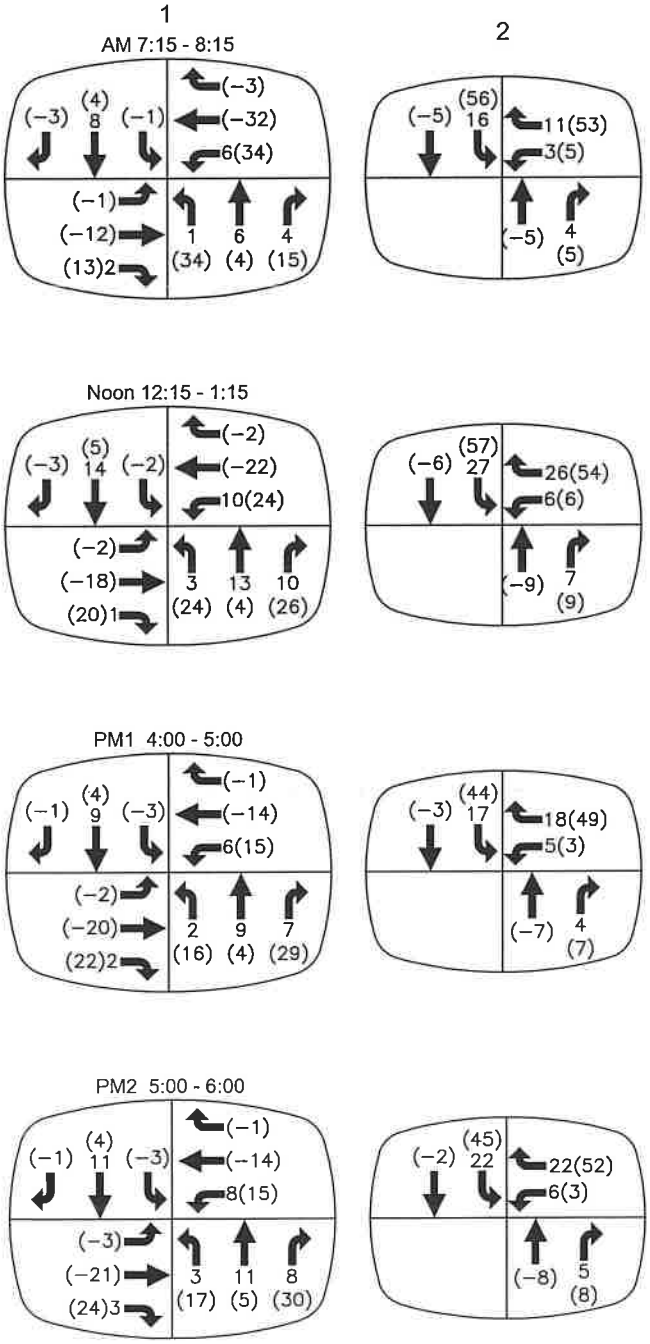
Clackamas Crossing Traffic Impact Study

Phase 2 Trip Distribution

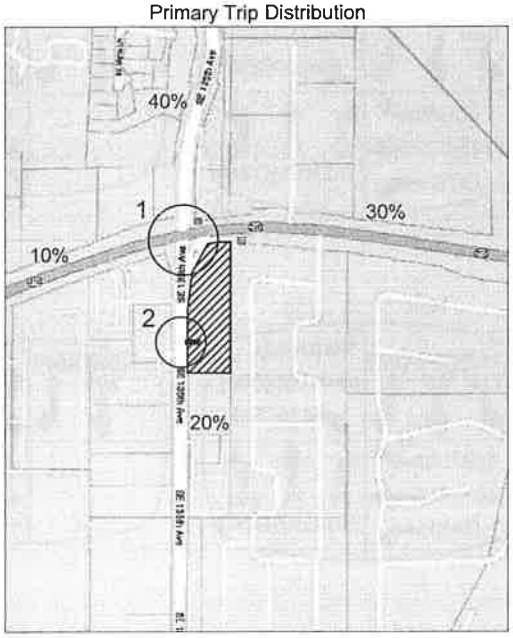
LEGEND

XX - Primary Trips

(XX) - Pass-by Trips



Primary Trip Distribution



Access Engineering

Figure 6

Clackamas Crossing Traffic Impact Study

2020 DHV's

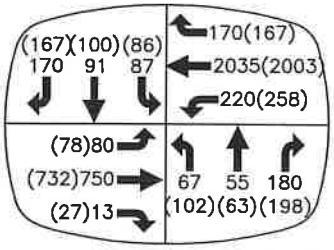
LEGEND

XX - No BUILD

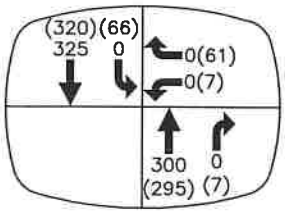
(XX) - BUILD

1

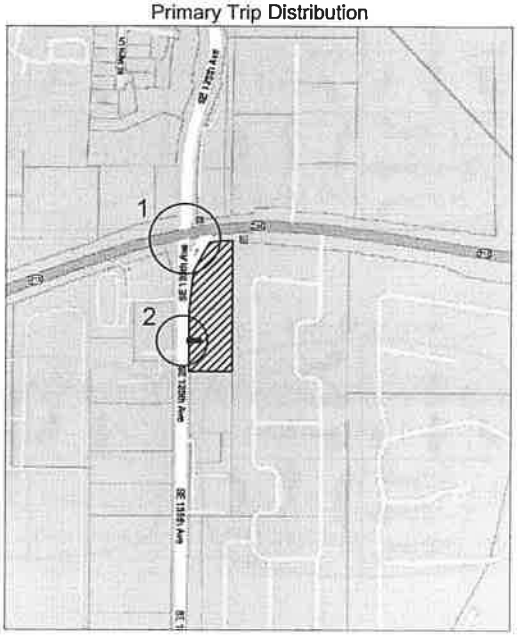
AM 7:15 - 8:15



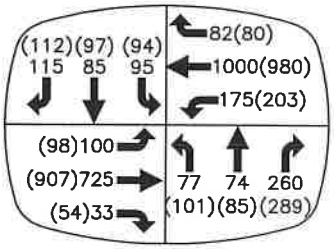
2

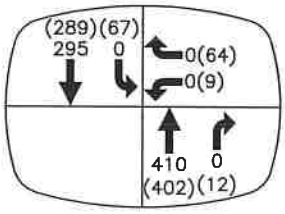


Primary Trip Distribution

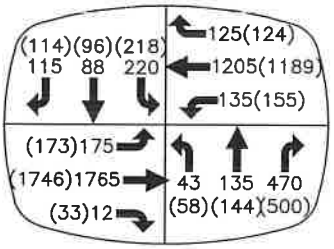


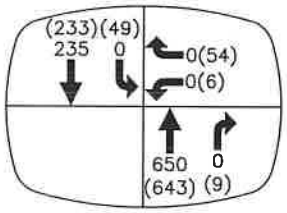
Noon 12:15 - 1:15



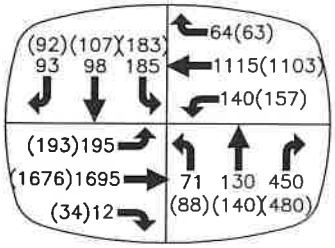


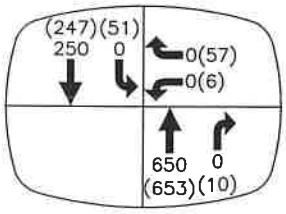
PM1 4:00 - 5:00





PM2 5:00 - 6:00





Access Engineering

Figure 7

Clackamas Crossing Traffic Impact Study

2022 DHV's

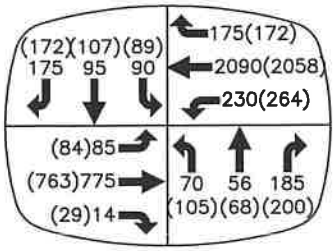
LEGEND

XX - No BUILD

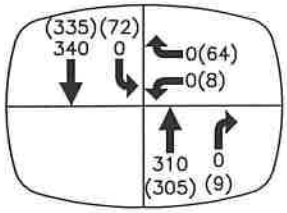
(XX) - BUILD

1

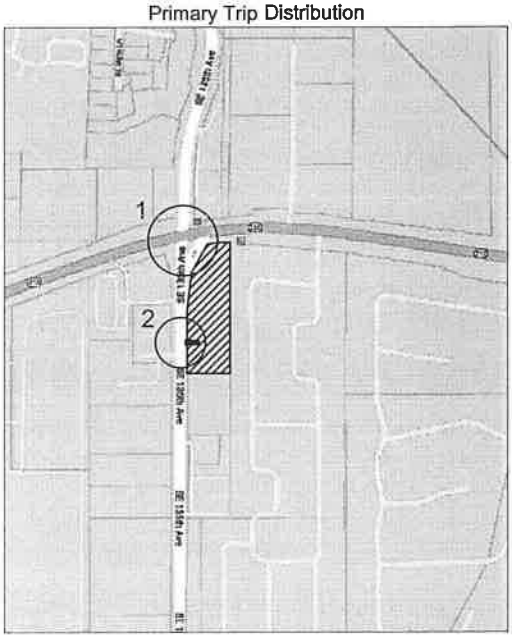
AM 7:15 - 8:15



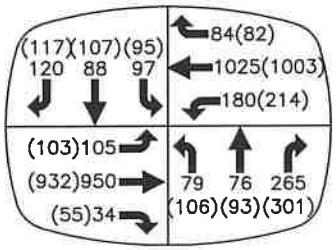
2

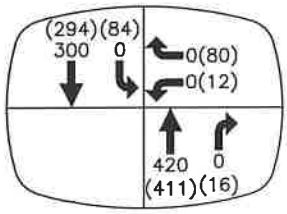


Primary Trip Distribution

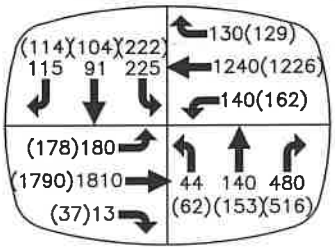


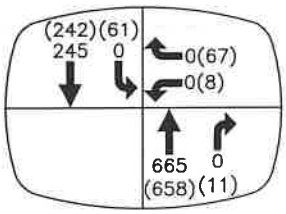
Noon 12:15 - 1:15



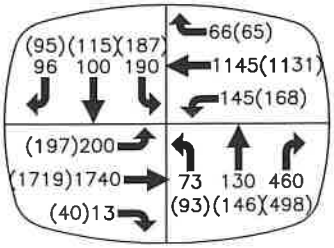


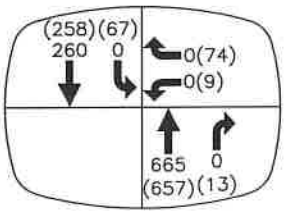
PM1 4:00 - 5:00





PM2 5:00 - 6:00



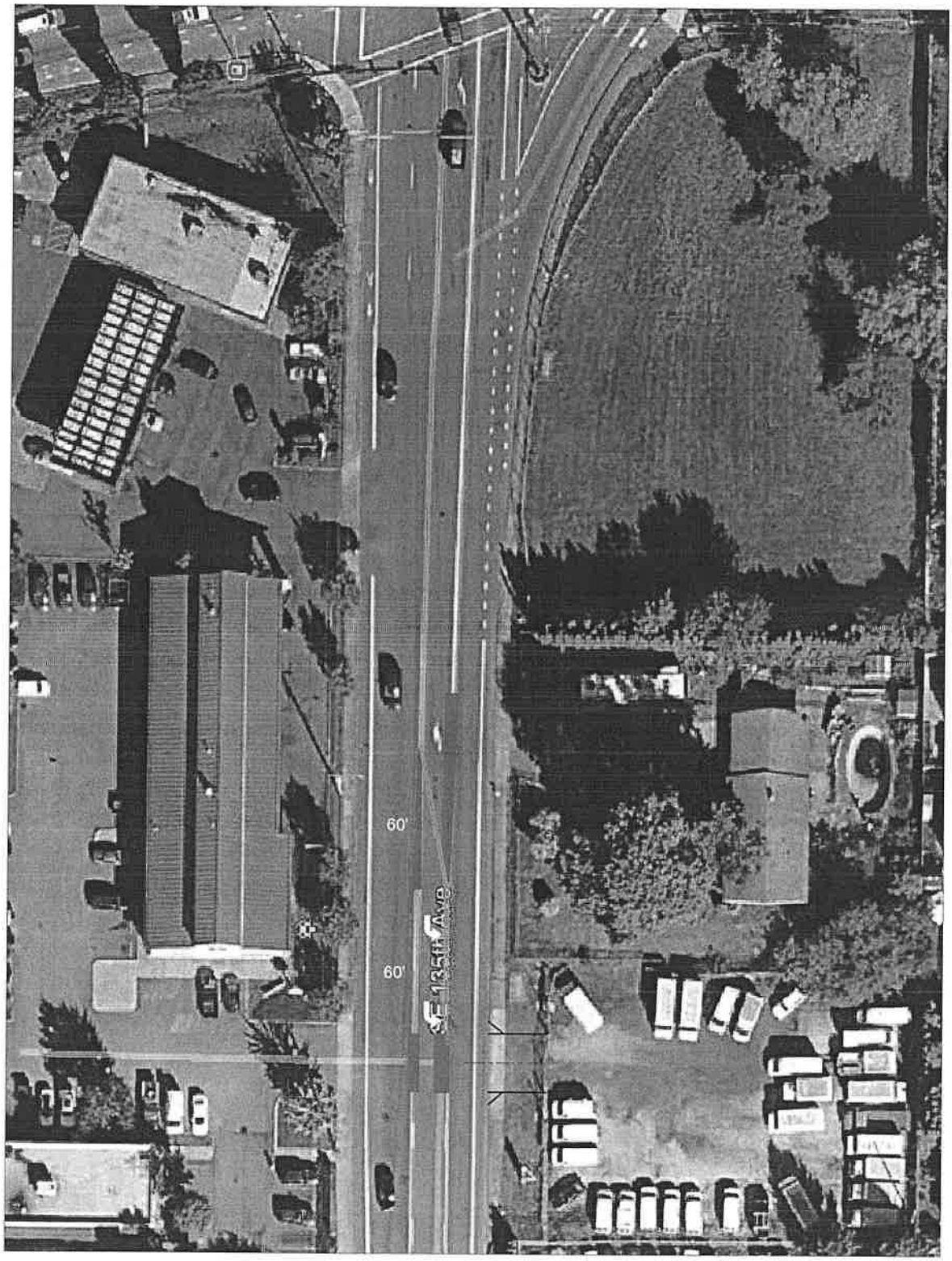


Access Engineering

Figure 8

Clackamas Crossing Traffic Impact Study

SE 135th AVE, Restriping



Access Engineering

Appendix B

Traffic Data & Trip Generation Data

ACCESS ENGINEERING

Peak Hour Intersection Turning Movement Count & Classification Summary

N/S Street: **135th Avenue**
E/W Street: **Highway 212**

Counted By: **GTD**
Date: **11/12/19**

AM Count

Time Period From-To AM	Northbound 135th Avenue					Southbound 135th Avenue					Eastbound Highway 212					Westbound Highway 212					ALL
	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	
6:30-6:45	20	7	29	**56**	1	9	16	37	**62**	0	11	138	1	**150**	1	44	491	15	**550**	4	818
6:45-7:00	12	6	25	**43**	0	23	20	46	**89**	0	20	141	7	**168**	3	51	538	25	**614**	5	914
Period Total:	32	13	54	**99**	1	32	36	83	**151**	0	31	279	8	**318**	4	95	1029	40	**1164**	9	1732
7:00-7:15	16	4	37	**57**	3	14	25	40	**79**	0	9	154	6	**169**	3	44	491	21	**556**	4	861
7:15-7:30	20	9	42	**71**	6	12	20	46	**78**	0	26	160	6	**192**	4	48	467	30	**545**	5	886
7:30-7:45	12	16	52	**80**	1	25	21	45	**91**	0	16	149	0	**165**	1	50	534	30	**614**	3	950
7:45-8:00	9	9	36	**54**	0	22	21	40	**83**	0	17	197	3	**217**	9	57	465	40	**562**	7	916
Hour Total:	57	38	167	**262**	10	73	87	171	**331**	0	68	660	15	**743**	17	199	1957	121	**2277**	19	3613
8:00-8:15	21	17	37	**75**	4	22	23	28	**73**	0	16	196	3	**215**	4	52	431	57	**540**	3	903
8:15-8:30	12	16	35	**63**	1	24	19	40	**83**	0	13	182	12	**207**	7	39	376	69	**484**	2	837
8:30-8:45	19	16	45	**80**	0	34	23	45	**102**	0	12	167	3	**182**	3	34	372	26	**432**	7	796
8:45-9:00	20	12	49	**81**	2	18	23	38	**79**	0	26	159	6	**191**	5	46	378	28	**452**	5	803
Hour Total:	72	61	166	**299**	7	98	88	151	**337**	0	67	704	24	**795**	19	171	1557	180	**1908**	5	3339
9:00-9:15	21	8	38	**67**	3	17	22	36	**75**	0	21	170	2	**193**	4	38	277	17	**332**	5	667
9:15-9:30	15	12	60	**87**	1	27	13	25	**65**	0	16	197	4	**217**	5	36	345	20	**401**	3	770
Period Total:	36	20	98	**154**	4	44	35	61	**140**	0	37	367	6	**410**	9	74	622	37	**733**	8	1437
Grand Total:	197	132	485	**814**	22	247	246	466	**959**	0	203	2010	53	**2266**	49	539	5165	378	**6082**	41	8389
AM Peak Hr. 7:15-8:15 PHF % Trucks	**62**	**51**	**167**	**280 0.875 4%**	**11**	**81**	**85**	**159**	**325 0.893 0%**	**0**	**75**	**702**	**12**	**789 0.909 2%**	**18**	**207**	**1897**	**157**	**2261 0.921 1%**	**18**	**3655 0.962**
Seasonal Factor (x 1.057) Adj. PHV	**66**	**54**	**177**	**297**		**86**	**90**	**168**	**344**		**79**	**742**	**13**	**834**		**219**	**2005**	**166**	**2390**		**3865**

Peds&Bikes		Peds	Bikes		Peds	Bikes		Peds	Bikes		Peds	Bikes
Peak Hour	7:15-8:15	1	0	7:15-8:15	0	0	7:15-8:15	0	0	7:15-8:15	2	1

ACCESS ENGINEERING

Peak Hour Intersection Turning Movement Count & Classification Summary

N/S Street: **135th Avenue**
E/W Street: **Highway 212**

Counted By: **GTD**
Date: **11/12/19**

Noon Count

Time Period From-To Noon Hour	Northbound 135th Avenue					Southbound 135th Avenue					Eastbound Highway 212					Westbound Highway 212					ALL
	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	
11:30-11:45	14	22	31	**67**	0	26	12	30	**68**	0	43	197	9	**249**	0	32	240	26	**298**	10	682
11:45-12:00	16	29	44	**89**	1	27	14	22	**63**	0	23	187	5	**215**	4	35	256	21	**312**	8	679
Hour Total:	30	51	75	**156**	1	53	26	52	**131**	0	66	384	14	**464**	4	67	496	47	**610**	18	1361
12:00-12:15	16	17	76	**109**	6	16	20	39	**75**	0	17	200	10	**227**	9	33	209	12	**254**	4	665
12:15-12:30	18	20	55	**93**	1	19	32	35	**86**	1	22	218	7	**247**	4	35	241	26	**302**	14	728
12:30-12:45	16	18	70	**104**	0	25	21	22	**68**	0	27	219	5	**251**	3	43	228	16	**287**	7	710
12:45-1:00	20	9	56	**85**	4	19	12	21	**52**	1	19	200	11	**230**	2	36	250	23	**309**	4	676
Hour Total:	70	64	257	**391**	11	79	85	117	**281**	2	85	837	33	**955**	18	147	928	77	**1152**	29	2779
1:00-1:15	18	22	59	**99**	2	25	14	30	**69**	0	26	225	8	**259**	4	49	214	12	**275**	9	702
1:15-1:30	17	21	69	**107**	4	16	16	23	**55**	0	25	198	9	**232**	6	31	210	12	**253**	5	647
Period Total:	35	43	128	**206**	6	41	30	53	**124**	0	51	423	17	**491**	11	80	424	24	**528**	14	1349
Grand Total:	135	158	460	**753**	18	173	141	222	**536**	2	202	1644	64	**1910**	33	294	1848	148	**2290**	61	5489
Noon Peak 12:15-1:15 PHF % Trucks	**72**	**69**	**240**	**381 0.916 2%**	**7**	**88**	**79**	**108**	**275 0.799 1%**	**2**	**94**	**862**	**31**	**987 0.953 1%**	**13**	**163**	**933**	**77**	**1173 0.949 3%**	**34**	**2816 0.967**
Seasonal Factor (x 1.057) Adj. PHV	**76**	**73**	**254**	**403**		**93**	**84**	**114**	**291**		**99**	**911**	**33**	**1043**		**172**	**986**	**81**	**1239**		**2976**

Peds&Bikes Peds&Blkes		Peds	Bikes		Peds	Bikes		Peds	Bikes		Peds	Bikes
Peak Hour	12:15-1:15	1	0	12:15-1:15	0	1	12:15-1:15	0	0	12:15-1:15	0	0

ACCESS ENGINEERING

Peak Hour Intersection Turning Movement Count & Classification Summary

N/S Street: **135th Avenue**
E/W Street: **Highway 212**

Counted By: **GTD**
Date: **11/12/19**

PM Count

Time Period From-To AM	Northbound 135th Avenue					Southbound 135th Avenue					Eastbound Highway 212					Westbound Highway 212					ALL
	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	Left	Thru	Right	Total	Trucks	
3:30-3:45	20	26	104	**150**	2	63	23	22	**108**	0	49	461	1	**511**	3	36	230	26	**292**	2	1061
3:45-4:00	7	36	124	**167**	1	55	17	26	**98**	0	61	417	4	**482**	4	36	247	17	**300**	6	1047
Period Total:	27	62	228	**317**	3	118	40	48	**206**	0	110	878	5	**993**	7	72	477	43	**592**	8	2108
4:00-4:15	8	25	120	**153**	0	55	16	27	**98**	0	28	432	1	**461**	2	32	270	27	**329**	6	1041
4:15-4:30	13	44	102	**159**	0	64	20	32	**116**	0	42	371	5	**418**	5	33	268	38	**339**	7	1032
4:30-4:45	6	29	125	**160**	0	48	25	20	**93**	0	52	395	2	**449**	2	31	302	25	**358**	2	1060
4:45-5:00	13	27	91	**131**	0	36	21	26	**83**	0	44	447	3	**494**	2	29	285	28	**342**	2	1050
Hour Total:	40	125	438	**603**	0	203	82	105	**390**	0	166	1645	11	**1822**	11	125	1125	118	**1368**	17	4183
5:00-5:15	18	37	95	**150**	0	61	23	20	**104**	0	53	413	3	**469**	4	36	263	11	**310**	3	1033
5:15-5:30	17	30	106	**153**	0	43	24	23	**90**	0	57	420	5	**482**	2	38	260	17	**315**	1	1040
5:30-5:45	15	25	94	**134**	1	28	14	22	**64**	0	38	428	2	**468**	1	18	298	15	**331**	2	997
5:45-6:00	16	28	124	**168**	0	38	31	22	**91**	0	32	320	1	**353**	1	39	217	17	**273**	2	885
Hour Total:	66	120	419	**605**	1	170	92	87	**349**	0	180	1581	11	**1772**	8	131	1038	60	**1229**	8	3955
6:00-6:15	10	18	100	**128**	0	33	15	15	**63**	0	47	377	6	**430**	0	28	211	29	**268**	0	889
6:15-6:30	5	29	82	**116**	2	27	14	13	**54**	0	43	364	3	**410**	3	24	174	26	**224**	0	804
Period Total:	15	47	182	**244**	2	60	29	28	**117**	0	90	741	9	**840**	3	52	385	55	**492**	0	1693
Grand Total:	148	354	1267	**1769**	6	551	243	268	**1062**	0	546	4845	36	**5427**	29	380	3025	276	**3681**	33	9831
PM Peak Hr. 4:00-5:00	**40**	**125**	**438**	**603**	**0**	**203**	**82**	**105**	**390**	**0**	**166**	**1645**	**11**	**1822**	**11**	**125**	**1125**	**118**	**1368**	**17**	**4183**
PHF				**0.942**					**0.841**					**0.922**					**0.955**		**0.987**
% Trucks				**0%**					**0%**					**1%**					**1%**		
Seasonal Factor (x 1.057) Adj. PHV	**42**	**132**	**463**	**637**		**215**	**87**	**111**	**413**		**175**	**1739**	**12**	**1926**		**132**	**1189**	**125**	**1446**		**4422**
2nd PM Pk. 5:00-6:00	**66**	**120**	**419**	**605**	**1**	**170**	**92**	**87**	**349**	**0**	**180**	**1581**	**11**	**1772**	**8**	**131**	**1038**	**60**	**1229**	**8**	**3955**
PHF				**0.900**					**0.839**					**0.919**					**0.928**		**0.951**
% Trucks				**0%**					**0%**					**0%**					**0%**		
Seasonal Factor (x 1.057) Adj. PHV	**70**	**127**	**443**	**640**		**180**	**97**	**92**	**369**		**190**	**1671**	**12**	**1873**		**138**	**1097**	**63**	**1298**		**4180**

Peds&Bikes		Peds	Bikes		Peds	Bikes		Peds	Bikes		Peds	Bikes
Peak Hour	**4:00-500**	**4**	**0**	**4:00-500**	**0**	**0**	**4:00-500**	**2**	**2**	**4:00-500**	**1**	**2**
2nd Peak Hr	*5:00-6:00*	*5*	*0*	*5:00-6:00*	*1*	*0*	*5:00-6:00*	*0*	*0*	*5:00-6:00*	*0*	*1*

Clackamas Crossing TIA

Seasonal Factor Calculation

Seasonal Trend Table 2019

	Count Date	Trend	Nov 1	Nov 15	Nov 12	Peak	Factor
Hwy 212/135th Ave	11/12/19	**Commuter**	0.9976	1.0215	1.0167	0.9438	**1.057**

Source: 2019 Seasonal Trend Table, ODOT Transportation Development

Growth Rate Calculations

OR 212 - Clackamas Hwy No. 171

Location	M.P.	2016	2038	RSQ	22 Year Factor	Annual Rate
0.04 mile east of Evelyn Street	5.58	38800	41500	MODEL	1.070	0.32%
Clackamas ATR, 03-017, 0.14 mi.W of SE 130th Av	6.8	34800	48500	MODEL	1.394	1.79%
0.05 mile east of SE 142nd Avenue	7.62	31700	46300	MODEL	1.461	2.09%
Average						**1.40%**

	2020	2022	2027
Annual Growth Rate:	**1.40%**	**1.40%**	**1.40%**
Annual Growth Factor	1.014	1.014	1.014
Years	1	3	8
Growth Factor	**1.0140**	**1.0420**	**1.1120**

Source: 2038 Future Volumes Table, ODOT Transportation Planning & Analysis Unit

Shopping Center
(820)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GLA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	13 out of 84
Avg. 1000 Sq. Ft. GLA:	252
Directional Distribution:	62% entering , 38% exiting

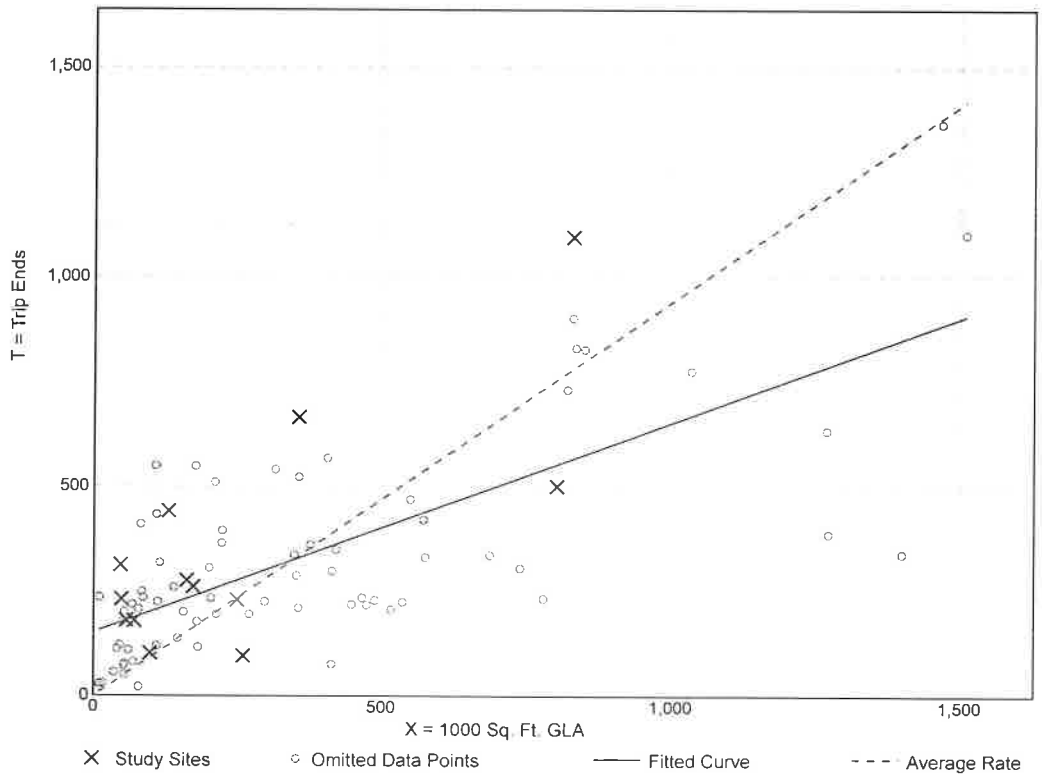
Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
1.39	0.37 - 6.62	1.09

Data Filtered By: [Region: Pacific Coast]

Data Plot and Equation

Caution – Filtered Data Set



Fitted Curve Equation: T = 0.50(X) + 151.78

R^2= 0.50

Shopping Center
(820)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 12 out of 147
Avg. 1000 Sq. Ft. GLA: 265
Directional Distribution: 50% entering , 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

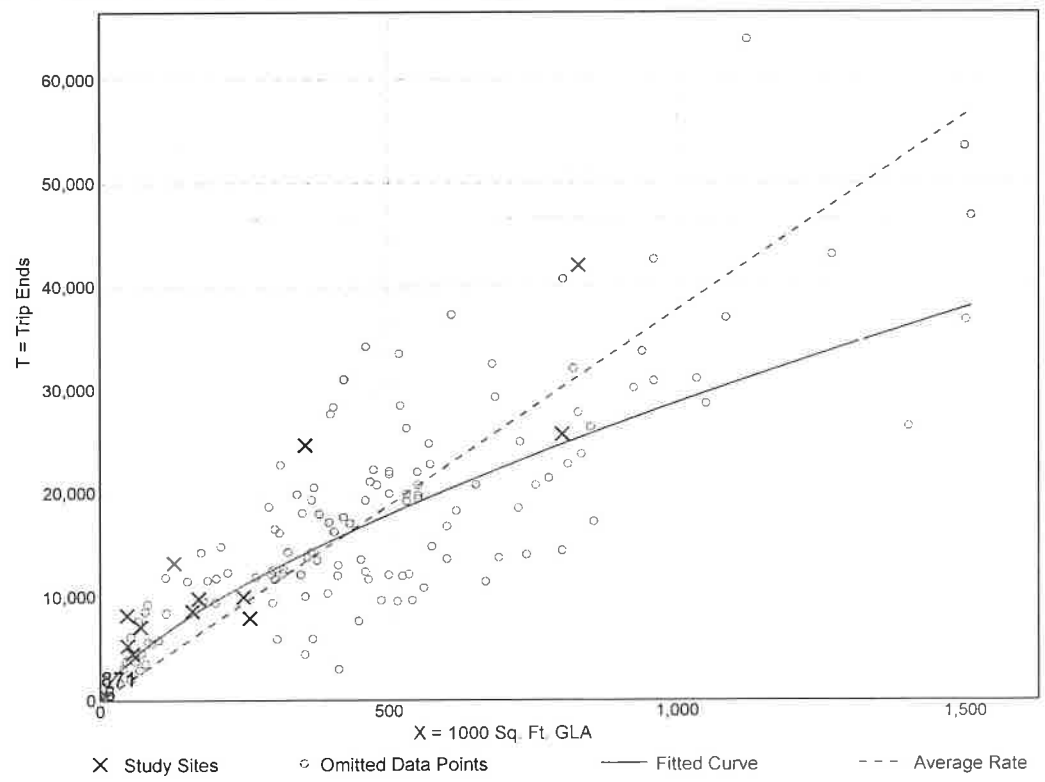
Average Rate	Range of Rates	Standard Deviation
52.71	30.79 - 175.32	26.35

Data Filtered By: [Region: Pacific Coast]

Data Plot and Equation

Caution – Filtered Data Set

Set IV Size: 5.84 | Calculated Trip Ends: 220(Avg),871(FC)



Fitted Curve Equation: Ln(T) = 0.68 Ln(X) + 5.57

R^2= 0.76

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Shopping Center
(820)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GLA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	29 out of 261
Avg. 1000 Sq. Ft. GLA:	326
Directional Distribution:	48% entering , 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

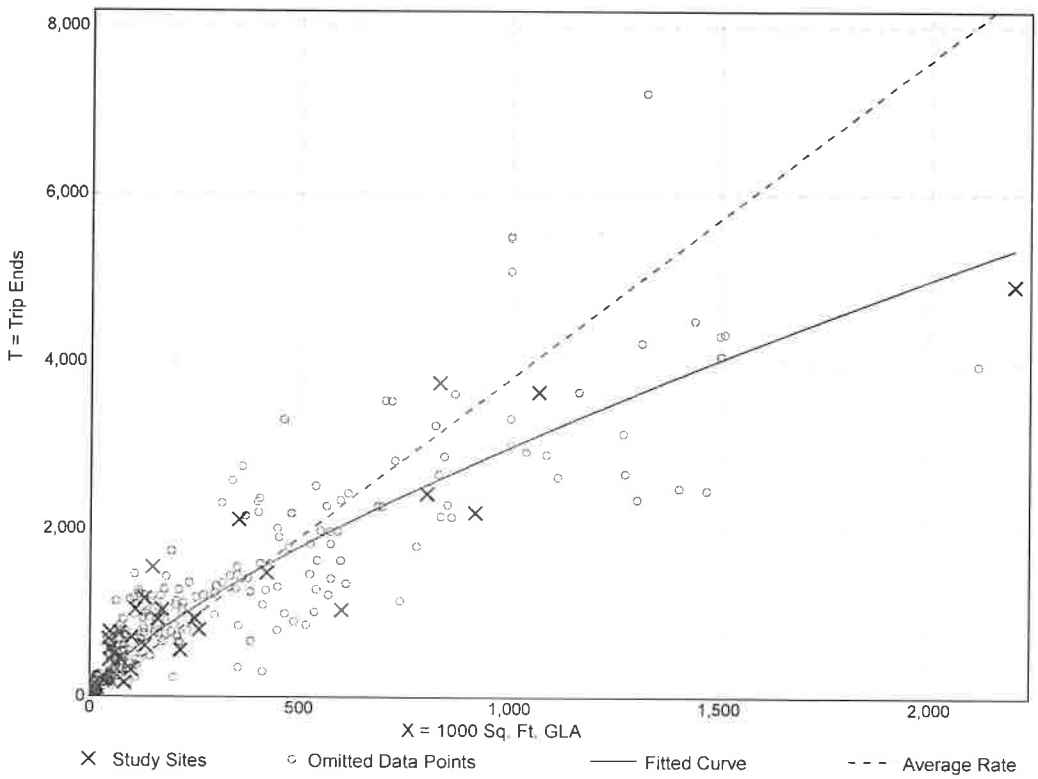
Average Rate	Range of Rates	Standard Deviation
3.80	1.75 - 16.45	2.46

Data Filtered By: [Region: Pacific Coast]

Data Plot and Equation

Caution – Filtered Data Set

Set IV Size: 5.84 | Calculated Trip Ends: 22(Avg),66(FC)



Fitted Curve Equation: Ln(T) = 0.74 Ln(X) + 2.89

R^2= 0.82

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Coffee/Donut Shop with Drive-Through Window
(937)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	5 out of 61
Avg. 1000 Sq. Ft. GFA:	2
Directional Distribution:	50% entering , 50% exiting

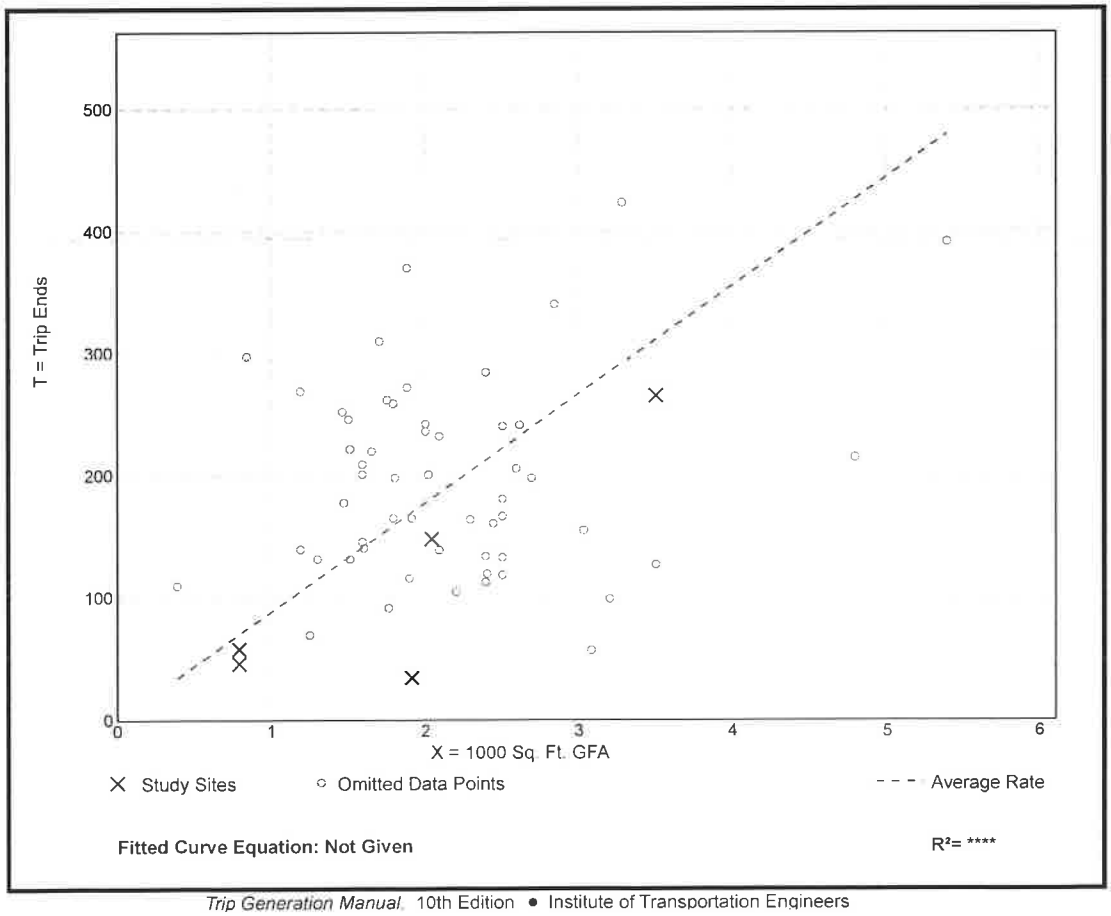
Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
61.13	18.32 - 75.71	25.33

Data Filtered By: [Region: Pacific Coast]

Data Plot and Equation

Caution – Filtered Data Set



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Coffee/Donut Shop with Drive-Through Window
(937)

Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday**

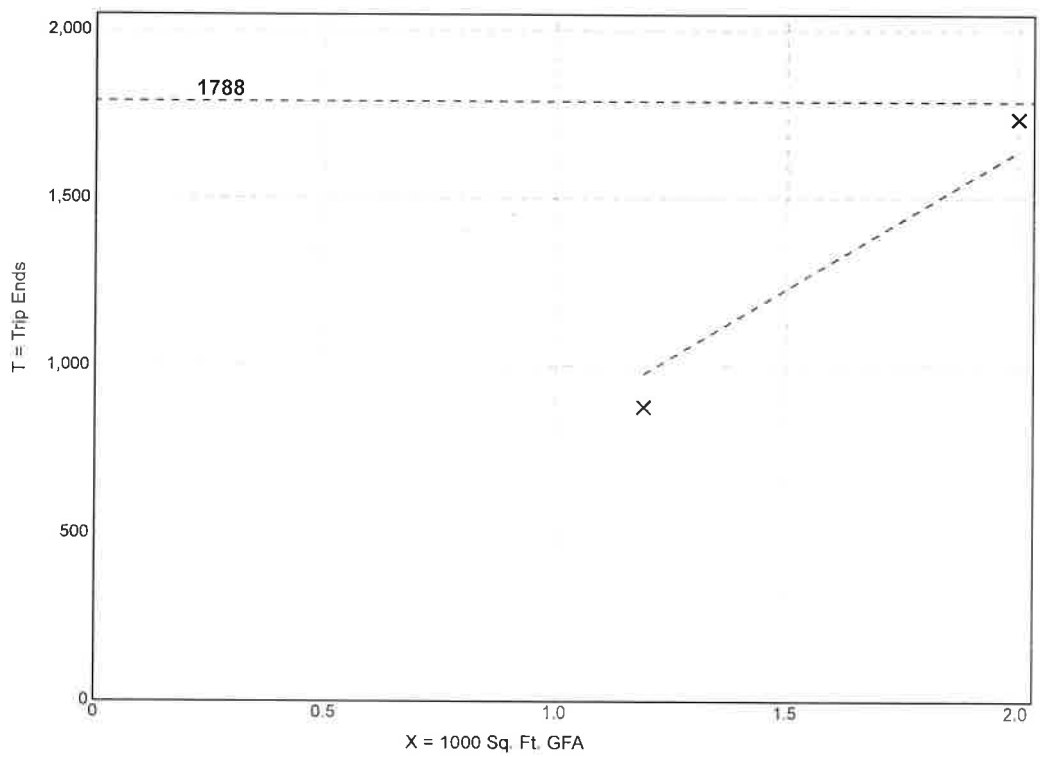
Setting/Location: **General Urban/Suburban**
Number of Studies: 2
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
820.38	738.66 - 869.00	*

Data Plot and Equation

Caution – Small Sample Size



× Study Site

- - - - Average Rate

Fitted Curve Equation: Not Given

R^2= ****

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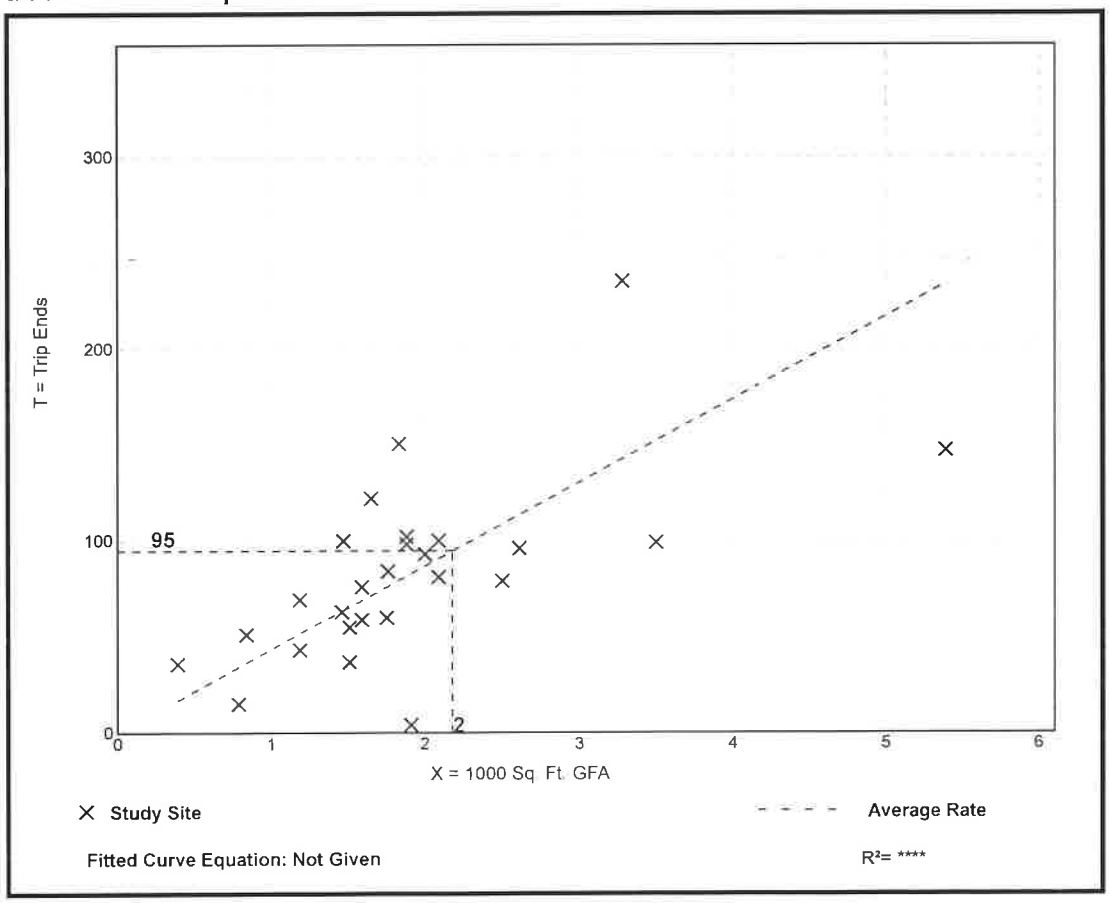
Coffee/Donut Shop with Drive-Through Window
(937)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	26
Avg. 1000 Sq. Ft. GFA:	2
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
43.38	2.09 - 92.31	18.88

Data Plot and Equation



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- Appendix A in *Trip Generation Manual*, 10th Edition presents time-of-day distribution tables for a wide range of land uses. The table below expands upon this information and presents the time-of-day distribution and the percent entering and exiting for each time period for Land Use 820: Shopping Center for both the weekday and Saturday time periods. The weekday portion of the table is based on data from 10 sites. The Saturday data are based on 11 sites.

Land Use Code 820 Shopping Center	Weekday		Saturday	
	% of Daily	% Enter/Exit	% of Daily	% Enter/Exit
6:00-7:00 AM	0.2%	61.4/38.6%	0.5%	71.0/29.0%
7:00-8:00 AM	1.1%	61.6/38.4%	1.3%	70.7/29.3%
8:00-9:00 AM	2.0%	64.1/35.9%	2.0%	71.6/28.4%
9:00-10:00 AM	3.6%	64.8/ 35.2%	3.6%	73.9/ 26.1%
10 :00-11:00 AM	5.6%	63.1/36.9%	5.6%	63.8/ 36.2%
11:00-12:00 PM	8.3%	58.6/41.4%	7.4%	58.4/41.6%
12:00-1:00 PM	10.0%	52.7/47.3%	8.8%	53.6/ 46.4%
1:00-2:00 PM	9.3%	49.2/50.8%	8.6%	49.8/ 50.2%
2:00-3:00 PM	9.0%	48.8/ 51.2%	8.5%	47.2/ 52.8%
3:00-4:00 PM	8.8%	48.3/51.7%	8.5%	46.9/ 53.1%
4:00-5:00 PM	9.2%	48.5/51.5%	8.6%	47.1/ 52.9%
5:00-6:00 PM	9.3%	49.1/50.9%	8.8%	47.6/ 52.4%
6:00-7:00 PM	8.0%	46.9/53.1%	7.8%	50.6/ 49.4%
7:00-8:00 PM	6.1%	43.4/56.6%	7.4%	51.0/ 49.0%
8:00-9:00 PM	4.4%	35.9/ 64.1%	5.8%	35.3/ 64.7%
9:00-10:00 PM	2.9%	27.4/72.6%	4.3%	19.9/ 80.1%
10:00 PM-6:00 AM	2.0%	29.7/70.3%	2.4%	34.2/ 65.8%

Critical Movement Calcilations

2019 Existing AM

Critical Movements	WBL	WBT	SBL	SBT
Adj Flow Rate, veh/h	228	2089	90	94
Sat. Flow, veh/h	1882	3290	1810	742
Flow Ratios	0.121	0.635	0.050	0.127
Sum of Flow Ratios		0.93		
CL/(CL-LT)		1.15		
Xc		**1.08**		

2019 Existing Noon

Critical Movements	WBL	WBT	SBL	NBT
Adj Flow Rate, veh/h	177	1016	75	96
Sat. Flow, veh/h	1882	3303	1871	1810
Flow Ratios	0.094	0.308	0.040	0.053
Sum of Flow Ratios		0.49		
CL/(CL-LT)		1.15		
Xc		**0.57**		

2019 Existing PM1

Critical Movements	EBT	WBL	NBT	SBL
Adj Flow Rate, veh/h	1757	133	133	217
Sat. Flow, veh/h	3574	1882	1900	1810
Flow Ratios	0.492	0.071	0.070	0.120
Sum of Flow Ratios		0.75		
CL/(CL-LT)		1.15		
Xc		**0.87**		

2019 Existing PM2

Critical Movements	EBL	EBT	NBT	SBL
Adj Flow Rate, veh/h	200	1759	134	189
Sat. Flow, veh/h	1882	3574	1900	1810
Flow Ratios	0.106	0.492	0.071	0.104
Sum of Flow Ratios		0.77		
CL/(CL-LT)		1.15		
Xc		**0.89**		

Critical Movement Calcilations

Critical Movement Calcilations

2020 NoBuild AM

Critical Movements	WBL	WBT	SBL	SBT
Adj Flow Rate, veh/h	229	2120	91	95
Sat. Flow, veh/h	1882	3287	1810	739
Flow Ratios	0.122	0.645	0.050	0.129
Sum of Flow Ratios		0.95		
CL/(CL-LT)		1.15		
Xc		**1.09**		
				0.87

2020 Build AM

Critical Movements	WBL	WBT	NBL	SBT
Adj Flow Rate, veh/h	269	2086	106	104
Sat. Flow, veh/h	1882	3288	1810	792
Flow Ratios	0.143	0.634	0.059	0.131
Sum of Flow Ratios		0.97		
CL/(CL-LT)		1.15		
Xc		**1.12**		

2020 NoBuild Noon

Critical Movements	WBL	WBT	SBL	NBT
Adj Flow Rate, veh/h	180	1031	76	98
Sat. Flow, veh/h	1882	3304	1871	1810
Flow Ratios	0.096	0.312	0.041	0.054
Sum of Flow Ratios		0.50		
CL/(CL-LT)		1.15		
Xc		**0.58**		

2020 Build Noon

Critical Movements	WBL	WBT	SBL	NBT
Adj Flow Rate, veh/h	209	1010	104	88
Sat. Flow, veh/h	1882	3308	1810	1871
Flow Ratios	0.111	0.305	0.057	0.047
Sum of Flow Ratios		0.52		
CL/(CL-LT)		1.15		
Xc		**0.60**		

2020 NoBuild PM1

Critical Movements	WBL	EBT	SBL	NBT
Adj Flow Rate, veh/h	136	1783	220	136
Sat. Flow, veh/h	1882	3574	1810	1900
Flow Ratios	0.072	0.499	0.122	0.072
Sum of Flow Ratios		0.76		
CL/(CL-LT)		1.15		
Xc		**0.88**		

2020 Build PM1

Critical Movements	WBL	EBT	SBL	NBT
Adj Flow Rate, veh/h	157	1764	220	145
Sat. Flow, veh/h	1882	3574	1810	1900
Flow Ratios	0.083	0.494	0.122	0.076
Sum of Flow Ratios		0.77		
CL/(CL-LT)		1.15		
Xc		**0.89**		

2020 NoBuild PM2

Critical Movements	EBL	EBT	SBL	NBT
Adj Flow Rate, veh/h	205	1784	195	137
Sat. Flow, veh/h	1882	3574	1810	1900
Flow Ratios	0.109	0.499	0.108	0.072
Sum of Flow Ratios		0.79		
CL/(CL-LT)		1.15		
Xc		**0.91**		

2020 Build PM2

Critical Movements	EBL	EBT	SBL	NBT
Adj Flow Rate, veh/h	203	1764	193	147
Sat. Flow, veh/h	1882	3574	1810	1900
Flow Ratios	0.108	0.494	0.107	0.077
Sum of Flow Ratios		0.79		
CL/(CL-LT)		1.15		
Xc		**0.91**		

Critical Movement Calcilations

Critical Movement Calcilations

2022 NoBuild AM

Critical Movements	WBL	WBT	SBL	SBT
Adj Flow Rate, veh/h	240	2177	94	99
Sat. Flow, veh/h	1882	3287	1810	741
Flow Ratios	0.128	0.662	0.052	0.134
Sum of Flow Ratios		0.98		
CL/(CL-LT)		1.15		
Xc		**1.13**		
				0.87

2022 Build AM

Critical Movements	WBL	WBT	NBL	SBT
Adj Flow Rate, veh/h	275	2144	109	111
Sat. Flow, veh/h	1882	3287	1810	803
Flow Ratios	0.146	0.652	0.060	0.138
Sum of Flow Ratios		1.00		
CL/(CL-LT)		1.15		
Xc		**1.15**		

2022 NoBuild Noon

Critical Movements	WBL	WBT	SBL	NBT
Adj Flow Rate, veh/h	186	1057	78	100
Sat. Flow, veh/h	1882	3304	1871	1810
Flow Ratios	0.099	0.320	0.042	0.055
Sum of Flow Ratios		0.52		
CL/(CL-LT)		1.15		
Xc		**0.60**		

2022 Build Noon

Critical Movements	WBL	WBT	NBL	NBT
Adj Flow Rate, veh/h	221	1034	109	96
Sat. Flow, veh/h	1882	3304	1810	1871
Flow Ratios	0.117	0.313	0.060	0.051
Sum of Flow Ratios		0.54		
CL/(CL-LT)		1.15		
Xc		**0.63**		

2022 NoBuild PM1

Critical Movements	WBL	EBT	SBL	NBT
Adj Flow Rate, veh/h	141	1828	227	141
Sat. Flow, veh/h	1882	3574	1810	1900
Flow Ratios	0.075	0.511	0.125	0.074
Sum of Flow Ratios		0.79		
CL/(CL-LT)		1.15		
Xc		**0.91**		

2022 Build PM1

Critical Movements	WBL	EBT	SBL	NBT
Adj Flow Rate, veh/h	164	1808	224	155
Sat. Flow, veh/h	1882	3574	1810	1900
Flow Ratios	0.087	0.506	0.124	0.082
Sum of Flow Ratios		0.80		
CL/(CL-LT)		1.15		
Xc		**0.92**		

2022 NoBuild PM2

Critical Movements	EBL	EBT	SBL	NBT
Adj Flow Rate, veh/h	211	1832	200	137
Sat. Flow, veh/h	1882	3574	1810	1900
Flow Ratios	0.112	0.513	0.110	0.072
Sum of Flow Ratios		0.81		
CL/(CL-LT)		1.15		
Xc		**0.93**		

2022 Build PM2

Critical Movements	EBL	EBT	SBL	NBT
Adj Flow Rate, veh/h	207	1809	197	154
Sat. Flow, veh/h	1882	3574	1810	1900
Flow Ratios	0.110	0.506	0.109	0.081
Sum of Flow Ratios		0.81		
CL/(CL-LT)		1.15		
Xc		**0.93**		

Appendix C

Crash Data

1 - 4 of 115 Crash records shown.

SERN / INVEST / MILEPT	P / E	R / A / L	J / U / S	S / C / T	W / O / R	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RDWY FC / COMPNT / MLG TYP / MILEPNT	CONNW / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (PLANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	AGE	SEX	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
02751	N	N	N	N	N	07/08/2015	CLACKAMAS	1 14		STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT									013	27,29
COUNTY						WE	HAPPY VALLEY	MN 0	CARVER RD	SW	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E								000		00
N						4P	PORTLAND UA	7.13	SE 135TH AVE	03			N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	20	F	OR-Y		016,026	038		27,29
N						45 24 36.18	-122 31 35.8		017100100S00		(04)													OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	W -E								006	013	00
																	PSNGR CAR		01	DRVR	NONE	35	F	OR-Y OR<25		000	000		00
																02	NONE 0	STRGHT											
																	PRVTE	W -E								006	013	00
																	PSNGR CAR		02	PSNG	NO<5	04	F			000	000		00
																03	NONE 0	STRGHT											
																	PRVTE	W -E								006		00
																	PSNGR CAR		01	DRVR	NONE	45	F	OR-Y OR<25		000	000		00
02042	N	N	N	N	N	06/06/2018	CLACKAMAS	1 14		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
COUNTY						WE	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E								000		00
N						6P	PORTLAND UA	7.13	SE 135TH AVE	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	27	M	OR-Y		026	038		29
N						45 24 36.2	-122 31 35.81		017100100S00		(04)													OR<25					
																02	NONE 0	STOP											
																	PRVTE	W -E								011		00
																	PSNGR CAR		01	DRVR	INJC	36	F	OR-Y OR<25		000	000		00
05781	N	N	N	N		12/13/2016	CLACKAMAS	1 14		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE						TU	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	E -W								000		00
N						7A	PORTLAND UA	7.13	SE 135TH AVE	05			N	DAWN	INJ		PSNGR CAR		01	DRVR	NONE	26	F	OTH-Y		026	000		29
N						45 24 36.18	-122 31 35.8		017100100S00		(04)													N-RES					
																02	NONE 0	STOP											
																	PRVTE	E -W								011		00
																	PSNGR CAR		01	DRVR	INJC	23	F	UNK N-RES		000	000		00
																02	NONE 0	STOP											
																	PRVTE	E -W								011		00
																	PSNGR CAR		02	PSNG	INJC	24	F			000	000		00
00710	N	N	N	N	N	02/27/2018	CLACKAMAS	1 14		STRGHT		N	N	RAIN	S-STRGHT	01	NONE 0	STRGHT											27,07,29
STATE						TU	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	WET	REAR		PRVTE	W -E								000		00
N						5P	PORTLAND UA	7.14	SE 135TH AVE	03			N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	49	M	OR-Y		043,042	000		27,07,29
N						45 24 36.36	-122 31 35.09		017100100S00		(04)													OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	W -E								006		00
																	PSNGR CAR		01	DRVR	INJC	45	M	OR-Y OR<25		000	000		00

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SER# / INVEST / RD DPT / UNLOC	S P E / D R A / R U G / J I N / S C H / W O R / DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LNS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (HLANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
03242	N N N N	07/18/2016	CLACKAMAS	1 14			N	N	CLR	S-1STOP	01	NONE 9	STRGHT											27,29
NO RPT		MO	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY		N/A	W -E									000		00
N		5P	PORTLAND UA	7.15	SE 135TH AVE	03			N	DAY		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 36.53	-122 31 34.4		017100100S00		(04)												UNK					
											02	NONE 9	STOP											
												N/A	W -E									011		00
												PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																			UNK					
02345	Y N N N N N	05/24/2016	CLACKAMAS	1 14			N	N	CLR	S-1STOP	01	NONE 0	STRGHT											01,29
COUNTY		TU	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY		UNKN	W -E									000		00
N		5P	PORTLAND UA	7.15	SE 135TH AVE	04			N	DAY		MTRCYCLE		01	DRVR	NONE	00	Unk	UNK		047,026	000		01,29
N		45 24 36.53	-122 31 34.4		017100100S00		(04)												UNK					
											02	NONE 0	STOP											
												PRVTE	W -E									011		00
												PSNGR CAR		01	DRVR	INJC	19	F	OR-Y		000	000		00
																			OR<25					
02209	N N N N	06/08/2015	CLACKAMAS	1 14			N	N	CLR	S-1STOP	01	NONE 0	STRGHT											27,29
NONE		MO	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY		PRVTE	E -W									000		00
N		8A	PORTLAND UA	7.16	SE 135TH AVE	03			N	DAY		PSNGR CAR		01	DRVR	NONE	64	F	OR-Y		016,026	000		27,29
N		45 24 36.7	-122 31 33.7		017100100S00		(04)												OR<25					
											02	NONE 0	STOP											
												PRVTE	E -W									011		00
												PSNGR CAR		01	DRVR	INJC	24	M	OR-Y		000	000		00
																			OR<25					
06133	N N N N	12/28/2016	CLACKAMAS	1 14			Y	N	CLR	S-1STOP	01	NONE 0	STRGHT											27,29
NONE		WE	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY		PRVTE	W -E									000		00
N		5P	PORTLAND UA	7.16	SE 135TH AVE	03			N	DUSK		PSNGR CAR		01	DRVR	NONE	38	M	OR-Y		016,026	038		27,29
N		45 24 36.7	-122 31 33.7		017100100S00		(04)												OR<25					
											02	NONE 0	STOP											
												PRVTE	W -E									011		00
												PSNGR CAR		01	DRVR	INJC	71	M	OR-Y		000	000		00
																			OR<25					
05166	N N N N N N	11/04/2016	CLACKAMAS	1 14			N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07,27
STATE		TU	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY		PRVTE	W -E									000		00
N		6P	PORTLAND UA	7.16	SE 135TH AVE	08			N	DUSK		PSNGR CAR		01	DRVR	NONE	21	F	OR-Y		043,016	038		07,27
N		45 24 36.7	-122 31 33.7		017100100S00		(04)												OR<25					
											02	NONE 0	STOP											
												PRVTE	W -E									011		00
												PSNGR CAR		01	DRVR	INJC	61	F	OR-Y		000	000		00
																			OR<25					

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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SERI# / INVEST / RD DPT / UNLOC	S P E D / A L / C R / N / W L / R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPHT / NLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGE / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		02	PSNG	NO<5	01	M			000	000		00
01867	N N N N	05/14/2015	CLACKAMAS	1 14		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		TH	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E									000		00
N		4P	PORTLAND UA	7.17	SE 135TH AVE	03			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	47	M	OTH-Y		026	000		29
N		45 24 36.87	-122 31 32.99		017100100S00		(04)													OR<25					
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		01	DRVR	NONE	44	M	OR-Y		000	000		00
																				OR<25					
01890	N N N N	09/15/2017	CLACKAMAS	1 14		STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											13
HIT & RUN		FR	HAPPY VALLEY	MN 0	CARVER RD	N	(NONE)	UNKNOWN	N	DRY	SS-O		PRVTE	W -E									000		00
N		12P	PORTLAND UA	7.17	SE 135TH AVE	04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	63	M	OTH-Y		045	000		13
N		45 24 36.87	-122 31 32.99		017100100S00		(04)													OR<25					
												02	NONE 0	STRGHT											
													PRVTE	W -E									000		00
													PSNGR CAR		01	DRVR	INJB	79	F	OR-Y		000	000		00
																				OR<25					
01840	N N N N	Y 07/20/2017	CLACKAMAS	1 14		STRGHT		N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE		MP	HAPPY VALLEY	MN 0	CARVER RD	N	(NONE)	UNKNOWN	N	DRY	REAR		N/A	E -W									000		00
N		7P	PORTLAND UA	7.17	SE 135TH AVE	06			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 36.87	-122 31 32.99		017100100S00		(04)													UNK					
												02	NONE 9	STOP											
													N/A	E -W									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
02717	N N N N	02/26/2015	CLACKAMAS	1 14		ALLEY		N	Y	RAIN	FIX OBJ	01	NONE 0	TURN-R										124,040	08
NONE		TH	HAPPY VALLEY	MN 0	CARVER RD	N	(NONE)	UNKNOWN	N	WET	FIX		PRVTE	W -S									000	124,040	00
Y		1A	PORTLAND UA	7.18	SE 135TH AVE	01			N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	29	M	OR-Y		001	000		08
N		45 24 37.03	-122 31 32.29		017100100S00		(04)													OR<25					
03646	N N N N N N	12/26/2015	CLACKAMAS	1 14		STRGHT		N	N	CLD	S-STRGHT	01	NONE 0	STRGHT											07
COUNTY		SA	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	NONE	N	DRY	SS-O		PRVTE	W -E									000		00
N		9P	PORTLAND UA	7.18	SE 135TH AVE	03			N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	56	M	OR-Y		042,043	000		07
N		45 24 37.03	-122 31 32.29		017100100S00		(04)													OR<25					
												02	NONE 0	STRGHT											
													PRVTE	W -E									006		00
													PSNGR CAR		01	DRVR	NONE	41	F	OR-Y		000	000		00
																				OR<25					

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CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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SER# / INVEST / RD DIST / UNIQUE	N P / E / E / E	H A / E / C / R	H U / I / N / V	N J / C / H / L	S C / O / P / X	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG TYP / MILEPNT	FC / CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
01977	N	H	H	N		05/02/2016	CLACKAMAS	1	14	STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT											29
NO RPT						MO	HAPPY VALLEY	MN	0 CARVER RD	W	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E									000		00
H						5A	PORTLAND UA	7.19	SE 135TH AVE	03			N	DAWN	INJ		PSNGR CAR		01	DRVR	INJC	33	M	OR-Y		042	000		29
H						45 24 37.2	-122 31 31.59		017100100S00		(04)													OR<25					
																02	NONE 1	STRGHT											
																	PRVTE	W -E									006		00
																	SEMI TOW		01	DRVR	NONE	30	M	OR-Y		000	000		00
																								OR<25					
02066	N	H	H	N	N	07/22/2017	CLACKAMAS	1	14	STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											27,29
STATE						5A	HAPPY VALLEY	MN	0 CARVER RD	W	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E									000		00
H						4P	PORTLAND UA	7.19	SE 135TH AVE	04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		026	038		27,29
H						45 24 37.2	-122 31 31.59		017100100S00		(04)													OR<25					
																02	NONE 0	STOP											
																	PRVTE	W -E									011		00
																	PSNGR CAR		01	DRVR	INJC	39	F	OR-Y		000	000		00
																								OR>25					
03376	N	H	H	N		07/26/2016	CLACKAMAS	1	14	STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NO RPT						TU	HAPPY VALLEY	MN	0 CARVER RD	W	(NONE)	TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
H						3P	PORTLAND UA	7.20	SE 135TH AVE	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	18	M	OR-Y		026	000		29
H						45 24 37.34	-122 31 30.87		017100100S00		(04)													OR<25					
																02	NONE 0	STOP											
																	PRVTE	W -E									011		00
																	PSNGR CAR		01	DRVR	NONE	73	M	OR-Y		000	000		00
																								OR<25					
																02	NONE 0	STOP											
																	PRVTE	W -E									011		00
																	PSNGR CAR		02	PSNG	INJC	72	F			000	000		00
06078	N	H	H	N	N	12/25/2016	CLACKAMAS	1	14	STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT										093	27
CITY						SU	HAPPY VALLEY	MN	0 CARVER RD	W	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E									000		00
H						3P	PORTLAND UA	7.20	SE 135TH AVE	04			N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	24	F	OR-Y		042,016	038	093	27
H						45 24 37.34	-122 31 30.87		017100100S00		(04)													OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	W -E									006		00
																	PSNGR CAR		01	DRVR	NONE	58	M	OR-Y		000	000		00
																								OR<25					
00120	N	N	H	N		01/07/2016	CLACKAMAS	1	14	STRGHT		N	N	CLR	S-STRGHT	01	NONE 9	STRGHT											13
NONE						TH	HAPPY VALLEY	MN	0 CARVER RD	W	(NONE)	TRF SIGNAL	N	DRY	SS-O		N/A	W -E									000		00
H						1P	PORTLAND UA	7.20	SE 135TH AVE	04			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
H						45 24 37.34	-122 31 30.87		017100100S00		(04)													UNK					

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Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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SERI# / INVET / RD DPT / UNLOC	S P E / D R A / L U / C I / O N / D H / W L / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PH	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
												02	NONE 9	STRGHT											
													N/A	W -E									000		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
02015	N N N N	05/24/2017	CLACKAMAS	1 14		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											27,29
NONE		WE	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E									000		00
N		6P	PORTLAND UA	7.20	SE 135TH AVE	04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	39	F	OR-Y		026	038		27,29
N		45 24 37.34	-122 31 30.87		017100100S00		(04)													OR<25					
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		01	DRVR	INJC	36	M	OR-Y		000	000		00
																				OR<25					
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		02	PSNG	INJC	35	F			000	000		00
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		03	PSNG	INJC	02	M			000	000		00
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		04	PSNG	INJC	10	F			000	000		00
03807	N N N N N N	09/16/2017	CLACKAMAS	1 14		STRGHT		N	N	CLD	S-1STOP	01	NONE 0	STRGHT											27,07
COUNTY		SA	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E									000		00
N		3P	PORTLAND UA	7.20	SE 135TH AVE	04			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	52	F	OR-Y		043,026	000		27,07
N		45 24 37.34	-122 31 30.87		017100100S00		(04)													OR<25					
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		01	DRVR	INJC	24	F	OR-Y		000	000		00
																				OR<25					
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		02	PSNG	NO<5	02	F			000	000		00
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		03	PSNG	NO<5	01	F			000	000		00
04274	N N N N N N	10/13/2015	CLACKAMAS	1 14		STRGHT		N	Y	CLR	PRKD MV	01	NONE 0	STRGHT											10
STATE		TU	HAPPY VALLEY	MN 0	CARVER RD	W	(NONE)	UNKNOWN	N	DRY	SS-O		PRVTE	E -W									000		00
Y		6P	PORTLAND UA	7.30	SE 135TH AVE	06			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	80	M	OR-Y		080	026		10
N		45 24 37.34	-122 31 30.87		017100100S00		(04)													OR<25					

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SERIAL / INVEST / RD DPT / UNLOC	P E D	A R E	U N B	J U R S	I S D I C T	C O N V	W H E L	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RDWY / COMPNT / MLG TYP / MILEPNT	FC	CONNTN / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PN	PRTC / TYPE	INJ / SVRTY	AGE	SEX	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																			02	NONE 1 PRVTE SEMI TOW	PRKD-P E -W										008		00
05027 HONE	N	N	N	N				12/02/2015 WE	CLACKAMAS HAPPY VALLEY	1 MN	14 0	CARVER RD	STRGHT W	(NONE)	N UNKNOWN	N N	CLR DRY	S-STRGHT REAR	01	NONE 0 PRVTE	STRGHT W -E										000		29 00
N								4P	PORTLAND UA	7.21		SE 135TH AVE	03			N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	43	F	OR-Y		026	000		29
N								45 24 37.47	-122 31 30.15			017100100S00		(04)													OR<25					
																			02	NONE 0 PRVTE PSNGR CAR	STRGHT W -E	01	DRVR	INJC	50	F	OTH-Y OR<25		000	006 000		00 00
00158 HONE	N	N	N	N	Y			01/08/2016 FR	CLACKAMAS HAPPY VALLEY	1 MN	14 0	CARVER RD	STRGHT N	(NONE)	N UNKNOWN	N N	CLR DRY	S-STRGHT SS-O	01	NONE 9 N/A	STRGHT E -W										000		13 00
N								2P	PORTLAND UA	7.21		SE 135TH AVE	06			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 24 37.47	-122 31 30.15			017100100S00		(04)													UNK					
																			02	NONE 9 N/A PSNGR CAR	STRGHT E -W	01	DRVR	NONE	00	Unk	UNK UNK		000	000		00 00
01827 STATE	N	N	N	N	N	N		05/12/2014 MO	CLACKAMAS HAPPY VALLEY	1 MN	14 0	CARVER RD	INTER SE	CROSS	N TRF SIGNAL	N N	CLR DRY	S-1STOP REAR	01	NONE 0 PRVTE	STRGHT SW-NE										000		07 00
N								6P	PORTLAND UA	7.22		SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	UNK		026	000		07
N								45 24 37.69	-122 31 28.69			017100100S00															UNK					
																			02	NONE 0 PRVTE PSNGR CAR	STOP SW-NE	01	DRVR	NONE	76	M	OR-Y OR<25		000	011 000		00 00
01287 HONE	N	N	N	N				04/03/2014 TU	CLACKAMAS HAPPY VALLEY	1 MN	14 0	CARVER RD	INTER N	CROSS	N TRF SIGNAL	N N	RAIN WET	ANGL-STP TURN	01	NONE 0 PRVTE	TURN-R E -N										000		08 00
N								7P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	19	M	OR-Y		001	000		08
N								45 24 37.687212	-122 31 28.699032			017100100S00															OR<25					
																			02	NONE 0 PRVTE PSNGR CAR	STOP N -S	01	DRVR	NONE	44	F	OR-Y OR<25		000	012 000		00 00
00471 HO RPT	N	N	N	N				01/28/2014 TU	CLACKAMAS HAPPY VALLEY	1 MN	14 0	CARVER RD	INTER E	CROSS	N TRF SIGNAL	N N	RAIN WET	S-1STOP REAR	01	NONE 0 PRVTE	STRGHT E -W										000		27,07 00
N								3P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	26	F	OR-Y		016,026	038		27,07
N								45 24 37.687212	-122 31 28.699032			017100100S00															OR<25					

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SERI# / INVST / RD/DIST / UNLOCK	S / F / L / O / N / L	H / I / T / E / R / K	S / A / T / L	W / O / R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MILEPNT	FC / NLG / TYP / LRS	CONN# / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (BLANKS)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PH	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE 0	STOP											
																	PRVTE	E -W								011		00
																	PSNGR CAR		01	DRVR	INJC	50	M	OR-Y		000		00
																								OR>25				
91655	N	N	N	N	04/30/2014	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE					WE	HAPPY VALLEY	MN	0	CARVER RD	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
N					7P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	25	M	OR-Y		026	000		07
N					45 24 37.687212	-122 31 28.699032			017100100S00															OR<25				
																02	NONE 0	STOP											
																	PRVTE	E -W								012		00
																	PSNGR CAR		01	DRVR	NONE	32	M	OR-Y		000	000		00
																								OR<25				
01650	N	N	N	N	04/30/2014	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
NONE					WE	HAPPY VALLEY	MN	0	CARVER RD	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
N					7P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	25	M	OR-Y		026	000		29
N					45 24 37.69	-122 31 28.7			017100100S00															OR<25				
																02	NONE 0	STOP											
																	PRVTE	E -W								011		00
																	PSNGR CAR		01	DRVR	NONE	32	M	OR-Y		000	000		00
																								OR<25				
[illegible]	N	N	N	N	09/24/2014	CLACKAMAS	1	14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										29
NONE					WE	HAPPY VALLEY	MN	0	CARVER RD	E		TRF SIGNAL	N	WET	REAR		PRVTE	E -W								000		00
N					7A	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	F	OR-Y		026	000		29
N					45 24 37.69	-122 31 28.7			017100100S00															UNK				
																02	NONE 0	STOP											
																	PRVTE	E -W								011		00
																	PSNGR CAR		01	DRVR	NONE	61	F	OR-Y		000	000		00
																								OR<25				
04144	N	N	N	N	10/17/2014	CLACKAMAS	1	14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT									093	27,29
NONE					FR	HAPPY VALLEY	MN	0	CARVER RD	E		TRF SIGNAL	N	WET	REAR		PRVTE	E -W								000		00
N					6P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	45	M	OR-Y		016,026	038	093	27,29
N					45 24 37.69	-122 31 28.7			017100100S00															OR<25				
																02	NONE 0	STOP											
																	PRVTE	E -W								011		00
																	PSNGR CAR		01	DRVR	NONE	41	N	OR-Y		000	000		00
																								OR<25				
[illegible]	N	N	N	N	09/29/2015	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
NONE					TU	HAPPY VALLEY	MN	0	CARVER RD	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
N					2P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	31	F	OR-Y		026	000		29
N					45 24 37.69	-122 31 28.7			017100100S00															OR<25				

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SERU / INVEST / RD DPT / UNLOC?	S P E / E / E	D R A / L / C	M J U / G / S	S I / N / V	W C / H / L	O R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
																	02	NONE 0	STOP											
																		PRVTE	E -W									011		00
																		PSNGR CAR		01	DRVR	NONE	72	F	OR-Y		000	000		00
																									OR<25					
04138	N	N	N	N			10/07/2015	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
NONE							WE	HAPPY VALLEY	MN	0	CARVER RD	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
N							5P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	38	F	OR-Y		026	000		29
N							45 24 37.69	-122 31 28.7			017100100S00															OR<25					
																	02	NONE 0	STOP											
																		UNKN	E -W									011		00
																		PSNGR CAR		01	DRVR	NONE	00	F	UNK		000	000		00
																									UNK					
05613	N	N	N	N	N	N	12/03/2016	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT										29
COUNTY							SA	HAPPY VALLEY	MN	0	CARVER RD	E		UNKNOWN	N	DRY	REAR		N/A	E -W								000		00
N							1P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 24 37.69	-122 31 28.7			017100100S00															UNK					
																	02	NONE 9	STOP											
																		N/A	E -W									023		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
03733	N	N	N	N	N	N	09/12/2017	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 1	STRGHT										29
COUNTY							TU	HAPPY VALLEY	MN	0	CARVER RD	E		TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
N							9P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DLIT	INJ		SEMI TOW		01	DRVR	NONE	41	M	OTH-Y		026	000		29
N							45 24 37.69	-122 31 28.7			017100100S00															N-RES					
																	02	NONE 0	STOP											
																		PRVTE	E -W									011		00
																		PSNGR CAR		01	DRVR	INJC	33	M	OTH-Y		000	000		00
																									N-RES					
00489	N	N	N	N			01/15/2014	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE							WE	HAPPY VALLEY	MN	0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE								000		00
N							11A	PORTLAND UA	7.23		SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	60	M	OR-Y		026	000		07
N							45 24 37.687212	-122 31 28.699032			017100100S00															OR<25					
																	02	NONE 0	STOP											
																		PRVTE	SW-NE									011		00
																		PSNGR CAR		01	DRVR	NONE	67	F	OR-Y		000	000		00
																									OR<25					
00814	N	N	N	N			02/15/2014	CLACKAMAS	1	14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										07
NONE							SA	HAPPY VALLEY	MN	0	CARVER RD	SE		YIELD	N	WET	REAR		PRVTE	SW-NE								000		00
N							3P	PORTLAND UA	7.23		SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		026	000		07
N							45 24 37.687212	-122 31 28.699032			017100100S00															UNK					

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											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	INJC	62	M	OR-Y		000	000		00
																			OR<25					
01108	N N N N	01/31/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT										27,07
NONE		FR	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	WET	REAR		PRVTE	SW-NE								000		00
H		2P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		026,016	038		27,07
H		45 24 37 697212	-122 31 28.699032		017100100S00														OR<25					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	INJC	70	F	OR-Y		000	000		00
																			OR<25					
21152	N N N N	04/08/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE		TU	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE								000		00
H		2P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	21	M	OR-Y		026	000		07
H		45 24 37 697212	-122 31 28.699032		017100100S00														OR<25					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	INJB	28	F	OR-Y		000	000		00
																			OR<25					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		02	PSNG	INJB	09	F			000	000		00
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		03	PSNG	NO<5	01	M			000	000		00
02126	N N N N	06/03/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
NONE		TU	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE								000		00
H		UNK	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		026	000		29
H		45 24 37.69	-122 31 28.7		017100100S00														OR<25					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	NONE	75	M	OR-Y		000	000		00
																			OR<25					
02176	N N N N	06/05/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE		TH	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE								000		00
H		12P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	53	M	OR-Y		026	000		07
H		45 24 37.69	-122 31 28.7		017100100S00														OR<25					

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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SCRN / INVEST / ID BPT / UNLOC	S P E / F E / D R / A C / M J / U S / I W / C O / N D / H A / E Y / R L / S K / DATE / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	INJC	49	M	OR-Y		000	000		00
																			OR<25					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		02	PSNG	INJC	00	M			000	000		00
72192	N N N N	06/08/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
HONF		SU	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		UNKN	SW-NE								000		00
N		11A	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	F	UNK		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00														UNK					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	NONE	28	F	OR-Y		000	000		00
																			OR<25					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		02	PSNG	NO<5	01	F			000	000		00
03043	N N N N	09/18/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
HONF		TH	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE								000		00
N		12P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	53	M	OR-Y		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00														OR<25					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	NONE	50	F	OR-Y		000	000		00
																			OR<25					
04041	N N N N	10/10/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
HONF		FR	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE								000		00
N		3P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	22	M	OR-Y		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00														OR<25					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	NONE	76	M	OR-Y		000	000		00
																			OR<25					
04271	N N N N	10/25/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										29
HONF		SA	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		UNKN	SW-NE								000		00
N		6P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	M	UNK		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00														UNK					
											02	NONE 0	STOP											
												PRVTE	SW-NE									011		00
												PSNGR CAR		01	DRVR	NONE	55	M	OR-Y		000	000		00
																			OR<25					

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46 - 50 of 115 Crash records shown.

SERIAL / INVEST / RD DIST / VALUE	F A T L	D U R N	M J C K	S U O N	W C O L	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PH#	PRTC / TYPE	INJ / SVRTY	AGE	SEX	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
04621	N	N	N	N		11/24/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE						FR	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N						11P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DARK	PDO		PSNGR CAR		01	DRVR	NONE	47	M	OR-Y		026	000		29
N						45 24 37.69	-122 31 28.7		017100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	NONE	43	M	OR-Y		000	000		00
																								OR<25					
04857	N	N	N	N		08/19/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE						TU	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		UNKN	SW-NE									000		00
N						5P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		026	000		29
N						45 24 37.69	-122 31 28.7		017100100S00															UNK					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	NONE	36	F	OR-Y		000	000		00
																								OR<25					
09222	N	N	N	N	N	01/19/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											07
COUNTY						MO	HAPPY VALLEY	MN 0	CARVER RD	SE		TRF SIGNAL	N	DRY	REAR		PRVTE	SW-NE									000		00
N						6P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	41	M	OR-Y		043,026	000		07
N						45 24 37.69	-122 31 28.7		017100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	INJC	56	M	OR-Y		000	000		00
																								OR<25					
09961	N	N	N	N		03/18/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
COUNTY						WE	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N						8P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DUSK	INJ		PSNGR CAR		01	DRVR	INJC	33	F	OR-Y		026	000		29
N						45 24 37.69	-122 31 28.7		017100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	NONE	41	M	OR-Y		000	000		00
																								OR<25					
01679	N	N	N	N		05/05/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE						TU	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N						8A	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	37	M	OR-Y		026	000		29
N						45 24 37.69	-122 31 28.7		017100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	INJC	49	M	OR-Y		000	000		00
																								OR>25					

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51 - 54 of 115 Crash records shown.

SER# / INVPT / RD LPT / UNLOC	F / A / J / L	R / U / C / N / K	S / C / H / Y	W / O / P / L	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP / LRS	CONN# / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
01993	N	N	N	N	05/27/2015	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE					WE	HAPPY VALLEY	MN	0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N					5P	PORTLAND UA	7.23		SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	47	M	OR-Y		026	000		29
N					45 24 37.69	-122 31 28.7			017100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	INJC	32	M	OR-Y		000	000		00
																								OR<25					
01994	N	N	N	N	09/16/2015	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE					WE	HAPPY VALLEY	MN	0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N					7P	PORTLAND UA	7.23		SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	32	M	OR-Y		026	000		29
N					45 24 37.69	-122 31 28.7			017100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	INJC	37	M	OR-Y		000	000		00
																								OR<25					
74994	N	N	N	N	11/23/2015	CLACKAMAS	1	14		INTER	CROSS	N	N	RAIN	S-STRGHT	01	NONE 0	STRGHT											29
NONE					MO	HAPPY VALLEY	MN	0	CARVER RD	SE		YIELD	N	WET	REAR		PRVTE	SW-NE									000		00
N					2P	PORTLAND UA	7.23		SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	51	M	OR-Y		042	000		29
N					45 24 37.69	-122 31 28.7			017100100S00															OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	SW-NE									006		00
																	PSNGR CAR		01	DRVR	INJC	62	F	OR-Y		000	000		00
																								OR<25					
05172	N	N	N	N	12/05/2015	CLACKAMAS	1	14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											29
NONE					SA	HAPPY VALLEY	MN	0	CARVER RD	SE		YIELD	N	WET	REAR		PRVTE	SW-NE									000		00
N					10A	PORTLAND UA	7.23		SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	28	F	OR-Y		026	000		29
N					45 24 37.69	-122 31 28.7			017100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	INJC	24	M	OR-Y		000	000		00
																								OR<25					
01640	N	N	N	N	N N 04/10/2016	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
COUNTY					SU	HAPPY VALLEY	MN	0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N					5P	PORTLAND UA	7.23		SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	51	M	OR-Y		026	000		29
N					45 24 37.69	-122 31 28.7			017100100S00															OR<25					
																02	NONE 0	STOP											
																	PRVTE	SW-NE									011		00
																	PSNGR CAR		01	DRVR	INJC	40	M	OR-Y		000	000		00
																								OR<25					

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SER# / INVEST / RD DPT / UNIT	S P E / D R A / M J U / S I / W C / O N / N H / R O / L / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / MPNT / MLG TYP / MILEPNT	FC / CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PH	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													PSNGR CAR		02	PSNG	INJC	39	F			000	000		00
03028	N N N N	07/07/2016	CLACKAMAS	1	14	INTER	CROSS	N	N	UNK	S-1STOP	01	NONE 0	STRGHT											29
NO RPT		TH	HAPPY VALLEY	MN	0 CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N		12P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	61	F	OR-Y		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													MTRCYCLE		01	DRVR	INJC	64	M	OR-Y		000	000		00
																				OR<25					
03443	N N N N	07/20/2016	CLACKAMAS	1	14	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		PK	HAPPY VALLEY	MN	0 CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N		6P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	51	M	OR-Y		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													PSNGR CAR		01	DRVR	INJC	49	F	OR-Y		000	000		00
																				OR<25					
04657	N N N N N N	10/10/2016	CLACKAMAS	1	14	INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											29
COUNTY		MO	HAPPY VALLEY	MN	0 CARVER RD	SE		YIELD	N	DRY	REAR		UNKN	SW-NE									000		00
N		11A	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	00	M	UNK		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													PSNGR CAR		01	DRVR	INJC	47	F	OR-Y		000	000		00
																				OR<25					
05007	N N N N	10/30/2016	CLACKAMAS	1	14	INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											29
NONE		SU	HAPPY VALLEY	MN	0 CARVER RD	SE		YIELD	N	WET	REAR		PRVTE	SW-NE									000		00
N		3P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	17	M	OR-Y		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													PSNGR CAR		01	DRVR	INJC	45	F	OR-Y		000	000		00
																				OR<25					
03641	N N N N	07/30/2016	CLACKAMAS	1	14	INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		SA	HAPPY VALLEY	MN	0 CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N		11A	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	63	M	OR-Y		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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SER# / INVEST / RD DPT / UNLOC	S P E / E L / U C	D R A / L G / S N / V I / L N / K E	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
													02	NONE 0	STOP											
														PRVTE	SW-NE									011		00
														PSNGR CAR		01	DRVR	INJC	40	F	OR-Y		000	000		00
																					OR<25					
02285	N N N N	05/20/2016	CLACKAMAS	1 14			INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE		FS	HAPPY VALLEY	MN 0	CARVER RD		SE		YIELD	N	DRY	REAR		N/A	SW-NE									000		00
N		7P	PORTLAND UA	7.23	SE 135TH AVE		09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00																UNK					
													02	NONE 9	STOP											
														N/A	SW-NE									011		00
														PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																					UNK					
02411	N N N N	09/07/2016	CLACKAMAS	1 14			INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE		WE	HAPPY VALLEY	MN 0	CARVER RD		SE		YIELD	N	DRY	REAR		N/A	SW-NE									000		00
N		6P	PORTLAND UA	7.23	SE 135TH AVE		09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00																UNK					
													02	NONE 9	STOP											
														N/A	SW-NE									011		00
														PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																					UNK					
02400	N N N N	02/28/2017	CLACKAMAS	1 14			INTER	CROSS	N	N	UNK	S-1STOP	01	NONE 0	STRGHT											29
NONE		TU	HAPPY VALLEY	MN 0	CARVER RD		SE		YIELD	N	WET	REAR		UNKN	SW-NE									000		00
N		2P	PORTLAND UA	7.23	SE 135TH AVE		09	1		N	DAY	INJ		UNKNOWN		01	DRVR	NONE	00	Unk	UNK		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00																UNK					
													02	NONE 0	STOP											
														PRVTE	SW-NE									011		00
														PSNGR CAR		01	DRVR	INJC	62	M	OR-Y		000	000		00
																					OR<25					
02900	N N N N	09/15/2017	CLACKAMAS	1 14			INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		FR	HAPPY VALLEY	MN 0	CARVER RD		SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N		5P	PORTLAND UA	7.23	SE 135TH AVE		09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	56	M	OR-Y		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00																OR<25					
													02	NONE 0	STOP											
														PRVTE	SW-NE									011		00
														PSNGR CAR		01	DRVR	INJC	47	F	OR-Y		000	000		00
																					OR<25					
													02	NONE 0	STOP											
														PRVTE	SW-NE									011		00
														PSNGR CAR		02	PSNG	INJC	16	F			000	000		00

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

65 - 69 of 115 Crash records shown.

SER# / INVEST / RD DIR / UNLOC?	S P E / D R A / M J U / S I G / C N / W O H / B K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / REG	PED / LOC	ERROR	ACT	EVENT	CAUSE
00044	N N N N	01/04/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE		WE	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		N/A	SW-NE									000		00
N		11A	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STOP											
													N/A	SW-NE									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
00224	N N N N	01/13/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	SNOW	S-1STOP	01	NONE 9	STRGHT										124	29
NONE		PK	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	ICE	REAR		N/A	NE-SW									000		00
N		2P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STOP											
													N/A	NE-SW									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
02206	N N N N	06/06/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE		TU	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		N/A	SW-NE									000		00
N		7P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STOP											
													N/A	SW-NE									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
02506	N N N N N N	06/26/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											27,29
NONE		MO	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		N/A	NE-SW									000		00
N		12P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STOP											
													N/A	NE-SW									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
02940	N N N N	07/20/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE		TH	HAPPY VALLEY	MN 0	CARVER RD	SE		TRF SIGNAL	N	DRY	REAR		N/A	NE-SW									000		00
N		4P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STOP											
													N/A	NE-SW									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					

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SER# / INVEST / RD DIR / UNLOC	S P E / D C / R A F / J U G / S I N / W C H / O R K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LEG	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
04843	N N N N	11/19/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 9	STRGHT											29
NO RPT		SU	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	WET	REAR		N/A	SW-NE									000		00
"		6P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
"		45.24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STOP											
													N/A	SW-NE									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
05130	N N N N	12/04/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE		MO	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		N/A	SW-NE									000		00
"		7A	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
"		45.24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STOP											
													N/A	SW-NE									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
02149	N N N N	07/06/2018	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		FR	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
"		10A	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	40	M	OR-Y		026	000		29
"		45.24 37.7	-122 31 28.72		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													PSNGR CAR		01	DRVR	INJC	39	M	OR-Y		000	000		00
																				OR<25					
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													PSNGR CAR		02	PSNG	INJC	37	F			000	000		00
02870	N N N N	07/27/2018	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		FR	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
"		7P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	44	M	OR-Y		026	000		29
"		45.24 37.71	-122 31 28.72		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													PSNGR CAR		01	DRVR	INJC	28	F	OR-Y		000	000		00
																				OR<25					
03000	N N N N	08/16/2018	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		TH	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	NE-SW									000		00
"		1P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	48	F	OR-Y		026	000		29
"		45.24 37.69	-122 31 28.7		017100100S00															OR<25					

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Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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SERIAL / INVEST / RD DIST / UNIT	S P E E C / D A L / R U / J C / S N / W H / C R / O K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / FC / COMPNT / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PH	PRTC / TYPE	INJ / SVRTY	AGE	SEX	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
												02	NONE 0	STOP											
													PRVTE	NE-SW									011		00
													PSNGR CAR		01	DRVR	INJC	31	F	OR-Y		000	000		00
																				OR>25					
03290	N N N N	09/17/2018	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		MO	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	SW-NE									000		00
N		2P	PORTLAND UA	7.23	SE 135TH AVE	03	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	41	F	OR-Y		026	000		29
N		45 24 37.72	-122 31 28.71		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	SW-NE									011		00
													PSNGR CAR		01	DRVR	INJC	42	M	UNK		000	000		00
																				OR<25					
03513	N N N N	10/22/2018	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NONE		MO	HAPPY VALLEY	MN 0	CARVER RD	SE		YIELD	N	DRY	REAR		PRVTE	NE-SW									000		00
N		6P	PORTLAND UA	7.23	SE 135TH AVE	09	1		N	DUSK	INJ		PSNGR CAR		01	DRVR	NONE	49	M	OR-Y		026	000		29
N		45 24 37.7	-122 31 28.71		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	NE-SW									011		00
													PSNGR CAR		01	DRVR	INJC	27	M	OR-Y		000	000		00
																				OR<25					
00929	N N N N N N	03/09/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	29,07
COUNTY		TH	HAPPY VALLEY	MN 0	CARVER RD	S		L-GRN-SIG	N	DRY	REAR		PRVTE	S -N									000		00
N		4P	PORTLAND UA	7.23	SE 135TH AVE	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	52	M	OR-Y		043,026	000		29,07
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	S -N									011	013	00
													PSNGR CAR		01	DRVR	INJC	54	M	OR-Y		000	000		00
																				OR<25					
												03	NONE 0	STOP											
													PRVTE	S -N									022		00
													PSNGR CAR		01	DRVR	NONE	21	F	OR-Y		000	000		00
																				OR<25					
00081	N N N N	01/06/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
NONE		FR	HAPPY VALLEY	MN 0	CARVER RD	S		TRF SIGNAL	N	DRY	REAR		N/A	S -N									000		00
N		7P	PORTLAND UA	7.23	SE 135TH AVE	06	1		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STOP											
													N/A	S -N									011		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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SERN / INVEST / KI DPT / UNLOC	S P E B	D R A C	M J U S	I S	C V	W L	O K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RDN FC / COMPNT / MLG TYP / MILEPNT	CONNN / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PH	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
01171	N	N	N	N				07/11/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
HONE								TU	HAPPY VALLEY	MN 0	CARVER RD	S		TRF SIGNAL	N	DRY	REAR		N/A	S -N									000		00
N								7P	PORTLAND UA	7.23	SE 135TH AVE	06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N								45 24 37.69	-122 31 28.7		017100100S00															UNK					
																		02	NONE 9	STOP											
																			N/A	S -N									012		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK					
01126	Y	N	N	N	N	N		04/06/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											07,32,01
CITY								SU	HAPPY VALLEY	MN 0	CARVER RD	W		TRF SIGNAL	N	WET	REAR		PRVTE	W -E									000		00
N								GA	PORTLAND UA	7.23	SE 135TH AVE	06	1		N	DAWN	INJ		PSNGR CAR		01	DRVR	NONE	43	M	OR-Y		026,052,047	038		07,32,01
N								45 24 37.687212	-122 31 28.699032		017100100S00															OR<25					
																		02	NONE 0	STOP											
																			PRVTE	W -E									011		00
																			PSNGR CAR		01	DRVR	INJC	50	M	OR-Y		000	000		00
																										OR<25					
																		02	NONE 0	STOP											
																			PRVTE	W -E									011		00
																			PSNGR CAR		02	PSNG	INJC	14	F			000	000		00
00967	N	N	N	N				03/19/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
NO DPT								TU	HAPPY VALLEY	MN 0	CARVER RD	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
N								3P	PORTLAND UA	7.23	SE 135TH AVE	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	28	F	OR-Y		026	000		29
N								45 24 37.69	-122 31 28.7		017100100S00															OR<25					
																		02	NONE 0	STOP											
																			PRVTE	W -E									011		00
																			PSNGR CAR		01	DRVR	INJC	43	F	OR-Y		000	000		00
																										OR<25					
01604	N	Y	N	N	N	N		08/26/2016	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										093,013	27,33,29
STATI								FR	HAPPY VALLEY	MN 0	CARVER RD	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
N								7P	PORTLAND UA	7.23	SE 135TH AVE	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	29	M	OR-Y		016,051,026	038	093	27,33,29
N								45 24 37.69	-122 31 28.7		017100100S00															OR<25					
																		02	NONE 0	STOP											
																			PRVTE	W -E									011	013	00
																			PSNGR CAR		01	DRVR	INJC	18	M	OR-Y		000	000		00
																										OR<25					
																		03	NONE 0	STOP											
																			PRVTE	W -E									022		00
																			PSNGR CAR		01	DRVR	NONE	47	M	OR-Y		000	000		00
																										OR<25					
																		03	NONE 0	STOP											
																			PRVTE	W -E									022		00
																			PSNGR CAR		02	PSNG	INJC	44	F			000	000		00

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SER# / INVEST / RD DIST / INVLOC	S / F / C	D / A / G / S	M / U / N / V	J / I / H / L	S / C / R / K	W / O / R	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / MLG / MILEPNT	FC / TYP / LRS	CONN# / FIRST STREET / SECOND STREET	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
05461	N	N	N	N			11/23/2016	CLACKAMAS	1	14		INTER	CROSS	N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											29
HONE							WE	HAPPY VALLEY	MN	0	CARVER RD	N		TRF SIGNAL	N	WET	REAR		PRVTE	W -E									000		00
H							2P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	31	F	OR-Y		026	000		29
H							45 24 37.69	-122 31 28.7			017100100S00															OR<25					
																		02	NONE 0	STOP											
																			PRVTE	W -E									011		00
																			PSNGR CAR		01	DRVR	NONE	23	M	OR-Y		000	000		00
																										OR<25					
84910	N	N	N	N			10/23/2016	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 9	STRGHT											29
HONE							SU	HAPPY VALLEY	MN	0	CARVER RD	W		TRF SIGNAL	N	DRY	REAR		N/A	W -E									000		00
H							12P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
H							45 24 37.69	-122 31 28.7			017100100S00															UNK					
																		02	NONE 9	STOP											
																			N/A	W -E									011		00
																			PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																										UNK					
80554	N	N	N	N	N	N	02/10/2017	CLACKAMAS	1	14		INTER	CROSS	N	N	CLD	S-1STOP	01	NONE 0	STRGHT											04,29
COUNTY							FR	HAPPY VALLEY	MN	0	CARVER RD	W		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
H							8P	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	28	F	OR-Y		020,026	000		04,29
H							45 24 37.69	-122 31 28.7			017100100S00															OR<25					
																		01	NONE 0	STRGHT											
																			PRVTE	W -E									000		00
																			PSNGR CAR		02	PSNG	INJC	08	F			000	000		00
																		02	NONE 0	STOP											
																			PRVTE	W -E									011		00
																			PSNGR CAR		01	DRVR	NONE	46	F	OR-Y		000	000		00
																										OR<25					
01458	N	N	N	N			05/02/2019	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT											29
HONE							WE	HAPPY VALLEY	MN	0	CARVER RD	W		TRF SIGNAL	N	DRY	REAR		UNKN	W -E									000		00
H							10A	PORTLAND UA	7.23		SE 135TH AVE	06	1		N	DAY	INJ		TRUCK		01	DRVR	NONE	00	M	UNK		026	000		29
H							45 24 37.69	-122 31 28.71			017100100S00															UNK					
																		02	NONE 0	STOP											
																			PRVTE	W -E									011		00
																			PSNGR CAR		01	DRVR	INJC	74	F	OR-Y		000	000		00
																										OR<25					
01155	N	N	N	N			04/06/2018	CLACKAMAS	1	14		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L											02
HONE							SU	HAPPY VALLEY	MN	0	CARVER RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	S -W									000		00
H							5P	PORTLAND UA	7.23		SE 135TH AVE	01	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	21	F	OR-Y		028	000		02
H							45 24 37.687212	-122 31 28.699032			017100100S00															OR<25					

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Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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SER# / INVEST / RD DIST / UNLOC	S P / R A / D E / J U / M G / S / N / W / I / C / H / O / R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPHT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
												02	NONE 0	STRGHT											
													PRVTE	N -S									000		00
													PSNGR CAR		01	DRVR	NONE	43	F	OTH-Y		000	000		00
																				OR<25					
												02	NONE 0	STRGHT											
													PRVTE	N -S									000		00
													PSNGR CAR		02	PSNG	NO<5	03	F			000	000		00
01169	N N N N N N	08/02/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLD	ANGL-OTH	01	NONE 9	STRGHT											04
STATE		WE	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	ANGL		N/A	E -W									000		00
N		5P	PORTLAND UA	7.23	SE 135TH AVE	01	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STRGHT											
													N/A	N -S									000		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
04941	N N N N N N	11/17/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											04
COUNTY		TU	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	WET	ANGL		PRVTE	S -N									000		00
N		1P	PORTLAND UA	7.23	SE 135TH AVE	02	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	54	M	OR-Y		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STRGHT											
													PRVTE	E -W									000		00
													PSNGR CAR		01	DRVR	NONE	58	M	OR-Y		020	000		04
																				OR<25					
05006	N N N N N N	01/01/2016	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT											02
COUNTY		FR	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	E -W									000		00
N		6P	PORTLAND UA	7.23	SE 135TH AVE	02	0		N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	49	M	OR-Y		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STRGHT											
													PRVTE	S -N									000		00
													PSNGR CAR		01	DRVR	INJC	47	M	OR-Y		028	000		02
																				OR<25					
08427	N N N N N N	02/05/2018	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT											02,08
CITY		MO	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	S -N									000		00
N		7P	PORTLAND UA	7.23	SE 135TH AVE	02	1		N	DLIT	INJ		PSNGR CAR		01	DRVR	INJC	21	F	OR-Y		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	TURN-L											
													PRVTE	N -E									000		00
													MTRCYCLE		01	DRVR	INJB	60	M	OR-Y		028,004	000		02,08
																				OR<25					

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SER# / INVEST / RD DIST / ORGN	S P E D E A T G R S J U S C N H W P O K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	AGE	SEX	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01145	N N N N N N	01/11/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	RAIN	ANGL-OTH	01	NONE 0	STRGHT											04
COUNTY		5A	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	WET	ANGL		PRVTE	W -E									000		00
N		6A	PORTLAND UA	7.23	SE 135TH AVE	03	0		N	DARK	INJ		PSNGR CAR		01	DRVR	INJC	59	F	OR-Y		020	000		04
N		45 24 37.687212	-122 31 28.699032		017100100S00															OR<25					
												02	NONE 0	STRGHT											
													PRVTE	N -S									000		00
													PSNGR CAR		01	DRVR	INJC	63	M	OR-Y		000	000		00
																				OR<25					
												02	NONE 0	STRGHT											
													PRVTE	N -S									000		00
													PSNGR CAR		02	PSNG	INJB	57	F			000	000		00
2944	N N N N	07/30/2014	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	S-1STOP	01	NONE 0	STRGHT										013	29,02
CITY		MP	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	REAR		PRVTE	W -E									000		00
N		1GP	PORTLAND UA	7.23	SE 135TH AVE	03	1		N	DLIT	PDO		PSNGR CAR		01	DRVR	NONE	18	F	OR-Y		026	000		29
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STOP											
													PRVTE	W -E									011	013	00
													PSNGR CAR		01	DRVR	NONE	20	M	OR-Y		000	000		00
																				OR<25					
												03	NONE 0	TURN-L											
													PRVTE	E -S									000		00
													PSNGR CAR		01	DRVR	NONE	49	M	OR-Y		028,004	000		02
																				OR<25					
02914	N N N N N N	07/20/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	CLD	ANGL-OTH	01	NONE 0	STRGHT											04
COUNTY		MO	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	W -E									000		00
N		3P	PORTLAND UA	7.23	SE 135TH AVE	03	1		N	DAY	INJ		PSNGR CAR		01	DRVR	INJC	21	M	OR-Y		020	000		04
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STRGHT											
													PRVTE	N -S									000		00
													PSNGR CAR		01	DRVR	INJC	47	F	OR-Y		000	000		00
																				OR<25					
03993	N N N N N N	09/28/2015	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										082	04
COUNTY		MO	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	ANGL		PRVTE	N -S									000		00
N		6P	PORTLAND UA	7.23	SE 135TH AVE	03	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	34	M	OR-Y		020	000	082	04
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	STRGHT											
													PRVTE	W -E									000		00
													PSNGR CAR		01	DRVR	NONE	27	M	OR-Y		000	000		00
																				OR<25					

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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96 - 99 of 115 Crash records shown.

SERIAL / INVEST / REPORT / ENGINE	F A T I G U E / D R I V E R / H I T & R U N / W O R K Z O N E	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RDWY FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / SURF / DRVWY	WTHR / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
75043	N N N N	11/ /2015	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	O-1 L-TURN	01	NONE 0	STRGHT											02
NONE		FR	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	W -E									000		00
N		6P	PORTLAND UA	7.23	SE 135TH AVE	03	1		N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	34	F	OR-Y		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															OR>25					
												02	NONE 0	TURN-L											
													PRVTE	E -S									000		00
													PSNGR CAR		01	DRVR	NONE	80	M	OR-Y		028,004	000		02
																				OR<25					
01983	N N N N	04/13/2016	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 9	STRGHT											04
NONE		WE	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	ANGL		N/A	N -S									000		00
N		8A	PORTLAND UA	7.23	SE 135TH AVE	03	1		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															UNK					
												02	NONE 9	STRGHT											
													N/A	W -E									000		00
													PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																				UNK					
07980	N N N N	09/26/2017	CLACKAMAS	1 14		INTER	CROSS	N	N	CLR	ANGL-OTH	01	NONE 0	STRGHT										082	04
NONE		TU	HAPPY VALLEY	MN 0	CARVER RD	CN		TRF SIGNAL	N	DRY	TURN		PRVTE	N -S									000		00
N		12P	PORTLAND UA	7.23	SE 135TH AVE	03	1		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	40	M	OR-Y		097	000		00
N		45 24 37.69	-122 31 28.7		017100100S00															OR<25					
												02	NONE 0	TURN-L											
													PRVTE	W -N									000		00
													PSNGR CAR		01	DRVR	INJC	27	F	OR-Y		097	000		00
																				OR<25					
05703	Y N N N N N	12/08/2016	CLACKAMAS	1 14		STRGHT		N	Y	SLT	FIX OBJ	01	NONE 0	STRGHT										053,124	01
COUNTY		TH	HAPPY VALLEY	MN 0	CARVER RD	UN	(NONE)	UNKNOWN	N	SNO	FIX		PRVTE	E -W									000	053,124	00
N		5P	PORTLAND UA	7.24	SE 135TH AVE	08			N	DLIT	INJ		PSNGR CAR		01	DRVR	NONE	43	M	SUSP		047,080,081	017		01
N		45 24 37.74	-122 31 28.17		017100100S00		(04)													OR<25					
												01	NONE 0	STRGHT											
													PRVTE	E -W									000	053,124	00
													PSNGR CAR		02	PSNG	INJC	34	F			000	000		00
07986	N N N N	07/23/2014	CLACKAMAS	1 14		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											29
NO RPT		TU	HAPPY VALLEY	MN 0	CARVER RD	E	(NONE)	UNKNOWN	N	WET	REAR		PRVTE	E -W									000		00
N		2P	PORTLAND UA	7.24	SE 135TH AVE	05			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	49	M	OR-Y		026	000		29
N		45 24 37.74	-122 31 28.17		017100100S00		(04)													OR<25					
												02	NONE 1	STOP											
													PRVTE	E -W									011		00
													PSNGR CAR		01	DRVR	INJC	56	M	OR-Y		000	000		00
																				OR<25					

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANAYLYSIS AND REPORTING UNIT
CONTINUOUS SYSTEM CRASH LISTING
Highway 171 ALL ROAD TYPES, MP 7.08 to 7.38 01/01/2014 to 12/31/2018, Both Add and Non-Add mileage

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100 - 104 of 115 Crash records shown.

DERN / INVEST / RD LNT / MILE	S P / A / L / L / E	D R / A / C / T / E	N J / C / L / H / E	S C / O / N / D / T	W O / R / K / Z / O / N / E	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPHT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRWWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	VH	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	PH	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE 1	STOP											
																	PRVTE	E -W									011		00
																	PSNGR CAR		02	PSNG	INJC	59	M			000	000		00
01195	N	N	N	N		04/11/2014	CLACKAMAS	1	14		STRGHT		Y	N	CLR	S-1STOP	01	NONE 0	STRGHT										07
NONE						FR	HAPPY VALLEY	MN	0	CARVER RD	E	(NONE)	TRF SIGNAL	N	DRY	REAR		PRVTE	E -W								000		00
"						9A	PORTLAND UA	7	24	SE 135TH AVE	06			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	16	F	OR-Y		026	000		07
"						45 24 37.7412839	-122 31 28.16724			017100100S00		(04)													OR<25					
																02	NONE 0	STOP											
																	PRVTE	E -W									011		00
																	PSNGR CAR		01	DRVR	INJC	61	M	OR-Y		000	000		00
																								OR<25					
04709	N	N	N	N	N	10/12/2016	CLACKAMAS	1	14		STRGHT		Y	N	CLR	S-STRGHT	01	NONE 9	STRGHT										13
COUNTY						WE	HAPPY VALLEY	MN	0	CARVER RD	E	(NONE)	TRF SIGNAL	N	DRY	SS-O		N/A	E -W								000		00
"						9A	PORTLAND UA	7	26	SE 135TH AVE	06			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
"						45 24 37.82	-122 31 27.39			017100100S00		(04)													UNK					
																02	NONE 9	STRGHT											
																	N/A	E -W									000		00
																	TRUCK		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
00700	N	N	N	N		02/25/2015	CLACKAMAS	1	14		STRGHT		Y	N	CLR	S-STRGHT	01	NONE 0	STRGHT										13
NONE						WE	HAPPY VALLEY	MN	0	CARVER RD	E	(NONE)	UNKNOWN	N	DRY	SS-O		PRVTE	W -E								000		00
"						4P	PORTLAND UA	7	27	SE 135TH AVE	04			N	DAY	PDO		SEMI TOW		01	DRVR	NONE	00	M	OR-Y		045	000		13
"						45 24 37.87	-122 31 26.51			017100100S00		(04)													OR<25					
																02	NONE 0	STRGHT											
																	PRVTE	W -E									000		00
																	PSNGR CAR		01	DRVR	NONE	48	M	OR-Y		000	000		00
																								OR<25					
00151	N	N	N	N	N	01/13/2015	CLACKAMAS	1	14		STRGHT		N	N	UNK	OTH OBJ	01	NONE 0	STRGHT									064,074	32
COUNTY						MO	HAPPY VALLEY	MN	0	CARVER RD	E	(NONE)	UNKNOWN	N	WET	FIX		PRVTE	E -W								000	064,074	00
"						6A	PORTLAND UA	7	27	SE 135TH AVE	06			N	DLIT	PDO		TRUCK		01	DRVR	NONE	60	M	OR-Y		052,082	000		32
"						45 24 37.87	-122 31 26.51			017100100S00		(04)													OR<25					
03261	N	N	N	N	N	08/09/2017	CLACKAMAS	1	14		STRGHT		N	N	CLR	S-STRGHT	01	NONE 0	STRGHT										10
COUNTY						WE	HAPPY VALLEY	MN	0	CARVER RD	SW	(NONE)	NONE	N	DRY	SS-O		PRVTE	E -W								000		00
7						4P	PORTLAND UA	7	27	SE 135TH AVE	06			N	DAY	INJ		PSNGR CAR		01	DRVR	INJB	19	M	OR-Y		080	000		10
"						45 24 37.87	-122 31 26.51			017100100S00		(04)													OR<25					
																01	NONE 0	STRGHT											
																	PRVTE	E -W									000		00
																	PSNGR CAR		02	PSNG	INJC	17	M			000	000		00

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SERI# / INVEST / RD LPT / UNLOC	S P / F / E / B	D R / A / L / C	M J / U / G / S	S / I / N / V	W / C / H / L	O / R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPHT / MLG TYP / MILEPNT	CONNH / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
																	02	NONE 0	STRGHT											
																		PRVTE	E -W									000		00
																		PSNGR CAR		01	DRVR	INJC	45	M	OR-Y		000	000		00
																									OR<25					
																	03	NONE 0	STRGHT											
																		PRVTE	E -W									000		00
																		PSNGR CAR		01	DRVR	NONE	50	M	OR-Y		000	000		00
																									OR<25					
01458	N	N	N	N			04/20/2015	CLACKAMAS	1	14		ALLEY		N	N	CLR		O-1 L-TURN	01	NONE 0	STRGHT									02
NONE							MO	HAPPY VALLEY	MN	0	CARVER RD	E	(NONE)	L-TURN REF	N	DRY		TURN		PRVTE	E -W							000		00
N							4P	PORTLAND UA	7.31		SE 135TH AVE	05			N	DAY		PDO		PSNGR CAR		01	DRVR	NONE	00	M	OR-Y		000	000		00
N							45 24 37.82	-122 31 22.36			017100100S00		(05)														OR<25					
																	02	NONE 0	TURN-L											
																		PRVTE	W -N									019		00
																		PSNGR CAR		01	DRVR	NONE	68	M	OR-Y		028,004	000		02
																									OR<25					
05005	N	N	N	N			10/29/2016	CLACKAMAS	1	14		ALLEY		N	N	UNK		ANGL-OTH	01	NONE 9	STRGHT									02
NO RPT							SA	HAPPY VALLEY	MN	0	CARVER RD	E	(NONE)	L-TURN REF	N	WET		TURN		N/A	E -W							000		00
N							1P	PORTLAND UA	7.31		SE 135TH AVE	06			N	DAY		PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 24 37.82	-122 31 22.36			017100100S00		(05)														UNK					
																	02	NONE 9	TURN-L											
																		N/A	N -E									018		00
																		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																									UNK					
01456	N	N	N	N	N	N	04/20/2015	CLACKAMAS	1	14		STRGHT		N	N	CLR		S-1STOP	01	NONE 0	STRGHT									07
STATE							MO	HAPPY VALLEY	MN	0	CARVER RD	E	(NONE)	UNKNOWN	N	DRY		REAR		PRVTE	W -E							000		00
N							5P	PORTLAND UA	7.32		SE 135TH AVE	03			N	DAY		INJ		PSNGR CAR		01	DRVR	INJC	30	F	OTH-Y		043,026	000		07
N							45 24 37.79	-122 31 21.59			017100100S00		(04)														N-RES					
																	02	NONE 0	STOP											
																		PRVTE	W -E									011		00
																		PSNGR CAR		01	DRVR	INJC	40	M	OR-Y		000	000		00
																									OR<25					
02745	N	N	N	N			08/07/2018	CLACKAMAS	1	14		STRGHT		N	N	CLR		S-1STOP	01	NONE 0	STRGHT									29
NONE							TU	HAPPY VALLEY	MN	0	CARVER RD	E	(NONE)	UNKNOWN	N	DRY		REAR		PRVTE	W -E							000		00
N							5P	PORTLAND UA	7.32		SE 135TH AVE	03			N	DAY		INJ		PSNGR CAR		01	DRVR	INJC	30	F	OR-Y		026	000		29
N							45 24 37.79	-122 31 21.61			017100100S00		(04)														OR<25					
																	02	NONE 0	STOP											
																		PRVTE	W -E									011		00
																		PSNGR CAR		01	DRVR	INJC	50	M	OR-Y		000	000		00
																									OR<25					

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SER# / INVEST / RD DIR / UNLOC	S P / R E / A / D / U / S / N / C / H / W / E / L / C / K / Q	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / NLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF-CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS / RES	PED LOC	ERROR	ACT	EVENT	CAUSE
01443	N N N N N N	09/26/2018	CLACKAMAS	1 14		STRGHT		N	N	CLR	S-1STOP	01	NONE 0	STRGHT											07
COUNTY		WE	HAPPY VALLEY	MN 0	CARVER RD	E	(NONE)	UNKNOWN	N	DRY	REAR		PRVTE	W -E									000		00
N		7A	PORTLAND UA	7.32	SE 135TH AVE	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	73	F	OR-Y		043	000		07
N		45 24 37.8	-122 31 21.6		017100100S00		(04)													OR<25					
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		01	DRVR	NONE	51	M	OTH-Y		000	000		00
																				OR<25					
												02	NONE 0	STOP											
													PRVTE	W -E									011		00
													PSNGR CAR		02	PSNG	INJC	47	M			000	000		00
01056	N N N N	03/24/2016	CLACKAMAS	1 14		STRGHT		N	N	RAIN	S-1STOP	01	NONE 0	STRGHT											29
NONE		TH	HAPPY VALLEY	MN 0	CARVER RD	E	(NONE)	L-TURN REF	N	WET	REAR		PRVTE	E -W									000		00
N		6A	PORTLAND UA	7.32	SE 135TH AVE	05			N	DAWN	INJ		PSNGR CAR		01	DRVR	NONE	36	F	OTH-Y		042	000		29
N		45 24 37.79	-122 31 21.59		017100100S00		(05)													OR<25					
												02	NONE 0	STRGHT											
													PRVTE	E -W									006		00
													PSNGR CAR		01	DRVR	NONE	21	M	OR-Y		000	000		00
																				OR<25					
												02	NONE 0	STRGHT											
													PRVTE	E -W									006		00
													PSNGR CAR		02	PSNG	INJC	21	F			000	000		00
												02	NONE 0	STRGHT											
													PRVTE	E -W									006		00
													PSNGR CAR		03	PSNG	INJC	52	F			000	000		00
00978	N N N N	03/18/2018	CLACKAMAS	1 14		ALLEY		N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L											02
NONE		MH	HAPPY VALLEY	MN 0	CARVER RD	E	(NONE)	UNKNOWN	N	DRY	TURN		PRVTE	S -W									018		00
N		1GA	PORTLAND UA	7.33	SE 135TH AVE	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	71	M	OR-Y		028	000		02
N		45 24 37.78	-122 31 20.85		017100100S00		(04)													OR<25					
												01	NONE 0	TURN-L											
													PRVTE	S -W									018		00
													PSNGR CAR		02	PSNG	NONE	01	F			000	000		00
												02	NONE 0	STRGHT											
													PRVTE	W -E									000		00
													PSNGR CAR		01	DRVR	INJC	22	F	OR-Y		000	000		00
																				OR<25					
01465	N N N N N N	05/16/2018	CLACKAMAS	1 14		ALLEY		N	N	CLR	O-1 L-TURN	01	NONE 0	TURN-L											27,02
STATE		WE	HAPPY VALLEY	MN 0	CARVER RD	E	(NONE)	UNKNOWN	N	DRY	TURN		PRVTE	E -S									019		00
N		4P	PORTLAND UA	7.33	SE 135TH AVE	03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	86	M	OR-Y		028	000		27,02
N		45 24 37.76	-122 31 20.82		017100100S00		(04)													OR<25					

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SER# / INVEST / RD DIR / UNLOC2	S P E / E L / D C	D R A / G / U / S	N J I / N / V	S C N / H / L	W Q R / K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# FC / COMPNT / MLG TYP / MILEPNT	CONN# / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE / (MEDIAN) / LEGS / (#LANES)	INT-REL / TRAF- / CONTL	OFFRD / RNDBT / DRVWY	WTHR / SURF / LIGHT	CRASH / COLL / SVRTY	V#	SPCL USE / TRLR QTY / OWNER / TYPE	MOVE / FROM / TO	P#	PRTC / TYPE	INJ / SVRTY	A / G / E	S / E / X	LICNS / RES	PED / LOC	ERROR	ACT	EVENT	CAUSE
																02	NONE 0	STRGHT											
																	PRVTE	W -E								000			00
																	PSNGR CAR		01	DRVR	INJC	62	M	OR-Y		000	000		00
																								OR<25					
05514	N	N	N	N		11/27/2016	CLACKAMAS	1 14		ALLEY		N	N	CLD	ANGL-OTH	01	NONE	TURN-L										079	02
COUNTY						SU	HAPPY VALLEY	MN 0	CARVER RD	E	(NONE)	UNKNOWN	N	DRY	TURN		PRVTE	S -W									018		00
N						12F	PORTLAND UA	7.33	SE 135TH AVE	05			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	54	M	SUSP		028	000		02
N						45 24 37.76	-122 31 20.82		017100100S00		(04)													N-RES					
																02	NONE	STRGHT											
																	PRVTE	E -W									000		00
																	PSNGR CAR		01	DRVR	INJC	71	F	OR-Y		000	000		00
																								OR<25					
04534	N	N	N	N		10/03/2016	CLACKAMAS	1 14		STRGHT		N	N	UNK	S-1STOP	01	NONE 0	STRGHT										013	27,29
NONE						MO	HAPPY VALLEY	MN 0	SE CARVER RD	W	(NONE)	UNKNOWN	N	WET	REAR		PRVTE	E -W									000		00
N						UA	PORTLAND UA	7.37	SE 142ND AVE	05			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	25	M	OR-Y		026	038		27,29
N						45 24 37.48	-122 31 17.73		017100100S00		(04)													OR<25					
																02	NONE 0	STOP											
																	PRVTE	E -W									011	013	00
																	PSNGR CAR		01	DRVR	INJC	34	F	OR-Y		000	000		00
																								OR<25					
																03	NONE 0	STOP											
																	PRVTE	E -W									022		00
																	PSNGR CAR		01	DRVR	NONE	00	F	UNK		000	000		00
																								UNK					

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Appendix D

Synchro & SimTraffic - 2019

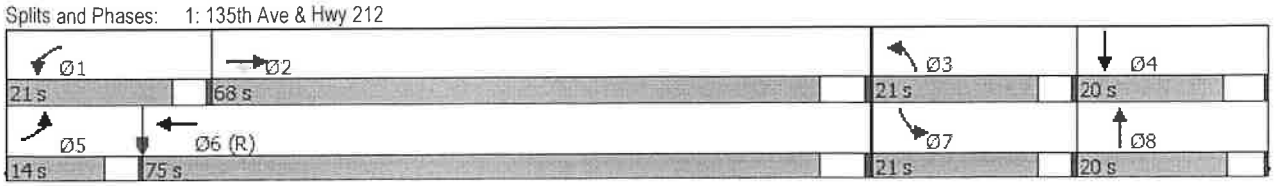
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	742	13	219	2005	166	66	54	177	86	90	168
Future Volume (vph)	79	742	13	219	2005	166	66	54	177	86	90	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt			0.850		0.989			0.885			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3447	0	1805	1656	0	1805	1708	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3447	0	1805	1656	0	1805	1708	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116		10			104			59	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	82	773	14	228	2089	173	69	56	184	90	94	175
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	773	14	228	2262	0	69	240	0	90	269	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	14.0	68.0	68.0	21.0	75.0		21.0	20.0		21.0	20.0	
Total Split (%)	10.8%	52.3%	52.3%	16.2%	57.7%		16.2%	15.4%		16.2%	15.4%	
Maximum Green (s)	10.0	62.6	62.6	17.0	69.6		17.0	15.5		17.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.4	-1.4	0.0	-1.4		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	21.0		3.0	5.0	
Recall Mode	None	Min	Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	8.9	66.6	66.6	16.7	74.5		9.6	19.5		11.1	22.9	
Actuated g/C Ratio	0.07	0.51	0.51	0.13	0.57		0.07	0.15		0.09	0.18	
v/c Ratio	0.62	0.42	0.02	0.92	1.14		0.52	0.71		0.58	0.77	
Control Delay	79.0	21.2	0.0	96.2	98.9		70.8	42.0		71.6	55.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	79.0	21.2	0.0	96.2	98.9		70.8	42.0		71.6	55.5	
LOS	E	C	A	F	F		E	D		E	E	
Approach Delay		26.3			98.7			48.4			59.5	
Approach LOS		C			F			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9.5 (7%), Referenced to phase 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 75.7 — Intersection LOS: E
Intersection Capacity Utilization 97.1% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	297	0	0	322
Future Volume (vph)	0	0	297	0	0	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	0	1863	0	1863	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	309	0	0	335
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	309	0	0	335
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	79	742	13	219	2005	166	66	54	177	86	90	168
Future Volume (vph)	79	742	13	219	2005	166	66	54	177	86	90	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3445		1805	1656		1805	1709	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3445		1805	1656		1805	1709	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	82	773	14	228	2089	173	69	56	184	90	94	175
RTOR Reduction (vph)	0	0	7	0	4	0	0	88	0	0	49	0
Lane Group Flow (vph)	82	773	7	228	2258	0	69	152	0	90	220	0
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	8.9	64.5	64.5	16.7	72.3		8.5	19.8		11.1	22.1	
Effective Green, g (s)	8.9	65.9	65.9	16.7	73.7		8.5	20.3		11.1	22.9	
Actuated g/C Ratio	0.07	0.51	0.51	0.13	0.57		0.07	0.16		0.09	0.18	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	131	1811	818	247	1953		118	258		154	301	
v/s Ratio Prot	0.04	0.22		c0.12	c0.66		0.04	0.09		c0.05	c0.13	
v/s Ratio Perm			0.00									
v/c Ratio	0.63	0.43	0.01	0.92	1.16		0.58	0.59		0.58	0.73	
Uniform Delay, d1	58.9	20.2	15.9	56.0	28.1		59.0	51.0		57.2	50.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.3	0.3	0.0	36.7	76.5		5.5	3.6		4.2	8.9	
Delay (s)	66.2	20.4	15.9	92.7	104.6		64.5	54.6		61.4	59.5	
Level of Service	E	C	B	F	F		E	D		E	E	
Approach Delay (s)		24.7			103.5			56.8			60.0	
Approach LOS		C			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	79.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	97.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	79	742	13	219	2005	166	66	54	177	86	90	168
Future Volume (veh/h)	79	742	13	219	2005	166	66	54	177	86	90	168
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1849	1900	1900	1871	1900	1900	1893	1900
Adj Flow Rate, veh/h	82	773	7	228	2089	169	69	56	0	90	94	124
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	105	1699	768	246	1811	144	89	201	0	114	91	120
Arrive On Green	0.06	0.48	0.48	0.13	0.55	0.54	0.05	0.11	0.00	0.06	0.12	0.12
Sat Flow, veh/h	1882	3574	1615	1882	3290	262	1810	1871	0	1810	742	979
Grp Volume(v), veh/h	82	773	7	228	1100	1158	69	56	0	90	0	218
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1795	1810	1871	0	1810	0	1721
Q Serve(g_s), s	5.6	18.8	0.3	15.6	71.5	71.5	4.9	3.6	0.0	6.4	0.0	16.0
Cycle Q Clear(g_c), s	5.6	18.8	0.3	15.6	71.5	71.5	4.9	3.6	0.0	6.4	0.0	16.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.00	1.00		0.57
Lane Grp Cap(c), veh/h	105	1699	768	246	967	988	89	201	0	114	0	212
V/C Ratio(X)	0.78	0.46	0.01	0.93	1.14	1.17	0.77	0.28	0.00	0.79	0.00	1.03
Avail Cap(c_a), veh/h	145	1760	795	246	967	988	237	230	0	237	0	212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.6	22.8	18.0	55.9	29.2	29.3	61.1	53.4	0.0	60.1	0.0	57.2
Incr Delay (d2), s/veh	13.5	0.3	0.0	37.6	74.8	88.2	8.3	0.7	0.0	7.3	0.0	69.7
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	0.1
%ile BackOfQ(50%),veh/ln	3.3	9.3	0.1	10.7	54.5	59.3	2.7	1.9	0.0	3.4	0.0	11.7
LnGrp Delay(d),s/veh	74.1	23.2	18.0	93.5	104.1	117.5	69.4	54.1	0.0	67.4	0.0	127.1
LnGrp LOS	E	C	B	F	F	F	E	D		E		F
Approach Vol, veh/h		862			2486			125			308	
Approach Delay, s/veh		28.0			109.4			62.6			109.6	
Approach LOS		C			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	65.8	10.4	20.0	11.2	75.5	12.2	18.2
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	17.0	* 63	17.0	15.2	10.0	* 70	17.0	* 16
Max Q Clear Time (g_c+I1), s	17.6	20.8	6.9	18.0	7.6	73.5	8.4	5.6
Green Ext Time (p_c), s	0.0	39.6	0.1	0.0	0.0	0.0	0.1	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	89.3
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	164	357	317	34	400	853	818	150	111	450	746
Average Queue (ft)	68	199	157	5	321	803	799	64	41	137	313
95th Queue (ft)	131	297	256	23	491	823	810	127	92	357	578
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)						35	38				1
Queuing Penalty (veh)						0	0				0
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			27	0	16	38					18
Queuing Penalty (veh)			3	0	165	85					16

Intersection: 2: 135th Ave & Site Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 270

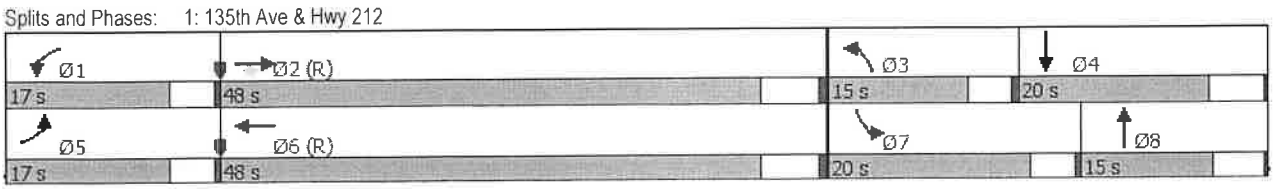
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	911	33	172	986	81	76	73	254	93	84	114
Future Volume (vph)	99	911	33	172	986	81	76	73	254	93	84	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.99			0.99	
Frt			0.850		0.989			0.883			0.914	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3453	0	1805	1633	0	1805	1716	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3453	0	1805	1633	0	1805	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		11			141			59	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	102	939	34	177	1016	84	78	75	262	96	87	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	939	34	177	1100	0	78	337	0	96	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	35.4	35.4	8.0	29.4		8.0	10.5		8.0	10.8	
Total Split (s)	17.0	48.0	48.0	17.0	48.0		15.0	15.0		20.0	20.0	
Total Split (%)	17.0%	48.0%	48.0%	17.0%	48.0%		15.0%	15.0%		20.0%	20.0%	
Maximum Green (s)	13.0	42.6	42.6	13.0	42.6		11.0	10.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-1.4	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		10.0	10.0		7.0							
Flash Dont Walk (s)		20.0	20.0		17.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	9.8	45.4	45.4	12.0	49.6		8.7	18.9		10.0	20.7	
Actuated g/C Ratio	0.10	0.45	0.45	0.12	0.50		0.09	0.19		0.10	0.21	
v/c Ratio	0.55	0.58	0.04	0.77	0.64		0.50	0.80		0.53	0.51	
Control Delay	53.3	22.4	0.1	64.6	21.8		54.2	39.5		53.0	31.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.3	22.4	0.1	64.6	21.8		54.2	39.5		53.0	31.3	
LOS	D	C	A	E	C		D	D		D	C	
Approach Delay		24.6			27.8			42.3			38.2	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 29.6 — Intersection LOS: C
Intersection Capacity Utilization 73.4% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	403	0	0	289
Future Volume (vph)	0	0	403	0	0	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	1863	0	1900	1881
Flt Permitted						
Satd. Flow (perm)	1900	0	1863	0	1900	1881
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	0	0	415	0	0	298
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	415	0	0	298
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 24.5% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	99	911	33	172	986	81	76	73	254	93	84	114
Future Volume (vph)	99	911	33	172	986	81	76	73	254	93	84	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3452		1805	1635		1805	1716	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3452		1805	1635		1805	1716	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	102	939	34	177	1016	84	78	75	262	96	87	118
RTOR Reduction (vph)	0	0	19	0	6	0	0	114	0	0	47	0
Lane Group Flow (vph)	102	939	15	177	1094	0	78	223	0	96	158	0
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	8.6	42.9	42.9	12.0	46.3		7.6	18.4		8.8	19.3	
Effective Green, g (s)	8.6	44.6	44.6	12.0	48.0		7.6	18.9		8.8	20.7	
Actuated g/C Ratio	0.09	0.45	0.45	0.12	0.48		0.08	0.19		0.09	0.21	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Lane Grp Cap (vph)	165	1594	720	231	1656		137	309		158	355	
v/s Ratio Prot	0.05	0.26		c0.09	c0.32		0.04	c0.14		c0.05	0.09	
v/s Ratio Perm			0.01									
v/c Ratio	0.62	0.59	0.02	0.77	0.66		0.57	0.72		0.61	0.45	
Uniform Delay, d1	44.1	20.8	15.5	42.6	19.8		44.6	38.1		43.9	34.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.4	1.6	0.1	13.2	2.1		3.9	8.0		5.1	1.4	
Delay (s)	49.5	22.4	15.5	55.8	21.9		48.5	46.1		49.0	36.0	
Level of Service	D	C	B	E	C		D	D		D	D	
Approach Delay (s)		24.8			26.6			46.5			40.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	911	33	172	986	81	76	73	254	93	84	114
Future Volume (veh/h)	99	911	33	172	986	81	76	73	254	93	84	114
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1881	1900	1976	1849	1900	1900	1871	1900	1900	1892	1900
Adj Flow Rate, veh/h	102	939	13	177	1016	79	78	75	0	96	87	62
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	132	1979	894	211	1968	153	101	198	0	124	130	93
Arrive On Green	0.07	0.55	0.55	0.11	0.60	0.58	0.06	0.11	0.00	0.07	0.13	0.11
Sat Flow, veh/h	1882	3574	1615	1882	3303	257	1810	1871	0	1810	1023	729
Grp Volume(v), veh/h	102	939	13	177	540	555	78	75	0	96	0	149
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1803	1810	1871	0	1810	0	1751
Q Serve(g_s), s	5.3	15.9	0.4	9.2	17.9	18.0	4.3	3.7	0.0	5.2	0.0	8.1
Cycle Q Clear(g_c), s	5.3	15.9	0.4	9.2	17.9	18.0	4.3	3.7	0.0	5.2	0.0	8.1
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.00	1.00		0.42
Lane Grp Cap(c), veh/h	132	1979	894	211	1047	1075	101	198	0	124	0	223
V/C Ratio(X)	0.77	0.47	0.01	0.84	0.52	0.52	0.77	0.38	0.00	0.77	0.00	0.67
Avail Cap(c_a), veh/h	245	1979	894	245	1047	1075	199	206	0	290	0	291
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.7	13.5	10.0	43.5	11.8	11.9	46.6	41.7	0.0	45.8	0.0	41.9
Incr Delay (d2), s/veh	5.9	0.8	0.0	18.3	1.8	1.8	7.4	1.2	0.0	6.2	0.0	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	8.0	0.2	5.8	9.2	9.5	2.3	2.0	0.0	2.8	0.0	4.3
LnGrp Delay(d),s/veh	51.6	14.3	10.1	61.8	13.6	13.7	53.9	42.9	0.0	52.0	0.0	47.6
LnGrp LOS	D	B	B	E	B	B	D	D		D		D
Approach Vol, veh/h		1054			1272			153			245	
Approach Delay, s/veh		17.9			20.3			48.5			49.3	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.2	59.1	9.6	16.1	11.0	63.3	10.8	14.9
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	13.0	* 43	11.0	15.2	13.0	* 43	16.0	* 11
Max Q Clear Time (g_c+I1), s	11.2	17.9	6.3	10.1	7.3	20.0	7.2	5.7
Green Ext Time (p_c), s	0.1	24.2	0.1	1.2	0.1	22.1	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	130	316	300	150	248	342	336	150	182	178	296
Average Queue (ft)	60	203	152	16	135	202	181	50	53	76	100
95th Queue (ft)	118	292	266	78	206	305	313	115	122	141	195
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			24	0	3	6					
Queuing Penalty (veh)			8	0	16	11					

Intersection: 2: 135th Ave & Site Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 35

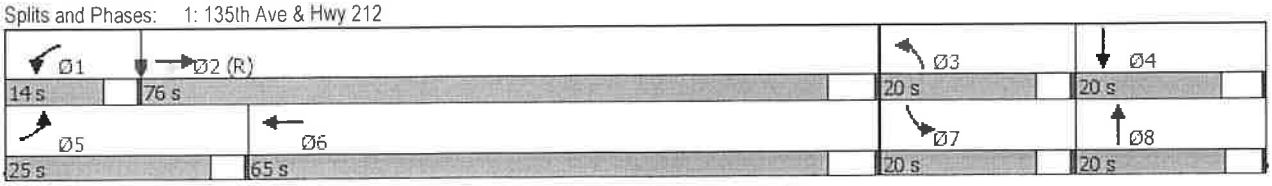
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	1739	12	132	1189	125	42	132	463	215	87	111
Future Volume (vph)	175	1739	12	132	1189	125	42	132	463	215	87	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.986			0.883			0.916	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3499	0	1805	1650	0	1805	1740	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3499	0	1805	1650	0	1805	1740	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		12			111			40	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	177	1757	12	133	1201	126	42	133	468	217	88	112
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	1757	12	133	1327	0	42	601	0	217	200	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	25.0	76.0	76.0	14.0	65.0		20.0	20.0		20.0	20.0	
Total Split (%)	19.2%	58.5%	58.5%	10.8%	50.0%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	21.0	70.6	70.6	10.0	59.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	16.7	72.3	72.3	10.0	65.6		7.8	16.0		16.0	26.0	
Actuated g/C Ratio	0.13	0.56	0.56	0.08	0.50		0.06	0.12		0.12	0.20	
v/c Ratio	0.72	0.88	0.01	0.90	0.75		0.39	2.00		0.98	0.53	
Control Delay	70.1	31.9	0.0	110.3	29.4		68.6	487.1		111.5	44.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.1	31.9	0.0	110.3	29.4		68.6	487.1		111.5	44.1	
LOS	E	C	A	F	C		E	F		F	D	
Approach Delay		35.2			36.8			459.8			79.2	
Approach LOS		D			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 14 (11%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.00
Intersection Signal Delay: 100.9 — Intersection LOS: F
Intersection Capacity Utilization 116.4% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	637	0	0	231
Future Volume (vph)	0	0	637	0	0	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	1900	0	1900	1900
Flt Permitted						
Satd. Flow (perm)	1900	0	1900	0	1900	1900
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	643	0	0	233
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	643	0	0	233
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 36.9% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	1739	12	132	1189	125	42	132	463	215	87	111
Future Volume (vph)	175	1739	12	132	1189	125	42	132	463	215	87	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3498		1805	1650		1805	1740	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3498		1805	1650		1805	1740	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	177	1757	12	133	1201	126	42	133	468	217	88	112
RTOR Reduction (vph)	0	0	5	0	6	0	0	97	0	0	32	0
Lane Group Flow (vph)	177	1757	7	133	1321	0	42	504	0	217	168	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	16.7	69.8	69.8	10.0	63.1		6.8	16.3		16.0	25.2	
Effective Green, g (s)	16.7	71.5	71.5	10.0	64.8		6.8	16.8		16.0	26.0	
Actuated g/C Ratio	0.13	0.55	0.55	0.08	0.50		0.05	0.13		0.12	0.20	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	247	1965	866	148	1743		94	213		222	348	
v/s Ratio Prot	0.09	c0.49		c0.07	0.38		0.02	c0.31		c0.12	0.10	
v/s Ratio Perm			0.00									
v/c Ratio	0.72	0.89	0.01	0.90	0.76		0.45	2.37		0.98	0.48	
Uniform Delay, d1	54.4	25.9	13.2	59.5	26.3		59.8	56.6		56.8	46.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.5	6.8	0.0	44.5	2.2		2.0	629.8		53.3	1.1	
Delay (s)	63.9	32.7	13.2	104.0	28.5		61.7	686.4		110.2	47.1	
Level of Service	E	C	B	F	C		E	F		F	D	
Approach Delay (s)		35.4			35.3			645.6			79.9	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	127.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	116.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	1739	12	132	1189	125	42	132	463	215	87	111
Future Volume (veh/h)	175	1739	12	132	1189	125	42	132	463	215	87	111
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1883	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	177	1757	6	133	1201	120	42	133	0	217	88	79
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	208	2091	943	145	1808	180	55	175	0	223	173	155
Arrive On Green	0.11	0.58	0.58	0.08	0.55	0.54	0.03	0.09	0.00	0.12	0.19	0.18
Sat Flow, veh/h	1882	3574	1612	1882	3279	327	1810	1900	0	1810	924	830
Grp Volume(v), veh/h	177	1757	6	133	654	667	42	133	0	217	0	167
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1789	1817	1810	1900	0	1810	0	1754
Q Serve(g_s), s	12.0	52.2	0.2	9.1	33.6	33.9	3.0	8.9	0.0	15.5	0.0	11.1
Cycle Q Clear(g_c), s	12.0	52.2	0.2	9.1	33.6	33.9	3.0	8.9	0.0	15.5	0.0	11.1
Prop In Lane	1.00		1.00	1.00		0.18	1.00		0.00	1.00		0.47
Lane Grp Cap(c), veh/h	208	2091	943	145	986	1002	55	175	0	223	0	328
V/C Ratio(X)	0.85	0.84	0.01	0.92	0.66	0.67	0.77	0.76	0.00	0.97	0.00	0.51
Avail Cap(c_a), veh/h	304	2091	943	145	986	1002	223	234	0	223	0	328
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.8	22.0	11.2	59.6	20.6	20.8	62.6	57.6	0.0	56.8	0.0	47.7
Incr Delay (d2), s/veh	14.2	4.3	0.0	50.6	2.0	2.0	12.7	9.7	0.0	52.7	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	26.9	0.1	6.8	17.1	17.5	1.7	5.1	0.0	11.0	0.0	5.5
LnGrp Delay(d),s/veh	70.9	26.3	11.3	110.2	22.7	22.8	75.3	67.4	0.0	109.5	0.0	49.0
LnGrp LOS	E	C	B	F	C	C	E	E		F		D
Approach Vol, veh/h		1940			1454			175			384	
Approach Delay, s/veh		30.3			30.8			69.3			83.2	
Approach LOS		C			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	79.7	7.9	28.3	18.4	75.4	20.0	16.3
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	10.0	* 71	16.0	15.2	21.0	* 60	16.0	* 16
Max Q Clear Time (g_c+I1), s	11.1	54.2	5.0	13.1	14.0	35.9	17.5	10.9
Green Ext Time (p_c), s	0.0	16.4	0.0	0.6	0.4	23.6	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	37.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	792	792	34	399	522	462	400	434	449	746
Average Queue (ft)	315	670	624	2	153	337	299	46	405	348	335
95th Queue (ft)	635	884	824	16	325	463	422	206	482	523	729
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		7	2					0	44		1
Queuing Penalty (veh)		0	0					0	282		0
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)		30	40	0	0	24			60	42	0
Queuing Penalty (veh)		53	5	0	1	32			25	82	0

Intersection: 2: 135th Ave & Site Driveway

Movement	NB
Directions Served	TR
Maximum Queue (ft)	547
Average Queue (ft)	384
95th Queue (ft)	777
Link Distance (ft)	528
Upstream Blk Time (%)	52
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 480

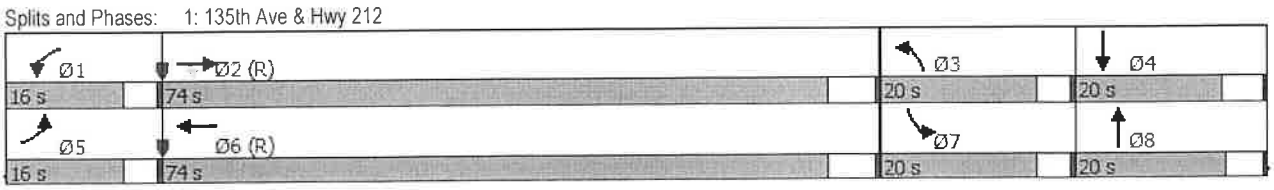
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1671	12	138	1097	63	70	127	443	180	97	92
Future Volume (vph)	190	1671	12	138	1097	63	70	127	443	180	97	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.992			0.883			0.927	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3522	0	1805	1650	0	1805	1761	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3522	0	1805	1650	0	1805	1761	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		7			110			30	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	200	1759	13	145	1155	66	74	134	466	189	102	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	200	1759	13	145	1221	0	74	600	0	189	199	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	16.0	74.0	74.0	16.0	74.0		20.0	20.0		20.0	20.0	
Total Split (%)	12.3%	56.9%	56.9%	12.3%	56.9%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	12.0	68.6	68.6	12.0	68.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	12.0	70.7	70.7	11.6	70.3		10.0	16.6		15.4	24.0	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.54		0.08	0.13		0.12	0.18	
v/c Ratio	1.13	0.91	0.01	0.85	0.64		0.54	1.96		0.88	0.57	
Control Delay	158.9	34.8	0.0	95.8	22.8		71.1	469.0		93.8	49.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	158.9	34.8	0.0	95.8	22.8		71.1	469.0		93.8	49.8	
LOS	F	C	A	F	C		E	F		F	D	
Approach Delay		47.2			30.5			425.3			71.2	
Approach LOS		D			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.96
Intersection Signal Delay: 102.0 — Intersection LOS: F
Intersection Capacity Utilization 111.4% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	640	0	0	247
Future Volume (vph)	0	0	640	0	0	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	0	1863	0	1863	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	674	0	0	260
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	674	0	0	260
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 37.0%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1671	12	138	1097	63	70	127	443	180	97	92
Future Volume (vph)	190	1671	12	138	1097	63	70	127	443	180	97	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3522		1805	1652		1805	1761	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3522		1805	1652		1805	1761	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	200	1759	13	145	1155	66	74	134	466	189	102	97
RTOR Reduction (vph)	0	0	6	0	3	0	0	95	0	0	24	0
Lane Group Flow (vph)	200	1759	7	145	1218	0	74	505	0	189	175	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	12.0	68.2	68.2	11.6	67.8		8.8	16.9		15.4	23.2	
Effective Green, g (s)	12.0	69.9	69.9	11.6	69.5		8.8	17.4		15.4	24.0	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.53		0.07	0.13		0.12	0.18	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	177	1921	847	171	1882		122	221		213	325	
v/s Ratio Prot	c0.10	c0.49		0.08	0.35		0.04	c0.31		c0.10	0.10	
v/s Ratio Perm			0.00									
v/c Ratio	1.13	0.92	0.01	0.85	0.65		0.61	2.28		0.89	0.54	
Uniform Delay, d1	59.0	27.4	14.0	58.3	21.5		58.9	56.3		56.4	48.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	106.9	8.3	0.0	29.7	1.7		6.5	591.9		32.3	1.7	
Delay (s)	165.9	35.7	14.0	88.0	23.3		65.4	648.2		88.8	49.7	
Level of Service	F	D	B	F	C		E	F		F	D	
Approach Delay (s)		48.8			30.1			584.2			68.7	
Approach LOS		D			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	126.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	111.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	1671	12	138	1097	63	70	127	443	180	97	92
Future Volume (veh/h)	190	1671	12	138	1097	63	70	127	443	180	97	92
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1882	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	200	1759	7	145	1155	60	74	134	0	189	102	62
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	174	2056	927	171	1982	103	95	176	0	214	178	108
Arrive On Green	0.09	0.58	0.58	0.09	0.57	0.56	0.05	0.09	0.00	0.12	0.16	0.15
Sat Flow, veh/h	1882	3574	1612	1882	3455	179	1810	1900	0	1810	1108	673
Grp Volume(v), veh/h	200	1759	7	145	597	618	74	134	0	189	0	164
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1788	1846	1810	1900	0	1810	0	1781
Q Serve(g_s), s	12.0	53.5	0.2	9.9	27.8	27.9	5.3	9.0	0.0	13.4	0.0	11.1
Cycle Q Clear(g_c), s	12.0	53.5	0.2	9.9	27.8	27.9	5.3	9.0	0.0	13.4	0.0	11.1
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.00	1.00		0.38
Lane Grp Cap(c), veh/h	174	2056	927	171	1026	1059	95	176	0	214	0	286
V/C Ratio(X)	1.15	0.86	0.01	0.85	0.58	0.58	0.78	0.76	0.00	0.88	0.00	0.57
Avail Cap(c_a), veh/h	174	2056	927	174	1026	1059	223	234	0	223	0	286
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.0	23.1	11.8	58.2	17.7	17.8	60.8	57.6	0.0	56.4	0.0	50.6
Incr Delay (d2), s/veh	114.8	4.8	0.0	29.3	2.4	2.3	8.0	10.0	0.0	29.8	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	27.5	0.1	6.5	14.3	14.8	2.8	5.2	0.0	8.4	0.0	5.7
LnGrp Delay(d),s/veh	173.8	27.9	11.8	87.6	20.1	20.2	68.9	67.6	0.0	86.2	0.0	53.4
LnGrp LOS	F	C	B	F	C	C	E	E		F		D
Approach Vol, veh/h		1966			1360			208			353	
Approach Delay, s/veh		42.7			27.3			68.0			70.9	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.8	78.5	10.8	24.9	16.0	78.3	19.4	16.3
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	12.0	* 69	16.0	15.2	12.0	* 69	16.0	* 16
Max Q Clear Time (g_c+I1), s	11.9	55.5	7.3	13.1	14.0	29.9	15.4	11.0
Green Ext Time (p_c), s	0.0	13.1	0.1	0.6	0.0	38.6	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	41.2
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	836	792	150	181	443	408	400	437	389	392
Average Queue (ft)	419	618	573	7	100	262	231	182	425	172	149
95th Queue (ft)	625	891	894	54	170	369	328	462	434	304	288
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		26	4					0	53		
Queuing Penalty (veh)		0	0					0	347		
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)	39	12	39	0	0	15			70	2	0
Queuing Penalty (veh)	325	23	5	0	0	21			50	4	0

Intersection: 2: 135th Ave & Site Driveway

Movement	NB
Directions Served	TR
Maximum Queue (ft)	602
Average Queue (ft)	549
95th Queue (ft)	593
Link Distance (ft)	528
Upstream Blk Time (%)	68
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 775

Appendix E

Synchro & SimTraffic - 2020

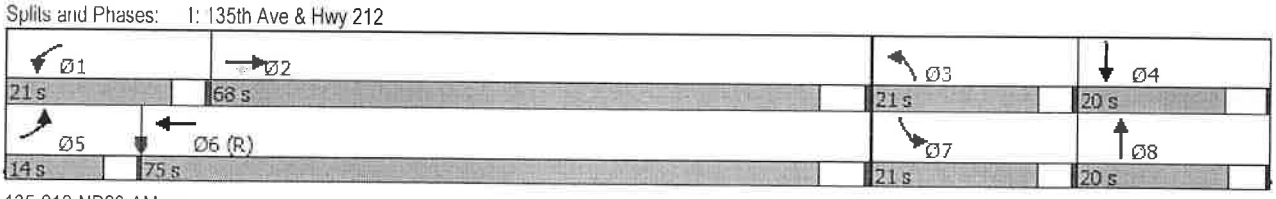
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	750	13	220	2035	170	67	55	180	87	91	170
Future Volume (vph)	80	750	13	220	2035	170	67	55	180	87	91	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt			0.850		0.988			0.885			0.902	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3443	0	1805	1656	0	1805	1708	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3443	0	1805	1656	0	1805	1708	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116		10			104			59	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	83	781	14	229	2120	177	70	57	188	91	95	177
Shared Lane Traffic (%)												
Lane Group Flow (vph)	83	781	14	229	2297	0	70	245	0	91	272	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	14.0	68.0	68.0	21.0	75.0		21.0	20.0		21.0	20.0	
Total Split (%)	10.8%	52.3%	52.3%	16.2%	57.7%		16.2%	15.4%		16.2%	15.4%	
Maximum Green (s)	10.0	62.6	62.6	17.0	69.6		17.0	15.5		17.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.4	-1.4	0.0	-1.4		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	21.0		3.0	5.0	
Recall Mode	None	Min	Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	9.0	66.4	66.4	16.8	74.2		9.7	19.7		11.2	23.1	
Actuated g/C Ratio	0.07	0.51	0.51	0.13	0.57		0.07	0.15		0.09	0.18	
v/c Ratio	0.63	0.43	0.02	0.93	1.17		0.52	0.72		0.59	0.77	
Control Delay	79.3	21.4	0.0	96.8	108.9		70.8	43.0		71.7	56.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	79.3	21.4	0.0	96.8	108.9		70.8	43.0		71.7	56.0	
LOS	E	C	A	F	F		E	D		E	E	
Approach Delay		26.5			107.8			49.2			59.9	
Approach LOS		C			F			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9.5 (7%), Referenced to phase 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 81.5 — Intersection LOS: F
Intersection Capacity Utilization 98.4% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	300	0	0	325
Future Volume (vph)	0	0	300	0	0	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	0	1863	0	1863	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	313	0	0	339
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	313	0	0	339
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.4%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	750	13	220	2035	170	67	55	180	87	91	170
Future Volume (vph)	80	750	13	220	2035	170	67	55	180	87	91	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3445		1805	1656		1805	1709	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3445		1805	1656		1805	1709	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	83	781	14	229	2120	177	70	57	188	91	95	177
RTOR Reduction (vph)	0	0	7	0	4	0	0	88	0	0	49	0
Lane Group Flow (vph)	83	781	7	229	2293	0	70	157	0	91	223	0
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	9.0	64.1	64.1	16.8	71.9		8.6	20.0		11.2	22.3	
Effective Green, g (s)	9.0	65.5	65.5	16.8	73.3		8.6	20.5		11.2	23.1	
Actuated g/C Ratio	0.07	0.50	0.50	0.13	0.56		0.07	0.16		0.09	0.18	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	133	1800	813	248	1942		119	261		155	303	
v/s Ratio Prot	0.04	0.22		c0.12	c0.67		0.04	0.10		c0.05	c0.13	
v/s Ratio Perm			0.00									
v/c Ratio	0.62	0.43	0.01	0.92	1.18		0.59	0.60		0.59	0.74	
Uniform Delay, d1	58.9	20.5	16.1	56.0	28.4		59.0	51.0		57.2	50.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	7.2	0.3	0.0	36.7	86.9		5.5	3.9		4.2	9.0	
Delay (s)	66.0	20.8	16.1	92.6	115.3		64.5	54.9		61.4	59.6	
Level of Service	E	C	B	F	F		E	D		E	E	
Approach Delay (s)		25.0			113.2			57.0			60.1	
Approach LOS		C			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	85.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	98.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	750	13	220	2035	170	67	55	180	87	91	170
Future Volume (veh/h)	80	750	13	220	2035	170	67	55	180	87	91	170
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1849	1900	1900	1871	1900	1900	1893	1900
Adj Flow Rate, veh/h	83	781	7	229	2120	173	70	57	0	91	95	126
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	106	1700	768	246	1809	145	91	201	0	115	91	121
Arrive On Green	0.06	0.48	0.48	0.13	0.55	0.54	0.05	0.11	0.00	0.06	0.12	0.12
Sat Flow, veh/h	1882	3574	1615	1882	3287	264	1810	1871	0	1810	739	981
Grp Volume(v), veh/h	83	781	7	229	1117	1176	70	57	0	91	0	221
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1795	1810	1871	0	1810	0	1720
Q Serve(g_s), s	5.7	19.1	0.3	15.7	71.5	71.5	5.0	3.6	0.0	6.4	0.0	16.0
Cycle Q Clear(g_c), s	5.7	19.1	0.3	15.7	71.5	71.5	5.0	3.6	0.0	6.4	0.0	16.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.00	1.00		0.57
Lane Grp Cap(c), veh/h	106	1700	768	246	966	988	91	201	0	115	0	212
V/C Ratio(X)	0.78	0.46	0.01	0.93	1.16	1.19	0.77	0.28	0.00	0.79	0.00	1.04
Avail Cap(c_a), veh/h	145	1760	795	246	966	988	237	230	0	237	0	212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.6	22.9	17.9	55.9	29.2	29.3	61.0	53.4	0.0	60.0	0.0	57.2
Incr Delay (d2), s/veh	14.0	0.3	0.0	38.6	82.0	95.9	8.3	0.8	0.0	7.3	0.0	73.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	9.4	0.1	10.8	56.4	61.4	2.7	1.9	0.0	3.5	0.0	11.9
LnGrp Delay(d),s/veh	74.6	23.2	18.0	94.5	111.2	125.3	69.3	54.2	0.0	67.3	0.0	131.0
LnGrp LOS	E	C	B	F	F	F	E	D		E		F
Approach Vol, veh/h		871			2522			127			312	
Approach Delay, s/veh		28.1			116.3			62.5			112.5	
Approach LOS		C			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	65.8	10.5	20.0	11.3	75.5	12.3	18.3
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	17.0	* 63	17.0	15.2	10.0	* 70	17.0	* 16
Max Q Clear Time (g_c+I1), s	17.7	21.1	7.0	18.0	7.7	73.5	8.4	5.6
Green Ext Time (p_c), s	0.0	39.4	0.1	0.0	0.0	0.0	0.1	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	94.1
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	196	292	279	146	400	842	831	120	186	131	368
Average Queue (ft)	70	199	163	8	338	788	791	63	44	68	205
95th Queue (ft)	143	285	255	54	510	882	867	119	115	119	310
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)						33	38				
Queuing Penalty (veh)						0	0				
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			28	0	18	39					0
Queuing Penalty (veh)			4	0	189	86					0

Intersection: 2: 135th Ave & Site Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 278

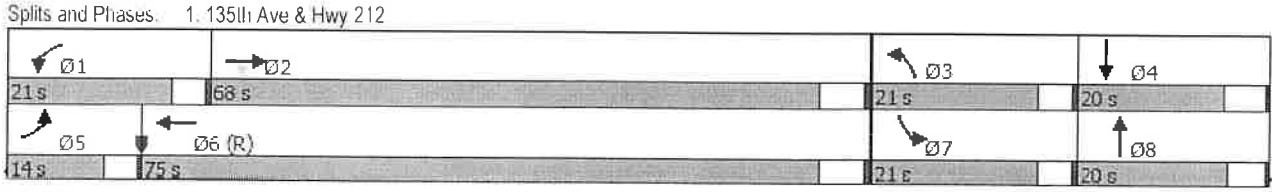
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	732	27	258	2003	167	102	63	198	86	100	167
Future Volume (vph)	78	732	27	258	2003	167	102	63	198	86	100	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt			0.850		0.988			0.886			0.906	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3443	0	1805	1658	0	1805	1715	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3443	0	1805	1658	0	1805	1715	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116		10			99			53	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	81	763	28	269	2086	174	106	66	206	90	104	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	763	28	269	2260	0	106	272	0	90	278	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	14.0	68.0	68.0	21.0	75.0		21.0	20.0		21.0	20.0	
Total Split (%)	10.8%	52.3%	52.3%	16.2%	57.7%		16.2%	15.4%		16.2%	15.4%	
Maximum Green (s)	10.0	62.6	62.6	17.0	69.6		17.0	15.5		17.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.4	-1.4	0.0	-1.4		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	21.0		3.0	5.0	
Recall Mode	None	Min	Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	8.9	64.0	64.0	17.0	72.1		12.3	21.9		11.1	20.7	
Actuated g/C Ratio	0.07	0.49	0.49	0.13	0.55		0.09	0.17		0.09	0.16	
v/c Ratio	0.61	0.43	0.03	1.07	1.18		0.62	0.75		0.58	0.87	
Control Delay	78.4	22.3	0.1	129.8	115.9		72.0	47.1		71.6	70.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	78.4	22.3	0.1	129.8	115.9		72.0	47.1		71.6	70.5	
LOS	E	C	A	F	F		E	D		E	E	
Approach Delay		26.8			117.3			54.1			70.8	
Approach LOS		C			F			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9.5 (7%), Referenced to phase 6:WBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 88.4 — Intersection LOS: F
Intersection Capacity Utilization 99.5% — ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	7	61	295	7	66	320
Future Volume (vph)	7	61	295	7	66	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.997			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1627	0	1857	0	1770	1863
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1627	0	1857	0	1770	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	7	64	307	7	69	333
Shared Lane Traffic (%)						
Lane Group Flow (vph)	71	0	314	0	69	333
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 33.8% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	732	27	258	2003	167	102	63	198	86	100	167
Future Volume (vph)	78	732	27	258	2003	167	102	63	198	86	100	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3445		1805	1659		1805	1715	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3445		1805	1659		1805	1715	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	81	762	28	269	2086	174	106	66	206	90	104	174
RTOR Reduction (vph)	0	0	14	0	4	0	0	82	0	0	45	0
Lane Group Flow (vph)	81	763	14	269	2256	0	106	190	0	90	233	0
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	8.9	62.6	62.6	17.0	70.7		12.3	21.4		11.1	19.9	
Effective Green, g (s)	8.9	64.0	64.0	17.0	72.1		12.3	21.9		11.1	20.7	
Actuated g/C Ratio	0.07	0.49	0.49	0.13	0.55		0.09	0.17		0.09	0.16	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	131	1759	795	251	1910		170	279		154	273	
v/s Ratio Prot	0.04	0.21		c0.14	c0.65		c0.06	0.11		0.05	c0.14	
v/s Ratio Perm			0.01									
v/c Ratio	0.62	0.43	0.02	1.07	1.18		0.62	0.68		0.58	0.86	
Uniform Delay, d1	58.9	21.3	16.9	56.5	29.0		56.6	50.8		57.2	53.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.7	0.3	0.0	77.1	87.2		5.6	6.5		4.2	22.1	
Delay (s)	65.6	21.6	16.9	133.6	116.1		62.3	57.2		61.4	75.3	
Level of Service	E	C	B	F	F		E	E		E	E	
Approach Delay (s)		25.5			118.0			58.6			71.9	
Approach LOS		C			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	89.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	99.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	78	732	27	258	2003	167	102	63	198	86	100	167
Future Volume (veh/h)	78	732	27	258	2003	167	102	63	198	86	100	167
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1849	1900	1900	1872	1900	1900	1893	1900
Adj Flow Rate, veh/h	81	762	21	269	2086	170	106	66	0	90	104	123
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	104	1697	767	246	1810	145	131	244	0	114	97	115
Arrive On Green	0.06	0.47	0.47	0.13	0.55	0.54	0.07	0.13	0.00	0.06	0.12	0.12
Sat Flow, veh/h	1882	3574	1615	1882	3288	264	1810	1872	0	1810	792	936
Grp Volume(v), veh/h	81	762	21	269	1099	1157	106	66	0	90	0	227
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1795	1810	1872	0	1810	0	1728
Q Serve(g_s), s	5.5	18.5	0.9	17.0	71.6	71.6	7.5	4.1	0.0	6.4	0.0	16.0
Cycle Q Clear(g_c), s	5.5	18.5	0.9	17.0	71.6	71.6	7.5	4.1	0.0	6.4	0.0	16.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.00	1.00		0.54
Lane Grp Cap(c), veh/h	104	1697	767	246	967	988	131	244	0	114	0	213
V/C Ratio(X)	0.78	0.45	0.03	1.09	1.14	1.17	0.81	0.27	0.00	0.79	0.00	1.07
Avail Cap(c_a), veh/h	145	1760	795	246	967	988	237	244	0	237	0	213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.7	22.8	18.2	56.5	29.2	29.3	59.4	50.9	0.0	60.1	0.0	57.2
Incr Delay (d2), s/veh	13.0	0.3	0.0	84.5	74.3	87.7	7.0	0.6	0.0	7.3	0.0	80.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	9.2	0.4	14.6	54.3	59.2	4.0	2.2	0.0	3.4	0.0	12.4
LnGrp Delay(d),s/veh	73.6	23.1	18.2	141.0	103.5	117.1	66.4	51.5	0.0	67.4	0.0	138.0
LnGrp LOS	E	C	B	F	F	F	E	D		E		F
Approach Vol, veh/h		864			2525			172			317	
Approach Delay, s/veh		27.7			113.7			60.7			117.9	
Approach LOS		C			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	65.7	13.4	20.0	11.2	75.6	12.2	21.3
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	17.0	* 63	17.0	15.2	10.0	* 70	17.0	* 16
Max Q Clear Time (g_c+I1), s	19.0	20.5	9.5	18.0	7.5	73.6	8.4	6.1
Green Ext Time (p_c), s	0.0	39.8	0.1	0.0	0.0	0.0	0.1	2.4

Intersection Summary	
HCM 2010 Ctrl Delay	92.6
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	7	61	295	7	66	320
Future Vol, veh/h	7	61	295	7	66	320
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	64	307	7	69	333

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	782	311	0	0	314	0
Stage 1	311	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	363	729	-	-	1246	-
Stage 1	743	-	-	-	-	-
Stage 2	628	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	343	729	-	-	1246	-
Mov Cap-2 Maneuver	454	-	-	-	-	-
Stage 1	743	-	-	-	-	-
Stage 2	593	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.9	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	686	1246	-
HCM Lane V/C Ratio	-	-	0.103	0.055	-
HCM Control Delay (s)	-	-	10.9	8.1	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	-

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	172	276	323	150	400	842	842	172	250	149	405
Average Queue (ft)	67	184	144	22	310	800	799	81	51	78	204
95th Queue (ft)	136	254	249	68	489	817	816	149	137	143	336
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)						36	38				
Queuing Penalty (veh)						0	0				
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			27	0	22	39					2
Queuing Penalty (veh)			7	0	225	102					2

Intersection: 2: 135th Ave & Site Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	65	35
Average Queue (ft)	34	11
95th Queue (ft)	59	38
Link Distance (ft)	194	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		25
Storage Blk Time (%)		1
Queuing Penalty (veh)		3

Network Summary

Network wide Queuing Penalty: 339

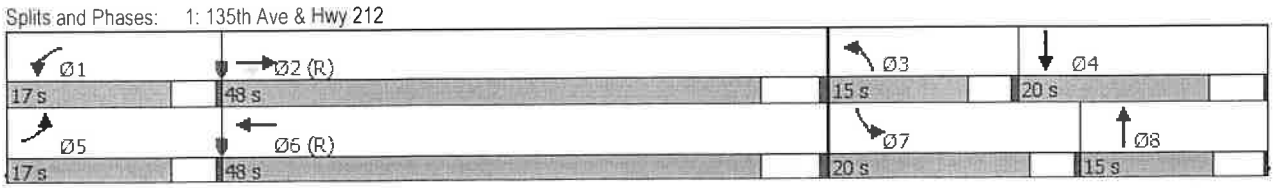
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	925	33	175	1000	82	77	74	260	95	85	115
Future Volume (vph)	100	925	33	175	1000	82	77	74	260	95	85	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.99			0.99	
Frt			0.850		0.989			0.883			0.914	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3453	0	1805	1633	0	1805	1716	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3453	0	1805	1633	0	1805	1716	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		11			143			58	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	103	954	34	180	1031	85	79	76	268	98	88	119
Shared Lane Traffic (%)												
Lane Group Flow (vph)	103	954	34	180	1116	0	79	344	0	98	207	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	35.4	35.4	8.0	29.4		8.0	10.5		8.0	10.8	
Total Split (s)	17.0	48.0	48.0	17.0	48.0		15.0	15.0		20.0	20.0	
Total Split (%)	17.0%	48.0%	48.0%	17.0%	48.0%		15.0%	15.0%		20.0%	20.0%	
Maximum Green (s)	13.0	42.6	42.6	13.0	42.6		11.0	10.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-1.4	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		10.0	10.0		7.0							
Flash Dont Walk (s)		20.0	20.0		17.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	9.8	45.1	45.1	12.1	49.4		8.7	19.0		10.1	20.9	
Actuated g/C Ratio	0.10	0.45	0.45	0.12	0.49		0.09	0.19		0.10	0.21	
v/c Ratio	0.55	0.59	0.04	0.78	0.65		0.51	0.81		0.54	0.51	
Control Delay	53.4	22.7	0.1	65.3	22.1		54.5	40.5		53.1	31.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.4	22.7	0.1	65.3	22.1		54.5	40.5		53.1	31.6	
LOS	D	C	A	E	C		D	D		D	C	
Approach Delay		24.9			28.1			43.1			38.5	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 30.0 — Intersection LOS: C
Intersection Capacity Utilization 74.4% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	410	0	0	295
Future Volume (vph)	0	0	410	0	0	295
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	1863	0	1900	1881
Flt Permitted						
Satd. Flow (perm)	1900	0	1863	0	1900	1881
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	0	0	423	0	0	304
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	423	0	0	304
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.9%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	925	33	175	1000	82	77	74	260	95	85	115
Future Volume (vph)	100	925	33	175	1000	82	77	74	260	95	85	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3452		1805	1635		1805	1716	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3452		1805	1635		1805	1716	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	103	954	34	180	1031	85	79	76	268	98	88	119
RTOR Reduction (vph)	0	0	19	0	6	0	0	116	0	0	46	0
Lane Group Flow (vph)	103	954	15	180	1110	0	79	228	0	98	161	0
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	8.6	42.6	42.6	12.1	46.1		7.6	18.5		8.9	19.5	
Effective Green, g (s)	8.6	44.3	44.3	12.1	47.8		7.6	19.0		8.9	20.9	
Actuated g/C Ratio	0.09	0.44	0.44	0.12	0.48		0.08	0.19		0.09	0.21	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Lane Grp Cap (vph)	165	1583	715	232	1650		137	310		160	358	
v/s Ratio Prot	0.05	0.27		c0.09	c0.32		0.04	c0.14		c0.05	0.09	
v/s Ratio Perm			0.01									
v/c Ratio	0.62	0.60	0.02	0.78	0.67		0.58	0.74		0.61	0.45	
Uniform Delay, d1	44.1	21.2	15.7	42.6	20.1		44.6	38.1		43.9	34.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.8	1.7	0.1	14.1	2.2		4.3	8.8		5.4	1.4	
Delay (s)	50.0	22.9	15.7	56.8	22.3		48.9	46.9		49.3	36.0	
Level of Service	D	C	B	E	C		D	D		D	D	
Approach Delay (s)		25.2			27.1			47.3			40.2	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	30.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	925	33	175	1000	82	77	74	260	95	85	115
Future Volume (veh/h)	100	925	33	175	1000	82	77	74	260	95	85	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1881	1900	1976	1849	1900	1900	1871	1900	1900	1892	1900
Adj Flow Rate, veh/h	103	954	13	180	1031	80	79	76	0	98	88	63
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	133	1967	889	214	1961	152	102	199	0	126	131	94
Arrive On Green	0.07	0.55	0.55	0.11	0.59	0.58	0.06	0.11	0.00	0.07	0.13	0.11
Sat Flow, veh/h	1882	3574	1615	1882	3304	256	1810	1871	0	1810	1020	731
Grp Volume(v), veh/h	103	954	13	180	548	563	79	76	0	98	0	151
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1804	1810	1871	0	1810	0	1751
Q Serve(g_s), s	5.4	16.4	0.4	9.4	18.4	18.5	4.3	3.8	0.0	5.3	0.0	8.2
Cycle Q Clear(g_c), s	5.4	16.4	0.4	9.4	18.4	18.5	4.3	3.8	0.0	5.3	0.0	8.2
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.00	1.00		0.42
Lane Grp Cap(c), veh/h	133	1967	889	214	1042	1070	102	199	0	126	0	225
V/C Ratio(X)	0.78	0.49	0.01	0.84	0.53	0.53	0.77	0.38	0.00	0.78	0.00	0.67
Avail Cap(c_a), veh/h	245	1967	889	245	1042	1070	199	206	0	290	0	291
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.7	13.8	10.2	43.4	12.0	12.1	46.5	41.6	0.0	45.7	0.0	41.9
Incr Delay (d2), s/veh	5.8	0.9	0.0	19.0	1.9	1.8	7.3	1.2	0.0	6.2	0.0	5.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	8.3	0.2	6.0	9.4	9.6	2.4	2.0	0.0	2.9	0.0	4.4
LnGrp Delay(d),s/veh	51.5	14.7	10.2	62.4	13.9	13.9	53.8	42.9	0.0	51.9	0.0	47.7
LnGrp LOS	D	B	B	E	B	B	D	D		D		D
Approach Vol, veh/h		1070			1291			155			249	
Approach Delay, s/veh		18.1			20.7			48.4			49.3	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.4	58.7	9.7	16.2	11.1	63.1	11.0	14.9
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	13.0	* 43	11.0	15.2	13.0	* 43	16.0	* 11
Max Q Clear Time (g_c+I1), s	11.4	18.4	6.3	10.2	7.4	20.5	7.3	5.8
Green Ext Time (p_c), s	0.1	23.8	0.1	1.2	0.1	21.7	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	23.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	143	339	242	150	341	351	289	138	119	152	242
Average Queue (ft)	79	203	158	19	126	231	194	60	42	70	105
95th Queue (ft)	130	290	247	82	227	328	276	120	85	117	186
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			29	0	4	9					
Queuing Penalty (veh)			10	1	19	17					

Intersection: 2: 135th Ave & Site Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 46

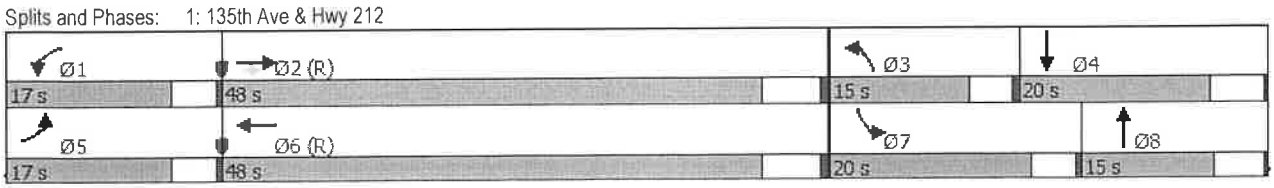
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	907	54	203	980	80	101	85	289	94	97	112
Future Volume (vph)	98	907	54	203	980	80	101	85	289	94	97	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.99			0.99	
Frt			0.850		0.989			0.884			0.920	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3453	0	1805	1635	0	1805	1727	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3453	0	1805	1635	0	1805	1727	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		11			137			50	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	101	935	56	209	1010	82	104	88	298	97	100	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	935	56	209	1092	0	104	386	0	97	215	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	35.4	35.4	8.0	29.4		8.0	10.5		8.0	10.8	
Total Split (s)	17.0	48.0	48.0	17.0	48.0		15.0	15.0		20.0	20.0	
Total Split (%)	17.0%	48.0%	48.0%	17.0%	48.0%		15.0%	15.0%		20.0%	20.0%	
Maximum Green (s)	13.0	42.6	42.6	13.0	42.6		11.0	10.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-1.4	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		10.0	10.0		7.0							
Flash Dont Walk (s)		20.0	20.0		17.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	9.7	41.7	41.7	12.6	46.5		9.5	22.0		10.0	23.2	
Actuated g/C Ratio	0.10	0.42	0.42	0.13	0.46		0.10	0.22		0.10	0.23	
v/c Ratio	0.54	0.63	0.07	0.86	0.68		0.61	0.83		0.54	0.49	
Control Delay	53.2	24.9	0.2	75.0	23.6		58.6	43.4		53.1	32.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.2	24.9	0.2	75.0	23.6		58.6	43.4		53.1	32.7	
LOS	D	C	A	E	C		E	D		D	C	
Approach Delay		26.2			31.8			46.7			39.1	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 32.9 — Intersection LOS: C
Intersection Capacity Utilization 77.2% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	64	402	12	67	289
Future Volume (vph)	9	64	402	12	67	289
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.881		0.996			
Flt Protected	0.994				0.950	
Satd. Flow (prot)	1664	0	1856	0	1805	1881
Flt Permitted	0.994				0.950	
Satd. Flow (perm)	1664	0	1856	0	1805	1881
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	9	66	414	12	69	298
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	0	426	0	69	298
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 40.0% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	907	54	203	980	80	101	85	289	94	97	112
Future Volume (vph)	98	907	54	203	980	80	101	85	289	94	97	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3452		1805	1637		1805	1727	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3452		1805	1637		1805	1727	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	101	935	56	209	1010	82	104	88	298	97	100	115
RTOR Reduction (vph)	0	0	33	0	6	0	0	107	0	0	38	0
Lane Group Flow (vph)	101	935	23	209	1086	0	104	279	0	97	177	0
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	8.5	39.2	39.2	12.6	43.3		8.2	21.5		8.8	21.8	
Effective Green, g (s)	8.5	40.9	40.9	12.6	45.0		8.2	22.0		8.8	23.2	
Actuated g/C Ratio	0.08	0.41	0.41	0.13	0.45		0.08	0.22		0.09	0.23	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Lane Grp Cap (vph)	163	1461	660	242	1553		148	360		158	400	
v/s Ratio Prot	0.05	0.26		c0.11	c0.31		c0.06	c0.17		0.05	0.10	
v/s Ratio Perm			0.01									
v/c Ratio	0.62	0.64	0.03	0.86	0.70		0.70	0.78		0.61	0.44	
Uniform Delay, d1	44.2	23.7	17.7	42.9	22.1		44.7	36.7		44.0	32.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.5	2.2	0.1	25.3	2.6		12.5	10.0		5.5	1.2	
Delay (s)	49.7	25.8	17.8	68.2	24.7		57.2	46.7		49.5	34.1	
Level of Service	D	C	B	E	C		E	D		D	C	
Approach Delay (s)		27.6			31.7			48.9			38.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	98	907	54	203	980	80	101	85	289	94	97	112
Future Volume (veh/h)	98	907	54	203	980	80	101	85	289	94	97	112
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1881	1900	1976	1849	1900	1900	1871	1900	1900	1891	1900
Adj Flow Rate, veh/h	101	935	35	209	1010	77	104	88	0	97	100	59
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	130	1856	839	242	1914	146	132	230	0	125	142	84
Arrive On Green	0.07	0.52	0.52	0.13	0.58	0.56	0.07	0.12	0.00	0.07	0.13	0.11
Sat Flow, veh/h	1882	3574	1615	1882	3308	252	1810	1871	0	1810	1110	655
Grp Volume(v), veh/h	101	935	35	209	536	551	104	88	0	97	0	159
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1804	1810	1871	0	1810	0	1765
Q Serve(g_s), s	5.3	17.0	1.1	10.9	18.5	18.6	5.7	4.3	0.0	5.3	0.0	8.6
Cycle Q Clear(g_c), s	5.3	17.0	1.1	10.9	18.5	18.6	5.7	4.3	0.0	5.3	0.0	8.6
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.00	1.00		0.37
Lane Grp Cap(c), veh/h	130	1856	839	242	1016	1044	132	230	0	125	0	226
V/C Ratio(X)	0.77	0.50	0.04	0.86	0.53	0.53	0.79	0.38	0.00	0.78	0.00	0.70
Avail Cap(c_a), veh/h	245	1856	839	245	1016	1044	199	230	0	290	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.8	15.7	11.8	42.7	12.8	12.9	45.6	40.3	0.0	45.8	0.0	42.0
Incr Delay (d2), s/veh	5.9	1.0	0.1	25.0	2.0	1.9	8.0	1.0	0.0	6.2	0.0	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	8.6	0.5	7.3	9.5	9.8	3.1	2.3	0.0	2.9	0.0	4.7
LnGrp Delay(d),s/veh	51.7	16.6	11.9	67.8	14.7	14.8	53.6	41.4	0.0	52.0	0.0	49.1
LnGrp LOS	D	B	B	E	B	B	D	D		D		D
Approach Vol, veh/h		1071			1296			192			256	
Approach Delay, s/veh		19.8			23.3			48.0			50.2	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.9	55.6	11.3	16.2	10.9	61.5	10.9	16.6
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	13.0	* 43	11.0	15.2	13.0	* 43	16.0	* 11
Max Q Clear Time (g_c+I1), s	12.9	19.0	7.7	10.6	7.3	20.6	7.3	6.3
Green Ext Time (p_c), s	0.0	23.1	0.1	0.8	0.1	21.6	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	26.1
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	64	402	12	67	289
Future Vol, veh/h	9	64	402	12	67	289
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	9	66	414	12	69	298

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	856	420	0	0	426	0
Stage 1	420	-	-	-	-	-
Stage 2	436	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	331	638	-	-	1144	-
Stage 1	667	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	311	638	-	-	1144	-
Mov Cap-2 Maneuver	434	-	-	-	-	-
Stage 1	667	-	-	-	-	-
Stage 2	617	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	603	1144	-
HCM Lane V/C Ratio	-	-	0.125	0.06	-
HCM Control Delay (s)	-	-	11.8	8.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	172	324	264	150	362	334	309	194	115	197	242
Average Queue (ft)	87	219	175	39	161	219	202	80	43	83	121
95th Queue (ft)	152	291	241	126	281	314	297	158	91	138	209
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			32	1	10	9					
Queuing Penalty (veh)			17	2	50	19					

Intersection: 2: 135th Ave & Site Driveway

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	78	49	115
Average Queue (ft)	34	16	4
95th Queue (ft)	59	45	39
Link Distance (ft)	194		416
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		25	
Storage Blk Time (%)		2	
Queuing Penalty (veh)		5	

Network Summary

Network wide Queuing Penalty: 94

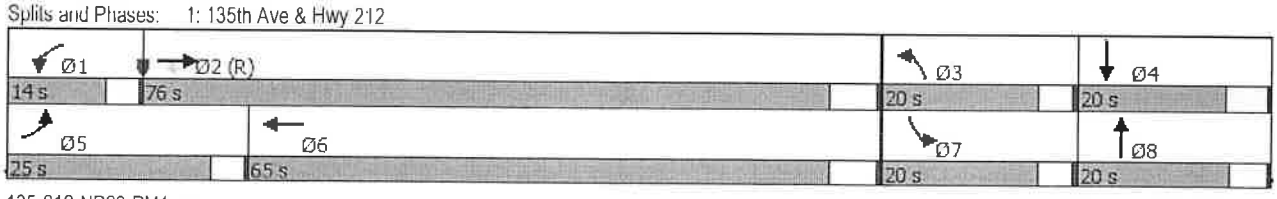
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	175	1765	12	135	1205	125	43	135	470	220	88	115
Future Volume (vph)	175	1765	12	135	1205	125	43	135	470	220	88	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.986			0.883			0.915	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3499	0	1805	1650	0	1805	1738	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3499	0	1805	1650	0	1805	1738	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		11			110			41	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	177	1783	12	136	1217	126	43	136	475	222	89	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	1783	12	136	1343	0	43	611	0	222	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	25.0	76.0	76.0	14.0	65.0		20.0	20.0		20.0	20.0	
Total Split (%)	19.2%	58.5%	58.5%	10.8%	50.0%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	21.0	70.6	70.6	10.0	59.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	16.7	72.3	72.3	10.0	65.6		7.8	16.0		16.0	25.9	
Actuated g/C Ratio	0.13	0.56	0.56	0.08	0.50		0.06	0.12		0.12	0.20	
v/c Ratio	0.72	0.90	0.01	0.92	0.76		0.40	2.04		1.00	0.54	
Control Delay	70.1	33.0	0.0	114.4	29.8		68.7	504.7		117.1	44.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.1	33.0	0.0	114.4	29.8		68.7	504.7		117.1	44.6	
LOS	E	C	A	F	C		E	F		F	D	
Approach Delay		36.1			37.6			476.0			82.3	
Approach LOS		D			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 14 (11%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.04
Intersection Signal Delay: 104.4 — Intersection LOS: F
Intersection Capacity Utilization 118.2% — **ICU Level of Service H**
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	650	0	0	235
Future Volume (vph)	0	0	650	0	0	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	1900	0	1900	1900
Flt Permitted						
Satd. Flow (perm)	1900	0	1900	0	1900	1900
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	657	0	0	237
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	657	0	0	237
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
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												
Traffic Volume (vph)	175	1765	12	135	1205	125	43	135	470	220	88	115
Future Volume (vph)	175	1765	12	135	1205	125	43	135	470	220	88	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3499		1805	1651		1805	1739	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3499		1805	1651		1805	1739	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	177	1783	12	136	1217	126	43	136	475	222	89	116
RTOR Reduction (vph)	0	0	5	0	6	0	0	96	0	0	33	0
Lane Group Flow (vph)	177	1783	7	136	1337	0	43	515	0	222	172	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	16.7	69.8	69.8	10.0	63.1		6.9	16.3		16.0	25.1	
Effective Green, g (s)	16.7	71.5	71.5	10.0	64.8		6.9	16.8		16.0	25.9	
Actuated g/C Ratio	0.13	0.55	0.55	0.08	0.50		0.05	0.13		0.12	0.20	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	247	1965	866	148	1744		95	213		222	346	
v/s Ratio Prot	0.09	c0.50		c0.07	0.38		0.02	c0.31		c0.12	0.10	
v/s Ratio Perm			0.00									
v/c Ratio	0.72	0.91	0.01	0.92	0.77		0.45	2.42		1.00	0.50	
Uniform Delay, d1	54.4	26.3	13.2	59.6	26.5		59.7	56.6		57.0	46.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.5	7.6	0.0	49.6	2.3		2.0	652.6		60.4	1.1	
Delay (s)	63.9	33.9	13.2	109.2	28.8		61.7	709.2		117.4	47.4	
Level of Service	E	C	B	F	C		E	F		F	D	
Approach Delay (s)		36.4			36.2			666.6			83.8	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	131.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.14		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	118.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	1765	12	135	1205	125	43	135	470	220	88	115
Future Volume (veh/h)	175	1765	12	135	1205	125	43	135	470	220	88	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1883	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	177	1783	6	136	1217	120	43	136	0	222	89	83
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	208	2085	941	145	1806	178	56	178	0	223	170	159
Arrive On Green	0.11	0.58	0.58	0.08	0.55	0.54	0.03	0.09	0.00	0.12	0.19	0.18
Sat Flow, veh/h	1882	3574	1612	1882	3283	323	1810	1900	0	1810	906	845
Grp Volume(v), veh/h	177	1783	6	136	662	675	43	136	0	222	0	172
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1789	1818	1810	1900	0	1810	0	1751
Q Serve(g_s), s	12.0	53.9	0.2	9.3	34.3	34.7	3.1	9.1	0.0	15.9	0.0	11.5
Cycle Q Clear(g_c), s	12.0	53.9	0.2	9.3	34.3	34.7	3.1	9.1	0.0	15.9	0.0	11.5
Prop In Lane	1.00		1.00	1.00		0.18	1.00		0.00	1.00		0.48
Lane Grp Cap(c), veh/h	208	2085	941	145	984	1000	56	178	0	223	0	329
V/C Ratio(X)	0.85	0.86	0.01	0.94	0.67	0.68	0.77	0.77	0.00	1.00	0.00	0.52
Avail Cap(c_a), veh/h	304	2085	941	145	984	1000	223	234	0	223	0	329
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.8	22.5	11.3	59.7	20.9	21.1	62.5	57.5	0.0	57.0	0.0	47.7
Incr Delay (d2), s/veh	14.2	4.7	0.0	56.3	2.2	2.2	12.4	10.4	0.0	59.3	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	27.9	0.1	7.1	17.5	17.9	1.7	5.3	0.0	11.6	0.0	5.7
LnGrp Delay(d),s/veh	70.9	27.3	11.3	116.0	23.1	23.3	74.9	67.9	0.0	116.3	0.0	49.2
LnGrp LOS	E	C	B	F	C	C	E	E		F		D
Approach Vol, veh/h		1966			1473			179			394	
Approach Delay, s/veh		31.1			31.7			69.6			87.0	
Approach LOS		C			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	79.5	8.0	28.4	18.4	75.2	20.0	16.5
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	10.0	* 71	16.0	15.2	21.0	* 60	16.0	* 16
Max Q Clear Time (g_c+I1), s	11.3	55.9	5.1	13.5	14.0	36.7	17.9	11.1
Green Ext Time (p_c), s	0.0	14.7	0.1	0.5	0.4	22.9	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	38.6
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	792	714	150	399	542	472	400	436	449	660
Average Queue (ft)	281	519	456	7	155	323	304	110	419	349	300
95th Queue (ft)	582	738	654	54	315	465	436	379	471	494	584
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		0						0	56		
Queuing Penalty (veh)		0						0	363		
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)		17	39	0	4	22			70	34	0
Queuing Penalty (veh)		30	5	0	25	30			30	69	1

Intersection: 2: 135th Ave & Site Driveway

Movement	NB
Directions Served	TR
Maximum Queue (ft)	547
Average Queue (ft)	494
95th Queue (ft)	711
Link Distance (ft)	528
Upstream Blk Time (%)	61
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 552

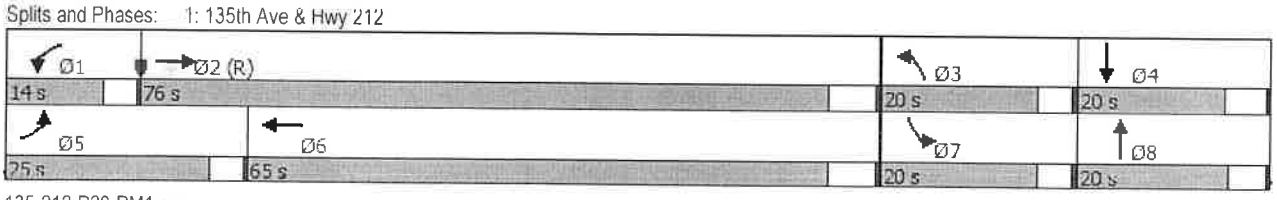
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1746	33	155	1198	124	58	144	500	218	96	114
Future Volume (vph)	173	1746	33	155	1198	124	58	144	500	218	96	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.986			0.883			0.919	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3499	0	1805	1650	0	1805	1746	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3499	0	1805	1650	0	1805	1746	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		11			110			37	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	175	1764	33	157	1210	125	59	145	505	220	97	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	175	1764	33	157	1335	0	59	650	0	220	212	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	25.0	76.0	76.0	14.0	65.0		20.0	20.0		20.0	20.0	
Total Split (%)	19.2%	58.5%	58.5%	10.8%	50.0%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	21.0	70.6	70.6	10.0	59.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	16.6	72.3	72.3	10.0	65.7		8.9	16.0		16.0	24.9	
Actuated g/C Ratio	0.13	0.56	0.56	0.08	0.51		0.07	0.12		0.12	0.19	
v/c Ratio	0.71	0.89	0.04	1.06	0.75		0.48	2.17		0.99	0.58	
Control Delay	69.9	32.2	0.1	147.3	29.5		70.3	561.7		114.8	48.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	69.9	32.2	0.1	147.3	29.5		70.3	561.7		114.8	48.0	
LOS	E	C	A	F	C		E	F		F	D	
Approach Delay		35.0			41.9			520.8			82.0	
Approach LOS		C			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 14 (11%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.17
Intersection Signal Delay: 116.4 — Intersection LOS: F
Intersection Capacity Utilization 121.0% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	6	54	643	9	49	233
Future Volume (vph)	6	54	643	9	49	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.878		0.998			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1660	0	1896	0	1805	1900
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1660	0	1896	0	1805	1900
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	6	55	649	9	49	235
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	0	658	0	49	235
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 51.1% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1746	33	155	1198	124	58	144	500	218	96	114
Future Volume (vph)	173	1746	33	155	1198	124	58	144	500	218	96	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3499		1805	1651		1805	1745	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3499		1805	1651		1805	1745	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	175	1764	33	157	1210	125	59	145	505	220	97	115
RTOR Reduction (vph)	0	0	15	0	6	0	0	96	0	0	30	0
Lane Group Flow (vph)	175	1764	18	157	1329	0	59	554	0	220	182	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	16.6	69.8	69.8	10.0	63.2		7.9	16.3		16.0	24.1	
Effective Green, g (s)	16.6	71.5	71.5	10.0	64.9		7.9	16.8		16.0	24.9	
Actuated g/C Ratio	0.13	0.55	0.55	0.08	0.50		0.06	0.13		0.12	0.19	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	245	1965	866	148	1746		109	213		222	334	
v/s Ratio Prot	0.09	c0.49		c0.08	0.38		0.03	c0.34		c0.12	0.10	
v/s Ratio Perm			0.01									
v/c Ratio	0.71	0.90	0.02	1.06	0.76		0.54	2.60		0.99	0.55	
Uniform Delay, d1	54.4	26.0	13.3	60.0	26.3		59.3	56.6		56.9	47.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.5	7.0	0.0	91.1	2.3		3.7	734.4		57.6	1.8	
Delay (s)	63.9	33.0	13.4	151.1	28.6		63.0	791.0		114.6	49.3	
Level of Service	E	C	B	F	C		E	F		F	D	
Approach Delay (s)		35.4			41.5			730.4			82.5	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	148.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	121.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	173	1746	33	155	1198	124	58	144	500	218	96	114
Future Volume (veh/h)	173	1746	33	155	1198	124	58	144	500	218	96	114
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1883	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	175	1764	27	157	1210	119	59	145	0	220	97	82
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	206	2070	934	145	1795	176	77	186	0	223	172	146
Arrive On Green	0.11	0.58	0.58	0.08	0.55	0.53	0.04	0.10	0.00	0.12	0.18	0.17
Sat Flow, veh/h	1882	3574	1612	1882	3284	322	1810	1900	0	1810	953	805
Grp Volume(v), veh/h	175	1764	27	157	658	671	59	145	0	220	0	179
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1789	1818	1810	1900	0	1810	0	1758
Q Serve(g_s), s	11.9	53.3	0.9	10.0	34.3	34.6	4.2	9.7	0.0	15.8	0.0	12.1
Cycle Q Clear(g_c), s	11.9	53.3	0.9	10.0	34.3	34.6	4.2	9.7	0.0	15.8	0.0	12.1
Prop In Lane	1.00		1.00	1.00		0.18	1.00		0.00	1.00		0.46
Lane Grp Cap(c), veh/h	206	2070	934	145	978	994	77	186	0	223	0	318
V/C Ratio(X)	0.85	0.85	0.03	1.08	0.67	0.68	0.77	0.78	0.00	0.99	0.00	0.56
Avail Cap(c_a), veh/h	304	2070	934	145	978	994	223	234	0	223	0	318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.8	22.7	11.7	60.0	21.1	21.3	61.6	57.3	0.0	56.9	0.0	48.7
Incr Delay (d2), s/veh	13.8	4.7	0.1	99.2	2.2	2.2	9.3	12.3	0.0	56.6	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	27.6	0.4	9.2	17.4	18.0	2.3	5.7	0.0	11.4	0.0	6.1
LnGrp Delay(d),s/veh	70.6	27.4	11.8	159.2	23.3	23.5	70.9	69.6	0.0	113.5	0.0	51.0
LnGrp LOS	E	C	B	F	C	C	E	E		F		D
Approach Vol, veh/h		1966			1486			204			399	
Approach Delay, s/veh		31.1			37.8			70.0			85.5	
Approach LOS		C			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	79.0	9.5	27.5	18.2	74.8	20.0	17.0
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	10.0	* 71	16.0	15.2	21.0	* 60	16.0	* 16
Max Q Clear Time (g_c+I1), s	12.0	55.3	6.2	14.1	13.9	36.6	17.8	11.7
Green Ext Time (p_c), s	0.0	15.3	0.1	0.4	0.4	23.0	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	54	643	9	49	233
Future Vol, veh/h	6	54	643	9	49	233
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	6	55	649	9	49	235

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	987	654	0	0	658	0
Stage 1	654	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	277	470	-	-	939	-
Stage 1	521	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	263	470	-	-	939	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	521	-	-	-	-	-
Stage 2	693	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	460	939	-
HCM Lane V/C Ratio	-	-	0.132	0.053	-
HCM Control Delay (s)	-	-	14	9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	812	825	150	397	536	554	400	439	449	746
Average Queue (ft)	310	651	641	13	214	333	327	147	425	311	292
95th Queue (ft)	632	959	967	74	335	464	488	429	435	513	666
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		22	17					0	54		2
Queuing Penalty (veh)		0	0					0	380		0
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)		31	40	0	25	25			71	35	0
Queuing Penalty (veh)		54	13	0	150	38			41	73	0

Intersection: 2: 135th Ave & Site Driveway

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	214	547	47	132
Average Queue (ft)	135	523	26	13
95th Queue (ft)	257	632	53	66
Link Distance (ft)	194	528		416
Upstream Blk Time (%)	45	65		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)			25	
Storage Blk Time (%)			8	0
Queuing Penalty (veh)			18	0

Network Summary

Network wide Queuing Penalty: 768

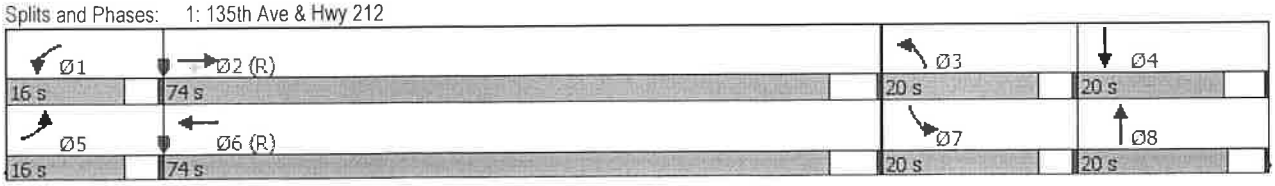
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	195	1695	12	140	1115	64	71	130	450	185	98	93
Future Volume (vph)	195	1695	12	140	1115	64	71	130	450	185	98	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.992			0.884			0.927	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3522	0	1805	1652	0	1805	1761	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3522	0	1805	1652	0	1805	1761	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		7			109			30	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	205	1784	13	147	1174	67	75	137	474	195	103	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	1784	13	147	1241	0	75	611	0	195	201	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	16.0	74.0	74.0	16.0	74.0		20.0	20.0		20.0	20.0	
Total Split (%)	12.3%	56.9%	56.9%	12.3%	56.9%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	12.0	68.6	68.6	12.0	68.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	12.0	70.6	70.6	11.7	70.3		10.1	16.4		15.6	23.9	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.54		0.08	0.13		0.12	0.18	
v/c Ratio	1.16	0.92	0.01	0.85	0.65		0.54	2.02		0.90	0.58	
Control Delay	167.5	36.1	0.0	97.0	23.0		70.9	491.7		96.9	50.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	167.5	36.1	0.0	97.0	23.0		70.9	491.7		96.9	50.2	
LOS	F	D	A	F	C		E	F		F	D	
Approach Delay		49.4			30.9			445.7			73.2	
Approach LOS		D			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.02
Intersection Signal Delay: 106.5 — Intersection LOS: F
Intersection Capacity Utilization 113.1% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	650	0	0	250
Future Volume (vph)	0	0	650	0	0	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	0	1863	0	1863	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	684	0	0	263
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	684	0	0	263
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
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												
Traffic Volume (vph)	195	1695	12	140	1115	64	71	130	450	185	98	93
Future Volume (vph)	195	1695	12	140	1115	64	71	130	450	185	98	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3522		1805	1652		1805	1761	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3522		1805	1652		1805	1761	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	205	1784	13	147	1174	67	75	137	474	195	103	98
RTOR Reduction (vph)	0	0	6	0	3	0	0	95	0	0	24	0
Lane Group Flow (vph)	205	1784	7	147	1238	0	75	516	0	195	177	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	12.0	68.1	68.1	11.7	67.8		8.9	16.7		15.6	23.1	
Effective Green, g (s)	12.0	69.8	69.8	11.7	69.5		8.9	17.2		15.6	23.9	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.53		0.07	0.13		0.12	0.18	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	177	1918	846	173	1882		123	218		216	323	
v/s Ratio Prot	c0.11	c0.50		0.08	0.35		0.04	c0.31		c0.11	0.10	
v/s Ratio Perm			0.00									
v/c Ratio	1.16	0.93	0.01	0.85	0.66		0.61	2.37		0.90	0.55	
Uniform Delay, d1	59.0	27.8	14.0	58.3	21.7		58.9	56.4		56.5	48.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	116.6	9.6	0.0	29.6	1.8		6.5	630.0		35.5	1.9	
Delay (s)	175.6	37.4	14.0	87.9	23.5		65.4	686.4		92.0	50.0	
Level of Service	F	D	B	F	C		E	F		F	D	
Approach Delay (s)		51.4			30.3			618.5			70.7	
Approach LOS		D			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	133.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	113.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	195	1695	12	140	1115	64	71	130	450	185	98	93
Future Volume (veh/h)	195	1695	12	140	1115	64	71	130	450	185	98	93
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1882	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	205	1784	7	147	1174	61	75	137	0	195	103	63
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	174	2036	918	173	1966	102	96	179	0	220	182	111
Arrive On Green	0.09	0.57	0.57	0.09	0.57	0.56	0.05	0.09	0.00	0.12	0.16	0.16
Sat Flow, veh/h	1882	3574	1612	1882	3455	179	1810	1900	0	1810	1105	676
Grp Volume(v), veh/h	205	1784	7	147	607	628	75	137	0	195	0	166
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1788	1846	1810	1900	0	1810	0	1781
Q Serve(g_s), s	12.0	55.8	0.2	10.0	28.8	28.9	5.3	9.2	0.0	13.8	0.0	11.2
Cycle Q Clear(g_c), s	12.0	55.8	0.2	10.0	28.8	28.9	5.3	9.2	0.0	13.8	0.0	11.2
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.00	1.00		0.38
Lane Grp Cap(c), veh/h	174	2036	918	173	1018	1051	96	179	0	220	0	293
V/C Ratio(X)	1.18	0.88	0.01	0.85	0.60	0.60	0.78	0.77	0.00	0.89	0.00	0.57
Avail Cap(c_a), veh/h	174	2036	918	174	1018	1051	223	234	0	223	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.0	24.0	12.1	58.1	18.3	18.3	60.8	57.5	0.0	56.2	0.0	50.2
Incr Delay (d2), s/veh	125.0	5.7	0.0	30.0	2.6	2.5	8.0	10.6	0.0	31.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.3	28.9	0.1	6.7	14.9	15.4	2.9	5.3	0.0	8.8	0.0	5.7
LnGrp Delay(d),s/veh	184.0	29.7	12.1	88.1	20.8	20.9	68.8	68.1	0.0	87.5	0.0	52.7
LnGrp LOS	F	C	B	F	C	C	E	E		F		D
Approach Vol, veh/h		1996			1382			212			361	
Approach Delay, s/veh		45.5			28.0			68.3			71.5	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	77.7	10.9	25.4	16.0	77.7	19.8	16.5
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	12.0	* 69	16.0	15.2	12.0	* 69	16.0	* 16
Max Q Clear Time (g_c+I1), s	12.0	57.8	7.3	13.2	14.0	30.9	15.8	11.2
Green Ext Time (p_c), s	0.0	10.8	0.1	0.6	0.0	37.6	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	43.0
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	825	792	150	259	502	410	400	436	263	268
Average Queue (ft)	512	761	739	10	149	281	259	203	426	189	126
95th Queue (ft)	588	908	908	73	238	401	377	461	436	272	219
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		69	8					0	49		
Queuing Penalty (veh)		0	0					0	319		
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)	81	8	42	0	5	16			67		
Queuing Penalty (veh)	691	16	5	0	29	23			48		

Intersection: 2: 135th Ave & Site Driveway

Movement	NB
Directions Served	TR
Maximum Queue (ft)	591
Average Queue (ft)	481
95th Queue (ft)	740
Link Distance (ft)	528
Upstream Blk Time (%)	53
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1132

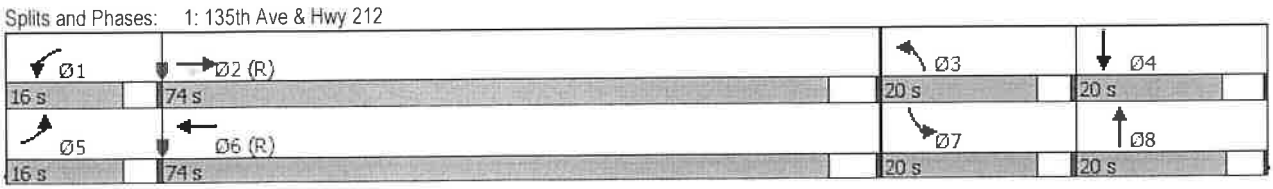
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	193	1676	34	157	1103	63	88	140	480	183	107	92
Future Volume (vph)	193	1676	34	157	1103	63	88	140	480	183	107	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.992			0.884			0.931	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3522	0	1805	1652	0	1805	1769	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3522	0	1805	1652	0	1805	1769	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		7			108			27	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	203	1764	36	165	1161	66	93	147	505	193	113	97
Shared Lane Traffic (%)												
Lane Group Flow (vph)	203	1764	36	165	1227	0	93	652	0	193	210	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	16.0	74.0	74.0	16.0	74.0		20.0	20.0		20.0	20.0	
Total Split (%)	12.3%	56.9%	56.9%	12.3%	56.9%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	12.0	68.6	68.6	12.0	68.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	12.0	70.3	70.3	12.0	70.3		11.3	16.5		15.5	20.7	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.54		0.09	0.13		0.12	0.16	
v/c Ratio	1.15	0.91	0.04	0.93	0.64		0.59	2.14		0.90	0.69	
Control Delay	164.0	35.7	0.1	110.3	22.9		71.9	549.5		96.0	58.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	164.0	35.7	0.1	110.3	22.9		71.9	549.5		96.0	58.4	
LOS	F	D	A	F	C		E	F		F	E	
Approach Delay		48.0			33.2			489.9			76.4	
Approach LOS		D			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.14
Intersection Signal Delay: 118.5 — Intersection LOS: F
Intersection Capacity Utilization 115.8% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	57	643	10	51	247
Future Volume (vph)	0	57	643	10	51	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.865		0.998			
Flt Protected					0.950	
Satd. Flow (prot)	1611	0	1859	0	1770	1863
Flt Permitted					0.950	
Satd. Flow (perm)	1611	0	1859	0	1770	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	60	677	11	54	260
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	0	688	0	54	260
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
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												
Traffic Volume (vph)	193	1676	34	157	1103	63	88	140	480	183	107	92
Future Volume (vph)	193	1676	34	157	1103	63	88	140	480	183	107	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3522		1805	1652		1805	1768	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3522		1805	1652		1805	1768	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	203	1764	36	165	1161	66	93	147	505	193	113	97
RTOR Reduction (vph)	0	0	17	0	3	0	0	94	0	0	23	0
Lane Group Flow (vph)	203	1764	19	165	1224	0	93	558	0	193	187	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	12.0	68.6	68.6	12.0	68.6		11.3	16.0		15.5	19.9	
Effective Green, g (s)	12.0	70.3	70.3	12.0	70.3		11.3	16.5		15.5	20.7	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.54		0.09	0.13		0.12	0.16	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	177	1932	852	177	1904		156	209		215	281	
v/s Ratio Prot	c0.11	c0.49		0.09	0.35		0.05	c0.34		c0.11	0.11	
v/s Ratio Perm			0.01									
v/c Ratio	1.15	0.91	0.02	0.93	0.64		0.60	2.67		0.90	0.67	
Uniform Delay, d1	59.0	27.1	13.9	58.6	21.0		57.2	56.8		56.5	51.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	112.7	8.1	0.0	48.0	1.7		4.6	764.3		34.3	5.9	
Delay (s)	171.7	35.2	13.9	106.6	22.7		61.8	821.1		90.7	57.3	
Level of Service	F	D	B	F	C		E	F		F	E	
Approach Delay (s)		48.6			32.6			726.3			73.3	
Approach LOS		D			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	157.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	1676	34	157	1103	63	88	140	480	183	107	92
Future Volume (veh/h)	193	1676	34	157	1103	63	88	140	480	183	107	92
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1882	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	203	1764	30	165	1161	60	93	147	0	193	113	62
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	174	2021	911	174	1954	101	117	188	0	218	181	99
Arrive On Green	0.09	0.57	0.57	0.09	0.57	0.55	0.06	0.10	0.00	0.12	0.16	0.15
Sat Flow, veh/h	1882	3574	1612	1882	3456	178	1810	1900	0	1810	1155	634
Grp Volume(v), veh/h	203	1764	30	165	600	621	93	147	0	193	0	175
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1788	1846	1810	1900	0	1810	0	1788
Q Serve(g_s), s	12.0	55.1	1.1	11.3	28.6	28.7	6.6	9.8	0.0	13.7	0.0	11.9
Cycle Q Clear(g_c), s	12.0	55.1	1.1	11.3	28.6	28.7	6.6	9.8	0.0	13.7	0.0	11.9
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.00	1.00		0.35
Lane Grp Cap(c), veh/h	174	2021	911	174	1011	1044	117	188	0	218	0	281
V/C Ratio(X)	1.17	0.87	0.03	0.95	0.59	0.59	0.79	0.78	0.00	0.89	0.00	0.62
Avail Cap(c_a), veh/h	174	2021	911	174	1011	1044	223	234	0	223	0	281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.0	24.2	12.5	58.7	18.5	18.6	59.9	57.2	0.0	56.3	0.0	51.4
Incr Delay (d2), s/veh	120.9	5.6	0.1	53.3	2.6	2.5	7.3	12.8	0.0	30.7	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	28.5	0.5	8.5	14.7	15.2	3.5	5.8	0.0	8.7	0.0	6.2
LnGrp Delay(d),s/veh	179.9	29.8	12.6	112.0	21.1	21.1	67.2	70.0	0.0	87.0	0.0	55.6
LnGrp LOS	F	C	B	F	C	C	E	E		F		E
Approach Vol, veh/h		1997			1386			240			368	
Approach Delay, s/veh		44.8			31.9			68.9			72.1	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	77.2	12.4	24.4	16.0	77.2	19.7	17.1
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	12.0	* 69	16.0	15.2	12.0	* 69	16.0	* 16
Max Q Clear Time (g_c+I1), s	13.3	57.1	8.6	13.9	14.0	30.7	15.7	11.8
Green Ext Time (p_c), s	0.0	11.5	0.1	0.4	0.0	37.9	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	44.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	57	643	10	51	247
Future Vol, veh/h	6	57	643	10	51	247
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	60	677	11	54	260

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1051	683	0	0	688	0
Stage 1	683	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	251	449	-	-	906	-
Stage 1	502	-	-	-	-	-
Stage 2	700	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	236	449	-	-	906	-
Mov Cap-2 Maneuver	364	-	-	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	658	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	1.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	439	906	-
HCM Lane V/C Ratio	-	-	0.151	0.059	-
HCM Control Delay (s)	-	-	14.7	9.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	792	792	150	253	467	408	400	446	281	281
Average Queue (ft)	429	565	523	15	140	291	269	165	425	168	146
95th Queue (ft)	583	801	790	77	236	404	371	445	436	277	267
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		6	3					0	52		
Queuing Penalty (veh)		0	0					0	367		
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)	5	21	40	0	8	21			68		
Queuing Penalty (veh)	43	41	14	0	42	34			60		

Intersection: 2: 135th Ave & Site Site Driveway

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	234	591	49	222
Average Queue (ft)	198	545	27	23
95th Queue (ft)	238	590	54	111
Link Distance (ft)	194	528		416
Upstream Blk Time (%)	84	71		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)			25	
Storage Blk Time (%)			9	0
Queuing Penalty (veh)			23	0

Network Summary

Network wide Queuing Penalty: 625

Appendix F

Synchro & SimTraffic - 2022

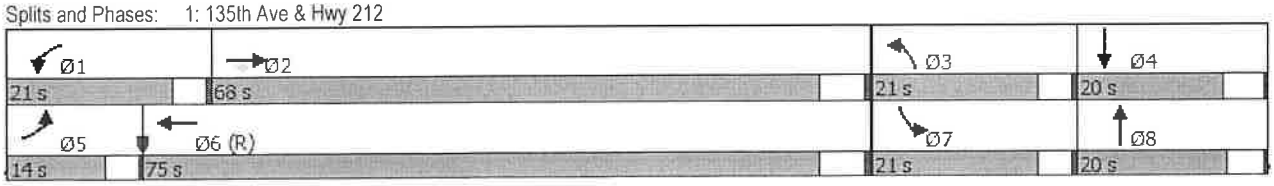
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	775	14	230	2090	175	70	56	185	90	95	175
Future Volume (vph)	85	775	14	230	2090	175	70	56	185	90	95	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt			0.850		0.988			0.885			0.903	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3443	0	1805	1656	0	1805	1710	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3443	0	1805	1656	0	1805	1710	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			116		10			105			58	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	89	807	15	240	2177	182	73	58	193	94	99	182
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	807	15	240	2359	0	73	251	0	94	281	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	14.0	68.0	68.0	21.0	75.0		21.0	20.0		21.0	20.0	
Total Split (%)	10.8%	52.3%	52.3%	16.2%	57.7%		16.2%	15.4%		16.2%	15.4%	
Maximum Green (s)	10.0	62.6	62.6	17.0	69.6		17.0	15.5		17.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.4	-1.4	0.0	-1.4		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	21.0		3.0	5.0	
Recall Mode	None	Min	Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	9.1	65.3	65.3	17.2	73.3		9.9	20.2		11.4	23.6	
Actuated g/C Ratio	0.07	0.50	0.50	0.13	0.56		0.08	0.16		0.09	0.18	
v/c Ratio	0.66	0.45	0.02	0.95	1.21		0.53	0.73		0.59	0.78	
Control Delay	81.7	22.1	0.1	100.4	128.3		71.1	43.3		71.8	57.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	81.7	22.1	0.1	100.4	128.3		71.1	43.3		71.8	57.1	
LOS	F	C	A	F	F		E	D		E	E	
Approach Delay		27.6			125.7			49.6			60.8	
Approach LOS		C			F			D			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9.5 (7%), Referenced to phase 6:WBT, Start of Green
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.21
Intersection Signal Delay: 92.8 — Intersection LOS: F
Intersection Capacity Utilization 101.0% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	310	0	0	340
Future Volume (vph)	0	0	310	0	0	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	0	1863	0	1863	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	323	0	0	354
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	323	0	0	354
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization	21.2%	ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	775	14	230	2090	175	70	56	185	90	95	175
Future Volume (vph)	85	775	14	230	2090	175	70	56	185	90	95	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3445		1805	1655		1805	1709	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3445		1805	1655		1805	1709	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	89	807	15	240	2177	182	73	58	193	94	99	182
RTOR Reduction (vph)	0	0	8	0	4	0	0	88	0	0	47	0
Lane Group Flow (vph)	89	807	7	240	2355	0	73	163	0	94	234	0
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	9.1	63.1	63.1	17.2	71.2		8.7	20.4		11.4	22.8	
Effective Green, g (s)	9.1	64.5	64.5	17.2	72.6		8.7	20.9		11.4	23.6	
Actuated g/C Ratio	0.07	0.50	0.50	0.13	0.56		0.07	0.16		0.09	0.18	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	134	1773	801	254	1923		120	266		158	310	
v/s Ratio Prot	0.05	0.23		c0.12	c0.68		0.04	0.10		c0.05	c0.14	
v/s Ratio Perm			0.00									
v/c Ratio	0.66	0.46	0.01	0.94	1.22		0.61	0.61		0.59	0.75	
Uniform Delay, d1	59.0	21.3	16.6	55.9	28.7		59.0	50.8		57.1	50.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.1	0.3	0.0	41.1	105.9		6.6	4.1		4.6	9.9	
Delay (s)	69.0	21.6	16.6	97.0	134.6		65.6	54.9		61.6	60.4	
Level of Service	E	C	B	F	F		E	D		E	E	
Approach Delay (s)		26.2			131.1			57.3			60.7	
Approach LOS		C			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	96.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	101.0%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	775	14	230	2090	175	70	56	185	90	95	175
Future Volume (veh/h)	85	775	14	230	2090	175	70	56	185	90	95	175
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1849	1900	1900	1871	1900	1900	1893	1900
Adj Flow Rate, veh/h	89	807	8	240	2177	178	73	58	0	94	99	131
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	113	1710	773	246	1806	145	94	201	0	118	91	121
Arrive On Green	0.06	0.48	0.48	0.13	0.55	0.54	0.05	0.11	0.00	0.07	0.12	0.12
Sat Flow, veh/h	1882	3574	1615	1882	3287	265	1810	1871	0	1810	741	980
Grp Volume(v), veh/h	89	807	8	240	1147	1208	73	58	0	94	0	230
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1795	1810	1871	0	1810	0	1720
Q Serve(g_s), s	6.1	19.8	0.3	16.5	71.4	71.4	5.2	3.7	0.0	6.7	0.0	16.0
Cycle Q Clear(g_c), s	6.1	19.8	0.3	16.5	71.4	71.4	5.2	3.7	0.0	6.7	0.0	16.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.00	1.00		0.57
Lane Grp Cap(c), veh/h	113	1710	773	246	965	986	94	201	0	118	0	212
V/C Ratio(X)	0.79	0.47	0.01	0.98	1.19	1.22	0.78	0.29	0.00	0.80	0.00	1.09
Avail Cap(c_a), veh/h	145	1760	795	246	965	986	237	230	0	237	0	212
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.3	22.8	17.8	56.3	29.3	29.4	60.9	53.4	0.0	59.9	0.0	57.2
Incr Delay (d2), s/veh	17.0	0.3	0.0	50.1	95.4	110.1	8.1	0.8	0.0	7.2	0.0	86.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	9.8	0.2	12.0	59.9	65.2	2.8	2.0	0.0	3.6	0.0	12.7
LnGrp Delay(d),s/veh	77.3	23.2	17.8	106.4	124.7	139.5	68.9	54.2	0.0	67.1	0.0	143.9
LnGrp LOS	E	C	B	F	F	F	E	D		E		F
Approach Vol, veh/h		904			2595			131			324	
Approach Delay, s/veh		28.5			129.9			62.4			121.7	
Approach LOS		C			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	66.2	10.8	20.0	11.8	75.4	12.5	18.3
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	17.0	* 63	17.0	15.2	10.0	* 70	17.0	* 16
Max Q Clear Time (g_c+I1), s	18.5	21.8	7.2	18.0	8.1	73.4	8.7	5.7
Green Ext Time (p_c), s	0.0	39.0	0.1	0.0	0.0	0.0	0.1	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	103.8
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	197	317	323	150	400	842	831	102	154	154	284
Average Queue (ft)	82	210	177	2	332	802	802	59	44	73	173
95th Queue (ft)	163	308	289	13	493	819	815	103	90	138	258
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)						37	41				
Queuing Penalty (veh)						0	0				
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			29		12	39					
Queuing Penalty (veh)			4		125	90					

Intersection: 2: 135th Ave & Site Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 219

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	763	29	264	2058	172	105	68	200	89	107	172
Future Volume (vph)	84	763	29	264	2058	172	105	68	200	89	107	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3445		1805	1663		1805	1718	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3445		1805	1663		1805	1718	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	88	795	30	275	2144	179	109	71	208	93	111	179
RTOR Reduction (vph)	0	0	15	0	4	0	0	77	0	0	43	0
Lane Group Flow (vph)	88	795	15	275	2319	0	109	202	0	93	247	0
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	9.1	62.6	62.6	17.0	70.5		12.4	21.2		11.3	19.8	
Effective Green, g (s)	9.1	64.0	64.0	17.0	71.9		12.4	21.7		11.3	20.6	
Actuated g/C Ratio	0.07	0.49	0.49	0.13	0.55		0.10	0.17		0.09	0.16	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	134	1759	795	251	1905		172	277		156	272	
v/s Ratio Prot	0.05	0.22		c0.14	c0.67		c0.06	0.12		0.05	c0.14	
v/s Ratio Perm			0.01									
v/c Ratio	0.66	0.45	0.02	1.10	1.22		0.63	0.73		0.60	0.91	
Uniform Delay, d1	58.9	21.5	16.9	56.5	29.0		56.6	51.3		57.2	53.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.4	0.3	0.0	84.7	102.7		6.1	9.2		4.6	31.3	
Delay (s)	68.3	21.9	16.9	141.2	131.8		62.7	60.5		61.8	85.1	
Level of Service	E	C	B	F	F		E	E		E	F	
Approach Delay (s)		26.2			132.8			61.1			79.4	
Approach LOS		C			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	98.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	763	29	264	2058	172	105	68	200	89	107	172
Future Volume (vph)	84	763	29	264	2058	172	105	68	200	89	107	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3445		1805	1663		1805	1718	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3445		1805	1663		1805	1718	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	88	795	30	275	2144	179	109	71	208	93	111	179
RTOR Reduction (vph)	0	0	15	0	4	0	0	77	0	0	43	0
Lane Group Flow (vph)	88	795	15	275	2319	0	109	202	0	93	247	0
Confl. Peds. (#/hr)						2						
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	9.1	62.6	62.6	17.0	70.5		12.4	21.2		11.3	19.8	
Effective Green, g (s)	9.1	64.0	64.0	17.0	71.9		12.4	21.7		11.3	20.6	
Actuated g/C Ratio	0.07	0.49	0.49	0.13	0.55		0.10	0.17		0.09	0.16	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	134	1759	795	251	1905		172	277		156	272	
v/s Ratio Prot	0.05	0.22		c0.14	c0.67		c0.06	0.12		0.05	c0.14	
v/s Ratio Perm			0.01									
v/c Ratio	0.66	0.45	0.02	1.10	1.22		0.63	0.73		0.60	0.91	
Uniform Delay, d1	58.9	21.5	16.9	56.5	29.0		56.6	51.3		57.2	53.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.4	0.3	0.0	84.7	102.7		6.1	9.2		4.6	31.3	
Delay (s)	68.3	21.9	16.9	141.2	131.8		62.7	60.5		61.8	85.1	
Level of Service	E	C	B	F	F		E	E		E	F	
Approach Delay (s)		26.2			132.8			61.1			79.4	
Approach LOS		C			F			E			E	

Intersection Summary			
HCM 2000 Control Delay	98.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	763	29	264	2058	172	105	68	200	89	107	172
Future Volume (veh/h)	84	763	29	264	2058	172	105	68	200	89	107	172
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1849	1900	1900	1872	1900	1900	1893	1900
Adj Flow Rate, veh/h	88	795	23	275	2144	175	109	71	0	93	111	128
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	111	1709	772	246	1807	145	135	244	0	117	99	114
Arrive On Green	0.06	0.48	0.48	0.13	0.55	0.54	0.07	0.13	0.00	0.06	0.12	0.12
Sat Flow, veh/h	1882	3574	1615	1882	3287	264	1810	1872	0	1810	803	926
Grp Volume(v), veh/h	88	795	23	275	1130	1189	109	71	0	93	0	239
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1795	1810	1872	0	1810	0	1729
Q Serve(g_s), s	6.0	19.4	1.0	17.0	71.5	71.5	7.7	4.5	0.0	6.6	0.0	16.0
Cycle Q Clear(g_c), s	6.0	19.4	1.0	17.0	71.5	71.5	7.7	4.5	0.0	6.6	0.0	16.0
Prop In Lane	1.00		1.00	1.00		0.15	1.00		0.00	1.00		0.54
Lane Grp Cap(c), veh/h	111	1709	772	246	965	987	135	244	0	117	0	213
V/C Ratio(X)	0.79	0.47	0.03	1.12	1.17	1.21	0.81	0.29	0.00	0.79	0.00	1.12
Avail Cap(c_a), veh/h	145	1760	795	246	965	987	237	244	0	237	0	213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.4	22.8	18.0	56.5	29.3	29.4	59.3	51.1	0.0	59.9	0.0	57.2
Incr Delay (d2), s/veh	16.5	0.3	0.0	92.6	87.8	102.1	6.9	0.7	0.0	7.3	0.0	98.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	9.7	0.4	15.1	57.9	63.1	4.1	2.4	0.0	3.5	0.0	13.5
LnGrp Delay(d),s/veh	76.8	23.1	18.0	149.1	117.1	131.5	66.2	51.7	0.0	67.2	0.0	155.9
LnGrp LOS	E	C	B	F	F	F	E	D		E		F
Approach Vol, veh/h		906			2594			180			332	
Approach Delay, s/veh		28.2			127.1			60.5			131.0	
Approach LOS		C			F			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.0	66.2	13.7	20.0	11.7	75.5	12.4	21.3
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	17.0	* 63	17.0	15.2	10.0	* 70	17.0	* 16
Max Q Clear Time (g_c+I1), s	19.0	21.4	9.7	18.0	8.0	73.5	8.6	6.5
Green Ext Time (p_c), s	0.0	39.3	0.2	0.0	0.0	0.0	0.1	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	102.1
HCM 2010 LOS	F

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	64	305	9	72	340
Future Vol, veh/h	8	64	305	9	72	340
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	67	318	9	75	354

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	827	323	0	0	327	0
Stage 1	323	-	-	-	-	-
Stage 2	504	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	341	718	-	-	1233	-
Stage 1	734	-	-	-	-	-
Stage 2	607	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	320	718	-	-	1233	-
Mov Cap-2 Maneuver	434	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	570	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.1	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	669	1233	-
HCM Lane V/C Ratio	-	-	0.112	0.061	-
HCM Control Delay (s)	-	-	11.1	8.1	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	166	361	241	150	400	831	853	157	114	449	561
Average Queue (ft)	73	205	152	18	340	798	807	73	35	101	315
95th Queue (ft)	140	310	238	81	502	806	832	123	85	269	511
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)						35	41				
Queuing Penalty (veh)						0	0				
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			25	0	26	40					17
Queuing Penalty (veh)			7	0	264	106					15

Intersection: 2: 135th Ave & Site Driveway

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	80	35
Average Queue (ft)	35	13
95th Queue (ft)	68	40
Link Distance (ft)	194	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		25
Storage Blk Time (%)		1
Queuing Penalty (veh)		3

Network Summary

Network wide Queuing Penalty: 397

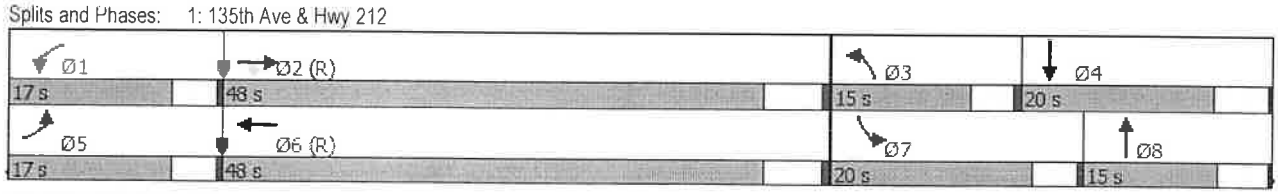
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	950	34	180	1025	84	79	76	265	97	88	120
Future Volume (vph)	105	950	34	180	1025	84	79	76	265	97	88	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.99			0.99	
Frt			0.850		0.989			0.883			0.913	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3453	0	1805	1633	0	1805	1714	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3453	0	1805	1633	0	1805	1714	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		11			142			59	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	108	979	35	186	1057	87	81	78	273	100	91	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	108	979	35	186	1144	0	81	351	0	100	215	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	35.4	35.4	8.0	29.4		8.0	10.5		8.0	10.8	
Total Split (s)	17.0	48.0	48.0	17.0	48.0		15.0	15.0		20.0	20.0	
Total Split (%)	17.0%	48.0%	48.0%	17.0%	48.0%		15.0%	15.0%		20.0%	20.0%	
Maximum Green (s)	13.0	42.6	42.6	13.0	42.6		11.0	10.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-1.4	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		10.0	10.0		7.0							
Flash Dont Walk (s)		20.0	20.0		17.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	10.0	44.9	44.9	12.2	47.1		8.8	19.0		10.2	20.9	
Actuated g/C Ratio	0.10	0.45	0.45	0.12	0.47		0.09	0.19		0.10	0.21	
v/c Ratio	0.56	0.61	0.04	0.79	0.70		0.51	0.83		0.54	0.53	
Control Delay	53.8	23.1	0.1	67.1	24.0		54.6	42.6		53.1	32.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.8	23.1	0.1	67.1	24.0		54.6	42.6		53.1	32.4	
LOS	D	C	A	E	C		D	D		D	C	
Approach Delay		25.3			30.0			44.9			39.0	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 31.3 — Intersection LOS: C
Intersection Capacity Utilization 75.9% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	420	0	0	300
Future Volume (vph)	0	0	420	0	0	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	1863	0	1900	1881
Flt Permitted						
Satd. Flow (perm)	1900	0	1863	0	1900	1881
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	0	0	433	0	0	309
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	433	0	0	309
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 25.4% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	950	34	180	1025	84	79	76	265	97	88	120
Future Volume (vph)	105	950	34	180	1025	84	79	76	265	97	88	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3452		1805	1635		1805	1715	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3452		1805	1635		1805	1715	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	108	979	35	186	1057	87	81	78	273	100	91	124
RTOR Reduction (vph)	0	0	20	0	6	0	0	115	0	0	47	0
Lane Group Flow (vph)	108	979	15	186	1138	0	81	236	0	100	168	0
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	10.0	42.4	42.4	12.2	44.6		7.7	18.5		9.0	19.5	
Effective Green, g (s)	10.0	44.1	44.1	12.2	46.3		7.7	19.0		9.0	20.9	
Actuated g/C Ratio	0.10	0.44	0.44	0.12	0.46		0.08	0.19		0.09	0.21	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Lane Grp Cap (vph)	192	1576	712	234	1598		138	310		162	358	
v/s Ratio Prot	0.06	0.27		c0.10	c0.33		0.04	c0.14		c0.06	0.10	
v/s Ratio Perm			0.01									
v/c Ratio	0.56	0.62	0.02	0.79	0.71		0.59	0.76		0.62	0.47	
Uniform Delay, d1	42.9	21.5	15.8	42.7	21.5		44.6	38.4		43.8	34.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	1.9	0.1	16.1	2.7		4.7	10.5		5.5	1.5	
Delay (s)	45.6	23.4	15.8	58.8	24.2		49.4	48.9		49.3	36.2	
Level of Service	D	C	B	E	C		D	D		D	D	
Approach Delay (s)		25.3			29.1			49.0			40.4	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	105	950	34	180	1025	84	79	76	265	97	88	120
Future Volume (veh/h)	105	950	34	180	1025	84	79	76	265	97	88	120
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1881	1900	1976	1849	1900	1900	1871	1900	1900	1892	1900
Adj Flow Rate, veh/h	108	979	14	186	1057	82	81	78	0	100	91	68
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	139	1936	875	220	1933	150	105	206	0	129	132	99
Arrive On Green	0.07	0.54	0.54	0.12	0.59	0.57	0.06	0.11	0.00	0.07	0.13	0.12
Sat Flow, veh/h	1882	3574	1615	1882	3304	256	1810	1871	0	1810	1000	747
Grp Volume(v), veh/h	108	979	14	186	562	577	81	78	0	100	0	159
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1804	1810	1871	0	1810	0	1748
Q Serve(g_s), s	5.6	17.3	0.4	9.7	19.5	19.6	4.4	3.9	0.0	5.4	0.0	8.7
Cycle Q Clear(g_c), s	5.6	17.3	0.4	9.7	19.5	19.6	4.4	3.9	0.0	5.4	0.0	8.7
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.00	1.00		0.43
Lane Grp Cap(c), veh/h	139	1936	875	220	1028	1055	105	206	0	129	0	231
V/C Ratio(X)	0.78	0.51	0.02	0.85	0.55	0.55	0.77	0.38	0.00	0.78	0.00	0.69
Avail Cap(c_a), veh/h	245	1936	875	245	1028	1055	199	206	0	290	0	290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.5	14.5	10.6	43.3	12.7	12.8	46.5	41.3	0.0	45.7	0.0	41.7
Incr Delay (d2), s/veh	5.7	0.9	0.0	20.3	2.1	2.0	7.2	1.1	0.0	6.1	0.0	6.6
Initial-Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	8.7	0.2	6.2	10.0	10.2	2.4	2.1	0.0	2.9	0.0	4.6
LnGrp Delay(d),s/veh	51.3	15.4	10.6	63.5	14.7	14.8	53.6	42.4	0.0	51.8	0.0	48.3
LnGrp LOS	D	B	B	E	B	B	D	D		D		D
Approach Vol, veh/h		1101			1325			159			259	
Approach Delay, s/veh		18.9			21.6			48.1			49.7	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	57.9	9.8	16.6	11.4	62.2	11.1	15.3
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	13.0	* 43	11.0	15.2	13.0	* 43	16.0	* 11
Max Q Clear Time (g_c+I1), s	11.7	19.3	6.4	10.7	7.6	21.6	7.4	5.9
Green Ext Time (p_c), s	0.1	22.9	0.1	1.1	0.1	20.7	0.1	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	24.6
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	174	335	277	150	261	422	443	98	120	170	254
Average Queue (ft)	86	207	164	23	136	233	212	57	43	83	102
95th Queue (ft)	160	309	272	85	224	359	343	96	97	146	169
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			30	0	3	10					
Queuing Penalty (veh)			10	1	14	18					

Intersection: 2: 135th Ave & Site Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 43

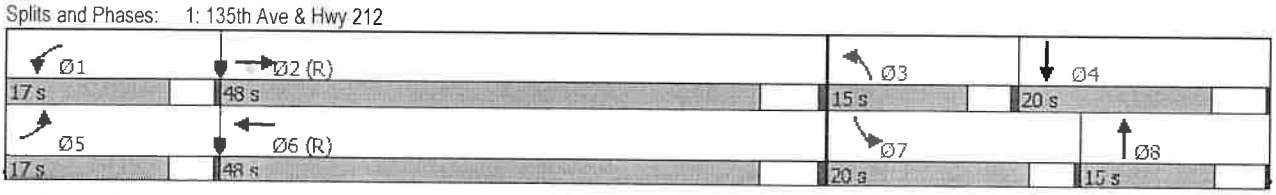
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	932	55	214	1003	82	106	93	301	95	107	117
Future Volume (vph)	103	932	55	214	1003	82	106	93	301	95	107	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.99			0.99	
Frt			0.850		0.989			0.885			0.921	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3453	0	1805	1638	0	1805	1729	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1615	1925	3453	0	1805	1638	0	1805	1729	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			151		11			131			47	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	106	961	57	221	1034	85	109	96	310	98	110	121
Shared Lane Traffic (%)												
Lane Group Flow (vph)	106	961	57	221	1119	0	109	406	0	98	231	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	35.4	35.4	8.0	29.4		8.0	10.5		8.0	10.8	
Total Split (s)	17.0	48.0	48.0	17.0	48.0		15.0	15.0		20.0	20.0	
Total Split (%)	17.0%	48.0%	48.0%	17.0%	48.0%		15.0%	15.0%		20.0%	20.0%	
Maximum Green (s)	13.0	42.6	42.6	13.0	42.6		11.0	10.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-1.4	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		10.0	10.0		7.0							
Flash Dont Walk (s)		20.0	20.0		17.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	9.9	41.8	41.8	12.8	44.7		9.6	21.6		10.1	20.7	
Actuated g/C Ratio	0.10	0.42	0.42	0.13	0.45		0.10	0.22		0.10	0.21	
v/c Ratio	0.56	0.64	0.07	0.90	0.72		0.63	0.89		0.54	0.58	
Control Delay	53.7	25.2	0.2	80.2	25.5		59.8	52.1		53.1	37.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	53.7	25.2	0.2	80.2	25.5		59.8	52.1		53.1	37.1	
LOS	D	C	A	F	C		E	D		D	D	
Approach Delay		26.6			34.5			53.7			41.8	
Approach LOS		C			C			D			D	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 35.5 — Intersection LOS: D
Intersection Capacity Utilization 79.7% — ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	12	80	411	16	84	294
Future Volume (vph)	12	80	411	16	84	294
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.882		0.995			
Flt Protected	0.994				0.950	
Satd. Flow (prot)	1666	0	1855	0	1805	1881
Flt Permitted	0.994				0.950	
Satd. Flow (perm)	1666	0	1855	0	1805	1881
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	12	82	424	16	87	303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	94	0	440	0	87	303
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	
Intersection Capacity Utilization 42.9%	ICU Level of Service A
Analysis Period (min) 15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	932	55	214	1003	82	106	93	301	95	107	117
Future Volume (vph)	103	932	55	214	1003	82	106	93	301	95	107	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	3.4	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	0.99		1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.89		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1615	1925	3452		1805	1640		1805	1731	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1615	1925	3452		1805	1640		1805	1731	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	106	961	57	221	1034	85	109	96	310	98	110	121
RTOR Reduction (vph)	0	0	34	0	6	0	0	103	0	0	37	0
Lane Group Flow (vph)	106	961	23	221	1113	0	109	303	0	98	194	0
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)												1
Heavy Vehicles (%)	0%	1%	0%	0%	3%	0%	0%	0%	2%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	9.9	39.3	39.3	12.8	42.2		9.6	21.1		8.9	20.1	
Effective Green, g (s)	9.9	41.0	41.0	12.8	43.9		9.6	21.6		8.9	21.5	
Actuated g/C Ratio	0.10	0.41	0.41	0.13	0.44		0.10	0.22		0.09	0.22	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	4.3	
Lane Grp Cap (vph)	190	1465	662	246	1515		173	354		160	372	
v/s Ratio Prot	0.06	0.27		c0.11	c0.32		c0.06	c0.18		0.05	0.11	
v/s Ratio Perm			0.01									
v/c Ratio	0.56	0.66	0.04	0.90	0.73		0.63	0.86		0.61	0.52	
Uniform Delay, d1	43.0	23.8	17.7	43.0	23.2		43.5	37.7		43.9	34.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	2.3	0.1	31.3	3.2		6.0	18.1		5.4	2.0	
Delay (s)	45.5	26.1	17.8	74.2	26.4		49.5	55.8		49.3	36.7	
Level of Service	D	C	B	E	C		D	E		D	D	
Approach Delay (s)		27.5			34.3			54.4			40.4	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	79.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	103	932	55	214	1003	82	106	93	301	95	107	117
Future Volume (veh/h)	103	932	55	214	1003	82	106	93	301	95	107	117
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1976	1881	1900	1976	1849	1900	1900	1871	1900	1900	1891	1900
Adj Flow Rate, veh/h	106	961	36	221	1034	80	109	96	0	98	110	65
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	1	0	0	3	3	0	0	0	0	1	1
Cap, veh/h	136	1810	818	245	1864	144	138	250	0	126	151	89
Arrive On Green	0.07	0.51	0.51	0.13	0.56	0.55	0.08	0.13	0.00	0.07	0.14	0.12
Sat Flow, veh/h	1882	3574	1615	1882	3304	256	1810	1871	0	1810	1109	655
Grp Volume(v), veh/h	106	961	36	221	549	565	109	96	0	98	0	175
Grp Sat Flow(s),veh/h/ln	1882	1787	1615	1882	1756	1804	1810	1871	0	1810	0	1765
Q Serve(g_s), s	5.5	18.1	1.1	11.6	19.8	19.9	5.9	4.7	0.0	5.3	0.0	9.5
Cycle Q Clear(g_c), s	5.5	18.1	1.1	11.6	19.8	19.9	5.9	4.7	0.0	5.3	0.0	9.5
Prop In Lane	1.00		1.00	1.00		0.14	1.00		0.00	1.00		0.37
Lane Grp Cap(c), veh/h	136	1810	818	245	991	1017	138	250	0	126	0	241
V/C Ratio(X)	0.78	0.53	0.04	0.90	0.55	0.55	0.79	0.38	0.00	0.78	0.00	0.73
Avail Cap(c_a), veh/h	245	1810	818	245	991	1017	199	250	0	290	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.6	16.7	12.5	42.9	13.8	13.9	45.4	39.6	0.0	45.7	0.0	41.7
Incr Delay (d2), s/veh	5.8	1.1	0.1	32.7	2.2	2.2	9.7	1.0	0.0	6.2	0.0	8.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	9.2	0.5	8.2	10.1	10.5	3.3	2.5	0.0	2.9	0.0	5.2
LnGrp Delay(d),s/veh	51.4	17.8	12.6	75.6	16.1	16.1	55.1	40.5	0.0	51.9	0.0	50.4
LnGrp LOS	D	B	B	E	B	B	E	D		D		D
Approach Vol, veh/h		1103			1335			205			273	
Approach Delay, s/veh		20.8			25.9			48.3			50.9	
Approach LOS		C			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	54.4	11.6	17.0	11.2	60.1	11.0	17.7
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	13.0	* 43	11.0	15.2	13.0	* 43	16.0	* 11
Max Q Clear Time (g_c+I1), s	13.6	20.1	7.9	11.5	7.5	21.9	7.3	6.7
Green Ext Time (p_c), s	0.0	22.1	0.1	0.7	0.1	20.3	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	27.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	80	411	16	84	294
Future Vol, veh/h	12	80	411	16	84	294
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	2	0	0	1
Mvmt Flow	12	82	424	16	87	303

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	909	432	0	0	440	0
Stage 1	432	-	-	-	-	-
Stage 2	477	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	308	628	-	-	1131	-
Stage 1	659	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	284	628	-	-	1131	-
Mov Cap-2 Maneuver	411	-	-	-	-	-
Stage 1	659	-	-	-	-	-
Stage 2	581	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.3	0	1.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	588	1131	-
HCM Lane V/C Ratio	-	-	0.161	0.077	-
HCM Control Delay (s)	-	-	12.3	8.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	124	339	296	150	335	345	406	145	206	127	349
Average Queue (ft)	75	237	185	34	175	239	228	67	66	66	141
95th Queue (ft)	124	324	268	104	301	342	327	119	140	124	291
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)			34	0	9	12					1
Queuing Penalty (veh)			19	2	47	26					1

Intersection: 2: 135th Ave & Site Driveway

Movement	WB	SB	SB
Directions Served	LR	L	T
Maximum Queue (ft)	130	49	60
Average Queue (ft)	39	29	2
95th Queue (ft)	73	50	20
Link Distance (ft)	194		416
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		25	
Storage Blk Time (%)		3	
Queuing Penalty (veh)		9	

Network Summary

Network wide Queuing Penalty: 104

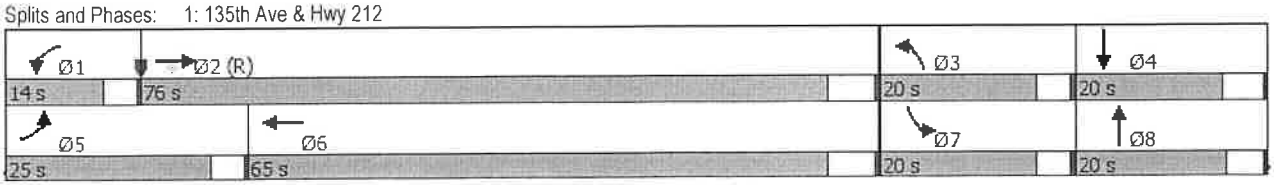
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1810	13	140	1240	130	44	140	480	225	91	115
Future Volume (vph)	180	1810	13	140	1240	130	44	140	480	225	91	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.986			0.884			0.916	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3499	0	1805	1652	0	1805	1740	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3499	0	1805	1652	0	1805	1740	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		11			109			40	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	182	1828	13	141	1253	131	44	141	485	227	92	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	1828	13	141	1384	0	44	626	0	227	208	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	25.0	76.0	76.0	14.0	65.0		20.0	20.0		20.0	20.0	
Total Split (%)	19.2%	58.5%	58.5%	10.8%	50.0%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	21.0	70.6	70.6	10.0	59.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	17.0	72.3	72.3	10.0	65.3		7.9	16.0		16.0	25.9	
Actuated g/C Ratio	0.13	0.56	0.56	0.08	0.50		0.06	0.12		0.12	0.20	
v/c Ratio	0.73	0.92	0.01	0.95	0.79		0.40	2.10		1.02	0.55	
Control Delay	70.4	35.2	0.0	121.8	31.0		68.8	529.7		121.9	45.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.4	35.2	0.0	121.8	31.0		68.8	529.7		121.9	45.3	
LOS	E	D	A	F	C		E	F		F	D	
Approach Delay		38.1			39.4			499.5			85.3	
Approach LOS		D			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 14 (11%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.10
Intersection Signal Delay: 109.4 — Intersection LOS: F
Intersection Capacity Utilization 120.8% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	665	0	0	245
Future Volume (vph)	0	0	665	0	0	245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1900	0	1900	0	1900	1900
Flt Permitted						
Satd. Flow (perm)	1900	0	1900	0	1900	1900
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	0	0	672	0	0	247
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	672	0	0	247
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	180	1810	13	140	1240	130	44	140	480	225	91	115
Future Volume (vph)	180	1810	13	140	1240	130	44	140	480	225	91	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3498		1805	1652		1805	1741	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3498		1805	1652		1805	1741	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	182	1828	13	141	1253	131	44	141	485	227	92	116
RTOR Reduction (vph)	0	0	6	0	6	0	0	95	0	0	32	0
Lane Group Flow (vph)	182	1828	7	141	1378	0	44	531	0	227	176	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	17.0	69.8	69.8	10.0	62.8		6.9	16.3		16.0	25.1	
Effective Green, g (s)	17.0	71.5	71.5	10.0	64.5		6.9	16.8		16.0	25.9	
Actuated g/C Ratio	0.13	0.55	0.55	0.08	0.50		0.05	0.13		0.12	0.20	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	251	1965	866	148	1735		95	213		222	346	
v/s Ratio Prot	0.09	c0.51		c0.07	0.39		0.02	c0.32		c0.13	0.10	
v/s Ratio Perm			0.00									
v/c Ratio	0.73	0.93	0.01	0.95	0.79		0.46	2.49		1.02	0.51	
Uniform Delay, d1	54.3	27.0	13.2	59.8	27.2		59.8	56.6		57.0	46.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.9	9.4	0.0	59.3	2.9		2.1	685.8		66.4	1.2	
Delay (s)	64.2	36.4	13.2	119.0	30.1		61.8	742.4		123.4	47.6	
Level of Service	E	D	B	F	C		E	F		F	D	
Approach Delay (s)		38.7			38.4			697.7			87.1	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	138.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	120.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	1810	13	140	1240	130	44	140	480	225	91	115
Future Volume (veh/h)	180	1810	13	140	1240	130	44	140	480	225	91	115
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1883	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	182	1828	7	141	1253	125	44	141	0	227	92	83
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	213	2077	937	145	1787	178	57	182	0	223	175	158
Arrive On Green	0.11	0.58	0.58	0.08	0.54	0.53	0.03	0.10	0.00	0.12	0.19	0.18
Sat Flow, veh/h	1882	3574	1612	1882	3280	326	1810	1900	0	1810	922	832
Grp Volume(v), veh/h	182	1828	7	141	682	696	44	141	0	227	0	175
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1789	1817	1810	1900	0	1810	0	1753
Q Serve(g_s), s	12.3	57.0	0.2	9.7	36.4	36.9	3.1	9.4	0.0	16.0	0.0	11.7
Cycle Q Clear(g_c), s	12.3	57.0	0.2	9.7	36.4	36.9	3.1	9.4	0.0	16.0	0.0	11.7
Prop In Lane	1.00		1.00	1.00		0.18	1.00		0.00	1.00		0.47
Lane Grp Cap(c), veh/h	213	2077	937	145	975	990	57	182	0	223	0	332
V/C Ratio(X)	0.86	0.88	0.01	0.97	0.70	0.70	0.77	0.77	0.00	1.02	0.00	0.53
Avail Cap(c_a), veh/h	304	2077	937	145	975	990	223	234	0	223	0	332
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.6	23.4	11.5	59.9	21.8	22.0	62.5	57.4	0.0	57.0	0.0	47.6
Incr Delay (d2), s/veh	15.1	5.8	0.0	66.5	2.6	2.7	12.1	11.4	0.0	65.4	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	29.6	0.1	7.7	18.7	19.1	1.8	5.5	0.0	12.0	0.0	5.8
LnGrp Delay(d),s/veh	71.7	29.1	11.5	126.4	24.4	24.6	74.6	68.8	0.0	122.5	0.0	49.1
LnGrp LOS	E	C	B	F	C	C	E	E		F		D
Approach Vol, veh/h		2017			1519			185			402	
Approach Delay, s/veh		32.9			34.0			70.2			90.6	
Approach LOS		C			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	79.2	8.1	28.6	18.7	74.5	20.0	16.8
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	10.0	* 71	16.0	15.2	21.0	* 60	16.0	* 16
Max Q Clear Time (g_c+I1), s	11.7	59.0	5.1	13.7	14.3	38.9	18.0	11.4
Green Ext Time (p_c), s	0.0	11.6	0.1	0.5	0.4	20.7	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	40.6
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	836	792	150	399	730	644	399	440	431	398
Average Queue (ft)	360	676	614	10	176	359	342	83	427	220	182
95th Queue (ft)	663	874	823	58	353	530	508	294	437	344	355
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		9	4					0	58		
Queuing Penalty (veh)		0	0					0	386		
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)		32	41	0	13	24			74	7	1
Queuing Penalty (veh)		58	5	0	81	34			32	15	2

Intersection: 2: 135th Ave & Site Driveway

Movement	NB
Directions Served	TR
Maximum Queue (ft)	547
Average Queue (ft)	542
95th Queue (ft)	579
Link Distance (ft)	528
Upstream Blk Time (%)	73
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 614

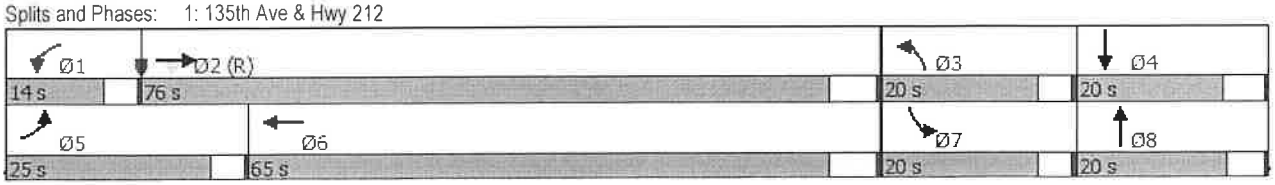
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	1790	37	162	1226	129	62	153	516	222	104	114
Future Volume (vph)	178	1790	37	162	1226	129	62	153	516	222	104	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.986			0.884			0.922	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3499	0	1805	1652	0	1805	1752	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3499	0	1805	1652	0	1805	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		12			106			35	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	180	1808	37	164	1238	130	63	155	521	224	105	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	1808	37	164	1368	0	63	676	0	224	220	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	25.0	76.0	76.0	14.0	65.0		20.0	20.0		20.0	20.0	
Total Split (%)	19.2%	58.5%	58.5%	10.8%	50.0%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	21.0	70.6	70.6	10.0	59.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	16.9	72.3	72.3	10.0	65.4		9.2	16.0		16.0	24.7	
Actuated g/C Ratio	0.13	0.56	0.56	0.08	0.50		0.07	0.12		0.12	0.19	
v/c Ratio	0.72	0.91	0.04	1.11	0.77		0.50	2.28		1.01	0.61	
Control Delay	70.4	34.1	0.1	159.7	30.5		70.5	610.1		119.0	50.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.4	34.1	0.1	159.7	30.5		70.5	610.1		119.0	50.0	
LOS	E	C	A	F	C		E	F		F	D	
Approach Delay		36.7			44.3			564.1			84.8	
Approach LOS		D			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 14 (11%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.28
Intersection Signal Delay: 125.9 — Intersection LOS: F
Intersection Capacity Utilization 124.2% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	67	658	11	61	242
Future Volume (vph)	8	67	658	11	61	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879		0.998			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1662	0	1896	0	1805	1900
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1662	0	1896	0	1805	1900
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	8	68	665	11	62	244
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	676	0	62	244
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	1790	37	162	1226	129	62	153	516	222	104	114
Future Volume (vph)	178	1790	37	162	1226	129	62	153	516	222	104	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3498		1805	1653		1805	1751	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3498		1805	1653		1805	1751	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	180	1808	37	164	1238	130	63	155	521	224	105	115
RTOR Reduction (vph)	0	0	17	0	6	0	0	92	0	0	28	0
Lane Group Flow (vph)	180	1808	20	164	1362	0	63	584	0	224	192	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	16.9	69.8	69.8	10.0	62.9		8.1	16.3		16.0	23.9	
Effective Green, g (s)	16.9	71.5	71.5	10.0	64.6		8.1	16.8		16.0	24.7	
Actuated g/C Ratio	0.13	0.55	0.55	0.08	0.50		0.06	0.13		0.12	0.19	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	250	1965	866	148	1738		112	213		222	332	
v/s Ratio Prot	0.09	c0.51		c0.09	0.39		0.03	c0.35		c0.12	0.11	
v/s Ratio Perm			0.01									
v/c Ratio	0.72	0.92	0.02	1.11	0.78		0.56	2.74		1.01	0.58	
Uniform Delay, d1	54.3	26.6	13.3	60.0	26.9		59.2	56.6		57.0	47.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.5	8.5	0.1	105.9	2.7		4.6	796.3		62.7	2.4	
Delay (s)	63.8	35.2	13.4	165.9	29.6		63.8	852.9		119.7	50.3	
Level of Service	E	D	B	F	C		E	F		F	D	
Approach Delay (s)		37.3			44.2			785.6			85.3	
Approach LOS		D			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	160.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	124.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	1790	37	162	1226	129	62	153	516	222	104	114
Future Volume (veh/h)	178	1790	37	162	1226	129	62	153	516	222	104	114
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1883	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	180	1808	31	164	1238	124	63	155	0	224	105	82
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	211	2053	926	145	1768	176	82	195	0	223	181	141
Arrive On Green	0.11	0.57	0.57	0.08	0.54	0.53	0.05	0.10	0.00	0.12	0.18	0.18
Sat Flow, veh/h	1882	3574	1612	1882	3278	327	1810	1900	0	1810	990	773
Grp Volume(v), veh/h	180	1808	31	164	674	688	63	155	0	224	0	187
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1789	1817	1810	1900	0	1810	0	1764
Q Serve(g_s), s	12.2	56.7	1.1	10.0	36.2	36.6	4.5	10.4	0.0	16.0	0.0	12.6
Cycle Q Clear(g_c), s	12.2	56.7	1.1	10.0	36.2	36.6	4.5	10.4	0.0	16.0	0.0	12.6
Prop In Lane	1.00		1.00	1.00		0.18	1.00		0.00	1.00		0.44
Lane Grp Cap(c), veh/h	211	2053	926	145	965	980	82	195	0	223	0	322
V/C Ratio(X)	0.85	0.88	0.03	1.13	0.70	0.70	0.77	0.79	0.00	1.01	0.00	0.58
Avail Cap(c_a), veh/h	304	2053	926	145	965	980	223	234	0	223	0	322
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	56.7	23.8	12.0	60.0	22.1	22.4	61.4	57.0	0.0	57.0	0.0	48.7
Incr Delay (d2), s/veh	14.7	5.8	0.1	114.9	2.6	2.7	8.9	14.6	0.0	61.8	0.0	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	29.5	0.5	9.8	18.5	19.1	2.4	6.2	0.0	11.8	0.0	6.4
LnGrp Delay(d),s/veh	71.4	29.7	12.1	174.9	24.8	25.0	70.3	71.5	0.0	118.8	0.0	51.3
LnGrp LOS	E	C	B	F	C	C	E	E		F		D
Approach Vol, veh/h		2019			1526			218			411	
Approach Delay, s/veh		33.1			41.0			71.2			88.1	
Approach LOS		C			D			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	78.4	9.9	27.8	18.6	73.8	20.0	17.6
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	10.0	* 71	16.0	15.2	21.0	* 60	16.0	* 16
Max Q Clear Time (g_c+I1), s	12.0	58.7	6.5	14.6	14.2	38.6	18.0	12.4
Green Ext Time (p_c), s	0.0	11.9	0.1	0.2	0.4	21.0	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	43.4
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	67	658	11	61	242
Future Vol, veh/h	8	67	658	11	61	242
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	8	68	665	11	62	244

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1039	671	0	0	676	0
Stage 1	671	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	258	460	-	-	925	-
Stage 1	512	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	241	460	-	-	925	-
Mov Cap-2 Maneuver	370	-	-	-	-	-
Stage 1	512	-	-	-	-	-
Stage 2	657	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	1.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	448	925	-
HCM Lane V/C Ratio	-	-	0.169	0.067	-
HCM Control Delay (s)	-	-	14.7	9.2	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.2	-

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	792	792	150	400	798	798	400	436	449	645
Average Queue (ft)	354	671	632	17	341	534	484	173	425	332	231
95th Queue (ft)	672	909	870	92	495	849	813	466	433	495	512
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		11	6			8	2	0	56		
Queuing Penalty (veh)		0	0			0	0	0	405		
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)		32	41	0	78	22			72	34	1
Queuing Penalty (veh)		57	15	0	479	35			45	73	3

Intersection: 2: 135th Ave & Site Driveway

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	214	547	48	129
Average Queue (ft)	176	520	25	13
95th Queue (ft)	265	653	54	68
Link Distance (ft)	194	528		416
Upstream Blk Time (%)	79	69		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)			25	
Storage Blk Time (%)			7	0
Queuing Penalty (veh)			16	0

Network Summary

Network wide Queuing Penalty: 1129

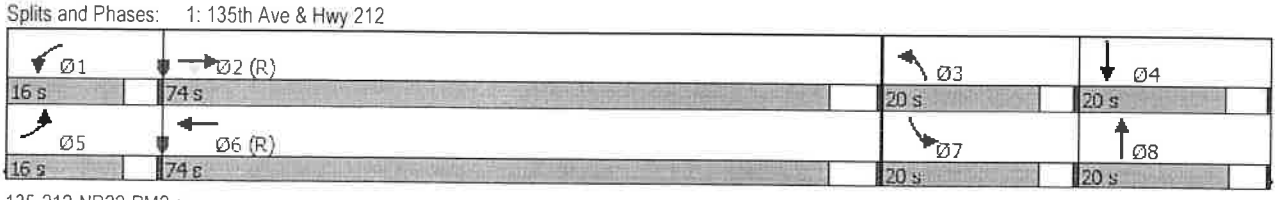
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	1740	13	145	1145	66	73	130	460	190	100	96
Future Volume (vph)	200	1740	13	145	1145	66	73	130	460	190	100	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.992			0.883			0.926	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3522	0	1805	1650	0	1805	1759	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3522	0	1805	1650	0	1805	1759	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		7			112			30	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	211	1832	14	153	1205	69	77	137	484	200	105	101
Shared Lane Traffic (%)												
Lane Group Flow (vph)	211	1832	14	153	1274	0	77	621	0	200	206	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	16.0	74.0	74.0	16.0	74.0		20.0	20.0		20.0	20.0	
Total Split (%)	12.3%	56.9%	56.9%	12.3%	56.9%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	12.0	68.6	68.6	12.0	68.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	12.0	70.5	70.5	11.8	70.3		10.2	16.3		15.7	23.8	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.54		0.08	0.13		0.12	0.18	
v/c Ratio	1.19	0.95	0.02	0.88	0.67		0.55	2.04		0.92	0.60	
Control Delay	178.2	39.5	0.0	100.7	23.5		71.2	503.6		99.2	51.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	178.2	39.5	0.0	100.7	23.5		71.2	503.6		99.2	51.1	
LOS	F	D	A	F	C		E	F		F	D	
Approach Delay		53.5			31.8			455.9			74.8	
Approach LOS		D			C			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.04
Intersection Signal Delay: 109.8 — Intersection LOS: F
Intersection Capacity Utilization 115.5% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	0	665	0	0	260
Future Volume (vph)	0	0	665	0	0	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1863	0	1863	0	1863	1863
Flt Permitted						
Satd. Flow (perm)	1863	0	1863	0	1863	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	700	0	0	274
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	700	0	0	274
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 38.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	200	1740	13	145	1145	66	73	130	460	190	100	96
Future Volume (vph)	200	1740	13	145	1145	66	73	130	460	190	100	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.98		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.88		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3522		1805	1650		1805	1760	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3522		1805	1650		1805	1760	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	211	1832	14	153	1205	69	77	137	484	200	105	101
RTOR Reduction (vph)	0	0	6	0	3	0	0	97	0	0	25	0
Lane Group Flow (vph)	211	1832	8	153	1271	0	77	524	0	200	181	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	12.0	68.0	68.0	11.8	67.8		9.0	16.6		15.7	23.0	
Effective Green, g (s)	12.0	69.7	69.7	11.8	69.5		9.0	17.1		15.7	23.8	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.53		0.07	0.13		0.12	0.18	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	177	1916	844	174	1882		124	217		217	322	
v/s Ratio Prot	c0.11	c0.51		0.08	0.36		0.04	c0.32		c0.11	0.10	
v/s Ratio Perm			0.00									
v/c Ratio	1.19	0.96	0.01	0.88	0.68		0.62	2.41		0.92	0.56	
Uniform Delay, d1	59.0	28.7	14.1	58.4	22.0		58.8	56.5		56.5	48.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	128.8	12.5	0.0	35.5	2.0		7.6	649.9		39.7	2.3	
Delay (s)	187.8	41.2	14.1	93.9	24.0		66.4	706.4		96.3	50.6	
Level of Service	F	D	B	F	C		E	F		F	D	
Approach Delay (s)		56.1			31.5			635.8			73.1	
Approach LOS		E			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	138.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	115.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	1740	13	145	1145	66	73	130	460	190	100	96
Future Volume (veh/h)	200	1740	13	145	1145	66	73	130	460	190	100	96
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1882	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	211	1832	8	153	1205	63	77	137	0	200	105	66
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	174	2029	915	174	1960	102	99	179	0	223	180	113
Arrive On Green	0.09	0.57	0.57	0.09	0.57	0.55	0.05	0.09	0.00	0.12	0.16	0.16
Sat Flow, veh/h	1882	3574	1612	1882	3453	180	1810	1900	0	1810	1092	687
Grp Volume(v), veh/h	211	1832	8	153	623	645	77	137	0	200	0	171
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1788	1846	1810	1900	0	1810	0	1779
Q Serve(g_s), s	12.0	59.1	0.3	10.4	30.1	30.2	5.5	9.2	0.0	14.2	0.0	11.6
Cycle Q Clear(g_c), s	12.0	59.1	0.3	10.4	30.1	30.2	5.5	9.2	0.0	14.2	0.0	11.6
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.00	1.00		0.39
Lane Grp Cap(c), veh/h	174	2029	915	174	1015	1048	99	179	0	223	0	293
V/C Ratio(X)	1.21	0.90	0.01	0.88	0.61	0.62	0.78	0.77	0.00	0.90	0.00	0.58
Avail Cap(c_a), veh/h	174	2029	915	174	1015	1048	223	234	0	223	0	293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.0	24.9	12.2	58.3	18.7	18.7	60.7	57.5	0.0	56.2	0.0	50.3
Incr Delay (d2), s/veh	137.7	7.1	0.0	36.2	2.8	2.7	7.9	10.6	0.0	33.8	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	31.0	0.1	7.2	15.5	16.2	3.0	5.3	0.0	9.2	0.0	5.9
LnGrp Delay(d),s/veh	196.7	32.0	12.2	94.5	21.4	21.5	68.6	68.1	0.0	89.9	0.0	53.3
LnGrp LOS	F	C	B	F	C	C	E	E		F		D
Approach Vol, veh/h		2051			1421			214			371	
Approach Delay, s/veh		48.9			29.3			68.3			73.0	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	77.5	11.1	25.4	16.0	77.5	20.0	16.5
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	12.0	* 69	16.0	15.2	12.0	* 69	16.0	* 16
Max Q Clear Time (g_c+I1), s	12.4	61.1	7.5	13.6	14.0	32.2	16.2	11.2
Green Ext Time (p_c), s	0.0	7.5	0.1	0.5	0.0	36.3	0.0	0.6

Intersection Summary	
HCM 2010 Ctrl Delay	45.3
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	812	812	150	354	415	316	400	438	449	474
Average Queue (ft)	427	670	638	22	148	282	241	246	427	231	188
95th Queue (ft)	612	918	929	105	264	389	329	528	434	371	352
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		23	13					0	51		
Queuing Penalty (veh)		0	0					0	344		
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)	20	27	43	0	9	21			69	2	3
Queuing Penalty (veh)	171	54	6	0	53	31			51	4	6

Intersection: 2: 135th Ave & Site Driveway

Movement	NB
Directions Served	TR
Maximum Queue (ft)	591
Average Queue (ft)	513
95th Queue (ft)	714
Link Distance (ft)	528
Upstream Blk Time (%)	64
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 720

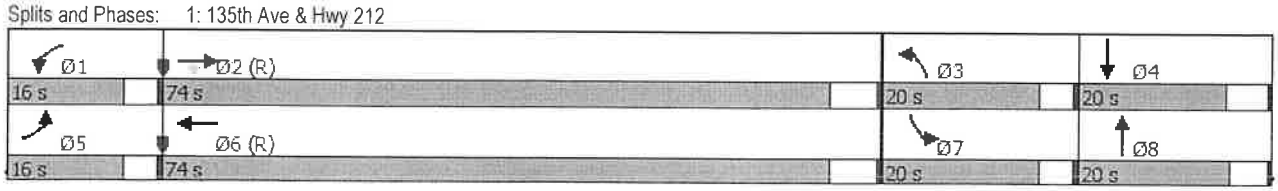
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	1719	40	168	1131	65	93	146	198	187	115	95
Future Volume (vph)	197	1719	40	168	1131	65	93	146	198	187	115	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	300		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			100			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.99				
Frt			0.850		0.992			0.914			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3522	0	1805	1715	0	1805	1771	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3522	0	1805	1715	0	1805	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		7			43			26	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	207	1809	42	177	1191	68	98	154	208	197	121	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	1809	42	177	1259	0	98	362	0	197	221	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes			Yes				
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	16.0	74.0	74.0	16.0	74.0		20.0	20.0		20.0	20.0	
Total Split (%)	12.3%	56.9%	56.9%	12.3%	56.9%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	12.0	68.6	68.6	12.0	68.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	12.0	70.3	70.3	12.0	70.3		11.6	16.4		15.6	20.4	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.54		0.09	0.13		0.12	0.16	
v/c Ratio	1.17	0.94	0.05	1.00	0.66		0.61	1.43		0.91	0.74	
Control Delay	171.0	38.3	0.3	126.3	23.3		72.4	250.8		97.9	62.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	171.0	38.3	0.3	126.3	23.3		72.4	250.8		97.9	62.2	
LOS	F	D	A	F	C		E	F		F	E	
Approach Delay		50.9			36.0			212.7			79.0	
Approach LOS		D			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay: 65.7 — Intersection LOS: E
Intersection Capacity Utilization 100.6% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	74	657	13	67	258
Future Volume (vph)	9	74	657	13	67	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	25	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879		0.997			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1629	0	1857	0	1770	1863
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1629	0	1857	0	1770	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	78	692	14	71	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	0	706	0	71	272
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			Yes
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary

Area Type: Other
Control Type: Unsignalized
Intersection Capacity Utilization 54.1% ICU Level of Service A
Analysis Period (min) 15

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	1719	40	168	1131	65	93	146	198	187	115	95
Future Volume (vph)	197	1719	40	168	1131	65	93	146	198	187	115	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	14	12	12	14	12	12	12	12	12	12	12	12
Total Lost time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.91		1.00	0.93	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1925	3574	1576	1925	3522		1805	1715		1805	1771	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1925	3574	1576	1925	3522		1805	1715		1805	1771	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	207	1809	42	177	1191	68	98	154	208	197	121	100
RTOR Reduction (vph)	0	0	19	0	3	0	0	38	0	0	22	0
Lane Group Flow (vph)	207	1809	23	177	1256	0	98	324	0	197	199	0
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Actuated Green, G (s)	12.0	68.6	68.6	12.0	68.6		11.6	15.9		15.6	19.6	
Effective Green, g (s)	12.0	70.3	70.3	12.0	70.3		11.6	16.4		15.6	20.4	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.54		0.09	0.13		0.12	0.16	
Clearance Time (s)	4.0	5.4	5.4	4.0	5.4		4.0	4.5		4.0	4.8	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Lane Grp Cap (vph)	177	1932	852	177	1904		161	216		216	277	
v/s Ratio Prot	c0.11	c0.51		0.09	0.36		0.05	c0.19		c0.11	c0.11	
v/s Ratio Perm			0.01									
v/c Ratio	1.17	0.94	0.03	1.00	0.66		0.61	1.50		0.91	0.72	
Uniform Delay, d1	59.0	27.8	13.9	59.0	21.3		57.0	56.8		56.5	52.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	120.6	10.1	0.1	67.6	1.8		5.0	248.5		37.6	8.6	
Delay (s)	179.6	37.9	14.0	126.6	23.1		62.0	305.3		94.1	60.7	
Level of Service	F	D	B	F	C		E	F		F	E	
Approach Delay (s)		51.7			35.9			253.5			76.4	
Approach LOS		D			D			F			E	

Intersection Summary			
HCM 2000 Control Delay	70.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	15.7
Intersection Capacity Utilization	100.6%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	1719	40	168	1131	65	93	146	198	187	115	95
Future Volume (veh/h)	197	1719	40	168	1131	65	93	146	198	187	115	95
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	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	1976	1881	1900	1976	1882	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	207	1809	36	177	1191	62	98	154	0	197	121	65
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	1	0	0	1	1	0	0	0	0	0	0
Cap, veh/h	174	2001	903	174	1934	101	123	194	0	222	185	100
Arrive On Green	0.09	0.56	0.56	0.09	0.56	0.55	0.07	0.10	0.00	0.12	0.16	0.15
Sat Flow, veh/h	1882	3574	1612	1882	3454	180	1810	1900	0	1810	1164	625
Grp Volume(v), veh/h	207	1809	36	177	616	637	98	154	0	197	0	186
Grp Sat Flow(s),veh/h/ln	1882	1787	1612	1882	1788	1846	1810	1900	0	1810	0	1790
Q Serve(g_s), s	12.0	58.6	1.3	12.0	30.1	30.2	6.9	10.3	0.0	13.9	0.0	12.7
Cycle Q Clear(g_c), s	12.0	58.6	1.3	12.0	30.1	30.2	6.9	10.3	0.0	13.9	0.0	12.7
Prop In Lane	1.00		1.00	1.00		0.10	1.00		0.00	1.00		0.35
Lane Grp Cap(c), veh/h	174	2001	903	174	1001	1034	123	194	0	222	0	285
V/C Ratio(X)	1.19	0.90	0.04	1.02	0.62	0.62	0.80	0.79	0.00	0.89	0.00	0.65
Avail Cap(c_a), veh/h	174	2001	903	174	1001	1034	223	234	0	223	0	285
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	59.0	25.5	12.9	59.0	19.2	19.3	59.7	57.0	0.0	56.2	0.0	51.4
Incr Delay (d2), s/veh	129.2	7.2	0.1	73.3	2.8	2.8	7.2	14.3	0.0	31.7	0.0	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.5	30.7	0.6	9.8	15.5	16.2	3.7	6.2	0.0	8.9	0.0	6.7
LnGrp Delay(d),s/veh	188.2	32.7	13.0	132.5	22.0	22.0	66.9	71.4	0.0	87.9	0.0	56.6
LnGrp LOS	F	C	B	F	C	C	E	E		F		E
Approach Vol, veh/h		2052			1430			252			383	
Approach Delay, s/veh		48.1			35.7			69.6			72.7	
Approach LOS		D			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	76.5	12.8	24.7	16.0	76.5	19.9	17.6
Change Period (Y+Rc), s	4.0	* 5.4	4.0	4.8	4.0	* 5.4	4.0	* 4.8
Max Green Setting (Gmax), s	12.0	* 69	16.0	15.2	12.0	* 69	16.0	* 16
Max Q Clear Time (g_c+I1), s	14.0	60.6	8.9	14.7	14.0	32.2	15.9	12.3
Green Ext Time (p_c), s	0.0	8.0	0.1	0.2	0.0	36.3	0.0	0.5

Intersection Summary	
HCM 2010 Ctrl Delay	47.4
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	9	74	657	13	67	258
Future Vol, veh/h	9	74	657	13	67	258
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	25	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	9	78	692	14	71	272

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1113	699	0	0	706	0
Stage 1	699	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	231	440	-	-	892	-
Stage 1	493	-	-	-	-	-
Stage 2	667	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	213	440	-	-	892	-
Mov Cap-2 Maneuver	345	-	-	-	-	-
Stage 1	493	-	-	-	-	-
Stage 2	614	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.6	0	1.9
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	427	892	-
HCM Lane V/C Ratio	-	-	0.205	0.079	-
HCM Control Delay (s)	-	-	15.6	9.4	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.3	-

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	836	836	150	350	379	353	399	433	264	302
Average Queue (ft)	463	738	726	30	181	284	238	91	256	156	145
95th Queue (ft)	616	952	975	120	342	370	324	240	487	254	256
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		34	31					0	10		
Queuing Penalty (veh)		0	0					0	80		
Storage Bay Dist (ft)	425			50	200			300		325	
Storage Blk Time (%)	9	38	43	0	26	17			17		
Queuing Penalty (veh)	73	75	17	0	148	30			17		

Intersection: 2: 135th Ave & Site Site Driveway

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	258	547	76	247
Average Queue (ft)	80	80	24	23
95th Queue (ft)	200	353	58	124
Link Distance (ft)	194	528		416
Upstream Blk Time (%)	14	1		
Queuing Penalty (veh)	0	0		
Storage Bay Dist (ft)			25	
Storage Blk Time (%)			7	0
Queuing Penalty (veh)			19	0

Network Summary

Network wide Queuing Penalty: 459

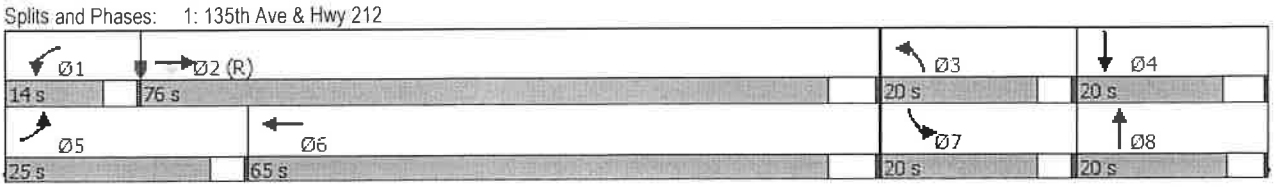
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	1790	37	162	1226	129	62	153	516	222	104	114
Future Volume (vph)	178	1790	37	162	1226	129	62	153	516	222	104	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	285		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			60			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.98				
Frt			0.850		0.986			0.884			0.922	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3499	0	1805	1652	0	1805	1752	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3499	0	1805	1652	0	1805	1752	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		12			106			35	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	180	1808	37	164	1238	130	63	155	521	224	105	115
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	1808	37	164	1368	0	63	676	0	224	220	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	25.0	76.0	76.0	14.0	65.0		20.0	20.0		20.0	20.0	
Total Split (%)	19.2%	58.5%	58.5%	10.8%	50.0%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	21.0	70.6	70.6	10.0	59.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	16.9	72.3	72.3	10.0	65.4		9.2	16.0		16.0	24.7	
Actuated g/C Ratio	0.13	0.56	0.56	0.08	0.50		0.07	0.12		0.12	0.19	
v/c Ratio	0.72	0.91	0.04	1.11	0.77		0.50	2.28		1.01	0.61	
Control Delay	70.4	34.1	0.1	159.7	30.5		70.5	610.1		119.0	50.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	70.4	34.1	0.1	159.7	30.5		70.5	610.1		119.0	50.0	
LOS	E	C	A	F	C		E	F		F	D	
Approach Delay		36.7			44.3			564.1			84.8	
Approach LOS		D			D			F			F	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 14 (11%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 2.28
Intersection Signal Delay: 125.9 — Intersection LOS: F
Intersection Capacity Utilization 124.2% — ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	8	67	658	11	61	242
Future Volume (vph)	8	67	658	11	61	242
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	60	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879		0.998			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1662	0	1896	0	1805	1900
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1662	0	1896	0	1805	1900
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	8	68	665	11	62	244
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	676	0	62	244
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	836	792	150	400	842	798	345	440	447	467
Average Queue (ft)	363	786	781	19	331	621	598	162	428	296	217
95th Queue (ft)	706	866	864	92	509	1015	965	416	439	492	444
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		41	38			49	7		58		
Queuing Penalty (veh)		0	0			0	0		421		
Storage Bay Dist (ft)	425			50	200			285		325	
Storage Blk Time (%)		44	43	0	74	13			72	20	0
Queuing Penalty (veh)		79	16	2	452	22			45	43	1

Intersection: 2: 135th Ave & Site Driveway

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	214	547	63
Average Queue (ft)	191	523	19
95th Queue (ft)	254	672	50
Link Distance (ft)	194	528	
Upstream Blk Time (%)	86	67	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			60
Storage Blk Time (%)			0
Queuing Penalty (veh)			1

Network Summary

Network wide Queuing Penalty: 1082

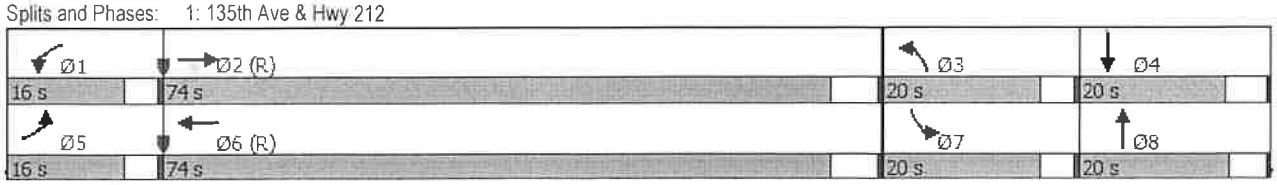
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	197	1719	40	168	1131	65	93	146	198	187	115	95
Future Volume (vph)	197	1719	40	168	1131	65	93	146	198	187	115	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	12	12	14	12	12	12	12	12	12	12	12
Storage Length (ft)	425		50	200		0	280		0	325		0
Storage Lanes	1		1	1		0	1		0	1		0
Taper Length (ft)	100			200			60			125		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.98		1.00			0.99				
Frt			0.850		0.992			0.914			0.932	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1925	3574	1615	1925	3522	0	1805	1715	0	1805	1771	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1925	3574	1576	1925	3522	0	1805	1715	0	1805	1771	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82		7			43			26	
Link Speed (mph)		45			45			35			40	
Link Distance (ft)		811			814			483			773	
Travel Time (s)		12.3			12.3			9.4			13.2	
Confl. Peds. (#/hr)			2			1			4			
Confl. Bikes (#/hr)						1						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	3	0	0	0	0	0	0	0
Adj. Flow (vph)	207	1809	42	177	1191	68	98	154	208	197	121	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	207	1809	42	177	1259	0	98	362	0	197	221	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		14			14			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		10			10			10			10	
Two way Left Turn Lane		Yes			Yes							
Headway Factor	0.92	1.00	1.00	0.92	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	20		15	20		15	20		15	20		9
Number of Detectors	2	3	1	2	3		2	3		2	3	
Detector Template												
Leading Detector (ft)	78	323	8	78	323		78	223		78	323	
Trailing Detector (ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Position(ft)	2	2	2	2	2		2	2		2	2	
Detector 1 Size(ft)	16	16	6	16	16		16	16		16	16	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	72	157		72	157		72	72		72	157	
Detector 2 Size(ft)	6	6		6	6		6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 3 Position(ft)		317			317			217			317	
Detector 3 Size(ft)		6			6			6			6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									
Detector Phase	5	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0	10.0	4.0	10.0		4.0	6.0		4.0	6.0	
Minimum Split (s)	8.0	37.4	37.4	8.0	45.4		8.0	10.5		8.0	10.8	
Total Split (s)	16.0	74.0	74.0	16.0	74.0		20.0	20.0		20.0	20.0	
Total Split (%)	12.3%	56.9%	56.9%	12.3%	56.9%		15.4%	15.4%		15.4%	15.4%	
Maximum Green (s)	12.0	68.6	68.6	12.0	68.6		16.0	15.5		16.0	15.2	
Yellow Time (s)	3.5	4.7	4.7	3.5	4.7		3.5	4.0		3.5	4.3	
All-Red Time (s)	0.5	0.7	0.7	0.5	0.7		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	-1.7	-1.7	0.0	-1.7		0.0	-0.5		0.0	-0.8	
Total Lost Time (s)	4.0	3.7	3.7	4.0	3.7		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	2.3	4.5	4.5	2.3	4.5		2.3	3.0		2.3	3.0	
Minimum Gap (s)	1.0	2.5	2.5	1.0	2.5		0.5	2.5		2.0	2.5	
Time Before Reduce (s)	8.0	10.0	10.0	8.0	10.0		8.0	5.0		8.0	5.0	
Time To Reduce (s)	3.0	10.0	10.0	3.0	10.0		3.0	5.0		3.0	5.0	
Recall Mode	None	C-Min	C-Min	None	C-Min		None	None		None	None	
Walk Time (s)		7.0	7.0		12.0							
Flash Dont Walk (s)		25.0	25.0		28.0							
Pedestrian Calls (#/hr)		0	0		0							
Act Effct Green (s)	12.0	70.3	70.3	12.0	70.3		11.6	16.4		15.6	20.4	
Actuated g/C Ratio	0.09	0.54	0.54	0.09	0.54		0.09	0.13		0.12	0.16	
v/c Ratio	1.17	0.94	0.05	1.00	0.66		0.61	1.43		0.91	0.74	
Control Delay	171.0	38.3	0.3	126.3	23.3		72.4	250.8		97.9	62.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	171.0	38.3	0.3	126.3	23.3		72.4	250.8		97.9	62.2	
LOS	F	D	A	F	C		E	F		F	E	
Approach Delay		50.9			36.0			212.7			79.0	
Approach LOS		D			D			F			E	

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 16 (12%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.43
Intersection Signal Delay: 65.7 — Intersection LOS: E
Intersection Capacity Utilization 100.6% — ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 1: 135th Ave & Hwy 212



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	9	74	657	13	67	258
Future Volume (vph)	9	74	657	13	67	258
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	60	
Storage Lanes	1	0		0	1	
Taper Length (ft)	25				60	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.879		0.997			
Flt Protected	0.995				0.950	
Satd. Flow (prot)	1629	0	1857	0	1770	1863
Flt Permitted	0.995				0.950	
Satd. Flow (perm)	1629	0	1857	0	1770	1863
Link Speed (mph)	15		35			35
Link Distance (ft)	213		546			483
Travel Time (s)	9.7		10.6			9.4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	9	78	692	14	71	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	87	0	706	0	71	272
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	0		0			0
Two way Left Turn Lane			Yes			
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection: 1: 135th Ave & Hwy 212

Movement	EB	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	L	T	T	R	L	T	TR	L	TR	L	TR
Maximum Queue (ft)	525	792	836	150	400	798	738	144	433	318	436
Average Queue (ft)	430	599	571	26	353	552	462	68	163	178	219
95th Queue (ft)	630	853	858	107	491	896	800	130	317	294	397
Link Distance (ft)		773	773			779	779		416		726
Upstream Blk Time (%)		11	9			6			1		
Queuing Penalty (veh)		0	0			0			10		
Storage Bay Dist (ft)	425			50	200			280		325	
Storage Blk Time (%)	22	23	42	0	78	10			3	0	8
Queuing Penalty (veh)	188	47	17	1	443	17			3	0	16

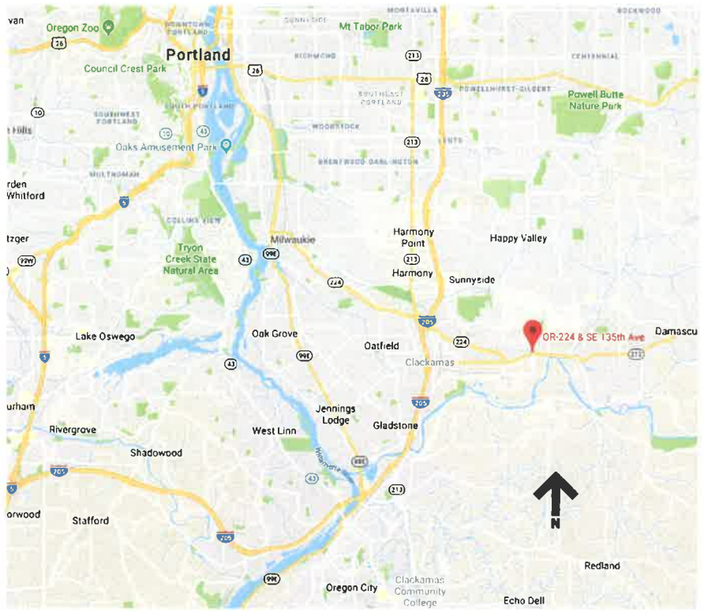
Intersection: 2: 135th Ave & Site Driveway

Movement	WB	NB	SB
Directions Served	LR	TR	L
Maximum Queue (ft)	104	256	75
Average Queue (ft)	44	11	29
95th Queue (ft)	80	89	60
Link Distance (ft)	194	528	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			60
Storage Blk Time (%)			1
Queuing Penalty (veh)			3

Network Summary

Network wide Queuing Penalty: 745

VICINITY MAP



SURROUNDING AREA MAP

PROPOSED

COMMERCIAL CENTER

15606 SE 135TH AVENUE
CLACKAMAS, OREGON 97015

PHASE I / BUILDING 1

PHASE I / BUILDING 2

RECEIVED

DEC 17 2019

Clackamas County
Planning & Zoning Division

SHEET SCHEDULE

DR0.0	DESIGN REVIEW SUBMITTAL COVER
ECM	SURVEY OF EXISTING CONDITIONS
L1	PROPOSED LANDSCAPE PLAN
DR0.1	PROPOSED SITE PLAN AND DETAILS
DR0.2	PROPOSED SITE DETAILS
DR0.3	SCHEMATIC GRADING PLAN
DR0.4	SCHEMATIC LIGHTING PLAN AND DETAILS
DR5.1	PHASE I/BUILDING 1 EXTERIOR ELEVATIONS
DR5.2	PHASE I/BUILDING 2 EXTERIOR ELEVATIONS
DR5.3	PHASE II/BUILDING 3 EXTERIOR ELEVATIONS
DR5.4	PHASE II/BUILDING 4 EXTERIOR ELEVATIONS

PROJECT DATA

ADDRESS:	15606 SE 135TH AVENUE CLACKAMAS, OR 97015
ZONING:	C-2
SITE AREAS:	
LOT 400	38,894 SF (.89 AC)
LOT 500	42,790 SF (.98 AC)
TOTAL	81,684 SF (1.87 AC)
BUILDING AREAS	
PHASE I/BUILDING 1	4,028 SF
PHASE I/BUILDING 2	4,000 SF
TOTAL PHASE I	8,028 SF
PHASE II/BUILDING 3	4,000 SF
PHASE II/BUILDING 4	4,000 SF
TOTAL PHASE II	8,000 SF
LOT COVERAGES:	
BUILDINGS	16,028 SF = 19%
PARKING LANDSCAPING	9,058 SF = 11%
FRONTAGE LANDSCAPING	6,280 SF = 08%
PAVING	50,318 SF = 62%
TOTAL	81,684 SF = 100%
VEHICLE PARKING REQUIRED:	
PHASE I BUILDINGS	
Building 1-restaurant (9/14.9)	18 min. / 30 max.
Building 1-retail (4.1/6.2)	8 min. / 12 max.
Building 2-retail (4.1/6.2)	16 min. / 25 max.
TOTAL SPACES	42 min. / 67 max.
VEHICLE PARKING REQUIRED:	
PHASE II BUILDINGS	
Building 3-retail (4.1/6.2)	16 min. / 25 max.
Building 4-restaurant (9/14.9)	18 min. / 30 max.
Building 4-retail (4.1/6.2)	8 min. / 12 max.
TOTAL SPACES	42 min. / 67 max.
VEHICLE PARKING PROVIDED:	
PHASE I BUILDINGS	42 spaces
PHASE II BUILDINGS	58 spaces
TOTAL SPACES	100 spaces
BICYCLE PARKING REQUIRED:	
PHASE I BUILDINGS	
Building 1(1 per 2,500 SF)	2 spaces
Building 2 (1 per 2,500 SF)	2 spaces
TOTAL SPACES	4 spaces
BICYCLE PARKING REQUIRED:	
PHASE II BUILDINGS	
Building 1 (1 per 2,500 SF)	2 spaces
Building 2 (1 per 2,500 SF)	2 spaces
TOTAL SPACES	4 spaces
BICYCLE PARKING PROVIDED:	
PHASE I BUILDINGS	4 spaces (2 each)
PHASE II BUILDINGS	4 spaces (2 each)

PROJECT DESCRIPTION

This project is comprised of two separate lots: Lot 400 at the corner of SE 135th Avenue and State Hwy 212 will be Phase I and Lot 500 to the south of Lot 400, will be Phase II. There will be one access shared by both lots and the driveway portion will be established during Phase I. This is a commercial project which will feature retail, fast food, and a Starbucks Coffee. Pre-Application conference took on Septembers 4th, 2019

SITE PLAN
SCALE: 1"= 10'-0"
07-01-2019

TO VERIFY SCALES 0" 1" BAR SHOULD MEASURE ONE INCH BY ONE SIXTEENTH INCH

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OREGON ARCHITECTURE
132 W. Main Street, Suite 101
Medford, Oregon 97501
PH. 541 772-4372 | OREGONARCHITECTURE.BIZ

PROJECT DESCRIPTION:
Proposed Commercial

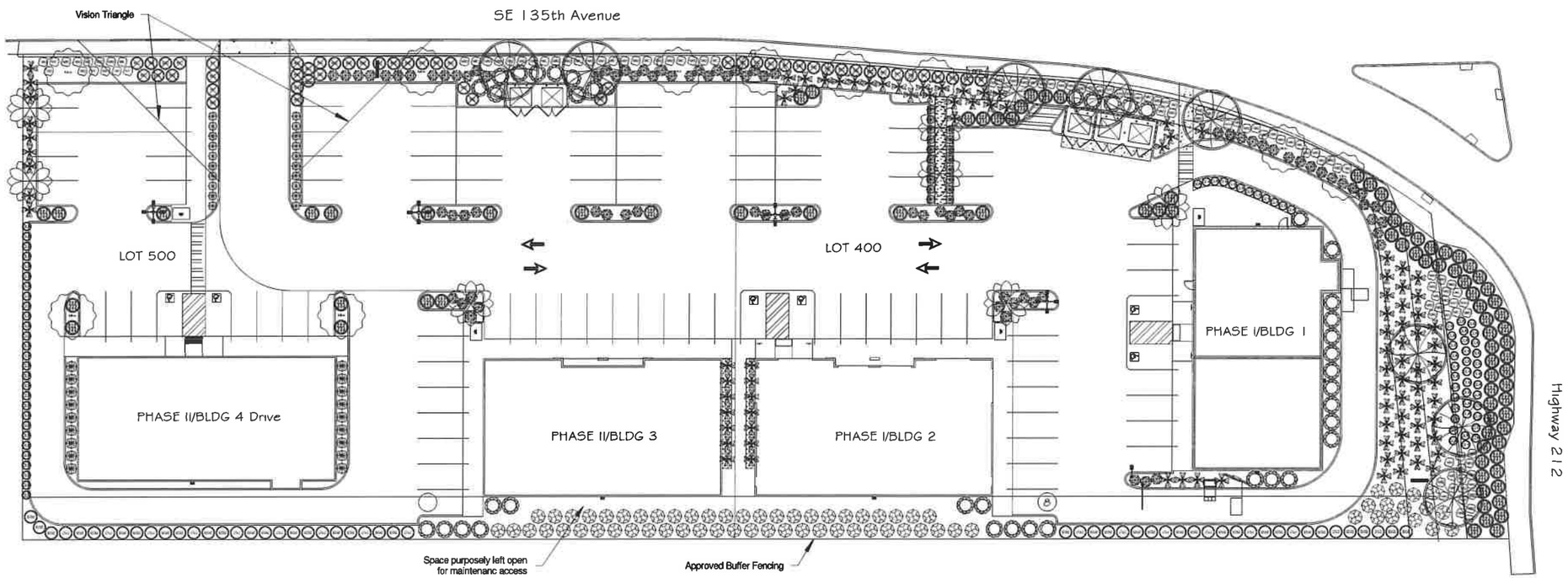
PROJECT LOCATION:
15606 SE 135th Ave. at Hwy 212
Clackamas, Oregon 97015

PARCEL: 22E11D 00400

Approved for the Owner By: Date:

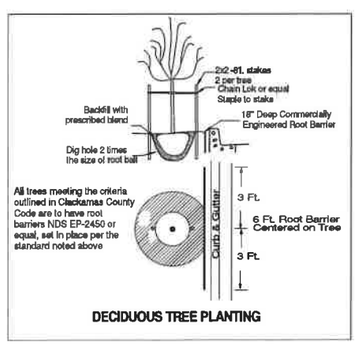
REVISIONS	BY

PLOT DATE: 12/04/19
ISSUE DATE:
DRAWN BY: CLL
JOB NO.:
SHEET
DR0.0



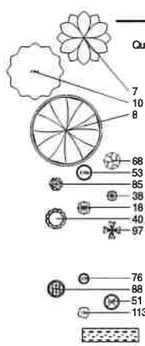
PLANTING

1. Plant material to be provided in accordance with species, sizes and quantities indicated above. Substitutions based on list provided may be made as applicable with prior consultation with the Landscape Architect.
2. No planting to proceed until irrigation system is fully functioning in the area to be planted.
3. All plant holes to be dug 2 times the volume of their root ball size. Backfill shall consist of 1/3 rotted sawdust, 2/3 native soil, micorhizae supplement and 5-5-5 organic fertilizer as follows.
   1gal 3oz
   3-5gal 6oz
   larger 12oz
4. Plant upright and face to give best appearance or relationship to plants, structures and predominant viewing angle. Trees are to be placed so as to be straight up and down without the assistance of staking. Staking is solely for support against outside forces.
5. Loosen and remove twine binding and burlap from around top of each root ball. Scarify root balls of plants exhibiting a root bound condition, being careful not to damage the root balls integrity. Stake and guy trees immediately after this work.
6. Place and compact backfill soil mixture carefully to avoid injury to roots, and fill all voids.
7. When hole is 2/3 filled with soil, completely soak and allow water to soak away at least two times or more, as necessary to completely water individual plants.
8. Guarantee plant materials and related workmanship of installation, beginning after written acceptance of work, for one year.
   A. Replace plant material not surviving or in poor condition during guarantee period.
   B. Perform all replacement work in accordance with original specifications at no additional cost to Owner.
   C. Damage or loss of plant materials due to vandalism, freezing or acts of neglect by others, is exempt from Contractor's replacement responsibility.



DECIDUOUS TREE PLANTING

PLANT LIST



Quantity	Common Name	Botanical Name	Size
	Trees		
7	Pear, Callery, Capital	Pyrus calleryana 'Capital'	1 1/2"
10	Maple, Amur	Acer ginnala	1 1/2"
8	Stewartia, Japanese	Stewartia pseudocamellia	1 1/2"
	Shrubs		
68	Barberry, Rosy Glow	Berberis thunbergii 'Rose Glow'	2g
53	Boxwood, Green Beauty	Buxus microphylla japonica 'Green Beauty'	3g
85	Euonymus, Emerald Gaiety	Euonymus fortunei 'Emerald Gaiety'	2g
38	Heavenly Bamboo, Dwarf Purple	Nandina domestica 'Dwarf Purple'	2g
18	Heavenly Bamboo, Moyers Red	Nandina domestica 'Moyers Red'	2g
40	Laurel, Otto Luyken	Prunus laurocerasus 'Otto Luyken'	3g
97	Viburnum, David	Viburnum davidii	3g
	Ground Cover / Grasses		
76	Grass, Little Kitten	Miscanthus sinensis 'Little Kitten'	1g
88	Juniper, Shore	Juniperus conferta	1g
51	Kinnikinnick, Emerald Carpet	Arctostaphylos 'Emerald Carpet'	1g
113	Rose, Red Drift	Rosa 'Meigalpio'	1g
	Idaho Fescue rooted plugs planted 12" OC		

All Planting are Low/Moderate to Moderate Water Needs

SHRUB PLANTING

IRRIGATION DETAILS

1. An automatic irrigation system to be provided for all plant materials areas following the specifications outlined on these plans and in accordance with industry standards. System is intended to perform at 10 gpm and 50 psi. Confirm on-site before proceeding.
2. All materials are to be new and in original condition.
3. Install an approved double check valve per local and state requirements.
4. Place manual drain valves as needed at low points in mainline to insure complete drainage during winter shut down.
5. Mainline should be located in area with least conflict with surrounding utilities. Mainline location on plan for ease of interpretation
6. Control wires, 14ga minimum, to be located below all piping in any ditch Any wire splices are to be located in a minimum of a 10" round valve box Power control wires to be red, common to be white
   Tape bundled wire together every 5' before placing in ditch.
7. All drip zones to use PVC laterals to locate a point of connection in each individual planting bed.
8. Shrub areas to be irrigated by drip irrigation
   A. All surface drip tubing to be 1/2" poly tubing. Tubing ends to have removable caps. Tubing to buried a minimum of 3-5" and held down every 5' with J-stakes.
   B. Rain Bird XB-10 Emitters to be placed at the outside edge of root zones of plants at the following rate
      1-2g plants 2- 1GPH emitters placed on opposite sides of root ball
      3-5g. plants 3- 1GPH emitters placed on opposite sides of root ball
      Larger material 5- 1GPH emitters spaced equally around perimeter of root ball
   C. All Drip zones to include a 150 mesh filter and 30psi pressure regulator
9. Sizing of pipe for lateral lines to be based on GPM used by each and any individual line. For purposes of counting cumulative GPM use the appropriate manufacturers specification charts based on 50 PSI. Size pipe as noted with standard PVC friction loss charts with no more than 5.0 feet per second velocity. No PVC pipe to be smaller than 1" nominal size.
10. Layout of pipe on plan is diagrammatic and for purposes of clarity. Actual layout determined on-site and will often include multiple pipes in one trench. Wires are to be lowest in trenches followed by mainline piping and finally latera piping.
11. All lateral pipe shall be SCH40 and 1" minimum.
12. Hunter control clock to be mounted on exterior surface of building. Power wiring to be installed by a Certified Electrician.
13. Sleeving to be provided under all hardscapes by general contractor for irrigation purposes.
14. Contractor responsible for any and all safety, security of materials and damage caused by the contractor to existing facilities during the course of installation.
15. Irrigation system to be guaranteed against defective material or workmanship for one year from the date of final acceptance. Damage or loss due to vandalism, freezing or acts of neglect by others, is exempt from Contractor's replacement responsibility after completion and acceptance of installation.
16. Provide owner with an accurate as-built locating all valves, wire splices, main line and any sleeving.

BF1 - Wilkins 350XL 1" Double Check Valve

GENERAL CONSTRUCTION NOTES

COORDINATION WITH CIVIL ENGINEER AND SITE CONTRACTOR IS IMPERATIVE

1. General prepartion of site to include:
   A. Eradication of weeds through the certified application of herbicides, allowing adequate time for kill.
   B. Removal, from site, of all existing surface rock in planting beds.
2. All shrub beds to be finish raked to a smooth condition prior to mulching.
3. Medium dark mulch to be placed in all shrub beds to a depth of 3"
4. Plan is diagramtic and measurements should be confirmed on-site. Any changes are the responsibility of the contractor to co-ordinate with the owners representative.
5. INCLUDE 365 DAYS OF MAINTENANCE from the day of acceptance. Including but not limited to:
   A. Maintain planting area in a healthy, weed free condition through a minimum of bi-weekly visits.
   B. Replace any material showing signs of stress.
   C. Monitor irrigation for correct timing.
   D. Provide owner with complete list of instructions for continued care at the end of the maintenance period.

GRADING

1. All planting beds to be excavated to a minimum depth of 12" or deeper as determined by surrounding concrete and hardscapes. Excavation to continue until contacting native soil. Non-native soil to include gravel, rock and debris greater than 1 1/2" in size, and heavy clay soil. Final excavation not to exceed 18" below surrounding hardscapes.
2. Fill planters with available reserved top soil harvested from site that is determined to be satisfactory for superior plant growth by testing done at Soil & Plant Laboratory Inc of Anaheim, Ca. If available backfill material does not meet specifications fill all planters spaces with approved topsoil. Fill with sufficient excess to allow for 25% compaction. Fill planters so as to achieve a final grade within 3" of the top of the nearest hard surface or Concrete.
3. Placement of any soil to be done in coordination with suitable weather condition so as to prevent damage to soil structure.
4. Sub-grading and final grade to consist of to a smooth even grade, no undulation greater than plus or minus 1" within any 10 linual feet of distance.
5. SEE CIVIL ENGINEERS DRAWINGS FOR GRADING INFORMATION.
6. All sub-grades to be adequately firm without being overly compacted.
7. Once subgrade is established the Landscape Contractor is to add mature compost at a rate of 3 cu yds per 1,000 sq ft. and then rip to blend with top soil to a depth of 6"
8. Finish grade in shrub areas to be a smooth even grade mounded 3" high in the middle of beds and ending 3" below surrounding areas. All finish grading to promote positive drainage away from structures and to be done in such a way as to eliminate puddling or collection of water.

SEE CIVIL ENGINEERS DRAWINGS FOR GRADES

LANDSCAPE PLAN

0 5 10 20 30 40

Scale 1" = 20'

0" 1"
TO VERIFY SCALES BAR SHOULD MEASURE ONE INCH BY ONE SIXTEENTH INCH

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REGISTERED LANDSCAPE ARCHITECT
528
Thomas A. Madara
OREGON
Oct/08/03

Madara Design Inc
Landscape Architecture, Design & Consultation
2994 Wills Fargo Rd
Central Point, Or 97502
541-664-7055
madaradesign@yahoo.com

OREGON ARCHITECTURE INC

PROJECT DESCRIPTION:
Proposed Commercial

PROJECT LT LOCATION:
15606 SE 135th Ave. at Hwy 212Clackamas, Oregon 97015

PARCARCEL: 22E11D 00400

Approved for the Owner By: Date

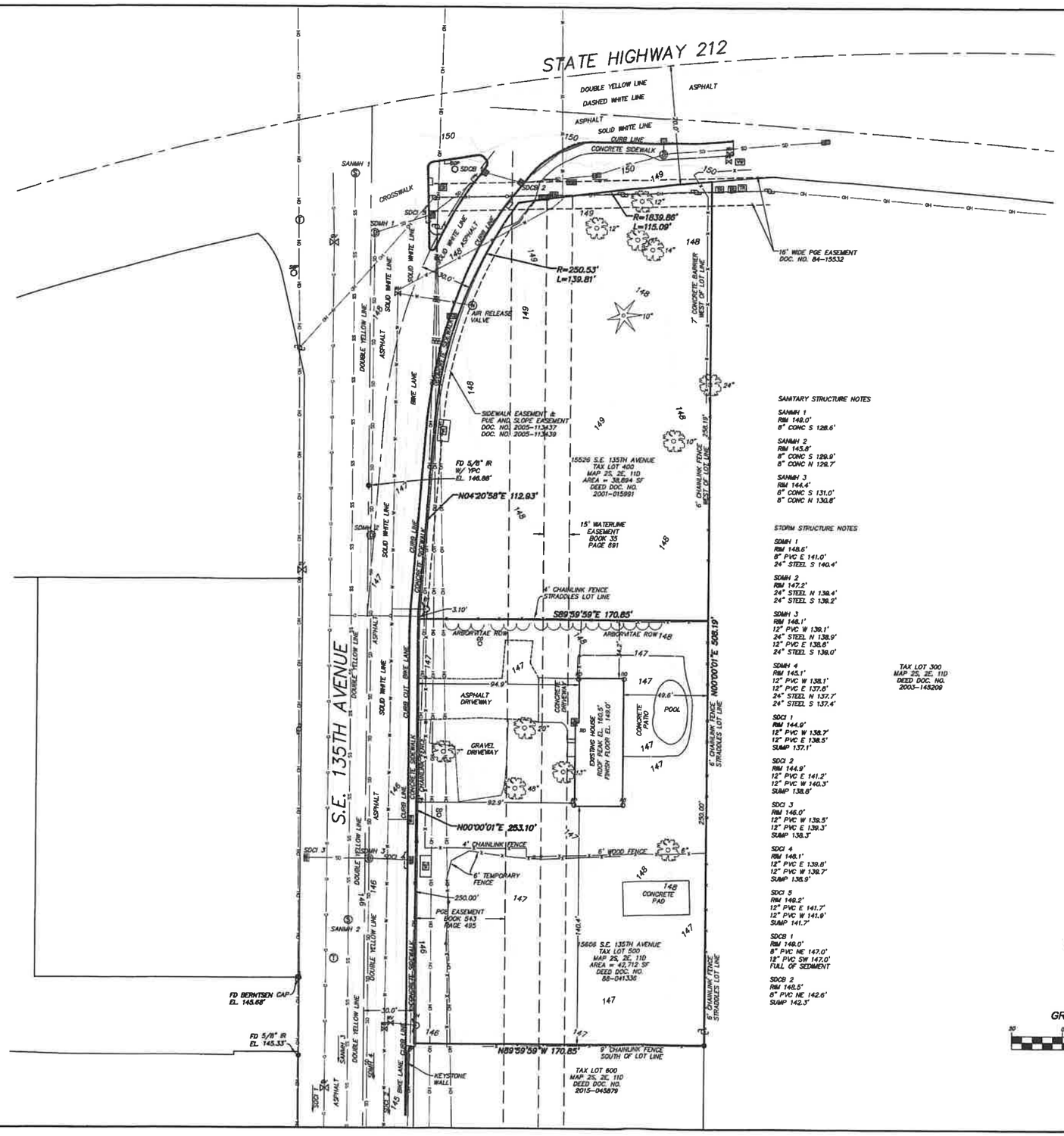
REVISIONS	BY

PLOT DATE:
ISSUE DATE: 8/6/2019
DRAWN BY:
JOB NO.:
SHEET

L.1

EXISTING CONDITIONS MAP

TAX LOTS 400–500, MAP 2S, 2E, 11D
LOCATED IN THE S.E. 1/4 SECTION 11, T.2S., R.2E., W.M.
CLACKAMAS COUNTY, OREGON
SEPTEMBER 25, 2019 SCALE 1"=30'



SURVEY NOTES:

THE DATUM FOR THIS SURVEY IS BASED UPON A STATIC GPS OBSERVATION OF LOCAL CONTROL POINTS, PROCESSED THROUGH OPUS. DATUM IS NAVD 88.

A TRIMBLE S8-SERIES ROBOTIC INSTRUMENT WAS USED TO COMPLETE A CLOSED LOOP FIELD TRAVERSE.

THE BASIS OF BEARINGS FOR THIS SURVEY IS PER MONUMENTS FOUND AND HELD PER RECORD OF SURVEY RECORDED UNDER PRIVATE SURVEY NUMBER 2003-223, RECORDS OF CLACKAMAS COUNTY.

THE PURPOSE OF THIS SURVEY IS TO RESOLVE AND DETERMINE THE PERIMETER BOUNDARY OF THE SUBJECT PROPERTY, TO SHOW ALL PERTINENT BOUNDARY ISSUES AND ENCROACHMENTS. NO PROPERTY CORNERS WERE SET IN THIS SURVEY.

NO WARRANTIES ARE MADE AS TO MATTERS OF UNWRITTEN TITLE, SUCH AS ADVERSE POSSESSION, ESTOPPEL, ACQUIESCENCE, ETC.

LAWYERS TITLE PRELIMINARY TITLE REPORT ORDER NUMBER 161701412, DATED JANUARY 30, 2019 AS PROVIDED HAS BEEN USED AND REFERENCED IN PREPARATION OF THIS MAP. PLEASE REFER TO THIS DOCUMENT FOR DESCRIPTIONS OF EXCEPTIONS TO TITLE INSURANCE.

THE UNDERGROUND UTILITIES AS SHOWN ON THIS MAP HAVE BEEN LOCATED FROM FIELD SURVEY OF ABOVE GROUND STRUCTURES AND AS MARKED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES ARE IN THE EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT. THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY SURVEYOR.

SANITARY STRUCTURE NOTES

SAMMH 1
RIM 149.0'
8" CONC S 128.6'

SAMMH 2
RIM 145.8'
8" CONC S 129.9'
8" CONC N 129.7'

SAMMH 3
RIM 144.4'
8" CONC S 131.0'
8" CONC N 130.8'

STORM STRUCTURE NOTES

SDMH 1
RIM 148.6'
8" PVC E 141.0'
24" STEEL S 140.4'

SDMH 2
RIM 147.2'
24" STEEL N 138.4'
24" STEEL S 138.2'

SDMH 3
RIM 148.1'
12" PVC W 139.1'
24" STEEL N 138.9'
12" PVC E 138.6'
24" STEEL S 138.0'

SDMH 4
RIM 145.1'
12" PVC W 138.1'
12" PVC E 137.6'
24" STEEL N 137.7'
24" STEEL S 137.4'

SDCI 1
RIM 144.9'
12" PVC W 138.7'
12" PVC E 138.5'
SUMP 137.1'

SDCI 2
RIM 144.9'
12" PVC E 141.2'
12" PVC W 140.3'
SUMP 138.8'

SDCI 3
RIM 146.0'
12" PVC W 139.5'
12" PVC E 139.3'
SUMP 138.3'

SDCI 4
RIM 146.1'
12" PVC E 139.8'
12" PVC W 139.7'
SUMP 138.9'

SDCI 5
RIM 149.2'
12" PVC E 141.7'
12" PVC W 141.9'
SUMP 141.7'

SDCB 1
RIM 148.0'
8" PVC NE 147.0'
18" PVC SW 147.0'
FULL OF SEDIMENT

SDCB 2
RIM 148.5'
8" PVC NE 142.6'
SUMP 142.3'

LEGEND:

Some Symbols shown may not be used on map

- DECIDUOUS TREE
- EVERGREEN TREE
- STORM SEWER MANHOLE
- CATCH BASIN
- AREA DRAIN
- SANITARY SEWER CLEANOUT
- SANITARY SEWER MANHOLE
- WATER MANHOLE
- WATER METER
- WATER VALVE
- WATER VAULT
- GAS VALVE
- GAS METER
- BOLLARD
- SIGN
- MAILBOX
- UTILITY RISER
- TELEPHONE MANHOLE
- UTILITY BOX
- STORM OUTFALL
- FOUND MONUMENT
- DOWN SPOUT TO STORM SYSTEM
- TRAFFIC SIGNAL POLE
- TRAFFIC SIGNAL BOX
- UTILITY POLE
- LIGHT POLE
- GUY WIRE
- ELECTRIC VAULT
- ELECTRIC BOX
- ELECTRIC METER
- TRANSFORMER
- ELECTRIC RISER
- HEAT PUMP
- GATE POST
- POLE
- OVERHEAD LINE
- GAS LINE
- ELECTRICAL LINE
- COMMUNICATIONS LINE
- SANITARY SEWER LINE
- STORM DRAIN LINE
- WATER LINE
- FENCELINE
- HANDRAIL

FD = FOUND
FI = FIR TREE
PI = PINE TREE
CE = CEDAR TREE
IP = IRON PIPE
IR = IRON ROD
YPC = YELLOW PLASTIC CAP
DE = DECIDUOUS TREE

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 INCH = 30 FT.

SIGNED ON: 030-19

REGISTERED
PROFESSIONAL
LAND SURVEYOR

OREGON
JULY 13, 2004
TOBY G. BOLDEN
60377LS

RENEWS: DECEMBER 31, 2019

CENTERLINE CONCEPTS
LAND SURVEYING, INC.
19376 MOLALLA AVE., SUITE 120
OREGON CITY, OREGON 97045
PHONE 503.650.0188 FAX 503.650.0189

PLOTTED:M:\PROJECTS\TWIETMEYER-135TH AVE-SE-15606 & 15526\DWG\ECM-C3D.dwg

C-2 ZONING
Retail/Service

Verify exact location of (E) driveway for accurate alignment w/proposed driveway

SE 135th Avenue

PHASE II BUILDINGS | PHASE I BUILDINGS

(E) four-way,, traffic controlled intersection w/(E) pedestrian crosswalks

10'-0" Front Setback

Approx. location of (E) fire hydrant

Proposed driveway approach to align w/(E) driveway approach on west side of SE 135th Avenue

Proposed signage;

Approx. location of (E) fire hydrant

Proposed wall-pack light locations, typ. UNO

Proposed street frontage landscaping, typ.

Pedestrian access

N 00° 00' 01" E 253.10'

N 04° 20'58" E 112.93'

L=+139.81'

(E) island

Highway 212

Bicycle parking (2-bikes); see detail 3/DR0.1

Proposed pole light locations, typ. UNO; see sheet DR0.3

CMU trash enclosure; see detail 1/DR0.1

57'-0" PGE No-Build Easement

170.85'

LOT 500

Conc. at accessible parking, typ.

AC paving, typ. at driveways, parking and circulation Phase 1

LOT 400

Proposed site landscaping, typ. UNO

Bicycle parking (2-bikes)

patio 366 SF

Starbucks

PHASE I/BLDG 1
Drive-Thru/Retail
4,028 SF

Conc. walkways

Lease Space
1,840 SF

L=115.09'

C-2 ZONING
Retail/Service

N 89° 59' 59" W

PHASE II/BLDG 4
Drive-Thru/Retail
4,000 SF

PHASE II/BLDG 3
Retail
4,000 SF

PHASE I/BLDG 2
Retail
4,000 SF

Proposed pole light locations, typ. UNO

5'-0" Buffer Yard

12' x 35' loading space

N 00° 00' 01" E 250.00'

(N) 6'-0"H chain-link fence at ℄ w/slats

N00° 00' 01" E 258.19'

Scrapper bar Drive-thru order points

Proposed monument signage; see detail 2/DR0.1

(E) bus stop

Proposed wall-pack light locations, typ. UNO; see sheet DR0.3

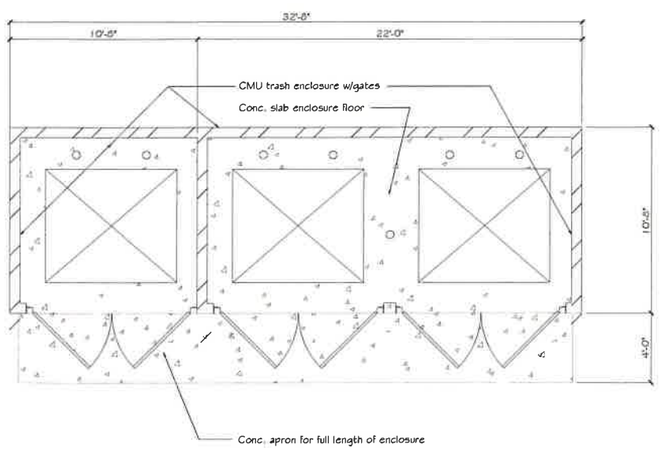
MR-1 ZONING
Residential

MR-1 ZONING
Residential

SITE PLAN

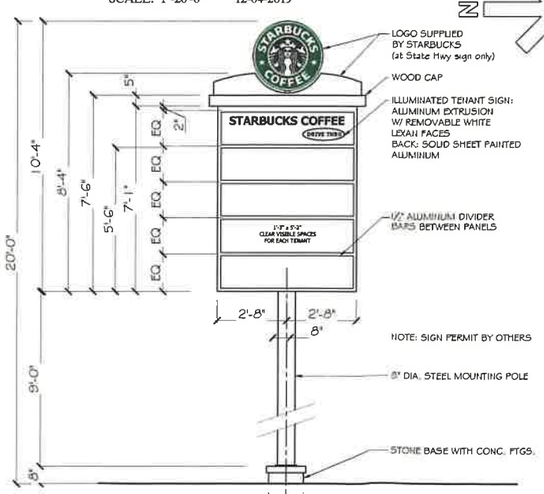
SCALE: 1"-20'-0" 12-04-2019

NOTE: See attached SURVEY OF EXISTING CONDITIONS for exiting utility locations in street and overhead



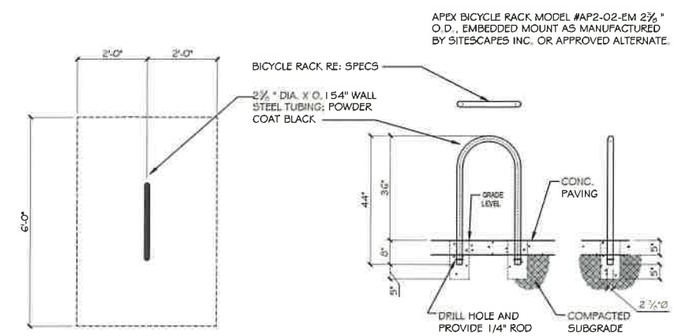
Trash Enclosure Detail

SCALE: ¼"=1'-0"



Pole Sign Detail

SCALE: ⅜"=1'-0"



Bicycle Parking Details

SCALE: ½"=1'-0"

TO VERIFY SCALES 0" 1" BAR SHOULD MEASURE ONE INCH BY ONE SIXTEENTH INCH

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OREGON ARCHITECTURE
132 W. Main Street, Suite 101
Medford, Oregon 97501
PH. 541 772-4372 | OREGONARCHITECTURE.BIZ

PROJECT DESCRIPTION:
Proposed Commercial

PROJECT LOCATION:
15606 SE 135th Ave. at Hwy 212
Clackamas, Oregon 97015

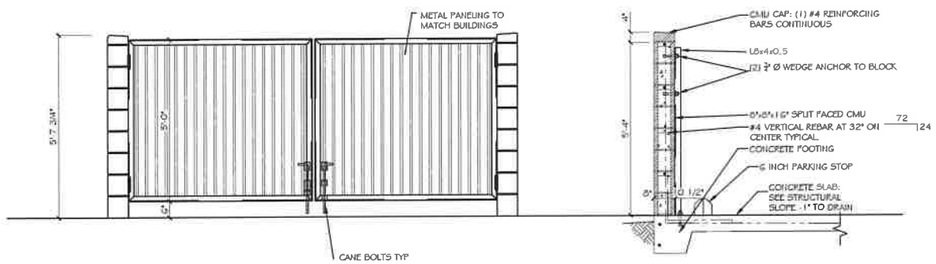
PARCEL: 22E11D 00400

Approved for the Owner By: Date:

REVISIONS	BY

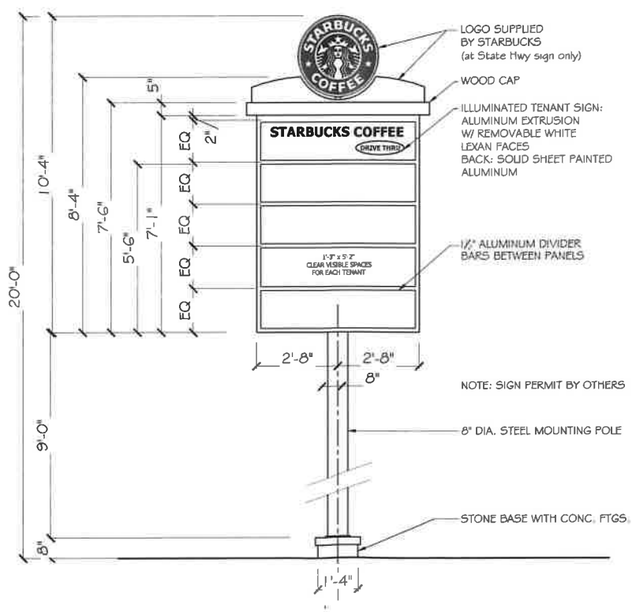
PLOT DATE: 12/04/19
ISSUE DATE:
DRAWN BY: CLL
JOB NO.:
SHEET

DR0.1



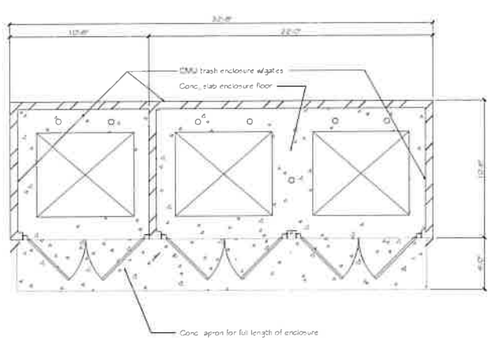
TRASH ENCLOSURE DETAIL

SCALE : 1/4" = 1'-0"



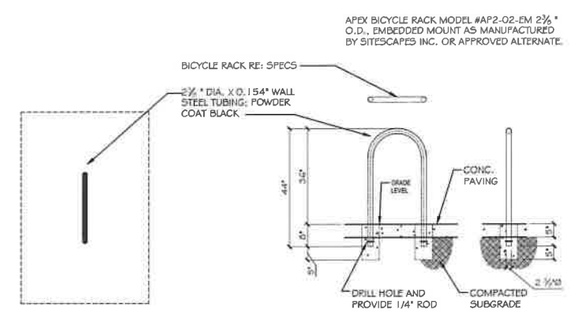
POLE DESIGN DETAIL

SCALE : 3/8" = 1'-0"



TRASH ENCLOSURE DETAIL

SCALE : 3/16" = 1'-0"



BICYCLE PARKING DETAILS

SCALE : 1/2" = 1'-0"

TO VERIFY SCALES 0" 1" BAR SHOULD MEASURE ONE INCH BY ONE SIXTEENTH INCH

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PARCEL: 22E11D 00400

Approved for the Owner By: Date:

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PLOT DATE: 07-01-19 12/04/19
ISSUE DATE:
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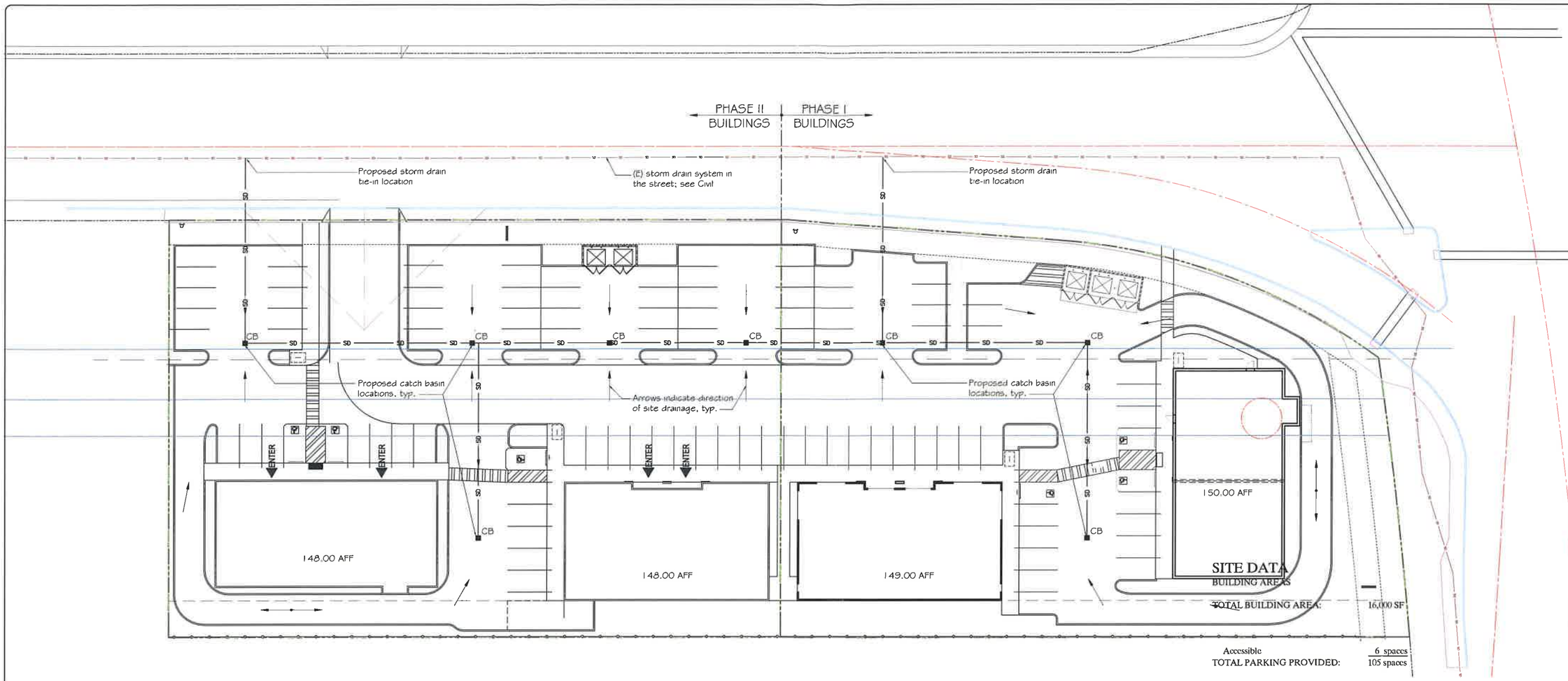
SHEET

DR0.2

PHASE II/BLDG 4
EXTERIOR ELEVATIONS



SCHEMATIC SITE DRAINAGE PLAN

SCALE: 1"-20'-0"

N

TO VERIFY SCALES 0" 1" BAR SHOULD MEASURE ONE INCH BY ONE SIXTEENTH INCH

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REVISIONS	BY

PLOT DATE: 12/04/19
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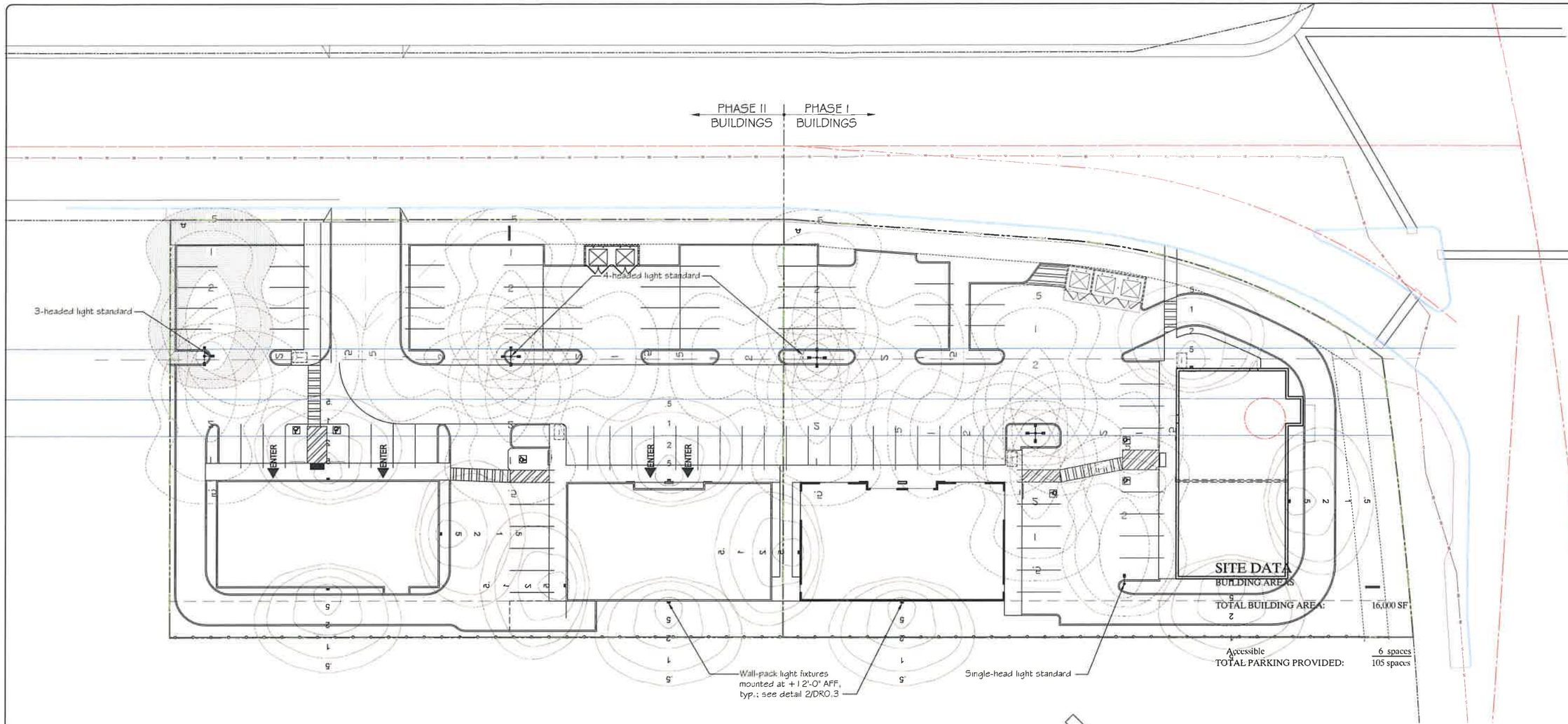
JOB NO.:
SHEET
DR0.3



SCHEMATIC SITE LIGHTING PLAN

SCALE: 1"-20'-0"

N

NOTE: ACTUAL LIGHT FIXTURE MAY VARY

1 DR0.3 **Parking Lot Lighting Detail**

NOTE TO SCALE

NOTE: ACTUAL LIGHT FIXTURE MAY VARY

2 DR0.3 **Parking Lot Lighting Detail**

NOTE TO SCALE

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ISSUE DATE:
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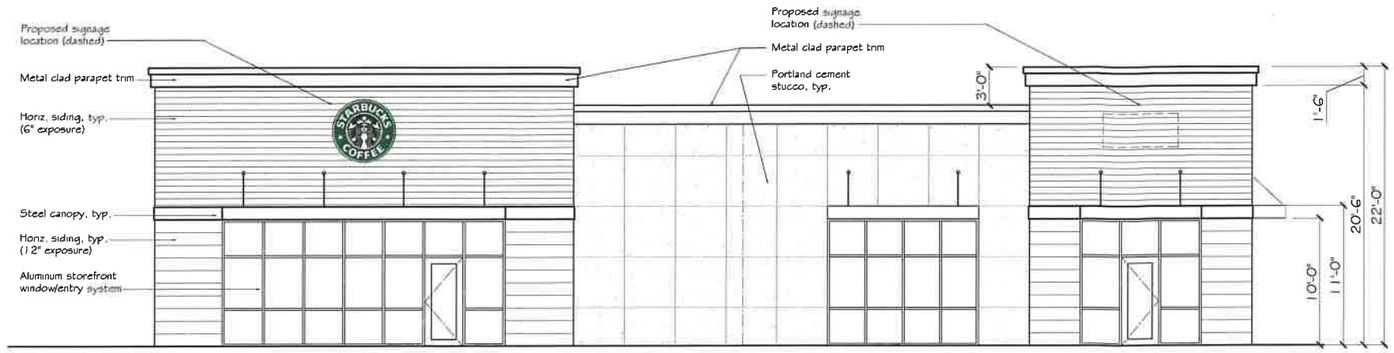
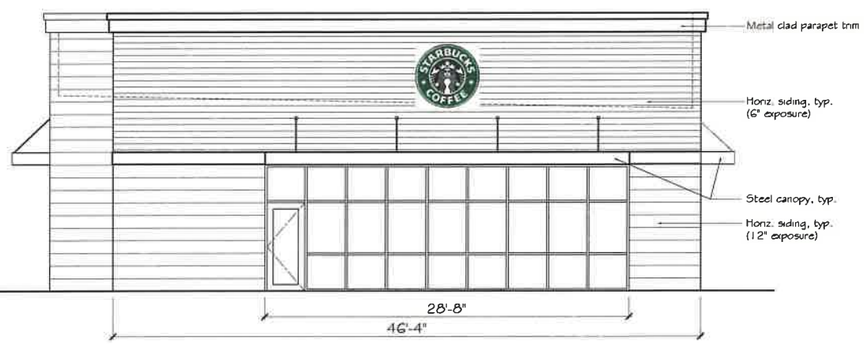
JOB NO.:
SHEET

DR0.4



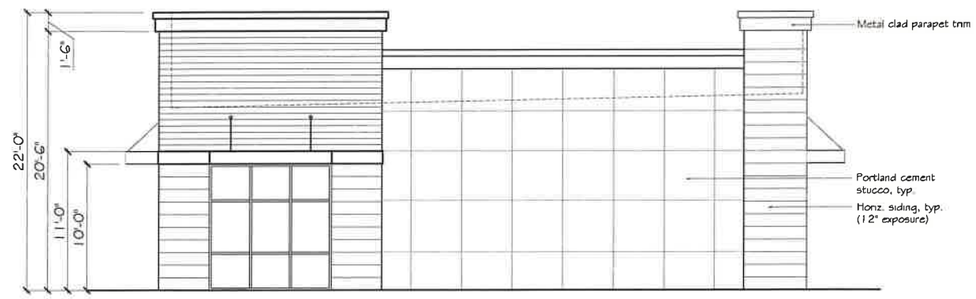
SOUTH ELEVATION-Phase I/Building 1

SCALE: 3/16" 1'-0"



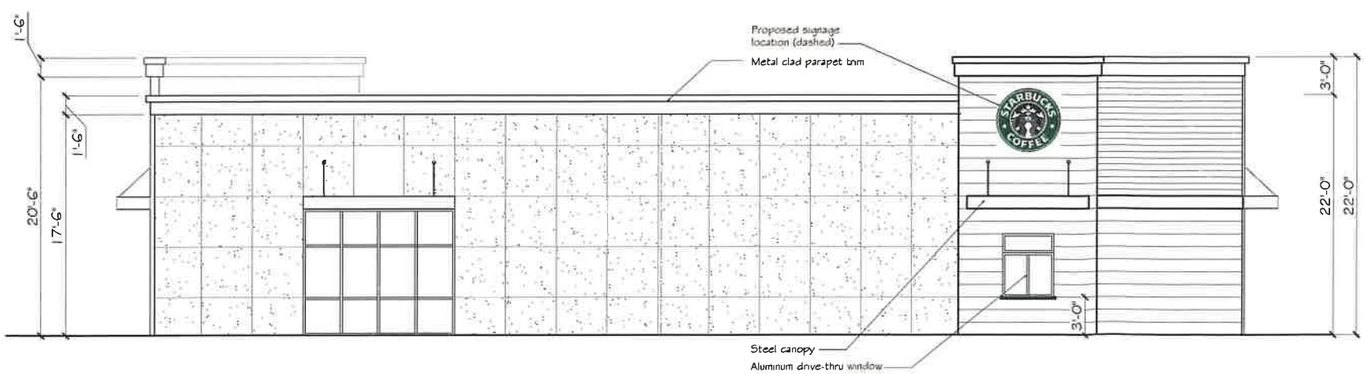
WEST ELEVATION-Phase I/Building 1

SCALE: 3/16" 1'-0"



EAST ELEVATION-Phase I/Building 1

SCALE: 3/16" 1'-0"



NORTH ELEVATION-Phase I/Building 1

SCALE: 3/16" 1'-0"

TO VERIFY SCALES 0" 1" BAR SHOULD MEASURE ONE INCH BY ONE SIXTEENTH INCH

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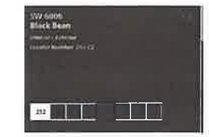
DRAWN BY:
JOB NO :
SHEET
DR5.1
PHASE I/BLDG 1
EXTERIOR ELEVATIONS

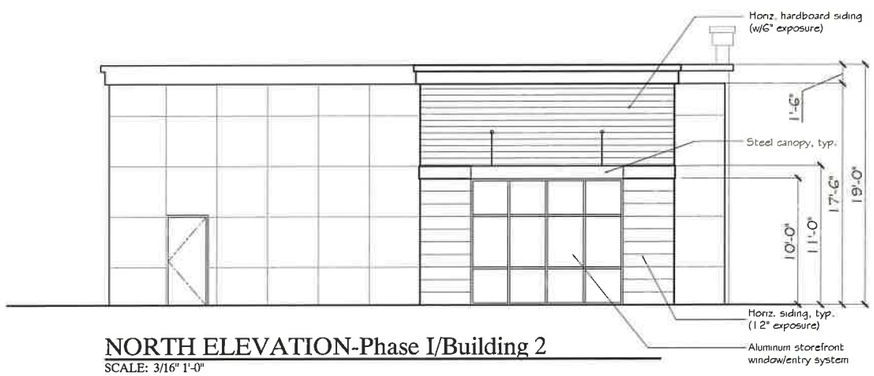
WEST ELEVATION-Phase I/Building 2
SCALE: 3/16" 1'-0"

Color 1 -

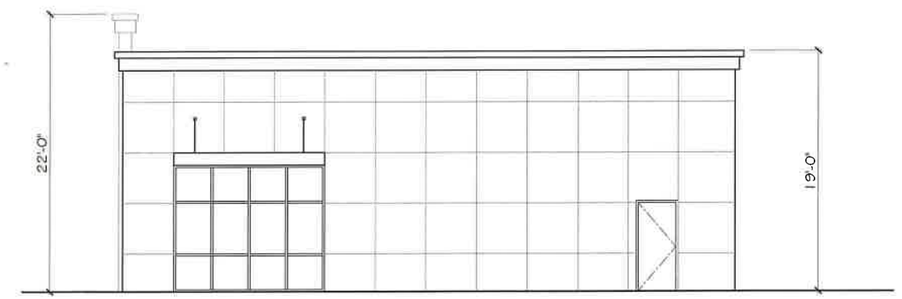


Color 2 -

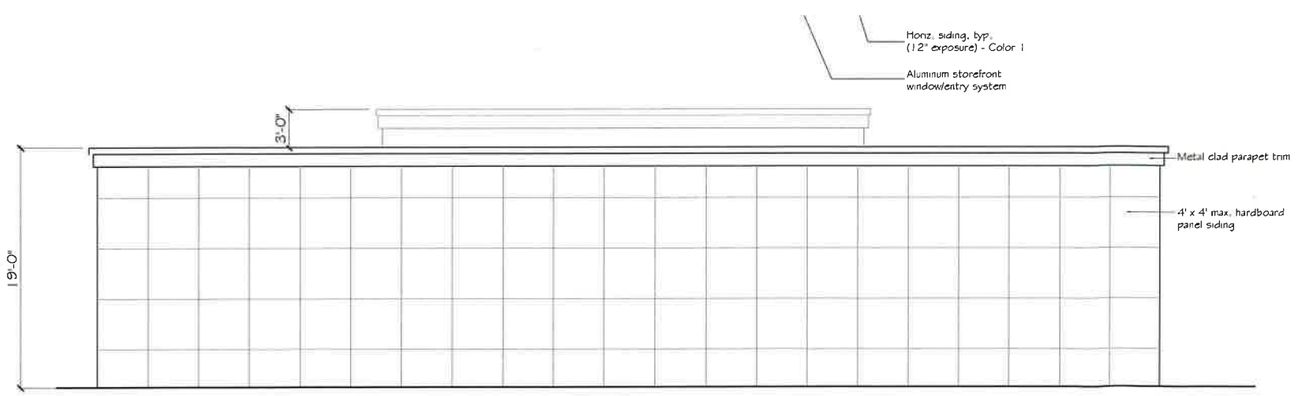
Color 3 -



NORTH ELEVATION-Phase I/Building 2
SCALE: 3/16" 1'-0"



SOUTH ELEVATION-Phase I/Building 2
SCALE: 3/16" 1'-0"



EAST ELEVATION-Phase I/Building 2
SCALE: 3/16" 1'-0"

TO VERIFY SCALES 0" 1" BAR SHOULD MEASURE ONE INCH BY ONE SIXTEENTH INCH

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OREGON ARCHITECTURE
132 W. Main Street, Suite 101
Medford, Oregon 97501
PH. 541 772-4372 | OREGONARCHITECTURE.BIZ

PROJECT DESCRIPTION:
Proposed Commercial

PROJECT LOCATION:
15606 SE 135th Ave. at Hwy 212
Clackamas, Oregon 97015

PARCEL: 22E11D 00400

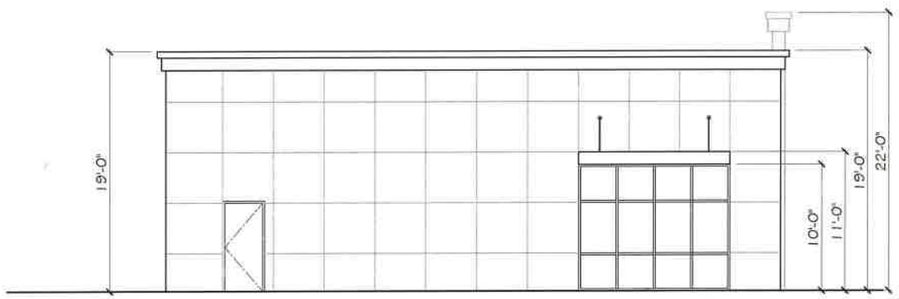
Approved for the Owner By: Date:

REVISIONS	BY

PLOT DATE: 07-01-19 12/04/19
ISSUE DATE:
DRAWN BY:
JOB NO.:
SHEET
DR5.2
PHASE I/BLDG 2
EXTERIOR ELEVATIONS

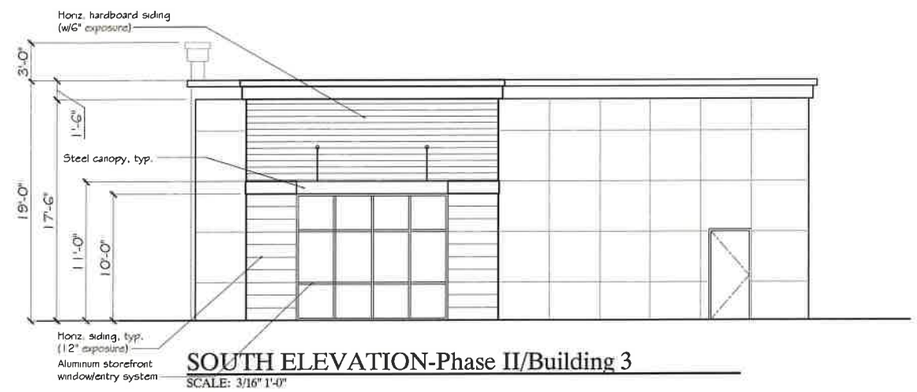
WEST ELEVATION-Phase II/Building 3

SCALE: 3/16" 1'-0"



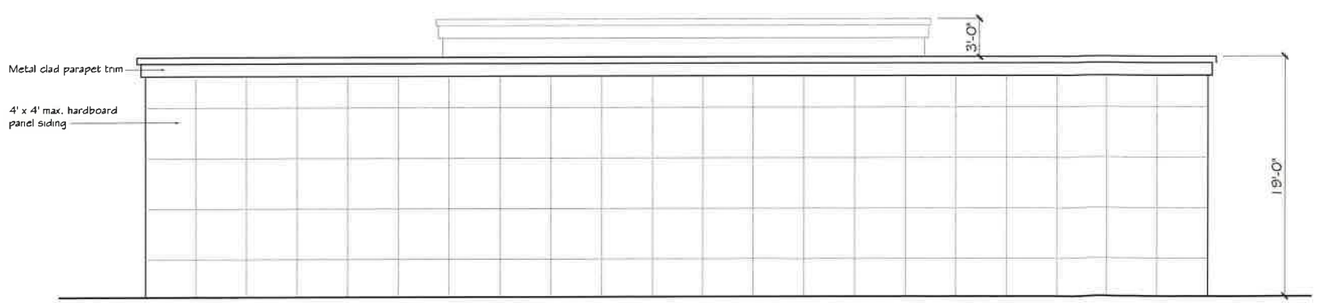
NORTH ELEVATION-Phase II/Building 3

SCALE: 3/16" 1'-0"



SOUTH ELEVATION-Phase II/Building 3

SCALE: 3/16" 1'-0"



EAST ELEVATION-Phase II/Building 3

SCALE: 3/16" 1'-0"

TO VERIFY SCALES 0" 1" BAR SHOULD MEASURE ONE INCH BY ONE SIXTEENTH INCH

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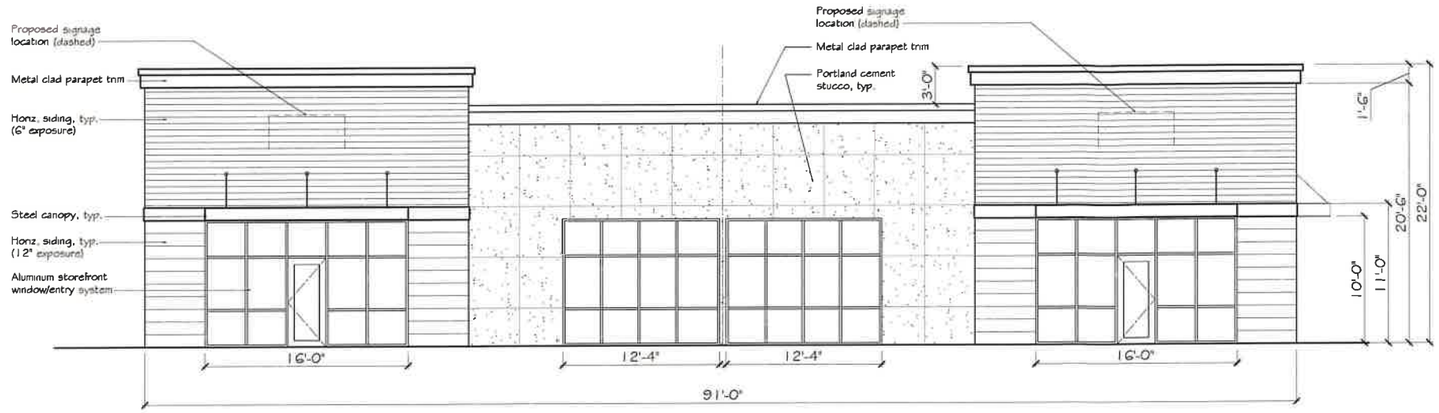
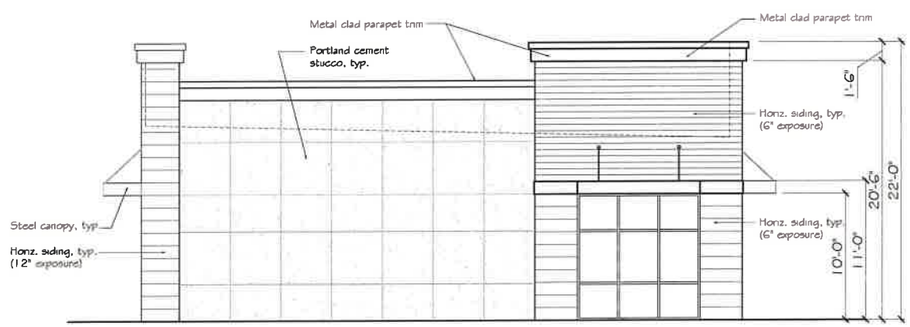
SHEET
DR5.3
PHASE II/BLDG 3
EXTERIOR ELEVATIONS



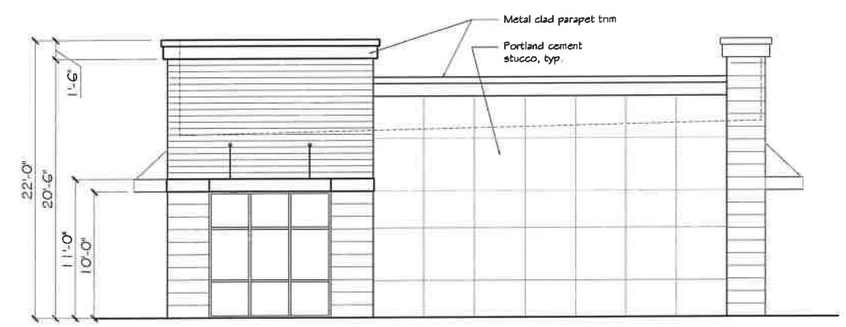
WEST ELEVATION-Phase II/Building 4

SCALE: 3/16" 1'-0"



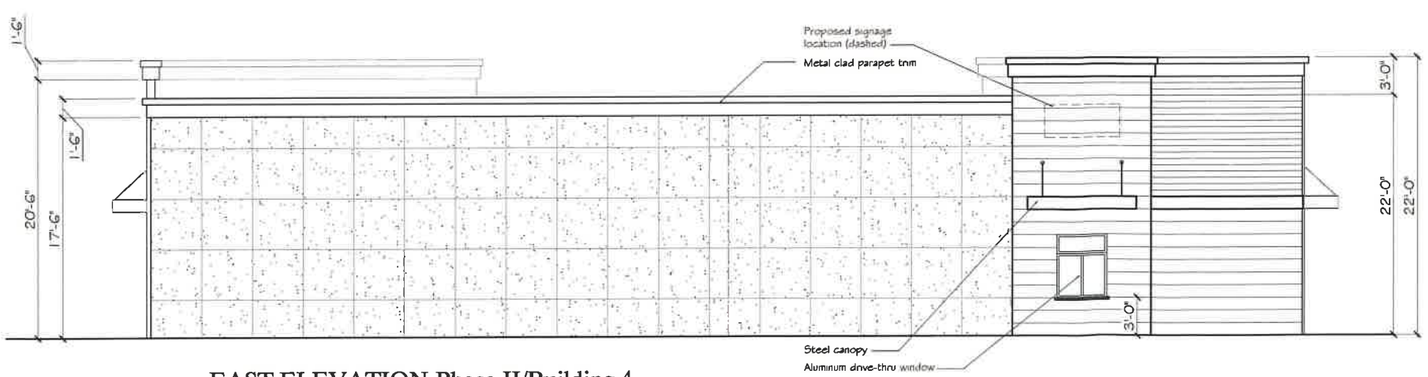
NORTH ELEVATION-Phase II/Building 4

SCALE: 3/16" 1'-0"



SOUTH ELEVATION-Phase II/Building 4

SCALE: 3/16" 1'-0"



EAST ELEVATION-Phase II/Building 4

SCALE: 3/16" 1'-0"

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DR5.4

PHASE II/BLDG 4
EXTERIOR ELEVATIONS