City of Manzanita
P.O. Box 129, Manzanita, OR 97130-0129
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ci.manzanita.or.us

Planning Commission

Zoom Video Webinar
https://ci.manzanita.or.us/planning-commission/

AGENDA

May 13, 2024
04:00 PM Pacific Time

Video Meeting: The Planning Commission will hold this meeting through video conference. The public may watch live on the City's Website: ci.manzanita.or.us/broadcast or by joining the Zoom Meeting:

https://us02web.zoom.us/j/85796767008

Dial in number:

(253) 215 8782

Please note that a passcode is not required to enter the webinar.

Note: Agenda item times are estimates and are subject to change.

1. **CALL TO ORDER** (4:00 p.m.)
2. **APPROVAL OF MINUTES** (4:01 p.m.)
3. **AUDIENCE PARTICIPATION** (4:02 p.m.)
4. **AGENDA ITEMS** (4:10 p.m.)
   A. **Heron's Rest Planned Unit Development- Nate Palmer, Scott Imholt**
5. **GENERAL UPDATES** (5:55 p.m.)
6. **ADJOURN** (6:00 P.M.)

CITY OF MANZANITA
PLANNING COMMISSION MEETING MINUTES
MARCH 11, 2024

I. CALL MEETING TO ORDER: Chair Karen Reddick-Yurka called the meeting to order at 4:00 p.m.

II. ROLL: Members present were: Karen Reddick-Yurka, Phil Mannan, Bert Gregory, John Collier, Thomas Christ, Frank Squillo and Lee Hiltenbrand. Staff present were: City Manager Leila Aman, Building Official Scott Gebhart, Third Party Planner Walt Wendolowski, and Planning and Permit Technician Chris Bird.

III. ELECTION OF OFFICERS:

A motion was made by Tom Crist, seconded by John Collier to have Karen Reddick-Yurka and Frank Squillo to remain as chair and vice chair of the planning commission until December. Motion passed unanimously.

IV. AUDIENCE: There were 18 persons in the audience.

V. APPROVAL OF MINUTES: DECEMBER 11, 2023, JANUARY 8, 2024, & FEBRUARY 12, 2024

A motion was made by John Collier seconded by Phil Mannan to approve the December 11, 2023 minutes as amended. Motion passed unanimously.

A motion was made by John Collier seconded by Bert Gregory to approve the January 8, 2024 minutes as amended. Motion passed unanimously.

A motion was made by Lee Hiltenbrand seconded by Phil Mannan to approve the February 12, 2024 minutes. Motion passed unanimously.

VI. PUBLIC COMMENTS:

No public comments.

<u>QUASI-JUDICIAL ITEMS</u>

ANNOUNCEMENT OF PUBLIC HEARING PROCEDURES: Chair Reddick-Yurka introduced the application being considered, described the public hearing process, and opened the hearing at 4:05 p.m.

VII. PUBLIC HEARING: APPLICATION TO ANNEX 12.54 ACRES INTO THE CITY

LIMITS OF MANZANITA AND A ZONE CHANGE FROM MEDIUM DENSITY RESIDENTIAL (R2) TO SPECIAL RESIDENTIAL/RECREATION ZONE (SR-R); ZONE:MEDIUM DENSITY RESIDENTIAL R2; LOCATION: TAXLOT 3N10W280001401, NO SITE ADDRESS ; APPLICANT: PINE GROVE PROPERTIES, INC.

A. **OBJECTION TO THE NOTICE SENT ANNOUNCING THE HEARING –** None

B. **CHALLENGE TO PLANNING COMMISSON JURISDICTION –** None

C. **CONFLICT OF INTEREST, BIAS OR EX PARTE CONTACTS INCLUDING SITE VISITS –** Each of the Commissioners declared that they had no conflict of interest, no bias, or ex parte contact and they have driven by the site or were familiar with it.

D. **CHALLENGE TO ANY COMMISSIONER FOR CONFLICT OF INTEREST, BIAS OR EX PARTE CONTACT –** None

E. **APPLICANTS' PRESENTATION –** The applicants presented some background information and the reasons for the Commission's approval of their design review.

F. **STAFF REPORT –** Third Party Planner Walt Wendolowski presented the staff report and described the application. He then presented the staff's findings of facts, conclusions, and recommended conditions of approval of the application.

G. **GENERAL COMMENTS AND QUESTIONS –** It was asked of staff if the deed restrictions tied to resident income and a prohibition of short-term rentals would be conditions for the zone change. The applicants were then asked if annexation was contingent on the zone change. Staff was asked what the difference was between the R4 zone and the SR-R zone as well as density and height restrictions. Conversation then turned to deed restrictions meeting the state and county definition of middle housing. The applicants were asked about the total number of units being made available for the project. Staff was asked about possible variances that the project may need such as lot coverage and height restrictions for the zone the project is on. It was asked of the applicants if the deed restrictions would be listed once the 12 acres are annexed into the city and if the deed restrictions are tied to the zoning change.

H. **TESTIMONY PRO –** Mark Kuestner read a letter from the Tillamook County Housing Commission urging the City of Manzanita Planning Commission to recommend to City Council to approve the annexation and zone change for the project. Mary Ruef talked about bypassing height restrictions for the project but shouldn't be used a precedence for future building projects. Parker Sammons, the Tillamook County Hosing Coordinator mentioned that it is awesome to have people as passionate as Jim and Rick leading the project.

I. **TESTIMONY CON -** None

J. **CLOSE PUBLIC HEARING –** Reddick-Yurka closed the public testimony at 5:29 p.m.

K. **DISCUSSION BY COMMISSION MEMBERS –** It was asked how the planning

commission would word or structure their recommendation to Council.

L. DECISION BY COMMISSION WITH MOTION -

A motion was made by Tom Christ, seconded by Phil Mannan, to recommend to Council that they approve the request to annex the property and to change the zone from R2 to SR-R on the condition of two deed restrictions in perpetuity.

1. **There are no short-term rentals, hotels, or other SR-R uses allowed besides residential as defined in our ordinance**
2. **The use be limited to households that qualify for workforce housing / middle housing as measured by Tillamook County.**

The motion carried unanimously.

VIII. GENERAL UPDATES: Building Official Scott Gebhart mentioned a planned unit development on Third St.

IX. ADJOURNMENT:

Chair Reddick-Yurka adjourned the meeting at 5:45 p.m.

MINUTES APPROVED THIS 13TH. DAY OF MAY 2024

_____
Karen Reddick-Yurka, Chair

ATTEST:

_____
Leila Aman, City Manager/Recorder

CITY OF MANZANITA
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NOTICE OF PLANNED UNIT DEVELOPMENT APPLICATION
HERONS REST

The City of Manzanita Planning Commission will hold its regular meeting on Monday, May 13th, 2024, at 4:00 PM via Zoom. Go to www.ci.manzanita.or.us for log in information. This meeting will include a public hearing to consider the following application:

File No:	**24-0001-PLNG**
Request:	**A Planned Unit Development to construct 26 single family homes with cottage cluster style housing.**
Applicant:	**Nate Palmer**
Location:	**Located at the approximate east end of Hallie Ln and to the West of S 3rd Street. Dorcas Lane and Classic Street.**
Assessor's Map:	**3N 10 29 CA Tax Lot 200**
Zoning:	**Split Zoned Medium and High Density Residential (R-2 and R-3)**
Criteria:	**This application will be evaluated against the Planned Unit Development criteria listed in Ordinance 95-4 Section 4.136; Section 4.080 Off-street parking and Off-street loading requirements and the Comprehensive Plan Goal 2 section relating to R-3.**

Persons interested in the proposal should become involved in the land use decision-making process. Anyone desiring to speak for or against the proposal may do so in person or by representative at the hearing. Written comments may also be filed with the City of Manzanita prior to the public hearing. All documents, evidence, and staff reports relied upon by the applicant, including a list of Manzanita Zoning Ordinance approval criteria applicable to the request, are available for inspection at Manzanita City Hall at no cost, or copies can be obtained for $0.25/page.

The Planning Commission's review is for the purpose of making a decision on the proposal. A decision by the Planning Commission to approve or deny the application will be based upon the above listed criteria and these criteria only. At the hearing it is important that comments relating to the request pertain specifically to the applicable criteria. Failure of an issue to be raised in the hearing, in person or by letter, or failure to provide sufficient specificity to afford the decision-maker an opportunity to respond to the issue precludes appeal to the Land Use Board of Appeals based on that issue.

A copy of the staff report will be available at least seven days prior to the hearing for inspection at no cost, or a copy can be obtained for $0.25/page. If you need any special accommodations to participate in the hearing, please notify City Hall 24-hours before the meeting. For further information please contact Leila Aman, City Manager, Manzanita City Hall, 368-5343, P.O. Box 129, Manzanita, Oregon 97130.

City of Manzanita

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February 27, 2024

Nathaniel Palmer
1233 Cherry Lane
Lake Oswego, OR

RE: Completeness Letter – Heron's Rest Planned Unit Development

Mr. Palmer:

The City of Manzanita received your Planned Unit Development application for 26 single family homes that will be located on the 1.83-acre property located between 3rd Street and Hallie Lane (3N1029CA00200).

City staff reviewed the application against the submittal requirements and determined the application is **COMPLETE**. The City will begin processing the application and provide a separate Notice of Public Hearing.

Please contact me if you have any questions.

Respectfully,

Scott Fregonese
City Planner
(503) 946-9365 x248

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STAFF REPORT

TO: Manzanita Planning Commission

FROM: Walt Wendolowski, City Contract Planner

SUBJECT: Staff Report – Planning File# 24001
Heron's Rest Planned Unit Development

DATE: May 1, 2024

I. BACKGROUND

A. APPLICANT: Nate Palmer (City Center Development Partners).

B. PROPERTY LOCATION: The property is located between the east end of Hallie Lane and South 3rd Street. There is no property address, and the County Assessor places the property within Township 3 North; Range 10 West; Section 29CA; Tax Lot #200.

C. PARCEL SIZE: The site contains approximately 1.83 acres (79,700 square feet).

D. EXISTING DEVELOPMENT: The vacant subject fronts on South 3rd Street with an access to a second street (Hallie Lane). Public water and sanitary sewer service are available at the site.

E. ZONING: The property is split zone between the Medium Density Residential (R-2) zone and the High Density Residential (R-3) zone. The site is not located within the identified Dune Overlay and Floodplain Overlay zones.

F. ADJACENT ZONING AND LAND USE: High Density Residential/Limited Commercial (R-4) zoned land is located to the northwest, north and northeast. To the west is additional R-3 and R-2 zoned property while land to the south is zoned R-2. Land directly east, and to the southeast is zoned R-3. All adjacent property contains single family homes.

G. REQUEST: The applicant is requesting approval of a Planned Unit Development to construct twenty-six single-family homes.

H. DECISION CRITERIA: This application will be evaluated against the following provisions in Ordinance 95-4: Section 4.136 - Planned Unit Development; and Section 3.020 - Medium Density Residential (R-3) Zone.

II. APPLICATION SUMMARY

A. The applicant wishes to create a detached, single-family residential development. Improvements will feature the following:

1. The site will contain a total of twenty-six one and two-story homes. Fourteen homes will be located on the north side of the center private roadway, and twelve on the south side. The homes will be either one-bedroom or two-bedrooms, each home approximately 650 square feet in area.

2. Of the twenty-six homes, eleven will include garages. The north side will include six such homes with three facing 3rd Street and three located on the west side of the property. Similar development on the south side, except that only two homes with garages will be located on the west side.

3. The roadway dividing the site is 20-feet in width, enters from 3rd Street and runs west, connecting to Hallie Lane. This roadway is private and one-way.

4. There are two open space areas, one on each side of the roadway. The one on the north is unimproved while the south site contains a recycling building, picnic shelter, and a playground. The plan did not include area dimensions. The submitted site also identifies potential tree or bush planting locations.

5. The site includes thirty-seven parking spaces. This total includes fifteen shared spaces on the north side of the private roadway and two spaces for each of the eleven homes containing garages.

6. An interior walkway system will connect the homes, and the homes to the shared parking spaces. There will also be sidewalk along the roadway to Hallie Lane. The site did not include 3rd Street public right-of-way improvements. Specifics will be addressed during the engineering plan review.

7. The site plan identifies a wildlife permeable cedar fence on the south side of the property. It is not clear from the site plan whether this will continue along the west and north property lines.

8. A homeowner's association will be responsible for maintaining the property, including garbage pick-up, and establishing housing standards.

9. Supporting documents include a traffic study and parking analysis by Mackenzie Engineering, and storm drainage recommendations by HBH Consulting Engineers.

B. The applicant selected the option of developing the site as a residential planned unit development (PUD). For the record, both the R-2 and R-3 zones permit single family homes [Section 3.010(1)(a) and Section 3.020(1)(a), respectively]. Using the planned development approach effectively allows the creation of a cottage cluster type of development.

C. Section 4.136 outlines the PUD procedures. In the case of a split zoned property, ". . . requirements shall be guided by the standards that most nearly portray the character of the zone in which the greatest percentage of the planned development is proposed." As a majority of the site is zoned R-3, standards of the R-3 zone apply. However, while the "base" zone is the R-3, the planned development process allows greater freedom of design. This flexibility includes a request to modify the parking standards.

D. The applicant intends to eventually subdivide the property, with lots anticipated to be in the 1,500 to 2,500 square foot range. The lot boundaries will depend on the final layout and may require additional modification to the underlying standards such as setbacks and lot coverage. This request is limited to the review of a conceptual plan for a residential planned development with shared open space and parking. This action will include a second hearing to consider the final plan. At that time, the Commission may consider a potential subdivision, including any modifications to the underlying development standards. For the record, if the applicant does not create individual lots, as a PUD, state law still requires a plat to identify the location of each building.

E. This application and review are only considering the planned development layout, and not the individual buildings. This application does not include a design review for any structure, nor is one required for permitted uses in the R-

3 zone. However, the layout does contain proposed building locations, and if approved, the Commission has the authority to condition their decision on the final layout conforming to the proposal, including the relative size and position of the buildings.

F. The City forwarded the application to affected agencies and area property owners. The Manzanita Department of Public Works indicated public water serves the site, with water mains available at either Hallie Lane or 3rd Street. Nehalem Bay Wastewater Agency confirmed sanitary sewer is available to serve the site. Nehalem Bay Fire & Rescue noted there is adequate water for fire suppression and the 20-foot roadway complies with access guidelines. Tillamook County Housing Coordinator submitted a letter in support of the request. In addition, as of the date of this report, the City has received five comments from area property owners in support of the project.

III. PLANNED UNIT DEVELOPMENT PROVISIONS

A. Evaluation of the proposal is based on the planned unit development procedures in Section 4.136. The following subsections review these provisions:

1. Section 4.136.1., reviews the purpose of a planned development. Briefly, a "planned development" permits the application of greater freedom of design in land development than may be possible under a strict interpretation of the provisions of this Ordinance.

   FINDINGS: This is directly applicable to the request. Instead of a conventional subdivision, the proposal creates a cottage cluster type of project, with smaller homes, shared parking, and shared open space. This would not be possible under the strict interpretation of the Ordinance.

2. Section 4.136.2., establishes the following standards and requirements:

   (a) A planned development may include any uses and conditional uses permitted in any underlying zone. Standards governing area, density, yards, off-street parking, or other requirements shall be guided by the standards that most nearly portray the character of the zone in which the greatest percentage of the planned development is proposed.

FINDINGS: The proposal establishes single family homes, a use previously identified as permitted in the R-3 zone. Further, the R-3 zone establishes the base requirements, that per Section 4.136.1, an applicant may modify.

(b) The developer may aggregate the dwellings in this zone in "cluster" or multiple-dwelling structures so long as it does not exceed the density limits of the Comprehensive Plan.

FINDINGS: The plan clusters detached single-family homes, although a future subdivision is possible by applying the same PUD provisions and flexibility to the individual lots.

The R-3 zone density in the Comprehensive Plan is fifteen dwelling units per net acres. Under the “Land Use Categories” provisions of the Plan, a net acre is defined as follows:

> *For purposes of determining allowable density, the term “net acre” shall mean the gross area of an acre parcel less the amount of land needed for public right-of-way or 86% of thegross area of an acre parcel, whichever is greater.*

In the case of this site, the applicant is not required to dedicate public right-of-way. Therefore, since dedication is not required, the net acreage of the 1.83-acre site is 1.83 acres. At 15 units per acre, the Plan allows a maximum of 27.45 units. The layout includes twenty-six units, which is below this limit.

(c) Assurances such as a bond or work agreement with the City may be required to ensure that a development proposal as submitted is completed within the time limit agreed upon by the developer and the commission.

FINDINGS: Bonding is an option available to the City to ensure development of the site.

B. Section 4.136.3 addresses the Planned Unit Development Procedure. The following procedures shall be observed in applying for and acting on a planned development:

(a) An applicant shall submit 10 copies of a preliminary development plan to the Planning Commission and notify all property owners within 250 feet of the proposed development by mail.

FINDINGS: The material submitted as part of the application complies with the provisions in this Section. The City provided notice to affected agencies and area property owners per provisions in this Section.

(b) Prior to discussion of the plan at a public hearing, the City Manager shall distribute copies of the proposal to appropriate City agencies or staff for study and comment.

FINDINGS: Per this item, the City distributed the submitted plans to the Commission prior to the meeting.

(c) The Planning Commission shall consider the preliminary development plan at a meeting, at which time the comments of persons receiving the plan for study shall be reviewed. In considering the plan, the Planning Commission shall seek to determine that:

(1) There are special physical conditions of objectives of development which the proposal will satisfy to warrant a departure from the standard ordinance requirements.

FINDINGS: The site's topography does not create any special limitations on development. However, the type of proposed housing - small cottages with shared open space – can only develop through the planned unit development process. Item "D." below, reviews compliance or changes to the standard ordinance requirements.

(2) Resulting development will not be inconsistent with the Comprehensive Plan provisions or zoning objectives of the area, particularly with regard to dune stabilization, geologic hazards and storm drainage.

FINDINGS: Ordinance 95-4 implements the City's Plan and appropriately zoned the site for residential uses. This project establishes single-family detached homes at a density permitted by the Plan and is therefore consistent with the intended use.

(3) The area around the development can be planned to be in substantial harmony with the proposed plan.

FINDINGS: All adjacent parcels contain single family homes. The proposed project is consistent with this pattern of development, with the only difference being the style of homes.

(4) The plan can be completed within a reasonable period of time.

FINDINGS: It is the City's understanding that the applicant intends to develop the project in a single phase. The Commission retains the authority to place reasonable constraints on the timing of activities.

(5) The streets are adequate to support the anticipated traffic and the development will not overload the streets outside the planned area.

FINDINGS: The applicant submitted a traffic study addressing this issue. The report provides the following summary:

> *All study area intersections are expected to operate at acceptable levels per ODOT and City standards with the addition of site trips, and vehicle queues will not exceed available storage. Pedestrian and bicycle facilities in the project area will encourage use of these alternate travel modes and help to reduce the slight impact that peak hour vehicle travel will have on 3rd Street or Hallie Lane. The paved conditions of 3rd Street should be capable of handling the additional vehicular traffic from the proposed development. Hallie Lane is currently unpaved, and if the site was in a normal urban/suburban area, it would be expected to experience 60 daily trips. This would be approximately five (5) trips an hour, if it is assumed they occur during half (12 hours) of the day. However, considering that most residents of the proposed development will predominantly travel using alternative modes, the undeveloped conditions of Hallie Lane should be able to withstand the minor increase in daily trips. Therefore, we are not recommending improvements to 3rd Street or Hallie Lane. Sight distances from the driveways and*

parking spaces on 3rd Street are available in excess of 250 feet. At the intersection of Hallie Lane with Carmel, vegetation at the northeast corner could be trimmed to improve sight distance to the north.

Effectively, the analysis concluded the limited traffic generated by the development, and in conjunction with available bicycling and walking alternatives, does not significantly impact the local street system to where improvements are required. Finally, as previously noted, any improvements along 3rd Street will be determined by the City as part of any civil engineering plan submittals.

(6) Proposed utility and drainage facilities are adequate for the population densities and type of development proposed.

FINDINGS: The applicant submitted a storm water routing plan for the development. Compliance with this provision will be determined when engineering plans are submitted, and for the record, development cannot proceed unless the submitted engineering plans comply with City, and affected agency, engineering standards.

(d) The Planning Commission shall notify the applicant whether, in its opinion, the foregoing provisions have been satisfied and, if not, whether they can be satisfied with further plan revision.

FINDINGS: This is a procedural requirement, whereby the decision and any conditions of approval are determined at the Commission hearing and the applicant is formally notified by the City.

(e) Following this preliminary meeting, the applicant may proceed with his request for approval of the planned development by filing an application for an amendment to this Ordinance.

FINDINGS: The purpose of this provision is to identify the site as a planned development on the City's zoning map (see item "(g)" below). In effect, this requires an approved tentative plan to be submitted, reviewed, and eventually recorded.

(f) In addition to the requirements of this section, the Planning Commission may attach conditions it finds are necessary to carry out the purposes of this Ordinance.

FINDINGS: If approved, this staff report includes a list of recommended conditions for the Commission to consider.

(g) An approved planned development shall be identified on the zoning map with the letters PD in addition to the abbreviated designation of the existing zoning.

FINDINGS: The City assumes this responsibility for an approved decision and recording of the plat.

(h) Building permits in a planned development shall be issued only on a basis of the approved plan. Any changes in the approved plan shall be submitted to the Planning Commission for processing as an amendment to this Ordinance.

FINDINGS: The request does not include specific design standards that would apply to any building permit requirements. However, the layout identifies the location of the various cottages, parking, and open space. The project must conform to this layout unless otherwise modified by this decision.

D. Section 3.020(3) contains the applicable development standards of the R-3 zone. Now, the Commission is reviewing the site as a single project without individual lots. The final plan may subdivide the lots; however, the subdivision lots must conform to the following standards or be modified as part of the planned development process. The following reviews each standard:

1. (3)(a) - The minimum lot size shall be 5,000 square feet for single family or duplexes, plus 2,500 square feet for each additional dwelling unit.

FINDINGS: The current 1.83-acre layout exceeds this requirement. And as previously noted, the layout complies with the underlying density requirement.

2. (3)(b) - The minimum lot width shall be 40 feet, except on a corner lot it shall be 60 feet.

FINDINGS: The parcel maintains approximately 280-feet of frontage on 3rd Street, thereby exceeding the minimum 40-foot requirement. As an interior lot, corner lot provisions do not apply.

3. (3)(c) - The minimum lot depth shall be 90 feet.

   FINDINGS: The subject parcel depth is 285 feet, exceeding the minimum standard.

4. (3)(d) - The minimum front yard shall be 20 feet, or the average setback of buildings within 100 feet of both sides of the proposed building on the same side of the street, whichever is less. For purposes of determining the average setback of buildings, vacant lots within 100 feet of both sides of the proposed building on the same side of the street shall be included and shall be assumed to have a building placed 20 feet from the front lot line to the nearest part of the building. In no case shall the front yard setbacks be less than 12 feet.

   FINDINGS: The front yard is located along the 3rd Street, and based on the layout, complies with the 20-feet setback requirement.

5. (3)(e) - The minimum side yard setback shall be 5 feet for the portion of the building at the setback line up to 10 feet in height as measured vertically from average finished grade to the highest point of that portion of the building and shall be 8 feet for any portion of the building where this height is exceeded; except that a roof with a pitch of less than or equal to 8 in 12 may extend upward from the 5-foot setback line to the 8-foot setback line. The street side yard setback of a corner lot shall be 12 feet.

   FINDINGS: The side yards are located along the north and south property lines. In both cases, the layout complies with the minimum requirement. However, this may need to increase based on the adjacent building height.

6. (3)(f) - The maximum building or structure height shall be 28 feet, 6 inches. However, if more than one-half of the roof area has a roof pitch of less than 3 in 12, the building or structure height shall not exceed 24 feet. The height of a stepped or terraced building shall be the maximum height of any segment of the building or structure.

FINDINGS: Compliance with this provision will be determined during the review of the building permits for individual structures.

7. (3)(g) - The minimum rear yard setback shall be 10 feet.

   FINDINGS: The rear yard is located along the west property line and the structures exceed the minimum requirement.

8. (3)(h) - The maximum lot coverage in the R-3 zone shall not exceed 55%. Less lot coverage may be required in steeply sloping areas or areas with drainage problems. In all cases, the property owner must provide the City with a storm drainage plan which conducts storm runoff into adequately sized storm drains or approved natural drainage as approved by the Public Works Director.

   FINDINGS: Based on the applicant's calculations, the lot coverage is approximately 22%.

9. (3)(i) - In areas of the City without a high-water table, a dry well capable of absorbing the storm runoff of the impervious surfaces of the property shall be provided in accordance with City standards.

   FINDINGS: As noted, the applicant submitted a potential storm water plan. Regardless, compliance with this requirement can be addressed when engineering plans are submitted.

F. The planned unit development provisions do not specifically address parking requirements. Per Section 4.090(3)(a) the parking standard is two spaces per single family home, requiring fifty-two parking spaces for the entire development. The applicant requested a modification of this standard to require only thirty-seven spaces, or 1.42 spaces per unit and submitted an analysis by Mackenzie Engineering, along with additional information, to support this request. A summary of the applicant's responses follows:

   a. The 15 parking spaces located at the center of the development corresponds to the 15 homes without garages. Assuming the units are owner occupied as either primary or second home, it is unlikely that all units will be occupied at the same time, allowing the available parking to be shared.

b. At one or two bedrooms and 650 square foot area, it is likely there are fewer residents, and in turn, fewer automobiles.
c. The location is highly walkable to both downtown and the beach, thereby further reducing the need for additional vehicles.
d. Mackenzie Engineering conducted car counts during holiday weekends (Memorial Day and July 4) at similar type of developments. The ratio of parked cars to dwelling units was 1.09 vehicles per unit. The study indicated the ratio may be lower as the study assumed a car was parked in every garage space that was closed and not visible.
e. Eleven homes contain a garage and an additional parking space which address some of the demand.
f. The ITE Parking Generation Manual includes data for attached single family homes, which is like a cottage cluster development. The Manual noted this type of housing reduces parking demand and suggested the appropriate ratio is 0.74 parking spaces per bedroom. With this measurement, and with one and two-bedroom units, the parking needs for the entire project would range between 19.24 spaces to 38.48 spaces.
g. The parking analysis also noted less parking allows for more green space and reduces the amount of pervious surfaces which impacts storm drainage.

On balance, and especially noting items “d.” and “f.” above, the creation of thirty-seven spaces for the entire development appears reasonable.

IV. SUMMARY COMMENTS

A. Under consideration is a basic layout that establishes the framework for future development of the site. Based on the submitted material and layout, the proposed residential use is allowed, and the buildings meet or exceed setback requirements, although the building height may require an increased side yard setback. Further, the request to modify the parking space requirements appears appropriate.

B. As actual development details are not finalized, the location and level of public facility improvements cannot be determined to any degree, other than services can be extended to the site. The final location of the homes and number of bedroom units has not been determined, and the applicant is considering subdividing the property to create lots in the 1,500 to 2,500 square foot range. Regardless of whether this site is subdivided, a plat is still required to show the

final location of the dwellings and the land area that will be maintained by the homeowner's association.

C. Consistent with the requirements in Section 4.316, the applicant will be required to return to the Commission with final plans detailing dwelling location, final facility improvements, and open space improvements to ensure consistency with the approved decision. Further, if a request is made to subdivide the site into individual lots, that plan will need to be submitted. The lots remain subject to the development standards of the R-3 zone, unless otherwise modified as part of the planned development process.

D. The planned development provisions in Section 4.136 do not establish any time limits for the project, just that the project will be completed within a reasonable amount of time. Staff suggests the Commission limit the approval to two years from the date of the final decision. Within that time, the applicant must submit final design plans, including any request to subdivide the property. This second step requires a new application and processed as a planned development to allow modifications to any development requirements.

V. RECOMMENDATION AND CONDITIONS OF APPROVAL

City staff finds the proposal complies with the applicable Planned Development criteria and recommends the Planning Commission approve the application subject to the following Conditions:

A. The preliminary approval shall be limited to the layout submitted, and approved, as part of this application.

B. The applicant shall return with a final design plan for the Planning Commission to review. The plan shall substantially conform to the approved plan, including location of the roadway and shared parking, and include the following information:

1. The location of each dwelling, including building area, number of bedrooms and number of stories.
2. The location of open space, with specific renderings or plans of any improvements, such as the picnic area and children's playground.
3. Landscaping plan for the site.
4. Preliminary engineering plans for the entire development with sufficient detail to the satisfaction of the City Department of Public Works that the required improvements are feasible.
5. The location and design of any fencing.
6. A copy of the proposed homeowner's association.

C. If the applicant intends to subdivide the site into induvial lots, the final design plan shall include the subdivision request and preliminary plat. The lots shall comply with the development standards of the R-3 zone, unless otherwise modified as part of the planned development process.

D. Compliance with the Conditions of Approval shall be the sole responsibility of the applicant.

VI. PLANNING COMMISSION ACTION

A. The Planning Commission has the following options:

1. Approve the application, adopting findings and conditions contained in the staff report;

2. Approve the application, adopting modified findings and/or conditions;

3. Deny the application, establishing findings as to why the application fails to comply with the decision criteria.

4. Continue the hearing to a date and time certain.

B. Staff will prepare the appropriate document for the Chair's signature.

APPLICATION
RECEIVED 1/25/24

PAYMENT RECEIVED
1/26/24

CITY OF MANZANITA
P.O. Box 129, Manzanita,OR 97130-0129
Phone (503) 812-2514 | Fax (503) 368-4145 | TTY Dial 711
planning@ci.manzanita.or.us

PLANNED UNIT DEVELOPMENT

Date: 01 / 18 / 24

File #: 24-0001-PLNG	**Pre-App. File #: 23026-PLNG**

PRE-APPLICATION CONFERENCE REQUIRED PRIOR TO SUBMITTING APPLICATION

Once submitted, application materials and applicant information become public record.

APPLICANT INFORMATION:

Project Contact Name: Nate Palmer	Company: City Center Development Partners
Mailing Address: 1233 Cherry Lane, Lake Oswego OR	Zip: 97034
Phone(s): 503-707-7355	Email: natepalmer@gmail.com
City Limits: ☑	Urban Growth: ☐

SITE INFORMATION:

Site Address: S 3rd and Hallie Ln
Map & Tax Lot(s): 3N1029CA00200 Zone: R3 and R2
PROPOSAL (brief description):
Planned unit development with 26 single family homes. All 1+2Br. Smaller cluster development with shared common areas. The application follows the provision of Manzanita's Planned Unit Development Ordinance and this proposal meets the conditions required therein.

REQUIRED DOCUMENTS

(Please submit electronic copies of all documents as a PDF to buidling@ci.manzanita.or.us)

Planned Unit Development- $1,470.00

1. Completed Request Form & fee. (Payable by check or ePermitting. An invoice will be sent, if paying by credit card through ePermitting, along with payment instructions)
2. Email a PDF Copy of all documents to building@ci.manzanita.or.us. Provide **Ten (10)** paper copies of submittal documents. All drawings must be to scale.
3. Approval letters from the following:
   a. Public Works, 503-368-5343
   b. Nehalem Bay Wastewater, 503-368-5125
   c. Nehalem Bay Fire & Rescue, 503-368-7590
   d. Tillamook County Environmental Health Program Manager, 503-842-3909 (When required)
4. Wetland Delineation Study (When required)
5. Stormwater Retention
6. Traffic impact Analysis (When required)
7. Narrative: A detailed description of your proposal. Include a brief description of the physical context of the site, including a map showing the site and surrounding properties.

8. The design plan must identify: **(Manzanita Zoning Ordinance 95-4, Section 4.136 3. (a)**
    a. A map of existing conditions showing contour lines, major vegetation, natural drainage, streams, water bodies and wetlands.
    b. Proposed land uses, lot overages, building locations and housing unit densities.
    c. Proposed circulation pattern indicating the status of street ownership.
    d. Proposed open space uses.
    e. Proposed grading and drainage pattern.
    f. Geologic hazards study where required.
    g. Proposed method of water supply and sewage disposal.
    h. Relation of the proposed development to the surrounding area and the Comprehensive Plan.
9. **See Section 4.136 3. (c) for additional information**

Heron's Rest – Manzanita Project Overview

The proposed application is for a cottage cluster planned unit development in line with Manzanita Zoning Ordinance Section 4.136 Planned Unit Development (PD) and Manzanita's Comprehensive plan.

Project Team:
Developer of this project is Nate Palmer, President of City Center Development Partners, located in Lake Oswego as well as an owner of a 2nd home in Manzanita.
General contractor and partner of City Center Development Partners is Scott Imholt, resident of Nehalem OR. Licensed since 1992. Scott has worked on over 50 homes in Manzanita.
Architect and lead presenter of the project is James Fanjoy, president of Viridian Architecture.
Civil Engineer is Andrey Chernishov, Principal Engineer of HBH Consulting Engineers.
Traffic Engineer is Brent Ahrend, Associate Principal of Mackenzie Consulting.
Legal Counsel is Gregory Hathaway, Partner of Hathaway Larson.

High level points:

- Site Size: 1.83 acres, or 79,700 sqft – rectangular parcel - 285 x 280'
    - Unique parcel located on S 3rd and Hallie Lane, one block from Laneda Ave
    - The only remaining large parcels within the R3 residential zoned in Manzanita
- Zoning – parcel is both in R2, and R3 zoning. Majority is R3 – High Density Residential
- Density – The proposed development contains 26 units, less than allowed per density standards. Zoning standards would indicate 1 unit per 2500 sqft, and therefore, 31.92 units. But after factoring in right-of-way access according to planned unit development subdivision standards, the maximum density for this parcel would be 27 units.
    - Units will be smaller, roughly 650 sqft – one and two bedroom.
    - Actual subdivided lot sizes to be between 1,500-2,500, thereby allowing significantly more open space.
    - Open spaces – 2 larger open space areas as well as a community shared space gathering building. See siteplan provided.
- Lot Coverage - Building lot coverage is ~22% as opposed to maximum allowed of 55%.
- Style - A mix of single-story and two-story homes - Cabin-like, cottage, clustered homes
- Parking is provided at 2.0 spaces per unit – 52 spaces in total. Parking for homes will be located on-development, with a shared parking arrangement. A parking/traffic study was completed in accordance with the scoping standards required by city staff and Lancaster Mobley.
    - 11 of the homes to have garages. 15 to have on-development site parking dedicated spaces.
- Setbacks in relation to existing neighboring homes will meet or exceed zoning standards. Front and rear yard setbacks between the new homes themselves may be less than 20/10 ft, as is typical with clustered home developments.
- Property access – a private one-way drive with entry on S 3rd will flow through the middle of the lot, with parking along this central private driveway. Exiting the private

drive will flow onto Hallie Lane. Traffic will increase on Hallie due to this but be far less than a 2-way public road. A 2-way public road would also change the character of the development, and a cottage cluster would become less attractive. The developers have had many collaborative discussions with the neighbors of the property. The neighbors are in support of a small, cottage-style development, rather than large-scale homes (similar to the development recently completed to the north of the site).

- HOA - The rules of the HOA will be included in the CC&Rs. Final CC&Rs are not complete at this time, but HOA will maintain garbage, common picnic shelter, landscaping, and exterior home maintenance (such as paint). Timeshares will not be allowed.
- Wetlands – Previously on site. A long process with Oregon State Division of Lands and Army Corps of Engineers has been completed. Wetlands have been mitigated.
- Stormwater management has been preliminarily designed with a civil engineer to appropriately handle water on site. See preliminary storm water design plan provided. Final engineering to be completed.
- Senate Bill 406, passed in 2023, states that municipalities in Tillamook county are to promote cottage cluster development and work with developers to provide incentives to build “middle housing”
- The final product presented was carefully crafted after years of work, over 30 siteplan revisions, and many meetings with the neighboring community to propose a cottage cluster housing project that ensures it meets the criteria established within the Manzanita Zoning Ordinance provisions, is in line with the goals and objectives outlines in Manzanita’s Comprehensive Plan, and responds to the needs and character of the surrounding communuity..

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    - Actual subdivided lot sizes to be between 1,500-2,500, thereby allowing significantly more open space.
    - Open spaces – 2 larger open space areas as well as a community shared space gathering building. See siteplan provided.
- Lot Coverage - Building lot coverage is ~22% as opposed to maximum allowed of 55%.
- Style - A mix of single-story and two-story homes - Cabin-like, cottage, clustered homes
- Parking is provided at 1.4 spaces per unit – 37 spaces in total. Parking for homes will be located on-development, with a shared parking arrangement. A parking/traffic study was completed in accordance with the scoping standards required by city staff and Lancaster Mobley.
    - 11 of the homes to have garages and two dedicated parking spaces. 15 to have on-development site parking dedicated spaces in a common shared private lot.
- Setbacks in relation to existing neighboring homes will meet or exceed zoning standards. Front and rear yard setbacks between the new homes themselves may be less than 20/10 ft, as is typical with clustered home developments.
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- The final product presented was carefully crafted after years of work, over 30 siteplan revisions, and many meetings with the neighboring community to propose a cottage cluster housing project that ensures it meets the criteria established within the Manzanita Zoning Ordinance provisions, is in line with the goals and objectives outlines in Manzanita’s Comprehensive Plan, and responds to the needs and character of the surrounding community..

BASIS OF BEARING

THE LINE BETWEEN MONUMENTS (203) AND (204) BEARS NORTH 00°00'00" EAST, THE RECORD VALUE FROM THE PLAT OF FIRST ADDITION TO MANZANITA BEACH (MAP C-153), TILLAMOOK COUNTY SURVEY RECORDS.

NOTES

THIS MAP DOES NOT CONSTITUTE A BOUNDARY SURVEY OF THE SUBJECT PROPERTY. FOR BOUNDARY INFORMATION, SEE MAP B-3666, TILLAMOOK COUNTY SURVEY RECORDS. THE EXTERIOR BOUNDARY OF THE SUBJECT PROPERTY WAS LAID OUT AS PER SAID MAP B-3666. THE PURPOSE OF THIS MAP IS TO SHOW TOPOGRAPHIC FEATURES ON AND DIRECTLY ADJACENT TO THE SUBJECT PROPERTY.
THE UTILITIES SHOWN HEREON ARE BASED UPON ABOVE GROUND UTILITY FEATURES AND UTILITY PAINT MARKS PLACED BY THE CORRESPONDING UTILITY AGENCIES VIA ONE-CALL AT THE TIME OF THE ORIGINAL TOPOGRAPHIC SURVEY IN 2017. SAID AGENCIES DO NOT GUARANTEE THEIR LOCATES TO BE FREE OF ERRORS OR OMMISSIONS, THEREFORE, ONION PEAK DESIGN RESERVES THE SAME LIMITATIONS.
FIELD WORK FOR THIS SURVEY WAS COMPLETED ON MAY 19, 2023.
PER FLOOD INSURANCE RATE MAP FOR THE CITY OF MANZANITA, OREGON (MAP 41057C0208F) DATED SEPTEMBER 28, 2018 THE SUBJECT PROPERTY IS NOT LOCATED IN A FLOOD HAZARD ZONE.
ELEVATIONS ON THIS MAP ARE NAVD 1988.

MONUMENT NOTES

(203) FOUND 3" TILLAMOOK COUNTY SURVEYOR BRASS CAP STAMPED "INITIAL POINT FIRST ADDITION TO MANZANITA BEACH". SEE REWITNESS BIN #153, TILLAMOOK COUNTY SURVEY RECORDS.

(204) FOUND 3" TILLAMOOK COUNTY SURVEYOR BRASS CAP STAMPED "INITIAL POINT SECOND ADDITION TO MANZANITA BEACH". SEE REWITNESS BIN #154, TILLAMOOK COUNTY SURVEY RECORDS.

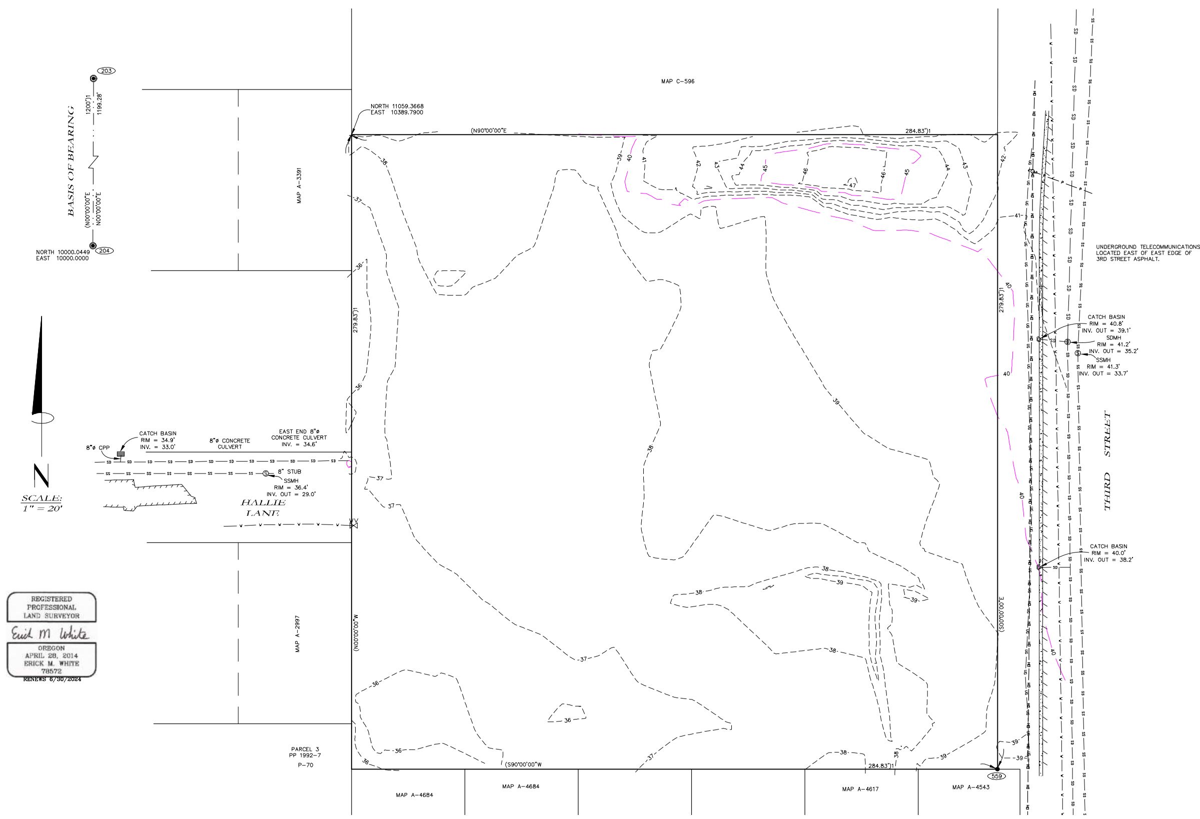
(559) FOUND 5/8" REBAR WITH PLASTIC CAP STAMPED "ONION PEAK DESIGN" IN CALCULATED POSITION. SEE MAP B-3666, TILLAMOOK COUNTY SURVEY RECORDS.

(560) FOUND 5/8" REBAR WITH PLASTIC CAP STAMPED "ONION PEAK DESIGN" IN CALCULATED POSITION. SEE MAP B-3666, TILLAMOOK COUNTY SURVEY RECORDS.

FOR ADDITIONAL MONUMENT DETAILS AND SOUTH LINE ENCROACHMENTS, SEE MAP B-3666, TILLAMOOK COUNTY SURVEY RECORDS.

LEGEND

◉	INDICATES MONUMENT FOUND AS NOTED HEREON, HELD FOR CONTROL.
●	INDICATES MONUMENT FOUND AS NOTED HEREON.
—— W ——	INDICATES WATERLINE.
—— SS ——	INDICATES SEWER LINE.
—— SD ——	INDICATES STORM DRAIN LINE.
—— OH ——	INDICATES OVERHEAD POWER.
—— P ——	INDICATES UNDERGROUND POWER.
—— UG ——	INDICATES UNDERGROUND FIBER OPTIC.
/‾/‾/‾/	INDICATES EDGE OF ASPHALT.
WV	INDICATES WATER VALVE.
	INDICATES POWER POLE.
( )	INDICATES RECORD VALUE FROM MAP B-3666, TILLAMOOK COUNTY SURVEY RECORDS.
	NO ( ) INDICATES MEASURED VALUE.



ONION PEAK DESIGN
11460 EVERGREEN WAY
NEHALEM, OR 97131
(503) 440-4403

"FAMB88" #A2023
CITY2305-T.DWG

TOPOGRAPHIC SURVEY FOR:

CITY CENTER DEVELOPMENT PARTNERS, LLC

A TRACT OF LAND AS DESCRIBED IN
DEED BOOK 206, PAGE 249,
TILLAMOOK COUNTY DEED RECORDS.
NE 1/4, SW 1/4, SECTION 29, T3N, R10W, W.M.
TILLAMOOK COUNTY
MAY 24, 2023

B-3666

BASIS OF BEARING

THE LINE BETWEEN MONUMENTS (203) AND (204) BEARS NORTH 00°00'00" EAST, THE RECORD VALUE FROM THE PLAT OF FIRST ADDITION TO MANZANITA BEACH (MAP C-153), TILLAMOOK COUNTY SURVEY RECORDS.

NARRATIVE

THIS SURVEY WAS CONDUCTED AS A DEPENDENT RESURVEY OF THE SUBJECT PROPERTY AS DESCRIBED IN DEED BOOK 206, PAGE 249, TILLAMOOK COUNTY DEED RECORDS.
THE PURPOSE OF THIS SURVEY IS TO DETERMINE AND MONUMENT THE EXTERIOR BOUNDARY OF THE SUBJECT PROPERTY.
THE SUBJECT PROPERTY FALLS WITHIN THE EXTERIOR BOUNDARY OF THE PLAT OF FIRST ADDITION TO MANZANITA BEACH. SOME OF THE PROPERTIES SHOWN ON SAID PLAT WERE CONVEYED VIA METES AND BOUNDS DESCRIPTIONS PRIOR TO THE FILING OF THE PLAT. THE SUBJECT PROPERTY IS ONE OF THESE PROPERTIES. MOST SURVEYS OF THESE PROPERTIES HAVE THE FIELD TIE ORIGINAL PLAT STRUCTURE AND APPLIED ADJUSTMENTS EVENLY THROUGHOUT, RATHER THAN HOLDING SPECIFIC DEED CALLS. THIS PROCEDURE WAS UTILIZED ON THIS SURVEY. THE PLAT FOR FIRST ADDITION TO MANZANITA BEACH WAS LAID OUT WITH NORTH-SOUTH, EAST-WEST LOT AND BLOCK LINES. BOOK 206, PAGE 249 CALLS NORTH-SOUTH ON THE EAST AND WEST LINES, BUT CALLS THE NORTH AND SOUTH LINES TO BE NORTH 89°30' EAST AND SOUTH 89°30' WEST. THIS BEARING WAS DISCARDED TO MAINTAIN CONSISTENCY AND AVOID GAPS/OVERLAPS ALONG THE NORTH AND SOUTH LINES AS THE PLAT AND NEIGHBORING PROPERTY DEEDS CALL EAST-WEST ALONG THE SAME LINES.
THE EXTERIOR BOUNDARY WAS LAID OUT AT RECORD PLAT AND DEED VALUES (AS ADJUSTED BY THE PROPORTIONALITY FACTORS SHOWN HEREON) FROM MONUMENT (203). PROPORTIONALITY FACTORS SHOWN HEREON WERE HELD AND UTILIZED AS PER PREVIOUS SURVEYS (A-6831) WITHIN THIS SUBDIVISION.
SEE DETAILS 'B' & 'C' FOR ENCROACHMENTS. VEGETATION ENCROACHMENTS WERE NOT LOCATED.

MONUMENT NOTES

(203) FOUND 3" TILLAMOOK COUNTY SURVEYOR BRASS CAP STAMPED "INITIAL POINT FIRST ADDITION TO MANZANITA BEACH". SEE REWITNESS BIN #153, TILLAMOOK COUNTY SURVEY RECORDS.

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(219) FOUND 5/8" REBAR WITH PLASTIC CAP STAMPED "HLB INC", 0.05' NORTH AND 0.09' EAST OF CALCULATED POSITION, 0.3' BELOW GROUND. SEE MAP A-6819, TILLAMOOK COUNTY SURVEY RECORDS.

(220) FOUND 5/8" REBAR WITH PLASTIC CAP STAMPED "HLB INC", 0.08' NORTH AND 0.04' WEST OF CALCULATED POSITION, 0.3' BELOW GROUND. SEE MAP A-6819, TILLAMOOK COUNTY SURVEY RECORDS.

(221) FOUND 3/4" IRON PIPE, 0.03' NORTH AND 0.05' EAST OF CALCULATED POSITION, 0.3' BELOW GROUND. SEE MAP A-2997, TILLAMOOK COUNTY SURVEY RECORDS.

(222) FOUND 5/8" REBAR WITH PLASTIC CAP STAMPED "PE 3510", 0.08' SOUTH AND 0.33' WEST OF CALCULATED POSITION, 0.5' BELOW GROUND. SEE MAP A-3391, TILLAMOOK COUNTY SURVEY RECORDS.

(223) FOUND 3/4" IRON PIPE, 0.05' NORTH AND 0.05' EAST OF CALCULATED POSITION, FLUSH IN GROUND. SEE MAP A-2997, TILLAMOOK COUNTY SURVEY RECORDS.

(224) FOUND 5/8" REBAR WITH SPLIT PLASTIC CAP STAMPED "PE 3510", 0.12' NORTH OF CALCULATED POSITION, 0.2' ABOVE GROUND. SEE MAP A-3391, TILLAMOOK COUNTY SURVEY RECORDS.

(225) FOUND 5/8" REBAR WITH PLASTIC CAP STAMPED "CENTERLINE CONCEPTS INC.", 0.08' SOUTH AND 0.19' EAST OF CALCULATED POSITION, 0.2' ABOVE GROUND. SEE MAP B-3151, TILLAMOOK COUNTY SURVEY RECORDS.

(227) FOUND 5/8" REBAR WITH PLASTIC CAP STAMPED "CENTERLINE CONCEPTS INC.", 0.03' SOUTH AND 0.36' EAST OF CALCULATED POSITION, 0.2' ABOVE GROUND. SEE MAP B-3151, TILLAMOOK COUNTY SURVEY RECORDS.

(229) FOUND 5/8" REBAR WITH SPLIT PLASTIC CAP STAMPED "PLS 1205", 0.12' NORTH AND 0.07' EAST OF CALCULATED POSITION, 0.5' BELOW GROUND. SEE MAP A-4543, TILLAMOOK COUNTY SURVEY RECORDS.

(230) FOUND 5/8" REBAR WITH SPLIT PLASTIC CAP STAMPED "PLS 1205", 0.10' NORTH OF CALCULATED POSITION, 0.5' BELOW GROUND. SEE MAP A-4543, TILLAMOOK COUNTY SURVEY RECORDS.

(231) FOUND 5/8" REBAR, 0.12' NORTH AND 0.06' EAST OF CALCULATED POSITION, 0.1' BELOW GROUND. SEE MAP A-4684, TILLAMOOK COUNTY SURVEY RECORDS.

(232) FOUND 5/8" REBAR WITH PLASTIC CAP STAMPED "PLS 1205", 0.14' NORTH AND 0.08' EAST OF CALCULATED POSITION, 0.4' BELOW GROUND. SEE MAP A-4684, TILLAMOOK COUNTY SURVEY RECORDS.

(233) FOUND 5/8" REBAR, 0.33' NORTH AND 0.08' WEST OF CALCULATED POSITION, 0.7' ABOVE GROUND. SEE MAP A-4684, TILLAMOOK COUNTY SURVEY RECORDS.

LEGEND

- o INDICATES SET 5/8" X 30" REBAR WITH PLASTIC CAP STAMPED "ONION PEAK DESIGN".
- ◉ INDICATES MONUMENT FOUND AS NOTED HEREON, HELD FOR CONTROL.
- • INDICATES MONUMENT FOUND AS NOTED HEREON.
- ( )1 INDICATES RECORD VALUE FROM THE PLAT OF FIRST ADDITION TO MANZANITA BEACH (MAP C-153), TILLAMOOK COUNTY SURVEY RECORDS.
- ( )2 INDICATES RECORD VALUE FROM DEED BOOK 206, PAGE 249, TILLAMOOK COUNTY DEED RECORDS.
- ( )3 INDICATES RECORD VALUE FROM MAP A-2997, TILLAMOOK COUNTY SURVEY RECORDS.
- ( )4 INDICATES RECORD VALUE FROM MAP A-3391, TILLAMOOK COUNTY SURVEY RECORDS.
- ( )5 INDICATES RECORD VALUE FROM MAP A-4543, TILLAMOOK COUNTY SURVEY RECORDS.
- ( )6 INDICATES RECORD VALUE FROM MAP A-4617, TILLAMOOK COUNTY SURVEY RECORDS.
- ( )7 INDICATES RECORD VALUE FROM MAP A-4684, TILLAMOOK COUNTY SURVEY RECORDS.
- ( )8 INDICATES RECORD VALUE FROM MAP A-6819, TILLAMOOK COUNTY SURVEY RECORDS.
- ( )9 INDICATES RECORD VALUE FROM MAP P-70, TILLAMOOK COUNTY SURVEY RECORDS.
- ( )10 INDICATES RECORD VALUE FROM MAP B-3151, TILLAMOOK COUNTY SURVEY RECORDS.
- < > INDICATES CALCULATED VALUE.

NO ( ) INDICATES MEASURED VALUE.

PROPORTIONALITY FACTORS (P.F.)

THE NORTH-SOUTH AND EAST-WEST PROPORTIONALITY FACTORS SHOWN HEREON WERE HELD AS PER PREVIOUS SURVEYS IN THE VICINITY (A-6831).

NORTH SOUTH PROPORTIONALITY FACTOR #1

$$\frac{\text{MEASURED}}{\text{RECORD}} = \frac{1199.28' - 240' \text{ (STREETS)}}{1200.00' - 240' \text{ (STREETS)}} = 0.99925$$

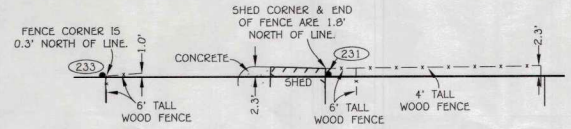
EAST-WEST PROPORTIONALITY FACTOR (WITHOUT STREETS)

$$\frac{\text{MEASURED}}{\text{RECORD}} = \frac{1199.28'}{1200.00} = 0.99940$$

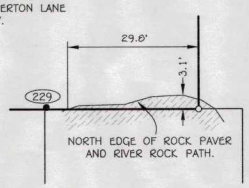
NORTH-SOUTH PROPORTIONALITY FACTOR #2

THE NORTH-SOUTH PROPORTIONALITY FACTOR SHOWN BELOW WAS CALCULATED BY HOLDING THE CALCULATED NORTH-SOUTH DISTANCE (USING P.F. #1) BETWEEN THE NORTH LINE OF EDMUND LANE AND NORTH LINE OF THE PLAT. THIS NORTH-SOUTH P.F. WAS USED FOR THE PROPERTIES LOCATED BETWEEN THE WEST RIGHT-OF-WAY OF THIRD STREET AND EAST RIGHT-OF-WAY OF HALLIE LANE AND MERTON LANE. THIS ALTERNATE P.F. WAS USED AS HALLIE LANE AND MERTON LANE DO NOT EXTEND THROUGH THE SUBJECT PROPERTY.

$$\frac{\text{CALCULATED}}{\text{RECORD}} = \frac{479.70'}{480.00'} = 0.99938$$



DETAIL MAP 'C'
1" = 20'



DETAIL MAP 'B'
1" = 20'

REGISTERED PROFESSIONAL LAND SURVEYOR
Erick M White
OREGON
APRIL 28, 2014
ERICK M. WHITE
78572
RENEWS 6/30/2015

TILLAMOOK COUNTY SURVEYORS OFFICE
DATE MAY 26, 2015

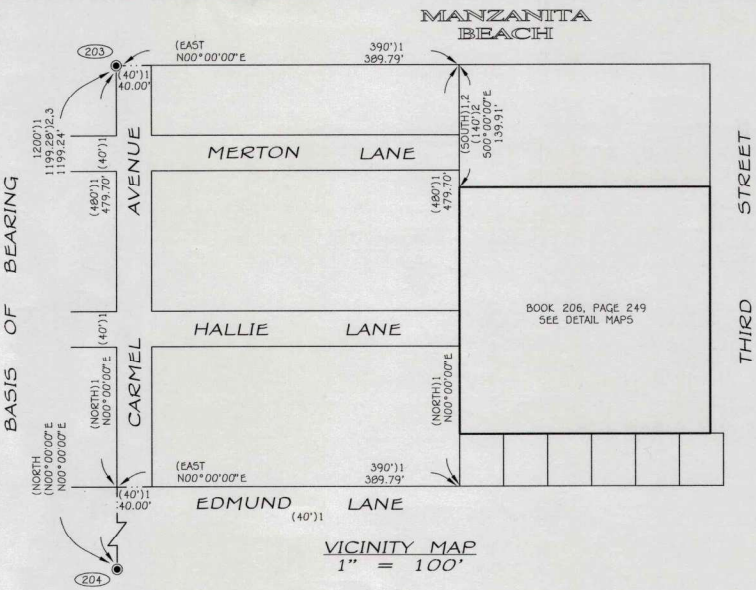
ONION PEAK DESIGN
PO BOX 326
NEHALEM, OR 97131
(503) 368-6102
FAX (503) 368-6102

"FIRST" #A2010
SCHNEIDER1504-B5.DWG

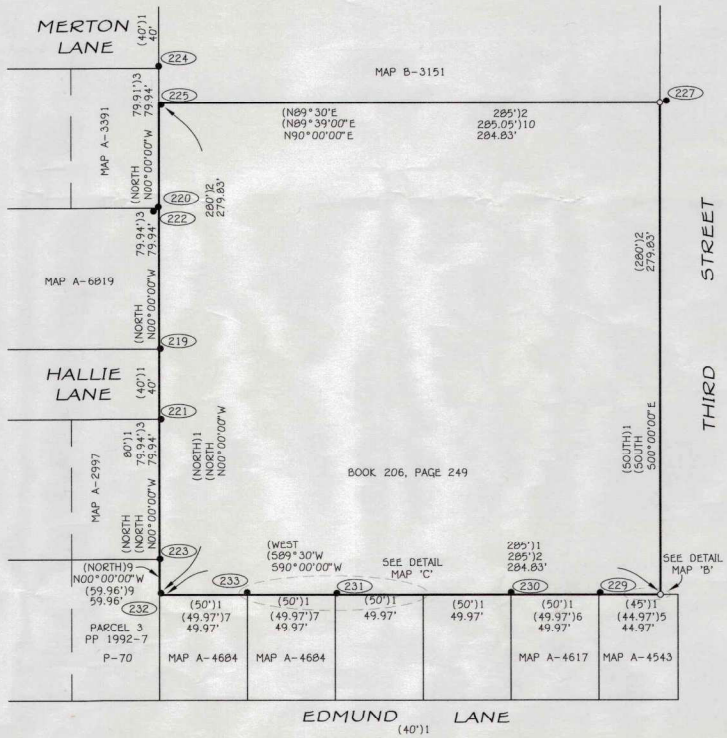
BOUNDARY SURVEY FOR:

SCHNEIDER FAMILY

A TRACT OF LAND AS DESCRIBED IN DEED BOOK 206, PAGE 249, TILLAMOOK COUNTY SURVEY RECORDS.
NE 1/4, SW 1/4, SECTION 29, T3N, R10W, W.M.
TILLAMOOK COUNTY
APRIL 17, 2015



VICINITY MAP
1" = 100'



DETAIL MAP 'A'
1" = 50'

B-3666

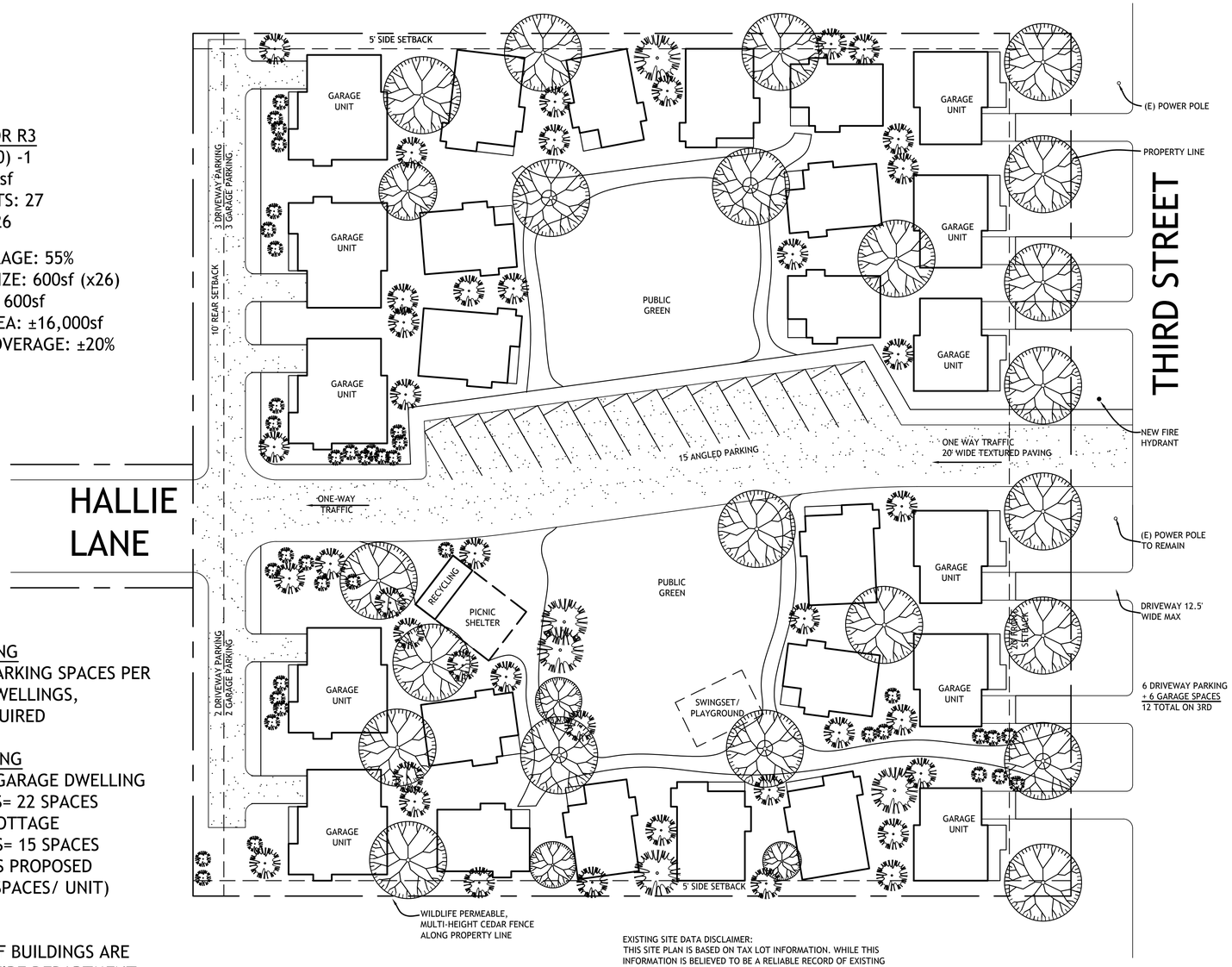
UNIT DENSITY FOR R3
(LOT SIZE / 2,500) -1
LOT SIZE: 79,700sf
ALLOWABLE UNITS: 27
ACTUAL UNITS: 26

MAX. LOT COVERAGE: 55%
AVERAGE UNIT SIZE: 600sf (x26)
PICNIC SHELTER: 600sf
TOTAL BUILT AREA: ±16,000sf
PLANNED LOT COVERAGE: ±20%

REQUIRED PARKING
PROPOSED 2.0 PARKING SPACES PER DWELLING, 26 DWELLINGS,
= 52 SPACES REQUIRED

PROPOSED PARKING
2.0 SPACES PER GARAGE DWELLING
x 11 UNITS= 22 SPACES
1.0 SPACE PER COTTAGE
X 15 UNITS= 15 SPACES
37 TOTAL SPACES PROPOSED
(AVG RATIO 1.4 SPACES/ UNIT)

ALL PORTIONS OF BUILDINGS ARE WITHIN 150' OF FIRE DEPARTMENT ACCESS



EXISTING SITE DATA DISCLAIMER:
THIS SITE PLAN IS BASED ON TAX LOT INFORMATION. WHILE THIS INFORMATION IS BELIEVED TO BE A RELIABLE RECORD OF EXISTING CONDITIONS, VIRIDIAN ARCHITECTURE LLC DOES NOT ASSURE THE ACCURACY OF THIS INFORMATION NOR CAN WE BE HELD RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED AS A RESULT.

N
SITE PLAN
1"=20' "AG"

VIRIDIAN
ARCHITECTURE
35820 US101 Nehalem, Oregon 97131
503.272.1701 www.ViridianArch.com

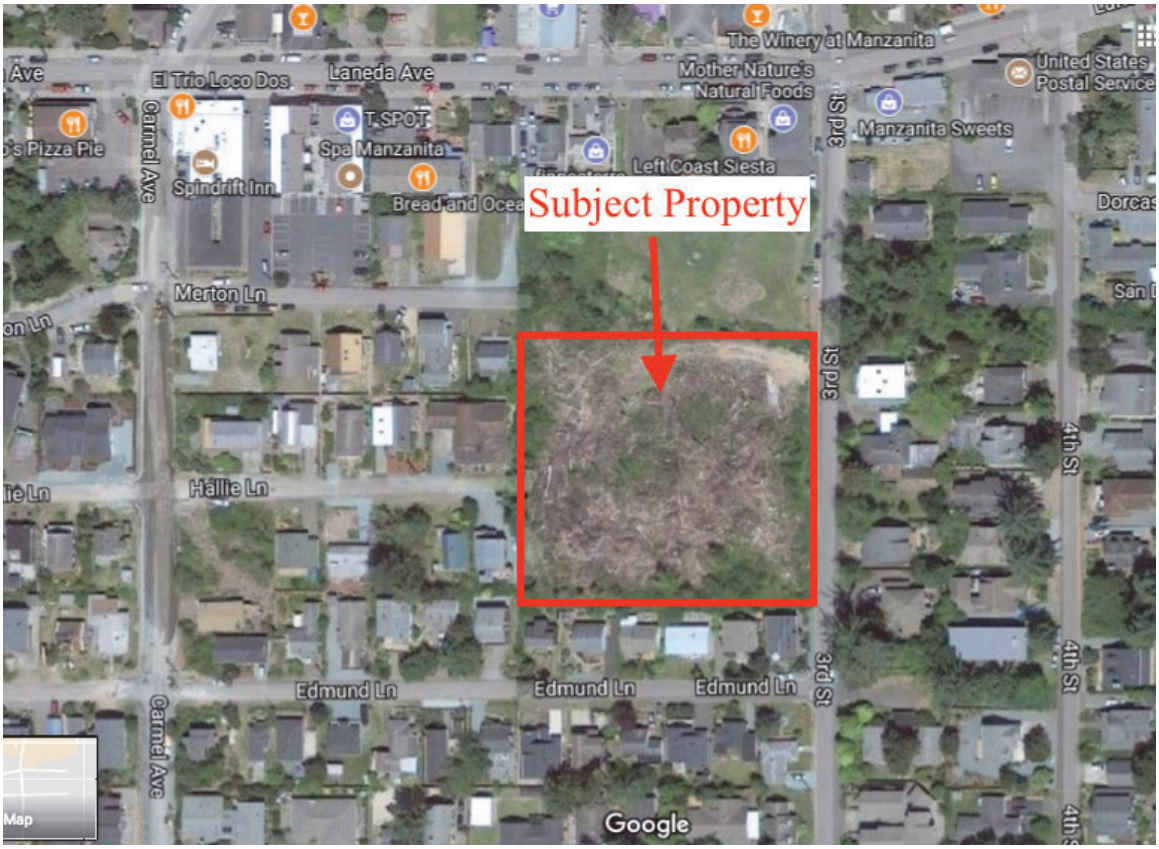
a planned development:
Heron's Rest
at the intersection of Hallie & Third
Manzanita, Oregon 97130

No.	Description	Date
	REVISION	2.5.2024

PRELIMINARY
NOT FOR CONSTRUCTION

Project number 1714

Pre and Post Tornado



Existing Site condition photos

Neighboring Homes






MEMORANDUM

501 E First Street Newberg, Oregon 97132 | Ph. 503-554-9553 | Fax 503-537-9554

Date: **January 24, 2024** Project Number: **2023-013**
To: **Nate Palmer**
From: **Andrey Chernishov, PE, CWRE**
RE: **Stormwater detention system – City of Manzanita**

STORMWATER ROUTING DESCRIPTION

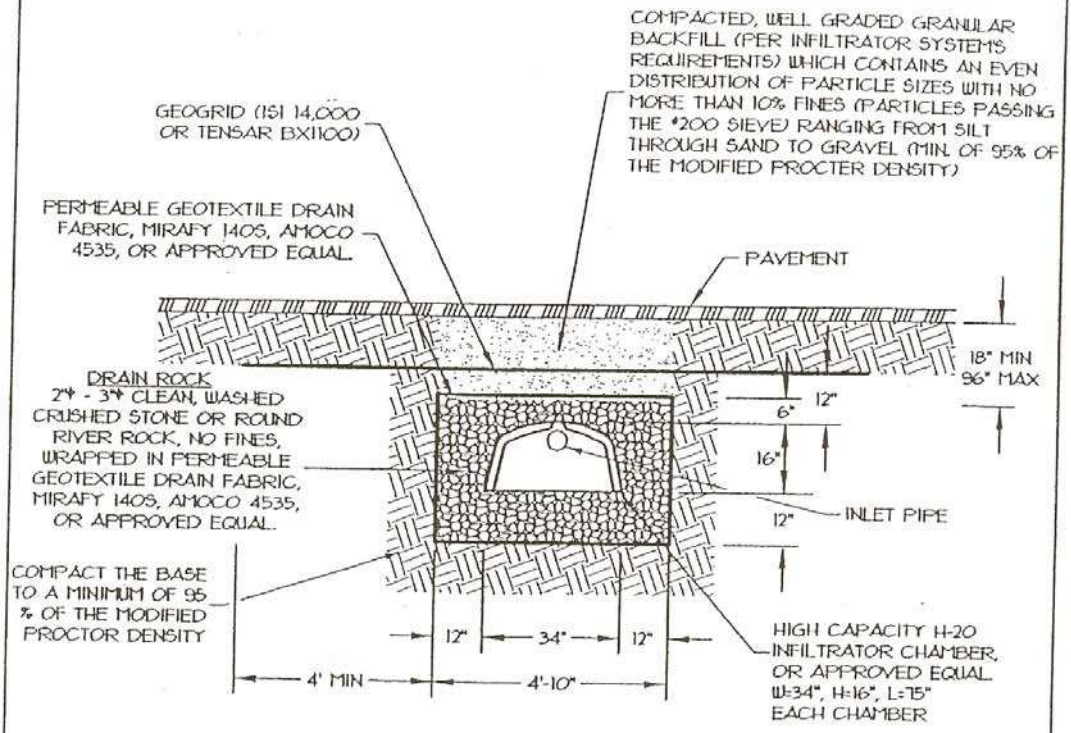
This development will utilize retention/infiltration systems installed on site, see City of Manzanita infiltrator chamber detail, and all the new impervious surface runoff will be detained or accounted for within the proposed infiltrator chambers on site.

The roof runoff will be collected into sediment basins with a removable grate to allow stormwater runoff from the nearby walkways to infiltrate into the collection system. Each sediment basin will be collecting runoff from two to four homes as well as the nearby walkways. The stormwater will then be conveyed into infiltrator chambers, one located on the north side of the one-way road (collecting 17,743 square feet of impervious area and provides 406 cubic feet of storage), one located on the south side of the one-way road (collecting 14,403 square feet of impervious area and provides 361 cubic feet of storage), and two that are located on the west side of the site, underneath the access roadway that runs north to south (one collecting 13,276 square feet of impervious area and provides 316 cubic feet of storage and the other collecting 3,704 square feet of impervious area and provides 90 cubic feet of storage).

The various infiltrator chambers will have overflows that are connected to a stormwater main that runs through the center of the site and convey the runoff to the southwest corner of the site and into the public stormwater system.

This system will be over detaining stormwater on site to make up for new impervious area on Third Street and Hallie Lane. The total of 49,126 square feet of new impervious area (on site and off site) will be detained and accounted for in 1,173 cubic feet of storage on site.

If the neighboring properties to the south do not grant a stormwater easement to cross their property, then stormwater will be piped to the existing storm main in Hallie Lane.



NOTE: GEOGRID MUST OVERLAP ON ITSELF AT LEAST 2' WHEN USING MORE THAN ONE ROLL.

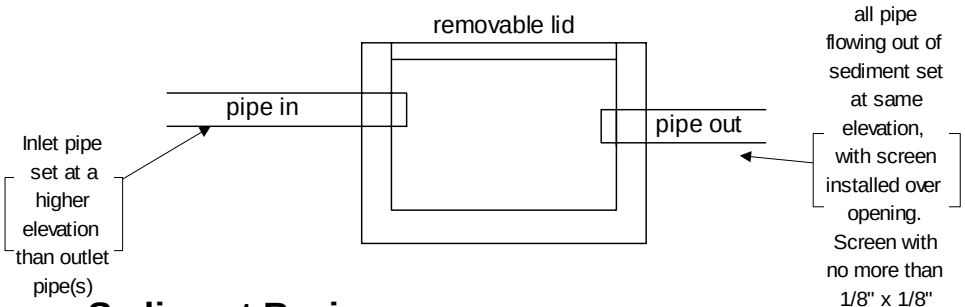
1/3 INFILTRATOR CHAMBER DETAIL

NO SCALE

CITY OF MANZANITA
DRYWELL STANDARDS TYP. INFILTRATOR CHAMBER

Sediment basin

Inside dimensions approximately 12” x 12” or larger.
Installed with removable lid flush with or higher than surrounding ground.
Bottom is optional



Sediment Basin

TAX LOT 102

TAX LOT 105

TAX LOT 3001
198 MERTON LANE

TAX LOT 3100
185 HALLIE LANE

TAX LOT 4100
198 HALLIE LANE

TAX LOT 4702
181 EDMUND LANE

TAX LOT 4600
213 EDMUND LANE

TAX LOT 4601
227 EDMUND LANE

TAX LOT 4500
245 EDMUND LANE

TAX LOT 4400
259 EDMUND LANE

TAX LOT 4300
273 EDMUND LANE

TAX LOT 4200
295 EDMUND LANE

HALLIE LANE

THIRD STREET

GARAGE UNIT

PUBLIC GREEN

RECYCLING

PICNIC SHELTER

SWINGSET / PLAYGROUND

ONE-WAY TRAFFIC

ONE WAY TRAFFIC

SD

LEGEND

- (A) NEW STORM MANHOLE
- (B) NEW STORM CLEANOUT
- (C) NEW CATCH BASIN
- (D) INFILTRATOR CHAMBERS
- (E) SEDIMENT BASIN
- (F) NEW SANITARY MANHOLE
- (G) NEW SANITARY CLEANOUT
- (H) NEW WATER METER MANIFOLD

HRZ. SCALE 1"=20' (22"X34")

20 10 5 0 20

REGISTERED PROFESSIONAL ENGINEER
76347PE
OREGON
MARCH 09, 2010
ANDREY R. CHERNISHOV
EXPIRES 12/31/2025

PRELIMINARY

H B H CONSULTING ENGINEERS
501 E First Street
Newberg, Oregon 97132
503/554-9553 ■ fax 503/537-9554
email: mail@hbh-consulting.com

Designed By: DRS | Drawn By: DRS | Checked By: ARC | Submittal No: PRELIMINARY

File: L:\2023-01\34-Design\DWG\Prelim - Site Plan.dwg

REV.	DATE	DESCRIPTION	BY

0" 1"
IF THIS LINE IS NOT 1 INCH SCALE IS NOT AS SHOWN

NATE PALMER
907 HUDSON ST., HOBOKEN, NJ 07030

HERON'S REST PUD
CITY OF MANZANITA

PRELIMINARY COMPOSITE UTILITY PLAN

Sheet No. P-01

Date 1/24/2024

1 of 4

2023-013

LEGEND

- (A) NEW STORM MANHOLE
- (B) NEW STORM CLEANOUT
- (C) NEW CATCH BASIN
- (D) INFILTRATOR CHAMBERS
- (E) SEDIMENT BASIN
- (F) NEW SANITARY MANHOLE
- (G) NEW SANITARY CLEANOUT
- (H) NEW WATER METER MANIFOLD

HRZ. SCALE 1"=20' (22"X34")

20 10 5 0 20

REGISTERED PROFESSIONAL ENGINEER
76347PE
OREGON
MARCH 09, 2010
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Designed By: DRS | Drawn By: DRS | Checked By: ARC | Submittal No: PRELIMINARY
File: L:\2023-01\34-Design\DWG\Prelim - Site Plan.dwg

REV.	DATE	DESCRIPTION	BY

0" 1"
IF THIS LINE IS NOT 1 INCH SCALE IS NOT AS SHOWN

NATE PALMER
907 HUDSON ST., HOBOKEN, NJ 07030

HERON'S REST PUD
CITY OF MANZANITA

PRELIMINARY STORMWATER AND GRADING PLAN

Sheet No. P-02
Date 1/24/2024
2 OF 4

2023-013

TAX LOT 102

TAX LOT 105

TAX LOT 3001
198 MERTON LANE

TAX LOT 3100
185 HALLIE LANE

GARAGE UNIT

GARAGE UNIT

GARAGE UNIT

PUBLIC GREEN

GARAGE UNIT

GARAGE UNIT

GARAGE UNIT

THIRD STREET

ONE WAY TRAFFIC

HALLIE LANE

ONE-WAY TRAFFIC

RECYCLING

PICNIC SHELTER

PUBLIC GREEN

GARAGE UNIT

GARAGE UNIT

SWINGSET/ PLAYGROUND

GARAGE UNIT

GARAGE UNIT

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TAX LOT 4300
273 EDMUND LANE

TAX LOT 4200
295 EDMUND LANE

LEGEND

- (F) NEW SANITARY MANHOLE
- (G) NEW SANITARY CLEANOUT
- (H) NEW WATER METER MANIFOLD

HRZ. SCALE 1"=20' (22"X34")

20 10 5 0 20

REGISTERED PROFESSIONAL ENGINEER
76347PE
OREGON
MARCH 09, 2010
ANTHONY R. CHERNISHOV
EXPIRES 12/31/2025

PRELIMINARY

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501 E First Street
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503/554-9553 ■ fax 503/537-9554
email: mail@hbh-consulting.com

Designed By: DRS | Drawn By: DRS | Checked By: ARC | Submittal No: PRELIMINARY

File: L:\2023-01\34-Design\DWG\Prelim - Site Plan.dwg

REV.	DATE	DESCRIPTION	BY

0" 1"
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SCALE IS NOT AS SHOWN

NATE PALMER
907 HUDSON ST., HOBOKEN, NJ 07030

HERON'S REST PUD
CITY OF MANZANITA

PRELIMINARY SANITARY AND WATER PLAN

Sheet No. P-03 3 of 4

Date 1/24/2024

2023-013

HRZ. SCALE 1"=30' (22"x34")

30 15 7.5 0 30

PRELIMINARY

REGISTERED PROFESSIONAL ENGINEER
76347PE
OREGON
JANUARY 09, 2018
ANDREY R. CHERNISHOV
EXPIRES 12/31/2025

H B H
501 E First Street
Newberg, Oregon 97132
CONSULTING 503/554-9553 ■ fax 503/537-9554
ENGINEERS email: mail@hbh-consulting.com

Designed By: DRS | Drawn By: DRS | Checked By: ARC | Submittal No: PRELIMINARY

File: L:\2023-01\34-Design\DWG\Prelim - Site Plan.dwg

REV.	DATE	DESCRIPTION	BY

0" 1"
IF THIS LINE IS NOT 1 INCH
SCALE IS NOT AS SHOWN

NATE PALMER
907 HUDSON ST., HOBOKEN, NJ 07030

HERON'S REST PUD
CITY OF MANZANITA

PRELIMINARY STORMWATER WITH AERIAL

Sheet No. P-04 4 of 4

Date 1/24/2024

2023-013

Oregon
Kate Brown, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregon.gov/dsl

BEFORE THE DIRECTOR OF THE DEPARTMENT OF STATE LANDS OF THE STATE OF OREGON

In the Matter of Removal-Fill Permit Application 62271-FP
By Nathaniel and Brigid Palmer
) Proposed Permit Decision and Order;
) Notice of Right to a Hearing

Short and Plain Statement of the Permitting Decision: The permit application is approved because the Department of State Lands (DSL or the Department) has determined that, when carried out in compliance with all terms and conditions outlined in the permit, the proposed removal-fill activity is consistent with the protection, conservation, and best use of the water resources of this state and will not unreasonable interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing, and recreation. *See* ORS 196.825.

I. **Applicable Law:**

a. ORS Chapter 196 governs removal fill permits in Oregon. The Department administers Oregon's Removal-Fill Law, Oregon Revised Statutes (ORS) 196.795 to ORS 196.990, which protects the state's wetlands and waterways. *See* ORS 196.805. Unless an exception applies, a person may not remove material from waters of this state or fill waters of this state without a permit from DSL. ORS 196.810. Waters of this state include the all-natural waterways, tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands, the Pacific Ocean that is in the boundaries of this state, and other water bodies. ORS 196.800; Oregon Administrative Rule (OAR) 141-085-0515; OAR 141-093-0100.

b. Specifically, the statutes that govern removal-fill permits in Oregon, including the permit application at issue in this case, generally include the following:

ORS 196.795 (Administration of State Removal or Fill Permits; General Permits);
ORS 196.800 (Definitions);
ORS 196.805 (Policy);
ORS 196.810 (Removal from Bed or Banks of Waters; Permits; Exceptions);
ORS 196.812 (Removal of Large Woody Debris);
ORS 196.815 (Permit Applications; Fees);
ORS 196.816 (Removal of Materials for Purpose of Maintaining Drainage and Protecting Agricultural Land);
ORS 196.817 (Removal or Fill General Permits);
ORS 196.818 (Wetland Delineation Reports; Fees);
ORS 196.820 (Smith Lake, Bybee Lake Prohibition);
ORS 196.825 (Permit Criteria; Consultation with Other Agencies);
ORS 196.830 (Estuarine Resource Replacement; Other Permit Conditions);
ORS 196.835 (Issuance of Permits; Procedure);
ORS 196.845(Investigations and Surveys of Location); and
ORS 196.850 (Waiver of Permit Requirement; Notice; Review).

The full text of these statutes may be viewed online at: https://www.oregonlegislature.gov/bills_laws/ors/ors196.html.

The full text of these statutes may also be inspected in person during normal business hours at:
Oregon Department of State Lands
775 Summer St NE STE 100
Salem, OR 97301.

c. OAR Chapter 141, Division 85 implement the above statutory scheme and govern removal-fill permits in Oregon. The rules that govern removal-fill permits in Oregon, including the permit application at issue in this case, generally include the following:

Div. 85 Removal-Fill Authorizations:
OAR 141-085-0500 (General);
OAR 141-085-0506 (Policy);
OAR 141-085-0510 (Definitions);
OAR 141-085-0515 (Removal-Fill Jurisdiction by Type of Water);
OAR 141-085-0520 (Removal-Fill Jurisdiction by Volume of Material);
OAR 141-085-0525 (Measuring and Calculating Volume of Removal and Fill);
OAR 141-085-0530 (Exemptions for Certain Activities and Structures);
OAR 141-085-0534 (Exemptions for Certain Voluntary Habitat Restoration Activities):
OAR 141-085-0535 (Exemptions Specific to Agricultural Activities);
OAR 141-085-0540 (Types of Authorizations);
OAR 141-085-0545 (Fees; Amounts and Disposition);
OAR 141-085-0550 (Application Requirements for Individual Permits);
OAR 141-085-0555 (Individual Removal-Fill Permit Application Review Process);
OAR 141-085-0560 (Public Review Process for Individual Removal - Fill Permit Applications);
OAR 141-085-0565 (Department Determinations and Considerations in Evaluating Individual Permit Applications);
OAR 141-085-0575 (Permit Appeals);
OAR 141-085-0580 (Discovery in Contested Cases);
OAR 141-085-0585 (Permit Conditions, Permit Expiration Dates and Permit Transfer);
OAR 141-085-0590 (Renewal and Extension of Individual Removal-Fill Permits);
OAR 141-085-0595 (Permit Requirements and Interagency Coordination for Department of Environmental Quality Approved Remedial Action, Corrections Facilities, Solid Waste Land Fills and Energy Facilities);
OAR 141-085-0665 (Expedited Process for Industrial or Traded Sector Sites);
OAR 141-085-0676 (Emergency Authorizations);
OAR 141-085-0680 (Compensatory Mitigation (CM); Applicability and Principal Objectives);
OAR 141-085-0685 (Functions and Values Assessment);
OAR 141-085-0690 (Eligibility Requirements for CM);
OAR 141-085-0692 (Mitigation Accounting);
OAR 141-085-0694 (Special Requirement for CM);
OAR 141-085-0695 (Administrative Protection of CM Sites);
OAR 141-085-0700 (Financial Security for CM Sites);
OAR 141-085-0705 (Requirements for CM Plans);
OAR 141-085-0710 (Monitoring Requirements for CWM);
OAR 141-085-0715 (Mitigation for Temporary Impacts);
OAR 141-085-0720 (Mitigation Banking Purpose, Applicability and Policies);

OAR 141-085-0725 (Process for Establishing Mitigation Banks);
OAR 141-085-0730 (Establishment of Mitigation Credits);
OAR 141-085-0735 (Release, Use and Sale of Mitigation Credits);
OAR 141-085-0740 (Authorization for Mitigation Banks);
OAR 141-085-0745 (In-Lieu Fee Mitigation);
OAR 141-085-0750 (Payments to and Expenditures from the Oregon Removal-Fill Mitigation Fund);
OAR 141-085-0755 (Advance Mitigation); and
OAR 141-085-0768 (Advance Aquatic Resource Plans).

The full text of these rules may be viewed online at:
https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=15700.

The full text of these rules may also be inspected in person during normal business hours at:
Oregon Department of State Lands
775 Summer St NE STE 100
Salem, OR 97301.

II. **Findings of Fact and Findings of Ultimate Fact**:

1. The Department received a complete, written application from applicant on April 20, 2021, for the proposed removal-fill activity consisting of construction of Heron's Rest, a residential community of 26 small homes.
2. The Department circulated the complete application for 30-day public comment period June 4 to July 6, 2021 to parties including, affected local, state and federal agencies, affected tribal governments, adjacent landowners, and other parties requesting notification.
3. Public comments were received from 29 commenters and forwarded to applicant on July 12, 2021. Applicant was invited to respond to comments identified as relevant to the Removal-Fill Law: Loretta Rosenberg, Tal Munson, Debra Reed, Julia Markova, Terra Marzano, Roger Campana, Debra Cipolla, Kaleen Wineinger, Gerald Weneinger, Jenna Edginton, Shirley West, David Harriman, Ben Rosenberg, Lynn Thomas, Michael and Barbara Goertz, Coleen Shwindt, and Kim Scheewe Kirk.The nature of those comments included potential flooding/local wetland functions lost to PIL, in particular stormwater management and traffic issues and impacts to existing infrastructure.
4. Applicant provided satisfactory response to comments on August 10, 2021.
5. Based on all the information in the agency file in this matter, including the complete application, comments received, applicant response to comments, and the agency's own investigations, the Department concludes as to the determinations in ORS 196.825(1) and (4), OAR 141-085-0565(3), and OAR 141-093-0115:

    a. The project described in the permit application and as conditioned in the proposed permit, is consistent with the protection, conservation, and best use of the water resources of this state as specified in ORS 196.600 to 196.905;

    b. The project described in the permit application and as conditioned in the proposed permit would not interfere with the paramount policy of this state to preserve the use of its waters for navigation, fishing, and public recreation.

6. Based on all the information in the agency file in this matter, including the complete application, comments received, applicant response to comments, and the agency's own

investigations, the Department concludes, as to the considerations in ORS 196.825(3), OAR 141-085-0565(4), OAR 141-093-0115.

a. There is not an identified public need for the proposed fill or removal and social, economic, or other public benefits likely to result from the proposed fill or removal.

b. There is not an identified economic cost to the public if the proposed fill or removal is not accomplished.

c. The application describes one other alternative to the project for which the fill or removal is proposed. There are no practicable alternatives with lesser impact to waters of this state.

d. The application describes no other alternative sites for the proposed removal or fill because no other comparable sites exist in Manzanita. There are no practicable alternative sites with lesser impact to waters of this state.

e. The proposed project conforms to sound policies of conservation because adverse effects to the aquatic resources have been reduced to the extent practicable and the proposed permit contains operating conditions for best management practices to further minimize adverse effects. No interference with public health and safety was identified in the application evaluation and public review processes.

f. There is not a conflict with existing public uses of the affected waters or adjacent land uses identified in the application evaluation and public review processes.

g. The proposed permit is conditioned on future local approval as described in the application's Land Use Compatibility Statement.

h. The proposed fill and removal is not for streambank protection.

i. The application describes compensatory mitigation in the form of purchase of Payment in Lieu credits. The mitigation is sufficient to offset anticipated spatial and function attribute losses resulting from the proposed fill or removal.

III. **Conclusions of Law:**

Based on the factors laid out in ORS Chapter 196 and OAR Chapter 141, Division 85, including ORS 196.825, OAR 141-085-0565, and OAR 141-093-0115, DSL should approve the permit application as conditioned in the proposed permit.

IV. **Proposed Order:**

The Department proposes approving the permit application with conditions and based on the factors laid out in ORS Chapter 196 and OAR Chapter 141, Division 85, including ORS 196.825, OAR 141-085-0565 and OAR 141-093-0130.

As described below, you have the right to request a hearing within 21 days. Prior to the expiration of the 21-day period, this proposed permit decision is not the final agency order on

the matter, and the permittee should be aware that the decision could be changed prior to the expiration of the 21-day appeal period—either because the permittee requests a contested case hearing, or as otherwise allowed under the removal fill law. A permittee who begins work under a permit prior to issuance of a final order does so with acceptance of this risk.

V. **Hearing:**

You are entitled to request a hearing based on this Proposed Order as provided by the Oregon Administrative Procedures Act (ORS chapter 183) and the administrative rules implementing the Administrative Procedures Act, OAR Chapter 137, Division 3. *See* ORS 196.825(7); OAR 141-001-0005; OAR 141-001-0010; OAR 141-085-0575; OAR 141-093-0130.

If you want a hearing, you must file a written request for a hearing with the Department no later than 21 calendar days from the date of the permit decision. *See* ORS 196.825(7); OAR 141-085-0575; OAR 141-093-0130. If you are a corporation, partnership, limited liability company, unincorporated association, trust, or government body, you must either have an attorney licensed to practice law in Oregon submit a request for a contested case hearing on your behalf or ratify your hearing request within 28 days. See OAR 137-003-0550.

The Department has determined that due to the complexity of removal-fill permitting, a general denial of the matters or a general objection to all permit conditions in the request for a contested case proceeding does not provide sufficient information for a fair and efficient contested case and a more specific request is warranted. OAR 141-085-0575. All requests for a contested case proceeding under this section shall include a specific list of issues for the contested case proceeding. OAR 141-085-0575. The requester may amend their request to include additional issues or clarify existing issues within 15 days of the date that the case is referred to the Office of Administrative Hearings. OAR 141-085-0575.

You may mail a request for a hearing to:

Department of State Lands
Aquatic Resource Management Program
775 Summer Street NE STE 100
Salem, OR 97301.

If you request a hearing, you will be notified of the time and the place of the hearing. *See* OAR 137-003-0525. You may be represented by legal counsel at the hearing. ORS 183.417; OAR 137-003-0550. Corporations, partnerships, limited liability companies, unincorporated associations, trusts and government bodies must be represented by an attorney except as provided in OAR 137-003-0555 or as otherwise authorized by law. OAR 137-003-0550. Legal aid organizations may be able to represent you if you have limited financial resources. You will be given information on the procedures, right of representation, and other rights of parties relating to the substance and conduct of the hearing before commencement of the hearing. *See* ORS 183.413.

VI. **Jurisdiction and Authority to Hold a Hearing:**

The Department has jurisdiction over the issuance of removal-fill permits pursuant to ORS Chapter 196, and specifically, ORS 196.810. A permit decision constitutes an order in a contested case. *See* ORS 183.310(2)(a); ORS 196.825(7). If timely requested, a hearing is

held as laid out in ORS 183.411 to ORS 183. 471, OAR Chapter 137, Division 3, ORS Chapter 196, and OAR Chapter 141, Division 85. ORS 196.825(7).

VII. **Final Order and Defaults**:

If a request for a hearing is not received by the Department within this 21-day period, your right to a hearing shall be waived and this Proposed Order shall become the Final Order by default. *See* ORS 196.825(7); OAR 141-085-0575; OAR 141-093-0130.

If you request a hearing and then either withdraw your hearing request, notify the Department or administrative law judge that you will not appear, or fail to appear at a scheduled hearing, the Department may issue a final order by default. *See* ORS 183.417.

If the Department issues a final order by default, it designates its file on this matter, including any materials submitted by you that relate to this matter, as the record for purposes of supporting its decision.

If you proceed to a contested case hearing, a Final Order will not be issued until after the hearing concludes. *See* ORS 183.464; OAR 141-085-0575; OAR 141-093-0130.

VIII. **Federal Servicemembers Civil Relief Act**:

Active duty servicemembers have a right to stay contested case proceedings under the federal Servicemembers Civil Relief Act. *See generally* 50 USC 3901 *et seq.* For more information, contact the Oregon State Bar (800-452-8260), the Oregon Military Department (503-584-3571), or the nearest United States Armed Forces Legal Assistance Office (http://legalassistance.law.af.mil). The Oregon Military Department does not have a toll-free telephone number.

Department of State Lands
775 Summer Street, Suite 100
Salem, OR 97301-1279
☎ 503-986-5200

Permit No.:	**63271-FP**
Permit Type:	**Fill**
Waters:	**Wetland**
County:	**Tillamook**
Expiration Date:	**September 19, 2022**

NATHANIEL AND BRIGID PALMER

IS AUTHORIZED IN ACCORDANCE WITH ORS 196.800 TO 196.990 TO PERFORM THE OPERATIONS DESCRIBED IN THE REFERENCED APPLICATION, SUBJECT TO THE SPECIAL CONDITIONS LISTED ON ATTACHMENT A AND TO THE FOLLOWING GENERAL CONDITIONS:

1. This permit does not authorize trespass on the lands of others. The permit holder must obtain all necessary access permits or rights-of-way before entering lands owned by another.
2. This permit does not authorize any work that is not in compliance with local zoning or other local, state, or federal regulation pertaining to the operations authorized by this permit. The permit holder is responsible for obtaining the necessary approvals and permits before proceeding under this permit.
3. All work done under this permit must comply with Oregon Administrative Rules, Chapter 340; Standards of Quality for Public Waters of Oregon. Specific water quality provisions for this project are set forth on Attachment A.
4. Violations of the terms and conditions of this permit are subject to administrative and/or legal action, which may result in revocation of the permit or damages. The permit holder is responsible for the activities of all contractors or other operators involved in work done at the site or under this permit.
5. Employees of the Department of State Lands (DSL) and all duly authorized representatives of the Director must be permitted access to the project area at all reasonable times for the purpose of inspecting work performed under this permit.
6. Any permit holder who objects to the conditions of this permit may request a hearing from the Director, in writing, within twenty-one (21) calendar days of the date this permit was issued.
7. In issuing this permit, DSL makes no representation regarding the quality or adequacy of the permitted project design, materials, construction, or maintenance, except to approve the project's design and materials, as set forth in the permit application, as satisfying the resource protection, scenic, safety, recreation, and public access requirements of ORS Chapters 196, 390, and related administrative rules.
8. Permittee must defend and hold harmless the State of Oregon, and its officers, agents and employees from any claim, suit, or action for property damage or personal injury or death arising out of the design, material, construction, or maintenance of the permitted improvements.
9. Authorization from the U.S. Army Corps of Engineers may also be required.

NOTICE: If removal is from state-owned submerged and submersible land, the permittee must comply with leasing and royalty provisions of ORS 274.530. If the project involves creation of new lands by filling on state-owned submerged or submersible lands, you must comply with ORS 274.905 to 274.940 if you want a transfer of title; public rights to such filled lands are not extinguished by issuance of this permit. This permit does not relieve the permittee of an obligation to secure appropriate leases from DSL, to conduct activities on state-owned submerged or submersible lands. Failure to comply with these requirements may result in civil or criminal liability. For more information about these requirements, please contact Department of State Lands, 503-986-5200.

Christopher Castelli, Northern Operations Manager
Aquatic Resource Management
Oregon Department of State Lands

Christopher Castelli
Digitally signed by Christopher Castelli
Date: 2021.09.19 19:02:24 -07'00'

Authorized Signature

ATTACHMENT A

Permit Holder: Nathaniel and Brigid Palmer

Project Name: Heron's Rest

Special Conditions for Removal/Fill Permit No. 63271-FP

READ AND BECOME FAMILIAR WITH CONDITIONS OF YOUR PERMIT.

The project site may be inspected by the Department of State Lands (DSL) as part of our monitoring program. A copy of this permit must be available at the work site whenever authorized operations are being conducted.

1. **Responsible Party:** By proceeding under this permit, Nathaniel and Brigid Palmer agree to comply with and fulfill all terms and conditions of this permit, unless the permit is officially transferred to another party as approved by DSL. In the event information in the application conflicts with these permit conditions, the permit conditions prevail.

2. **Authorization to Conduct Removal and/or Fill:** This permit authorizes 0.34 acres of wetland impacts with associated fill of material in T3N R10W Section 29CA, Tax Lot 200, in Tillamook County, as referenced in the application, map and drawings (See Attachment B for project location), dated April 20, 2021.

3. **Changes to the Project or Inconsistent Requirements from Other Permits:** It is the permittee's responsibility to ensure that all state, federal and local permits are consistent and compatible with the final approved project plans and the project as executed. Any changes made in project design, implementation or operating conditions to comply with conditions imposed by other permits resulting in removal-fill activity must be approved by DSL prior to implementation.

4. **DSL May Halt or Modify:** DSL retains the authority to temporarily halt or modify the project or require rectification in case of unforeseen adverse effects to aquatic resources or permit non-compliance.

5. **DSL May Modify Conditions Upon Permit Renewal:** DSL retains the authority to modify conditions upon renewal, as appropriate, pursuant to the applicable rules in effect at the time of the request for renewal or to protect waters of this state.

Pre-Construction

6. **Local Government Approval Required Before Beginning Work:** Prior to the start of construction, the permittee must obtain a Development Permit from the City of Manzanita.

7. **Stormwater Management Approval Required Before Beginning Work:** Prior to the start of construction, the permittee must obtain a National Pollution Discharge Elimination System (NPDES) permit from the Oregon Department of Environmental Quality (DEQ), if one is required by DEQ.

General Construction Conditions

8. **Water Quality Certification:** The Department of Environmental Quality (DEQ) may evaluate this project for a Clean Water Act Section 401 Water Quality Certification (WQC). If the evaluation results in issuance of a Section 401 WQC, that turbidity condition will govern any allowable turbidity exceedance and monitoring requirements.

9. **Erosion Control Methods:** The following erosion control measures (and others as appropriate) must be installed prior to construction and maintained during and after construction as appropriate, to prevent erosion and minimize movement of soil into waters of this state.

    a. All exposed soils must be stabilized during and after construction to prevent erosion and sedimentation.
    b. Filter bags, sediment fences, sediment traps or catch basins, leave strips or berms, or other measures must be used to prevent movement of soil into waterways and wetlands.
    c. To prevent erosion, use of compost berms, impervious materials or other equally effective methods, must be used to protect soil stockpiled during rain events or when the stockpile site is not moved or reshaped for more than 48 hours.
    d. Unless part of the authorized permanent fill, all construction access points through, and staging areas in, riparian and wetland areas must use removable pads or mats to prevent soil compaction. However, in some wetland areas under dry summer conditions, this requirement may be waived upon approval by DSL. At project completion, disturbed areas with soil exposed by construction activities must be stabilized by mulching and native vegetative plantings/seeding. Sterile grass may be used instead of native vegetation for temporary sediment control. If soils are to remain exposed more than seven days after completion of the work, they must be covered with erosion control pads, mats or similar erosion control devices until vegetative stabilization is installed.
    e. Where vegetation is used for erosion control on slopes steeper than 2:1, a tackified seed mulch must be used so the seed does not wash away before germination and rooting.
    f. Dredged or other excavated material must be placed on upland areas having stable slopes and must be prevented from eroding back into waterways and wetlands.
    g. Erosion control measures must be inspected and maintained as necessary to ensure their continued effectiveness until soils become stabilized.
    h. All erosion control structures must be removed when the project is complete, and soils are stabilized and vegetated.

10. **Fuels, Hazardous, Toxic, and Waste Material Handling:** Petroleum products, chemicals, fresh cement, sandblasted material and chipped paint, material treated with leachable preservatives or other deleterious waste materials must not be allowed to enter waters of this state. Machinery and equipment staging, cleaning, maintenance, refueling, and fuel storage must be at least 150 feet from OHW or HMT and wetlands to prevent contaminates from entering waters of the state. Refueling is to be confined to a designated area to prevent spillage into waters of this state. Barges must have containment system to effectively prevent petroleum products or other deleterious material from entering waters of this state. Project-related spills into waters of this state or onto land with a potential to enter waters of this state must be reported to the Oregon Emergency Response System (OERS) at 1-800-452-0311.

11. **Archaeological Resources:** If any archaeological resources, artifacts or human remains are encountered during construction, all construction activity must immediately cease. The State Historic Preservation Office must be contacted at 503-986-0674. You may be contacted by a Tribal representative if it is determined by an affected Tribe that the project could affect Tribal cultural or archeological resources.

Compensatory Mitigation

12. **Payment-in-Lieu Mitigation:** Wetland mitigation for the unavoidable loss of 0.34 acres of palustrine forested slope/flats wetland has been accomplished via payment to DSL's Removal-Fill Mitigation Fund in the amount of $102,000. Once the authorized fill has commenced, the payment is non-refundable.

ATTACHMENT B

Permit Holder: Nathaniel and Brigid Palmer

Project Name: Heron's Rest

Maps and Drawings for Removal/Fill Permit No. 63271-FP

ESRI, ArcGIS Online, USA Topographic Maps.
1985. Nehalem, Oregon.

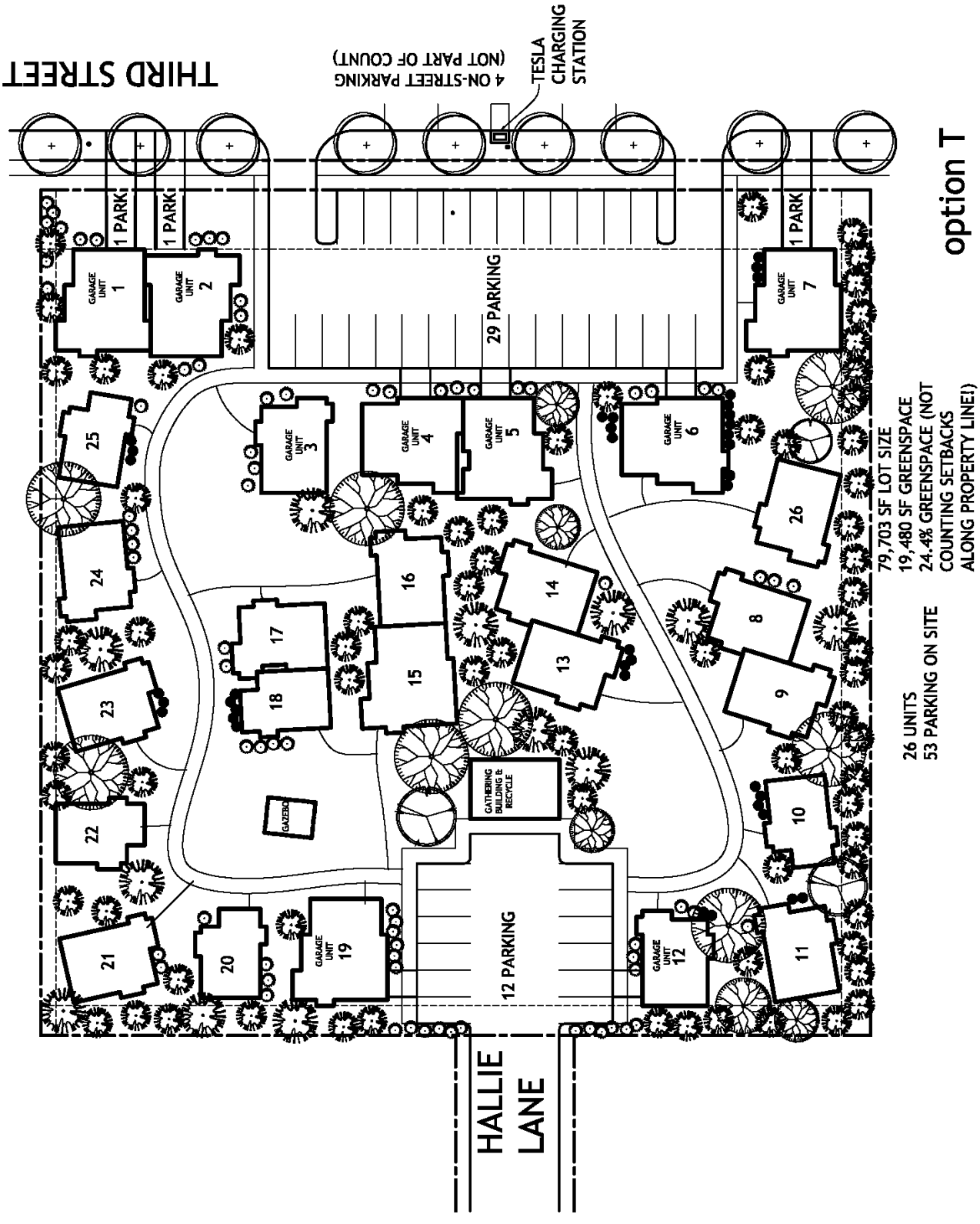
Heron's Rest Project

Figure 1
Vicinity

N

0 0.25 0.5 Miles

Source: GoogleEarth 2021


THIRD STREET
4 ON-STREET PARKING
(NOT PART OF COUNT)
TESLA
CHARGING
STATION
1 PARK
1 PARK
1 PARK
GARAGE UNIT 1
GARAGE UNIT 2
GARAGE UNIT 3
GARAGE UNIT 4
GARAGE UNIT 5
GARAGE UNIT 6
GARAGE UNIT 7
GARAGE UNIT 12
GARAGE UNIT 19
29 PARKING
12 PARKING
GATHERING BUILDING & RECYCLE
GAZEBO
HALLIE LANE
option T
26 UNITS
53 PARKING ON SITE
79,703 SF LOT SIZE
19,480 SF GREENSPACE
24.4% GREENSPACE (NOT COUNTING SETBACKS ALONG PROPERTY LINE!)

MACKENZIE.

TRANSPORTATION IMPACT STUDY

To
City of Manzanita

For
Heron's Rest

Dated
November 28, 2022

Project Number
2220194.00

MACKENZIE
Since 1960

RiverEast Center | 1515 SE Water Avenue, Suite 100, Portland, OR 97214
PO Box 14310, Portland, OR 97293 | T 503.224.9560 | www.mcknze.com

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I. INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared in support of the proposed Heron's Rest residential project in Manzanita, Oregon. Figure 1 in Appendix A presents a vicinity map indicating the project location.

Project Description

The proposed Heron's Rest residential project located at the end of Hallie Lane, to the west of 3rd Street in Manzanita, OR, will include 26 residential units, each approximately 650 square feet in size. The project will also include a community gathering shelter, recreational facilities, open space areas and a playground.

Six units will have frontage on 3rd Street with garages and driveways. Ten units at the west end of the site near Hallie Lane will have garages with a driveway suitable for a vehicle parking space. Parking for the interior units without garages will be in a centralized parking lot. Access to the parking lot and west end units with garages may be from Hallie Lane, 3rd Street, or both. At a minimum, a fire lane will be provided for emergency vehicle access through the site between 3rd Street and Hallie Lane.

Up to 52 parking spaces will be provided, although a reduction to the parking standards is being requested to allow for a rate as low as 1.5 spaces per unit based on the anticipated actual needs.

The project is not likely to be used for vacation rentals due to the City requirements for two parking spaces per rental and the size of the units is more attractive for local residents and as second homes.

Scope of Analysis

This TIS has been prepared in accordance with the ODOT APM Version 2 and the scoping memo from Lancaster Mobley Date August 24, 2022. This TIS includes a summary of existing traffic conditions, proposed trip generation, trip distribution and assignment, crash review, an analysis of intersection operations, and queuing. The scoping letter is provided in Appendix B.

Study Area

This TIA includes a study of the following City of Manzanita intersections:

- Laneda Avenue at Carmel Avenue
- Laneda Avenue at 3rd Street
- Laneda Avenue at Highway 101
- Carmel Avenue at Hallie Lane
- 3rd Street at the Site Driveway

Analysis Scenarios

Analysis is provided for all study area intersections. This TIS addresses transportation conditions for the following analysis scenarios during the PM peak hours and Saturday peak hours:

- 2022 Existing
- 2024 Pre-Development without Heron's Rest

- 2024 Post-Development with Heron’s Rest

II. EXISTING CONDITIONS

The existing conditions analysis is based on a current year 2022 inventory of transportation facilities and traffic data collected on August 18th and 20th of 2022.

Site Conditions

The project site is located at the end of Hallie Lane, west of S 3rd Street in Manzanita, Oregon. Approximately 60% of the 1.83-acre site is zoned R3, High Density Residential, with the reminder zoned R2, and consists of property identification number tax lot 200. The site is currently vacant.

Vehicular Transportation Facilities

The study area presented in this tax lot TIA includes roadways under City of Manzanita as well as ODOT jurisdiction. Figure 3 presents the existing lane configurations and traffic control devices for the study area intersections. Table 1 summarizes the characteristics of the study area roadways.

TABLE 1 – ROADWAY CHARACTERISTICS

Roadway	Functional Classification	Posted Speed (mph)	Travel Lanes	Lane Width	Shoulder Width	Bike Lanes	On-Street Parking	Sidewalks
Highway 101	Principal Arterial/Statewide Highway	40	2	12 ft		No	No	Yes
Laneda Avenue	Collector	20	2	10 ft		No	Yes	Yes
3rd Street	Local	20	2	10 ft		No	Yes	No
Carmel Avenue	Local	20	2	11 ft		Yes	No	Yes
Hallie Lane	Local	20	1	11 ft		No	Yes	No

Pedestrian and Bike Facilities

Sidewalks are currently provided on some of the area roadways as noted above, but not on 3rd Street or Hallie Lane. Bike lanes are provided on Carmel near the site.

Transit Facilities

The city of Manzanita is part of the NWConnector transit system. Route 3 provides service provides service to Manzanita as it passes between Cannon Beach and Tillamook. The greater NWConnector transit system provides connections between Astoria to the north and Yachats to the south along Highway 101. It also provides connections to the east, from Kelso, Washington to the north to Albany, Oregon to the south,

primarily along the I-5 corridor. A copy of NW Connector Route 3 schedule and map have been provided in the appendix.

Existing Traffic Counts

Turning movement counts utilized in this study were collected on Thursday, August 18 and Saturday August 20, 2022. **Error! Reference source not found.** presents the existing PM peak hour and Saturday peak hour traffic volumes for all study area intersections. Raw traffic count summaries are provided in Appendix C.

Seasonal Adjustment

Seasonal adjustment factors were review using the ATR Characteristic Table Method and ATR Seasonal Trend Method. They confirm that August is the peak time of year for Highway 101. Therefore, no seasonal adjustment was applied to the 2022 existing counts.

Crash Analysis

Historical crash data reported for the study area intersections were evaluated for safety. Crash data for the 5-year period of 2016 through 2020 were obtained from ODOT and used to review crash patterns and estimate crash rates for the study area intersections.

The crash evaluation is summarized in Table 2. The raw crash data is provided in Appendix F.

TABLE 2 – INTERSECTION CRASH RATES

Intersection (Traffic Control Type)	Year					Total Crashes	ADT	Crash Rate	ODOT's 90th Percentile Rate
	2016	2017	2018	2019	2020				
Laneda Avenue/Carmel Avenue (Urban 3ST)	0	0	0	0	0	0	2,000	0.00	0.408
Laneda Avenue/3rd Street (Urban 3ST)	0	0	0	0	0	0	2,200	0.00	0.408
Laneda Avenue/Highway 101 (Rural 3ST)	1	0	0	0	0	1	6,400	0.09	0.475

Crash Data Summary

One (1) crash was reported in the study area during the five-year analysis period. The crashes was a Rear-End type crash and resulted in Property Damage Only (PDO). Reportedly the at fault driver failed to avoid the driver ahead.

Intersection Crash Rates

When evaluating the relative safety of an intersection, consideration is given not only to the total number and types of crashes occurring, but also to the number of vehicles entering the intersection. This concept, referred to as a "crash rate", is usually expressed in terms of the number of crashes occurring per one

million entering vehicles (MEV) for the intersection per year. Intersections having a crash rate higher than 1.0 crashes/MEV should be reviewed for opportunities to improve safety.

The intersection crash rate is calculated by dividing the average number of crashes per year by the MEV per year. A daily traffic volume was estimated by dividing the PM peak hour volume at each intersection by a peak-to-daily factor, or k-factor. A k-factor of 0.156 from ODOT traffic data taken 0.02 miles south of Laneda Avenue on Highway 101 that is available on ODOT's TransGIS web portal, and the PM peak hour traffic count collected on August 18, 2022. This factor was applied to all study area intersections to estimate ADT.

All intersections were calculated to have a crash rate below 1.0 crashes/MEV. No further crash analysis is recommended.

III. PRE-DEVELOPMENT CONDITIONS

The pre-development condition reflects a build-out year scenario without the city of Manzanita's proposed fire station. This scenario includes traffic from the 2022 existing condition, background traffic growth to the year 2024, and in-process traffic from other approved developments that have not yet been constructed.

Planned Transportation Improvements

None noted in the study area.

Background Traffic Growth

Background traffic growth is applied to existing traffic volumes to forecast future traffic demand. ODOT's 2040 Future Volumes Table. The 2040 Future Volumes Table had data 0.2 miles north of Manzanita Avenue and 0.2 miles south of Laneda Avenue along Highway 101. Both growth rates were estimated to be below 1%. As a conservative measure a 1% annual background growth was applied to existing 2022 traffic volumes over two (2) years to estimate 2024 background traffic. Background growth was applied to all movements at all intersections.

Figure 6 presents the PM peak hour and Saturday peak hour background traffic growth volumes for all study area intersections.

In-Process Traffic

In-process traffic volumes account for developments that have been approved or that are under construction at the time of a traffic study. These traffic volumes account for traffic that will be added to the external roadway network before build-out of the proposed development. Traffic volumes for the following developments were included in the analysis to account for in-process traffic:

- Manzanita Lofts
- Steelejack
- Expansion Manzanita Grocery & Deli "The Little Apple"
- Highlands Residential Community
- Whispering Pines Housing
- Three Housing Units at the SW corner of Pacific Lane and Tie Lane

Error! Reference source not found. presents the PM peak hour and Saturday peak hour in-process trips for the above project.

Pre-Development Traffic

The 2024 pre-development analysis scenario is a combination of 2022 existing traffic, a 1% annual background growth rate over two (2) years, and in-process traffic. The pre-development traffic without the project trips will indicate if traffic issues are present before the addition of the proposed residential project.

Figure 7 presents the PM peak hour and Saturday peak hour 2024 pre-development traffic volumes.

IV. SITE DEVELOPMENT

The trip-making characteristics of the proposed development are described below.

Trip Generation

Trip generation estimates for the proposed project were developed using the Institute of Transportation Engineers' (ITE) *Trip Generation Manual,* 11th Edition. The ITE land uses that best match the proposed project is Residential Planned Unit Development. The Recreational Home Land Use Code (LUC) was deemed inappropriate due to the proposed project being located within the City of Manzanita's Urban Growth Boundary (UGB), and the description of a Recreational Home being located within a rural area.

The description of a Residential Planned Unit Development is any combination of residential land uses. The development may also contain recreational facilities. The proposed project plans to have communal areas with playgrounds, areas to allow residents to gather for planned events, and gardens.

Site trip generation estimates for the proposed development are based on the 26 planned dwelling units.

A trip generation summary is presented in **Error! Reference source not found.**.

TABLE 3 – TRIP GENERATION

ITE Code	ITE Land Use	Size	Trip Type	PM Peak Hour			Saturday Peak Hour			Daily
				In	Out	Total	In	Out	Total	
270	Residential Planned Unit Development	26 Dwelling Units	Primary	12	6	18	7	8	15	190

Trip Distribution and Assignment

Trip distribution for the proposed development was estimated using existing traffic volumes at the study area intersections. Based on existing volumes at the Laneda Avenue intersections with Carmel and 3rd Street about 20% of the PM and Saturday trips would be expected remain in town and travel to and from the west, with the remaining 80% traveling out of town towards Highway 101. At Highway 101, vehicles are split about one-third to the north and two-thirds to the south.

- 20% To/From the West on Laneda Avenue
- 25% To/From the North on Highway 101
- 55% To/From the South on Highway 101

Post-Development Traffic

Post-development traffic volumes are the sum of the site trips and the pre-development traffic volumes. Figure 9 presents the PM peak hour and Saturday peak hour 2024 post-development traffic volumes, assuming a one-way westbound driveway through the site between 3rd Street and Hallie Lane.

V. SITE ACCESS, CIRCULATION AND PARKING

The evaluation of site access and on-site circulation are presented below. This evaluation includes assessment of sight distance.

Site Access and Circulation

The six units with frontage on 3rd Street will have garages and driveways directly on 3rd Street.

The other 20 units will have either garages or an internal parking lot with shared public street access at either the existing termination of Hallie Lane at the west end of the site, 3rd Street approximately mid-point in the frontage, or both.

Access to both streets would allow for a one-way flow on a private drive aisle between 3rd Street and Hallie Lane, likely in a westbound direction. This is the assumption used in the analysis of trip assignment and impacts.

With access to Hallie Lane only, all but the units with driveways on 3rd Street would use Hallie Lane, and a fire lane would be provided to 3rd Street for emergency access.

With access only to 3rd Street, the site would not add any trips to Hallie Lane – only a fire access lane would be provided.

Vehicles parking in the lot on-site will use Hallie lane for ingress/egress due to the proposed flow. The impact on Hallie will depend on whether flow is one-way or two ways. One way flow results in approximately 5-6 vehicles per peak hour or 73 vehicles per day, and an access only to Hallie Lane for internal units would result in 11-14 vehicles per hour or 146 vehicles per day.

Parking

Units with garages will have a driveway suitable for one vehicle parking spaces. This includes the six units along the 3rd Street frontage and ten internal units. All other units will use an internal parking lot.

If the one-way westbound driveway aisle is utilized all vehicles parking internal to the site will enter on 3rd Street and exit to Hallie Lane. Signage in conformance with Manzanita Zoning Ordinance (MZO) 4.070 will be posted at the driveway way in alignment with Hallie Lane such as “Private Drive” to discourage cut-through vehicles and limit the impact on the existing Hallie Lane.

In order to prevent non-residents from using site parking along 3rd Street, signage in conformance with MZO 4.070 can be provided denoting they are “Private Parking Only”.

Vehicles parked in private spaces, whether internal to the site or along 3rd Street, will be subject to towing, although with the project design and current low demand for on-street parking on 3rd Street, it is unlikely this will be a concern. Signing can be added to alert non-residents their vehicles may be towed.

Garages and parking spaces will be provided off of 3rd Street for six units. Vehicles parking in these spaces will not need to use the site drive aisle or Hallie Lane to enter or leave the site. These vehicles will back up onto 3rd Street when leaving. These backing movements are typical for a low volume street such as 3rd Street. The proposed site plan includes only groups of four spaces, so meets the conditions of MZO 4.080

(10), which requires that groups of five or more parking spaces must be serviced by a driveway to avoid backing or maneuvering within the street.

Parking spaces along 3rd Street shall conform to MZO 4.020 “Clear Vision Areas” requirement in addition to adequate sight distance noted below.

3rd Street Configuration Options

The current right-of-way along 3rd Street is 10’ wider than required by City standards. To the south, the offset is 10’, but to the north it is 15’ currently. The project is proposing to vacate the additional 10’ to use for perpendicular parking on-site as described above. It is recommended the sidewalk be provided between the homes and these parking spaces to minimize conflicts with vehicles entering and backing from these spaces, providing a safter and more attractive facility for pedestrians.

An alternative configuration with the 10’ vacation would be to move the units fronting the street to provide more parking spaces internal to the site, with only the garage driveways providing perpendicular spaces off the street and parallel parking on 3rd Street. This would free up parking on the street for use by all and provide a more typical streetscape. This would reduce the on-site parking by approximately 10 perpendicular spaces and add 2-4 interior spaces, for an overall reduction of 6-8 spaces. Approximately 5 perpendicular spaces on the street would be added along the site frontage.

Without the 10’ vacation, there would be an offset from the back of the sidewalk to the property line that could be used for public parking, but would not count towards the site’s required parking spaces. With the current right-of-way offsets the sidewalk would be significantly offset from properties to the north and south or would require the sidewalk be located behind the parking spaces.

Sight Distance Evaluation

Sight distance availability for the driveway and parking spaces on 3rd Street were found to exceed 250 feet in both directions. The roadway is straight and relatively flat.

At the existing intersection of Hallie Lane with Carmel, where some of the site trips will exit, sight lines are currently limited by vegetation and a fence to about 175 ft to the north. Trimming the vegetation at the northeast corner of the intersection will help improve sight lines and vehicles can pull forward at the bike and pedestrian path to see approaching vehicles over 225 feet away.

TABLE 4 – SIGHT DISTANCE EVALUATION						
Access	Design Speed (mph)	Design Vehicle	Recommended ISD (feet)	Required SSD (feet)	Available Sight Distance (feet)	
					To North	To South
3rd Street	20	Passenger Car	225	115	>250	>250
Hallie Lane	20	Passenger Car	225		175	>250

Parking Needs

The City of Manzanita Zoning Ordinance 4.090 requires a minimum of two parking spaces per dwelling unit. The proposed development will provide up to 52 spaces. The applicant requested an evaluation of reduced parking and requested an analysis of a parking ratio of as low as 1.5 per unit. The following section addresses the parking need for this project.

The site is planned to be small cottage/cabin type units with shared parking area for most and garages for 15 of the units. It is likely that one vehicle per unit will be parked given the small size of each unit and maximum of two bedrooms. The units are intended to be owner occupied as either primary or secondary residences. Any rentals would be subject to City requirements, which includes two parking spaces. Further, it is unlikely all units would be occupied at the same time, even on busy weekends, so with shared parking for many units, the number needed can be reduced.

Parking needs have been reviewed using the Institute of Traffic Engineers (ITS) Parking Generation Manual, 5th Edition, as well as the Urban Land Institute (ULI) Shared Parking, 2nd Edition and a survey of similar sites in Manzanita.

According to text in both the ULI Shared Parking manual (2nd Edition) and the ITE Parking Generation Manual (4th Edition), much of the recommendations for parking supply are based on vehicle ownership data as well as the number of bedrooms per dwelling unit. For example, parking demand rates for Single-Family Detached Housing (which is no longer provided in the Parking Generation Manual 5th edition) provide an average parking supply ratio of 2.0 spaces/DU based on study sites with an average of 2.7 bedrooms/DU and a 2000 census data estimate of 1.75 vehicles/household.

According to earlier editions of the ITE Parking Generation Manual, there is a correlation between the number of bedrooms and peak parking demand. Study sites with an average of less than 1.5 bedrooms/dwelling unit showed a peak parking demand at 92% of the average peak parking demand. This indicates that the Heron's Rest development, which is planned to contain only 1- and 2-bedroom units, may show peak parking demands lower than ITE estimates. With units are planned to be approximately 650 square-feet on average, they are likely much smaller than the typical single-family housing used in the parking surveys from ITE. It is likely that both the vehicle ownership rates and the bedroom/DU rates for these similar uses are not appropriate for the proposed Heron's Rest units which is more likely to be local residents or second homes and not vacation rentals.

In order to estimate the existing parking needs in the City of Manzanita, several similar sites were surveyed on the holiday weekends of Memorial Day and July 4th, 2022, to approximate the peak parking demand. The nearby developments surveyed include the Classic Street Cottages located at the corner of Classic Street and Dorcas Lane, the Classic Condos located on Classic Street less than a block north of the Classic Street Cottages, and the Pelican Perch Condos located on Pelican Lane. The existing parking supply was

counted, as well as the utilized parking spaces at four different times throughout the weekends, including late at night when vehicles are most likely to be parked at the site.

Because vehicles could not be counted in closed garage units, it was assumed a vehicle was parked in each garage. The following peak parking rates were observed on the holiday weekends:

- An average of 1.01 and a maximum of 1.09 parking spaces/unit at Classic Street Cottages
- An average of 0.92 and a maximum of 1.00 parking spaces/unit at Classic Condos
- An average of 0.60 and a maximum of 0.70 parking spaces/unit at Pelican Perch Condos

This observed data shows that the parking needs for similar residential development as Heron's Rest are significantly lower than the City's requirement of 2 spaces/unit. Because the surveyed sites are further from the amenities in town along Laneda Avenue, they may have higher vehicle use (parking and trip generation) than Heron's Rest. The proposed rate of as few as 1.5 spaces per unit is expected to be sufficient for even the peak holiday weekend demand.

VI. OPERATIONS ANALYSIS

Two aspects of operation analysis were evaluated for the study area intersections: 1) intersection operation analysis, which evaluates how well an intersection processes traffic demand; and 2) queuing analysis, which compares intersection queues with available storage for different travel lanes.

Intersection Operations Analysis

Intersection operations are generally measured by three mobility standards: volume-to-capacity (v/c) ratio, level-of-service (LOS), and delay (measured in seconds).

- V/C ratio is a measurement of capacity used by a given traffic movement or for an entire intersection. It is defined by the rate of traffic flow or traffic demand divided by the theoretical capacity calculated for the roadway geometry and traffic control.

- LOS is an expression of the average control delay (in seconds) experienced by drivers as described by a letter on the scale from A to F. LOS A represents optimum operating conditions and minimum delay, while LOS F indicates lengthy delays and often over-capacity conditions.

- Delay is a measurement of the average vehicle delay resulting from the type of traffic control and the conflicting traffic volumes. An average delay can be expressed for a certain movement, a specific lane, a single approach, or for an entire intersection.

Performance Measures

The Oregon Highway Plan (OHP) designates Highway 101 as a statewide highway that is Non-MPO outside of a Special Transportation Area. With a posted speed of 40 mph Table 6 of the OHP states the mobility target for the Highway 101 and Laneda Avenue intersection is a v/c ratio of 0.85 or less.

A portion of Laneda Way appears to be under the Jurisdiction of Tillamook County (2002 TSP) and all other roadways are under City jurisdiction, with no clear operational standards. It is assumed a level of service “D” or better would be sufficient for City intersections as well as the portion of Laneda under County jurisdiction.

Methodology

Intersection operations were analyzed with the use of Synchro 10 software, which utilizes the Transportation Research Board’s *Highway Capacity Manual* (HCM) 2000, HCM 2010, and HCM 6 methodologies. All the study area intersections are stop controlled. HCM 2000 and 6 reports have been made available in the appendix.

Findings

The operation results for the intersection, the approach, and each lane group are presented in Table 5. Synchro output sheets are provided in the Appendix G.

TABLE 5 – PEAK HOUR INTERSECTION OPERATIONS				
Intersection (Control)	Peak Hour	Analysis Results (v/c-LOS-Delay in seconds)		
		2022 Existing	2024 Pre-Development	2024 Post-Development
Laneda Avenue/Carmel Avenue (Urban 3ST)	PM	0.20-A-8.4 WB	0.21-A-8.5 WB	0.21-A-8.6 WB
	Saturday	0.24-A-8.7 WB	0.26-A-8.9 WB	0.26-A-8.9 WB
Laneda Avenue/3rd Street (Urban 3ST)	PM	0.05-B-12.5 NB	0.05-B-13.0 NB	0.06-B-13.1 NB
	Saturday	0.05-C-17.9 NB	0.13-C-20.5 SB	0.13-C-21.0 SB
Laneda Avenue/Highway 101 (Rural 3ST)	PM	0.49-C-22.2 EBL	0.64-D-31.1 EBL	0.67-D-34.1 EBL
	Saturday	0.44-C-21.7 EBL	0.66-E-35.2 EBL	0.69-E-37.6 EBL
Carmel Avenue/Hallie Lane	PM	0.01-A-9.4 EB	0.01-A-9.8 EB	0.01-A-9.8 EB
	Saturday	0.01-A-9.9 EB	0.01-A-9.8 EB	0.01-B-10.0 EB
3rd Street/Site Driveway	PM	N/A	N/A	0.00-A-9.1 EB
	Saturday	N/A	N/A	0.00-A—9.9 EB

As presented in Table 5, all study area intersections currently operate within ODOT and City standards and are projected to continue meeting ODOT and County standards under post-development conditions.

Intersection Queuing Analysis

An intersection queuing analysis was conducted for the study area intersections during the PM peak hour and Saturday peak hour to evaluate any potential queue spillbacks. The 95th percentile queues were estimated using SimTraffic software. Queue demand results were rounded to the nearest 25 feet to represent average vehicle lengths.

Because queues are based on an average of five traffic simulations using random arrivals, some fluctuation in results can be anticipated, particularly for movements that are near or projected to be over capacity.

Methodology

Available queue storage lengths were estimated using Google Earth Pro software and rounded to the nearest five (5) feet. For turn lanes, two available storage values are stated: the first represents the striped storage; the second is the effective storage, or the length physically available regardless of striping, such

as a center turn lane upstream of a striped left-turn lane at an intersection. Although through lanes have no storage defined by striping, two values are reported for storage: the first is the distance to an upstream driveway; the second is the distance to an upstream public street intersection.

Findings

The PM peak hour and Saturday 95th percentile queues are presented in Table 6. Bold text indicates the calculated queue exceeds the storage for the travel lane. SimTraffic output sheets are provided in Appendix H.

TABLE 6 – 95TH PERCENTILE QUEUING ANALYSIS

Intersection (Control)	Approach/ Movement	Available/ Effective Storage (feet)	PM/Saturday Queue (feet)		
			2022 Existing	2024 Pre-Development	2024 Post-Development
Laneda Avenue/Carmel Avenue (Urban 4ST)	EB	20/425	75/75	75/75	75/75
	WB	100/+500	75/100	75/100	75/125
	NB	175	75/75	75/75	75/75
	SB	30/450	25/50	25/25	25/50
Laneda Avenue/3rd Street (Urban 3ST)	EB	150/+500	25/50	25/50	25/50
	WB	90/175	50/50	50/50	50/50
	NB	40/+500	50/25	50/25	50/50
	SB	75/425	50/50	50/50	50/50
Laneda Avenue/Highway 101 (Urban 3ST)	EBL+R	150/380	150/100	175/175	175/175
	NBL	150/185	75/75	75/100	75/75
	NBT	+500	N/A	N/A	N/A
	SBT+R	300	25/25	25/25	25/25
Carmel Avenue/Hallie Lane (Urban 3ST)	EB	15/250	25/25	25/25	25/25
	WB	70/300	25/25	25/25	25/25

3ST – Three-way Stop-Controlled
4ST – Four-way Stop-Controlled

As presented in Table 6, all existing and future conditions queues are expected to be accommodated by available storage.

VII. TRANSPORTATION DEMAND MANAGEMENT

The city has requested transportation demand management measures be considered for the site in order to reduce the number of vehicle trips generated. The intent of the project is to provide homes that are smaller than and below the current median prices of other homes in Manzanita. With smaller, more affordable homes, it is anticipated a larger percentage will be occupied by full time residents than other homes in the area, and would have fewer residents and vehicles per unit.

In addition to the characteristics of the homes being suited to fewer trips, Transportation Demand Management (TDM) measures can be used to encourage alternate modes such as walking and biking to further reduce vehicle trips. While most TDM measures such as transit use, work from home, and flexible shifts, apply to businesses, there are some that can be applied to residential uses.

The project is located two blocks south of Laneda Street, which is a walkable street and sees the most pedestrian traffic of any area in the City. Residents can easily walk to grocery, shopping and restaurants, as well as the beaches to the west.

Sidewalks will be provided along 3rd Avenue and within the site to further encourage walking and provide a convenient connection to Laneda Street. Bicycle parking spaces will be provided at the site for residences without garages, allowing bicycles to be secured. Providing convenient and safe parking for bicycles will encourage their use for trips around town.

By not providing dedicated parking spaces for many of the homes, residents will be less likely to use their vehicles for shorter trips due to the potential loss of a preferred parking space. This will encourage trips to be taken by walking or riding bicycles.

Way-finding signs can be added on-site to direct pedestrians and bicycle riders to local amenities and businesses.

Because a homeowner's association will be established for the residential units, the HOA may choose to provide other amenities that would encourage reduced vehicle use.

VIII. MITIGATION AND RECOMMENDATIONS

All study area intersections are expected to operate at acceptable levels per ODOT and City standards with the addition of site trips, and vehicle queues will not exceed available storage.

Pedestrian and bicycle facilities in the project area will encourage use of these alternate travel modes and help to reduce the slight impact that peak hour vehicle travel will have on 3rd Street or Hallie Lane.

The paved conditions of 3rd Street should be capable of handling the additional vehicular traffic from the proposed development. Hallie Lane is currently unpaved, and if the site was in a normal urban/suburban area, it would be expected to experience 60 daily trips. This would be approximately five (5) trips an hour, if it is assumed they occur during half (12 hours) of the day. However, considering that most residents of the proposed development will predominantly travel using alternative modes, the undeveloped conditions of Hallie Lane should be able to withstand the minor increase in daily trips. Therefore, we are not recommending improvements to 3rd Street or Hallie Lane.

Sight distances from the driveways and parking spaces on 3rd Street are available in excess of 250 feet. At the intersection of Hallie Lane with Carmel, vegetation at the northeast corner could be trimmed to improve sight distance to the north.

IX. APPENDIX

Appendix A. Figures

Appendix B. Scoping Material

Appendix C. Transit Information

Appendix D. Traffic Count Summaries

Appendix E. In-Process Vicinity Map

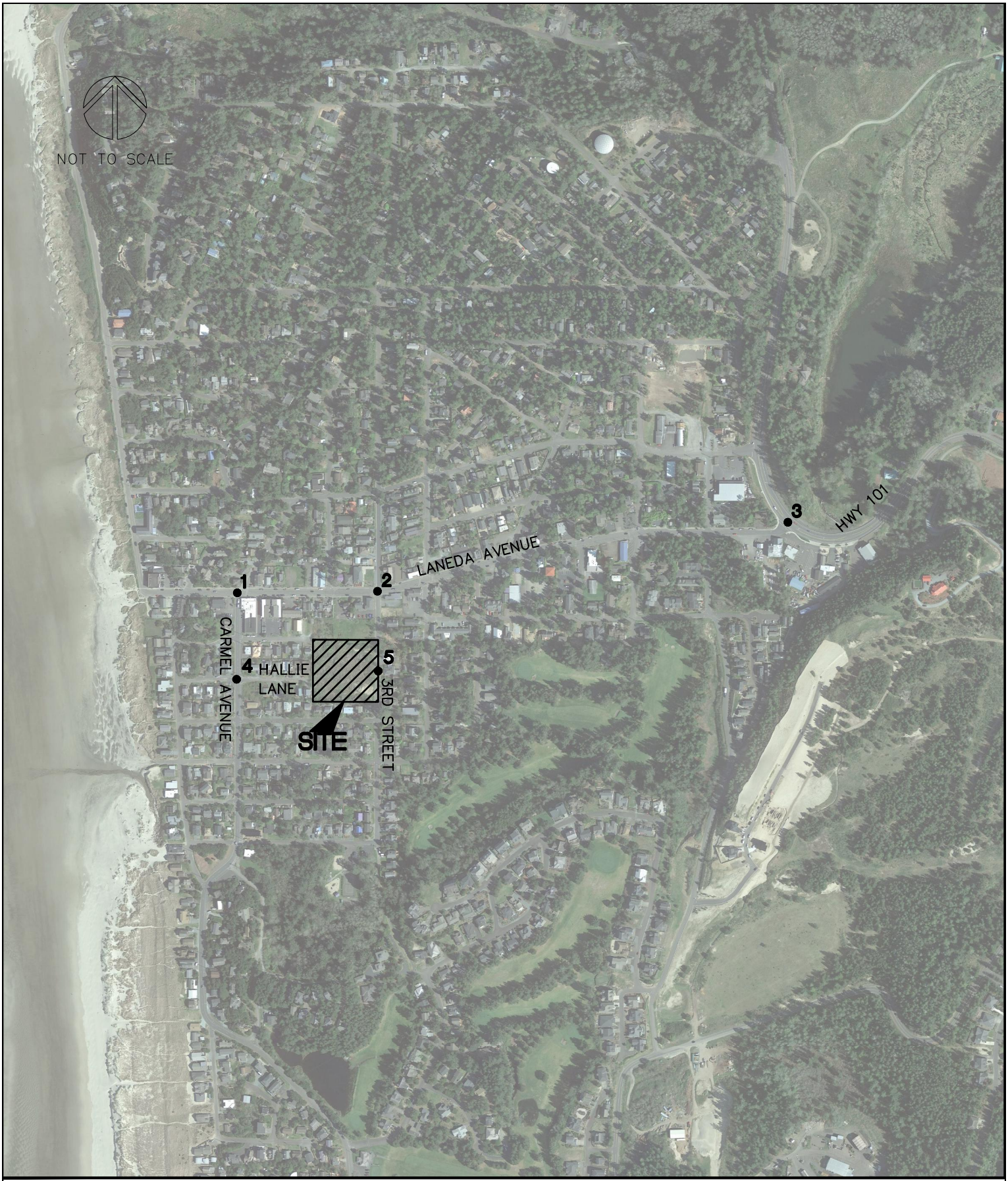
Appendix F. Crash Data

Appendix G. Operations Calculations

Appendix H. Queuing Analysis

APPENDIX A

FIGURES



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CHECKED BY: JTJ
JOB NO: 222019400

VICINITY MAP

HERON'S REST
MANZANITA, OREGON

FIGURE 1

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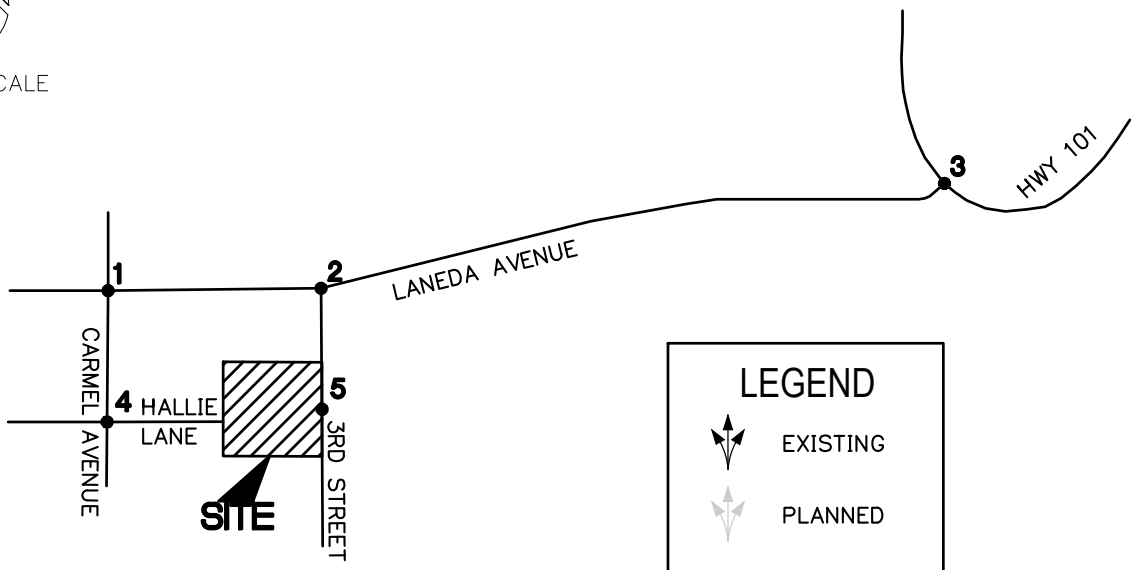
222019400

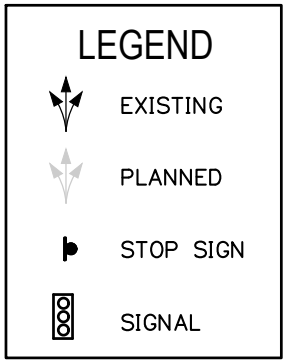
SITE PLAN

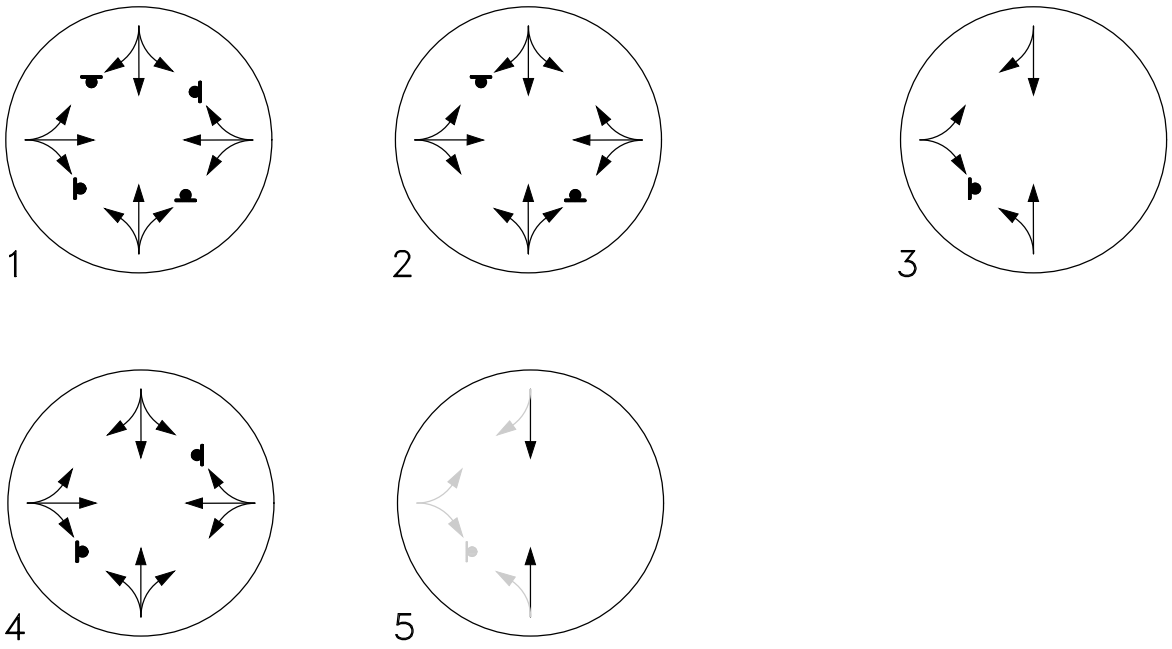
HERON'S REST
MANZANITA, OREGON

FIGURE
2

NOT TO SCALE







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EXISTING + PLANNED TRAFFIC CONTROL DEVICES + LANE CONFIGURATIONS

HERON'S REST
MANZANITA, OREGON

FIGURE 3

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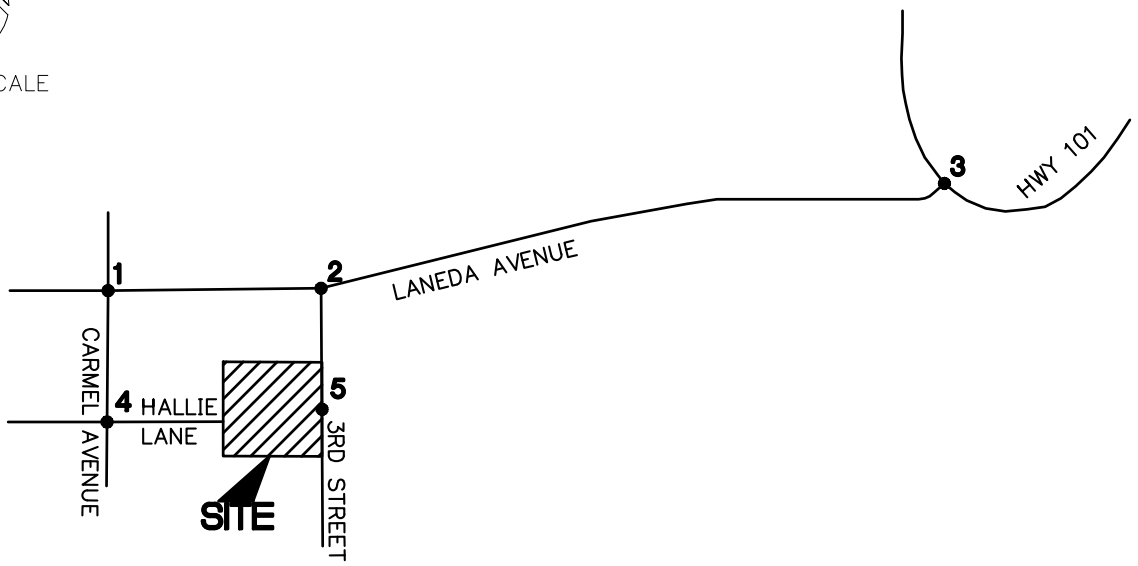

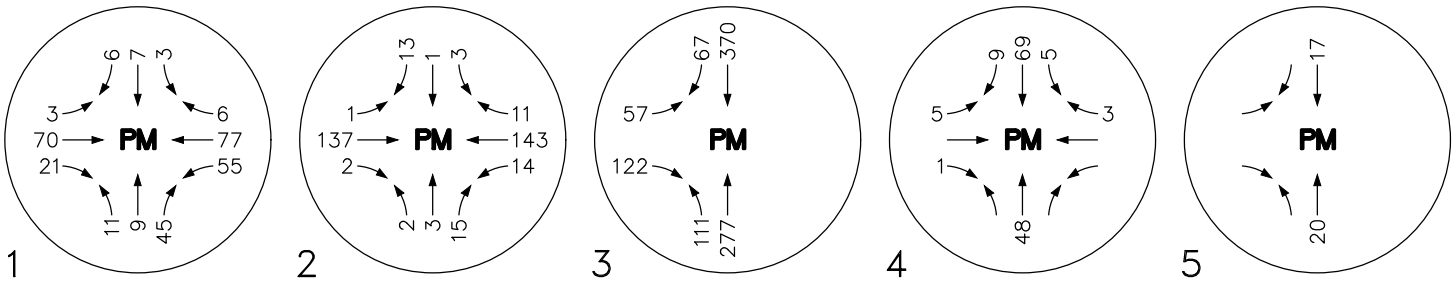

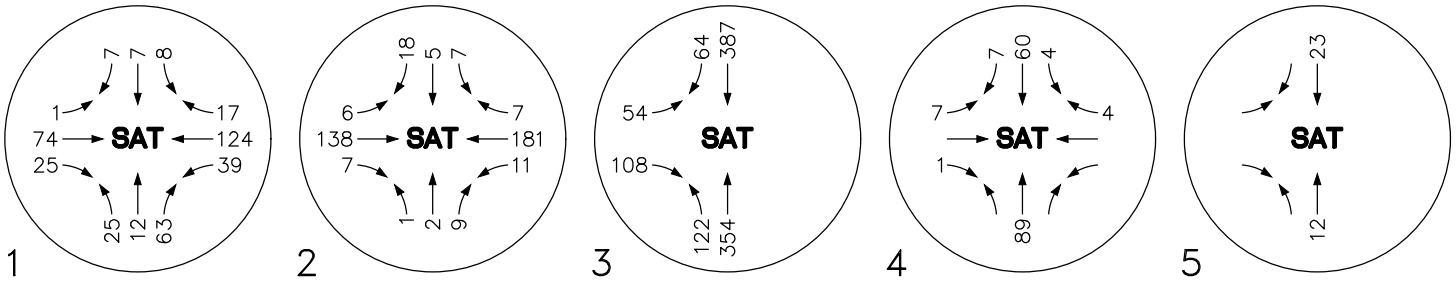

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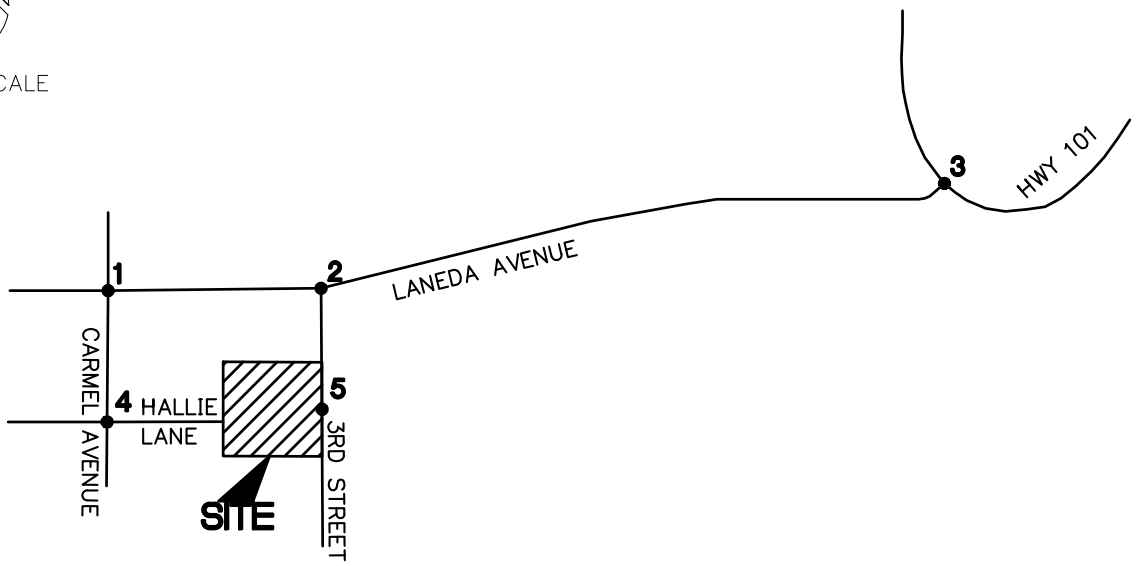
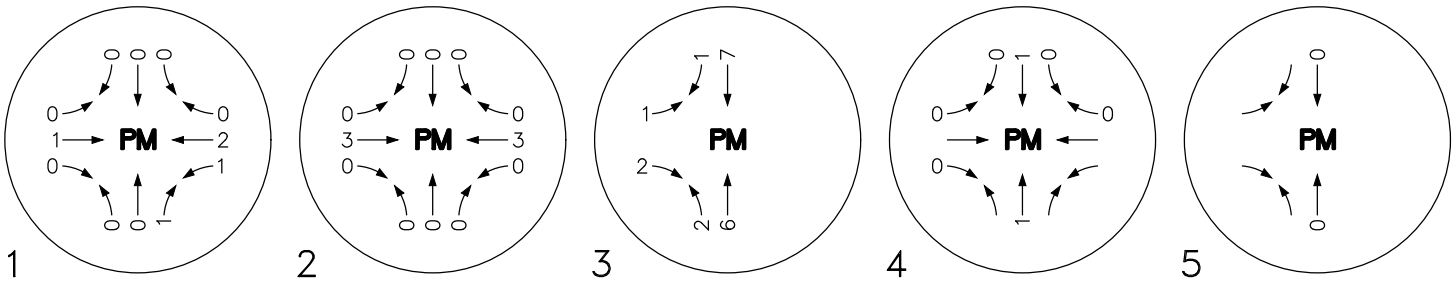
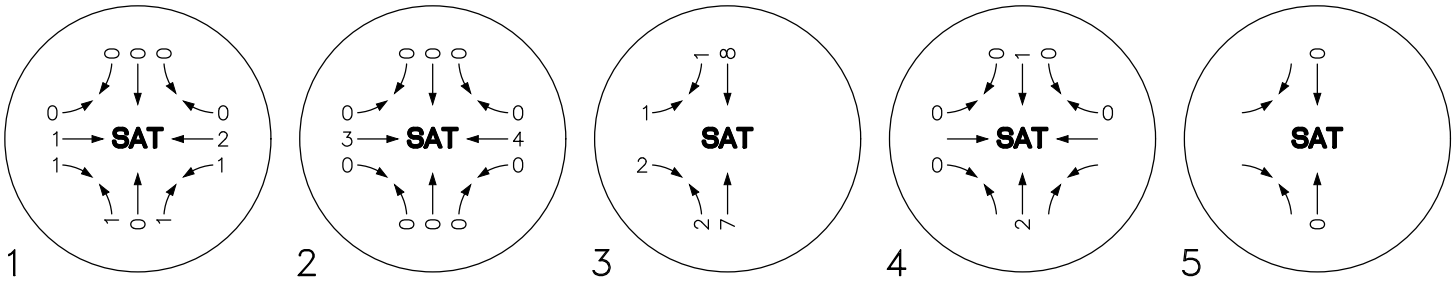
NOT TO SCALE







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BACKGROUND TRAFFIC GROWTH 2 YEARS AT 1.0% PER YEAR -

HERON'S REST
MANZANITA, OREGON

FIGURE 5

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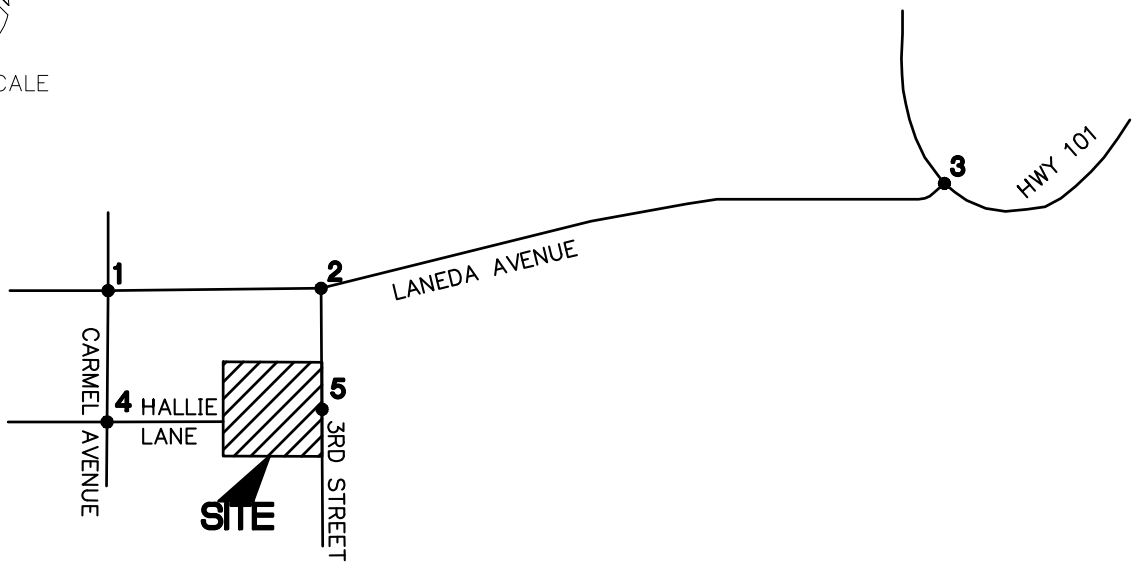

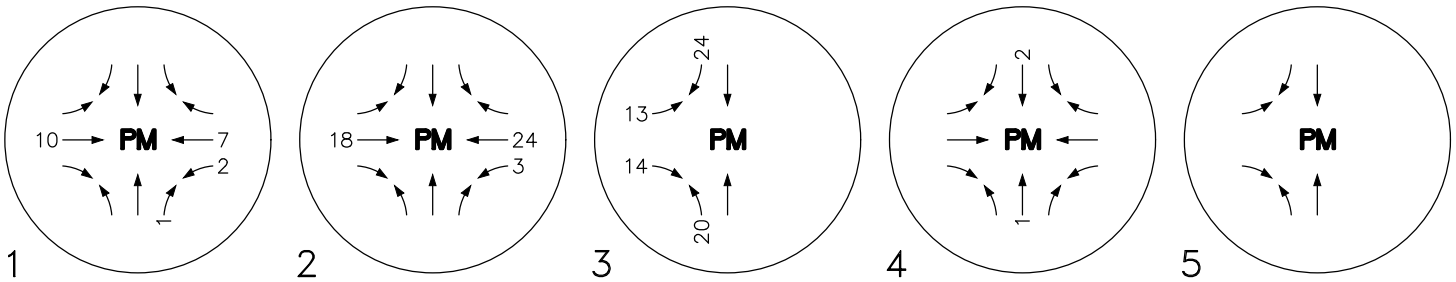

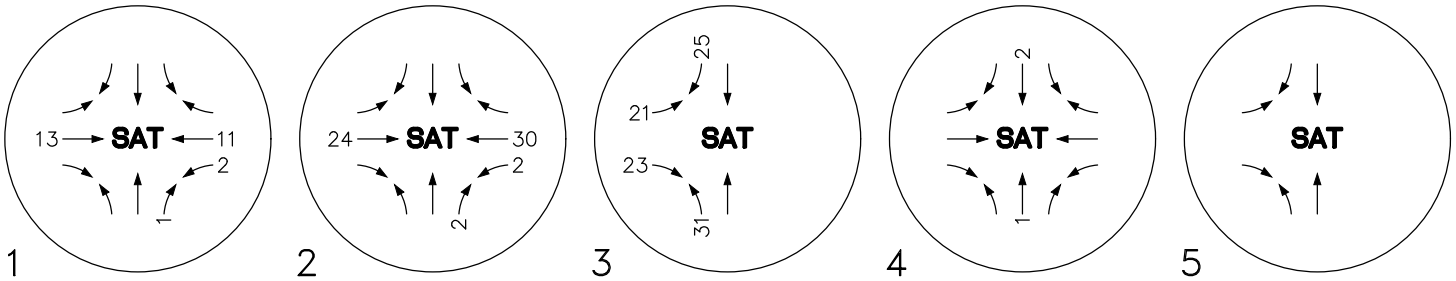

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IN-PROCESS TRAFFIC VOLUMES -

HERON'S REST
MANZANITA, OREGON

FIGURE 6

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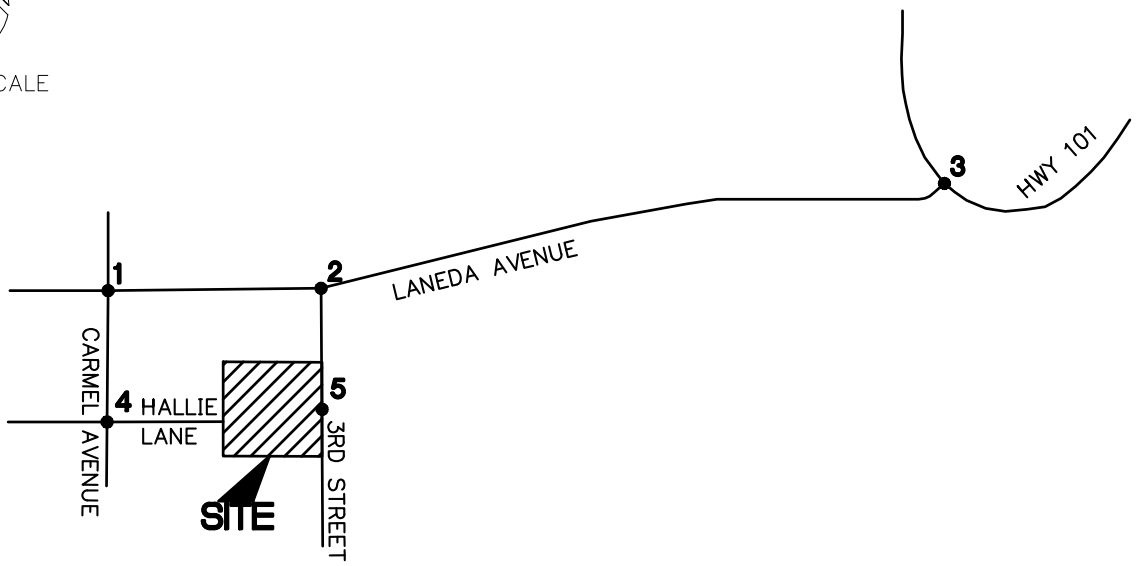

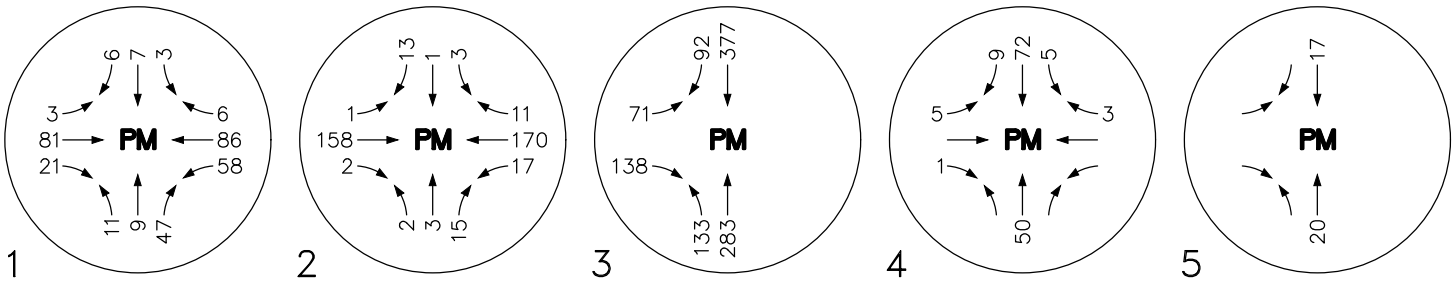

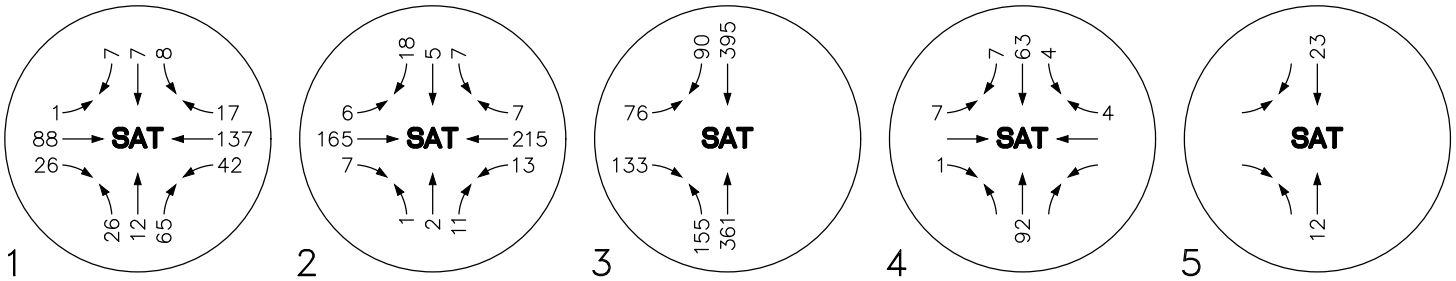

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2024 PRE-DEVELOPMENT TRAFFIC VOLUMES -

HERON'S REST
MANZANITA, OREGON

FIGURE 7

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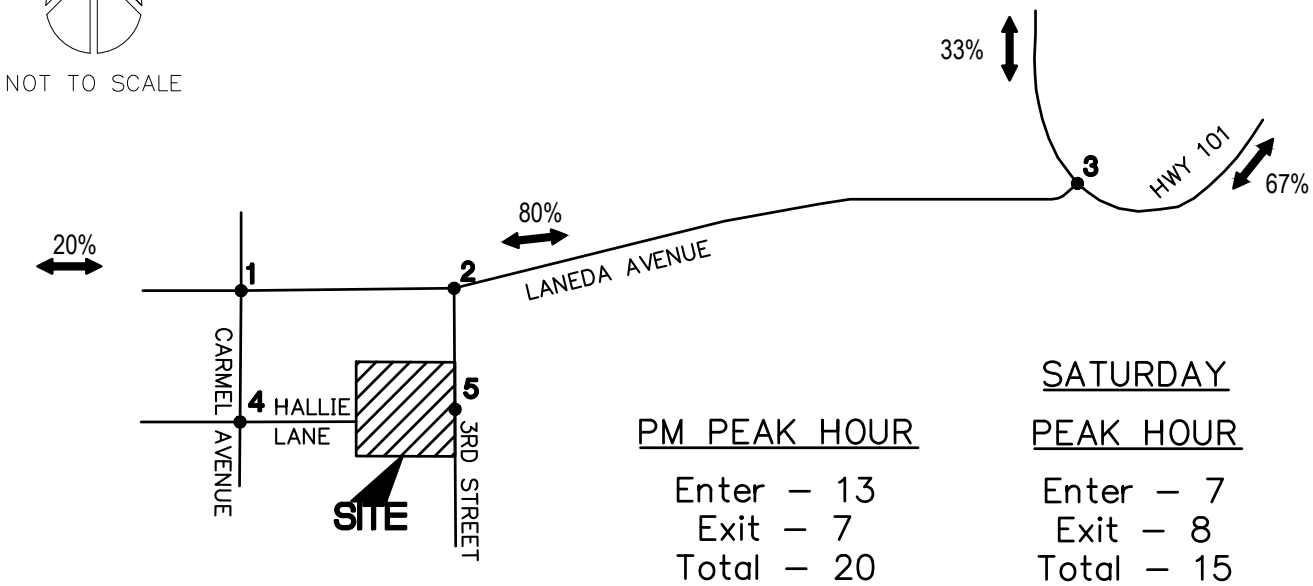
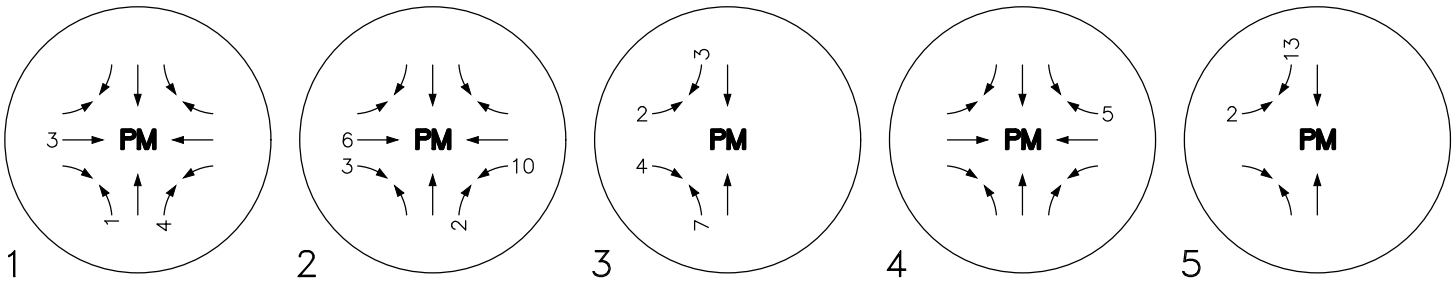
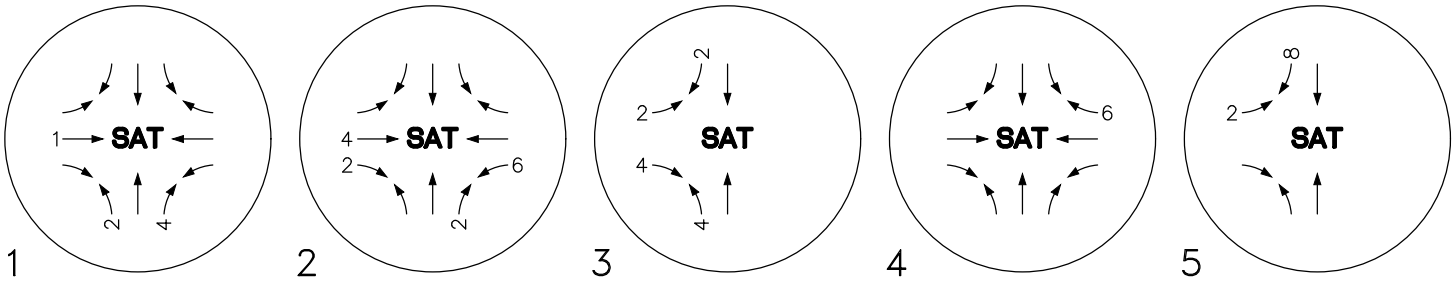


PM PEAK HOUR	SATURDAY PEAK HOUR
Enter – 13	Enter – 7
Exit – 7	Exit – 8
Total – 20	Total – 15





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PRIMARY TRIP DISTRIBUTION + ASSIGNMENT -

HERON'S REST
MANZANITA, OREGON

FIGURE 8

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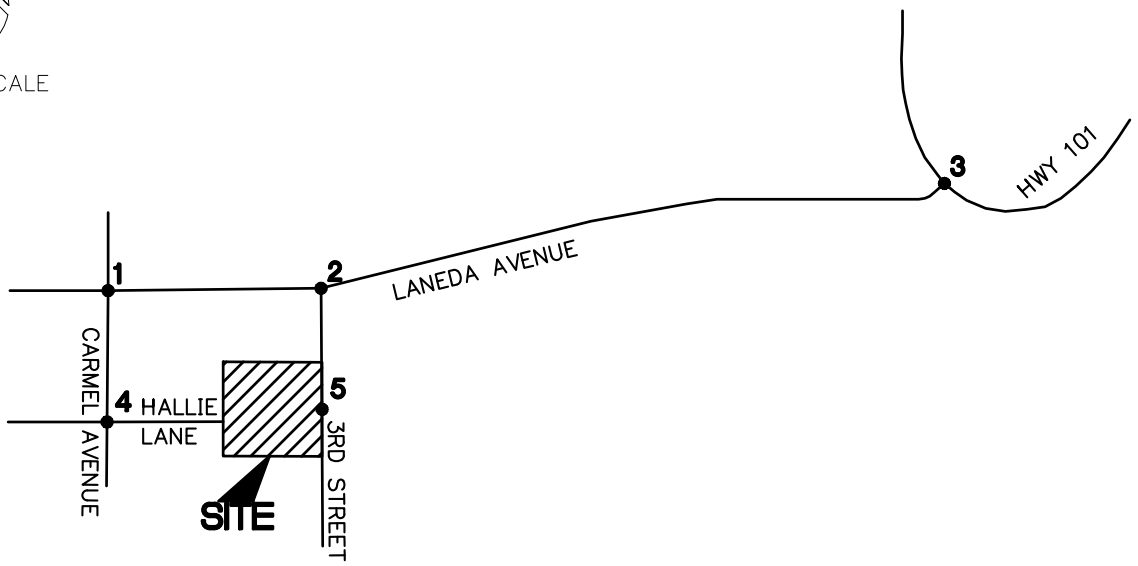

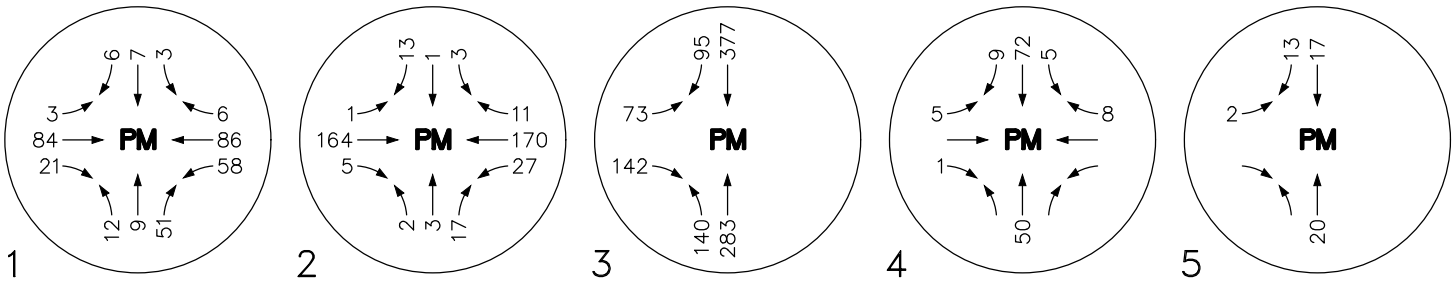

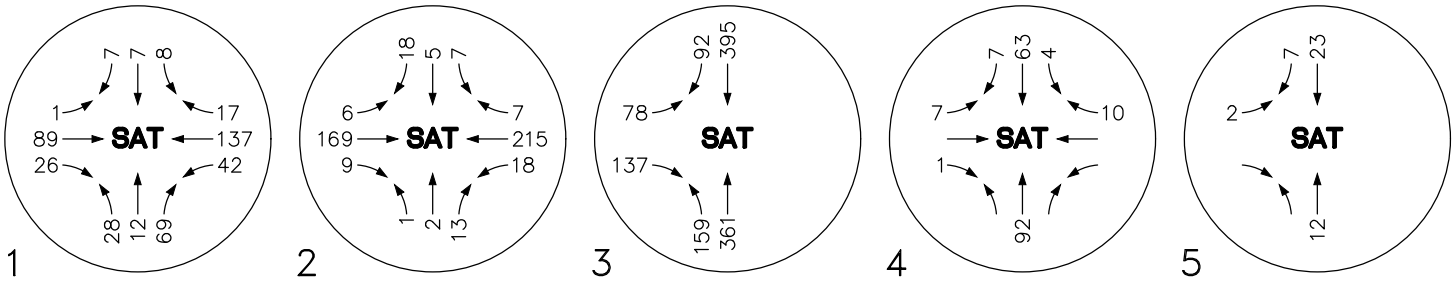

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2024 POST-DEVELOPMENT TRAFFIC VOLUMES -

HERON'S REST
MANZANITA, OREGON

FIGURE 9

APPENDIX B

SCOPING MATERIAL

321 SW 4th Ave., Suite 400
Portland, OR 97204
503.248.0313
lancastermobley.com

August 24, 2022

Scott Gebhart
City of Manzanita
543 Laneda Avenue
Manzanita, OR 97130

Dear Scott,

At your request, I have reviewed the site plan for the Heron's Rest project, located on the west side of Third Street and the existing terminus of Hallie Lane. The project proposes a total of 26 detached dwelling units with common amenities such as a gathering building, a public green, and a park. Access to the site is via Third Street, as well as a private street connection between Third Street and the existing terminus of Hallie Lane at the west property line. The private street is proposed to serve one-way traffic travelling westbound.

Transportation Impact Study

It is recommended that a Transportation Impact Study (TIS) be conducted and submitted as part of the land use application. This letter provides a detailed scope of work for the applicant. The TIS should be prepared by a professional engineer registered in Oregon with specific experience in transportation engineering.

Trip Generation & Distribution

Project-generated trips should be calculated based on the 11th Edition of the *Trip Generation Manual*, published by the Institute of Transportation Engineers (ITE). If other trip generation rates or information are used, they should first be reviewed and approved by the City of Manzanita.

The distribution of project-generated trips should be assigned to the surrounding roadway network based on the traffic count data (see below) as well as anticipated trip origins and destinations and expected travel routes within Manzanita.

Project Study Area

The following intersections shall be included in the project study area. Traffic counts shall be conducted at these intersections during typical weekday conditions during the evening peak hours (4:00 to 6:00 PM) as well as the Saturday afternoon peak (noon to 3:00 PM). To avoid the need to apply excessive seasonal adjustments, it is recommended that the data be collected during the month of August.

1. Laneda Avenue at Highway 101
2. Laneda Avenue at 3rd Street
3. Laneda Avenue at Carmel Avenue

Conditions during the anticipated year of buildout for the site should be analyzed at the three study area intersections. Particularly at the intersection of Laneda Avenue with Highway 101, analysis methodologies should comply with the *Analysis Procedures Manual* published by the Oregon Department of Transportation.

Parking Study

Section 4.090(3) of the Manzanita Zoning Ordinance requires two off-street spaces for each dwelling unit. Should the applicant propose a parking supply that does not satisfy this code requirement, collection of local parking demand data or another acceptable data source will be required. Data in support of a lesser quantity of parking will need to be reviewed and approved by the City of Manzanita.

In addition, if reduced parking is proposed, the applicant may be required to provide additional offsite pedestrian and bicycle paths or connections between the site and other destinations in Manzanita to encourage additional trips to be made via walking or biking in support of a reduced parking supply.

Sight Distance & Hallie Lane Impacts

The TIS shall examine intersection and stopping sight distances at the site access location on 3rd Street as well as at individual driveway locations with direct access to the street. Sight distance standards in the 7th Edition of *A Policy on Geometric Design of Highways and Streets*, published by AASHTO.

The proposed one-way westbound street internal to the site is a unique configuration that presents some challenges that need to be addressed by the applicant. These include:

1. Design considerations at the eastern end of the site that would ensure that vehicles parked closest to 3rd Street are not able to travel eastbound on the internal street, as this will likely appear to be a shorter and more convenient route to exit the site.
2. Design considerations on the west end of the site that would offer similar protections keeping entering trips from travelling westbound on the internal streets. Especially for residents on the western portion of the site, this may appear to be the quickest and most convenient routes.
3. Coordinate with emergency service providers to ensure that adequate access is provided through the site. Maintaining adequate width for fire and emergency access may be in competition with suitable design controls that would discourage wrong-way travel from items 1 and 2 above.
4. The proposed one-way circulation concentrates traffic impacts on the existing portion of Hallie Lane between the project site and Carmel Avenue. This portion of the street is not developed or surfaced to current standards and is likely not able to accommodate the additional trips generated by the site. Some level of physical improvements will likely be required in order to mitigate the impact of additional traffic.

If you have any questions regarding this scope of work, please do not hesitate to call.

Sincerely,

Todd E. Mobley, PE
Principal

James Abbott

From: Todd Mobley <todd@lancastermobley.com>
Sent: Wednesday, September 21, 2022 3:57 PM
To: James Abbott; Brent Ahrend
Subject: Manzanita In-Process

James and Brent,

The City finally confirmed with me that there are no in-process trips to consider from specific developments, other than the projects you guys are working on. I would recommend including some type of local growth rate to estimate build-out year conditions, but no need to include trips from specific developments.

Thanks,

-Todd

Todd E. Mobley, PE

Principal

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P: 503-248-0313 **C:** 503-319-9811
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APPENDIX C

TRANSIT INFORMATION

Fares/ Tarifas

Each Way, Per Zone/
Ida o vuelta, por zona.....$1.50

Zone 1: Hobsonville Point (S. of Garibaldi) to Sand Lake Rd (N. of Hemlock)
Zone 2: Clatsop County Line to Hobsonville Point (S. of Garibladi)
Zone 3: Sand Lake Rd (N. of Hemlock) to Lincoln County Line
Lincoln County Zone: Starts at Lincoln County Line

Clatsop County Zone: Starts at Clatsop County Line

Child Fares/ Tarifas Para Niños

First Child/ Primer Niño (0-4).....FREE
Additional Child/ Niño adicional (0-4)...1/2 Fare
Child/ Niño (5-11).....1/2 Fare
(When traveling with a full fare adult/ Al viajar con un adulto que paga la tarifa completa)

Monthly Pass/ Pase de Un Mes

Regular/ Regular.....$40
Reduced/ Descuento.....$30
Reduced fares offered for age 60+, children, & individuals with verifiable short or long term disability/ Se ofrecen tarifas con descuento para mayores de 60 años, niños y personas con discapacidades de corto o largo plazo comprobables

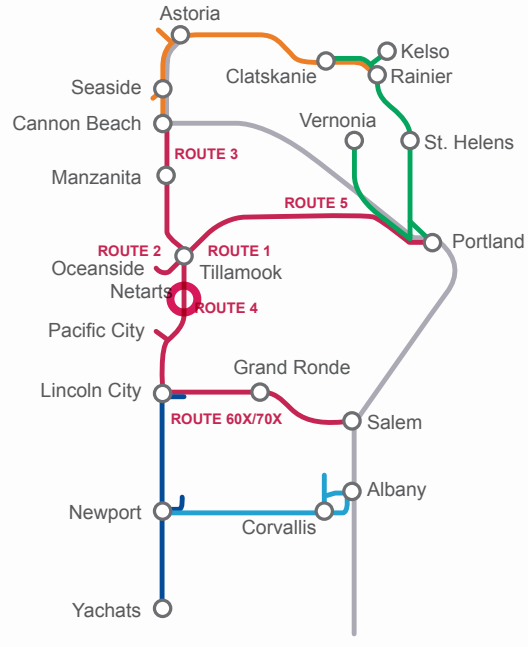
No Bus Service/ No Hay Servicio de Autobuses

New Years Day/ Año Nuevo
Thanksgiving Day/ Día de Acción de Gracias
Christmas Day/ Navidad

Route & Schedule Info/ Información de Rutas y Horarios

800-815-8283
www.TillamookBus.com
800-735-2700/TTY

nwCONNECTOR
NWCONNECTOR.ORG



NWCONNECTOR Visitor Pass/ Pase Para Visitantes
3 Days/ 3 Días $25
7 Days/ 7 Días $30
(includes a round trip to Portland or Salem and unlimited travel on NWConnector routes/ Incluye un viaje redondo a Portland o Salem y viajes ilimitados en las rutas de NWConnector)

CONNECTING SERVICES/ SERVICIOS DE CONEXIÓN

Lincoln County Transit
nwconnector.org | 541-265-4900

Sunset Empire Transportation District
nwconnector.org | 503-861-7433

Point Bus
oregon-point.com | 1-888-846-4183

Greyhound
greyhound.com | 1-800-231-2222

Amtrak
amtrak.com | 1-800-872-7245

Tri-Met
trimet.org | 503-238-7433

ROUTE/ RUTA 3

Tillamook - Cannon Beach

Effective January 23, 2022
A partir del 23 de enero de 2022

RIDE THE WAVE

Tillamook County Transportation District

ROUTE/ RUTA 3
Tillamook - Cannon Beach

SERVICE OPERATES 7 DAYS A WEEK
EL SERVICIO OPERA LOS 7 DÍAS DE LA SEMANA

@TillamookBus

transit

FOR REAL TIME BUS INFO, DOWNLOAD THE TRANSIT APP TODAY!/
PARA OBTENER INFORMACIÓN SOBRE LOS AUTOBUSES EN
TIEMPO REAL, DESCARGUE LA APLICACIÓN TRANSIT.

Transit Center 2nd & Laurel	Tillamook Fred Meyer	Idaville	Bay City	Garibaldi	Rockaway Beach	Wheeler	Nehalem	Manzanita	Cannon Beach
1	2	3	4	5	6	7	8	9	10
Northbound									
4:55	5:00	5:06	5:09	5:17	5:27	5:45	5:53	5:59	--
9:03	9:08	9:14	9:17	9:25	9:35	9:53	10:01	10:07	10:27
1:50	**1:55**	**2:01**	**2:04**	**2:12**	**2:22**	**2:40**	**2:48**	**2:54**	**3:14**
6:05	**6:10**	**6:16**	**6:19**	**6:27**	**6:37**	**6:55**	**7:03**	**7:09**	**7:29**

Bold/ Negritas = PM

Cannon Beach	Manzanita	Nehalem	Wheeler	Rockaway Beach	Garibaldi	Bay City	Idaville	Tillamook Fred Meyer	Transit Center 2nd & Laurel
10	9	8	7	6	5	4	3	2	1
Southbound									
--	6:09	6:15	6:23	6:41	6:51	6:59	7:02	7:08	7:13
10:37	10:57	11:03	11:11	11:29	11:39	11:47	11:50	11:56	**12:01**
3:24	**3:44**	**3:50**	**3:58**	**4:16**	**4:26**	**4:34**	**4:37**	**4:43**	**4:48**
7:39	**7:59**	**8:05**	**8:13**	**8:31**	**8:41**	**8:49**	**8:52**	**8:58**	**9:03**

Bold/ Negritas = PM

APPENDIX D

TRAFFIC COUNT SUMMARIES

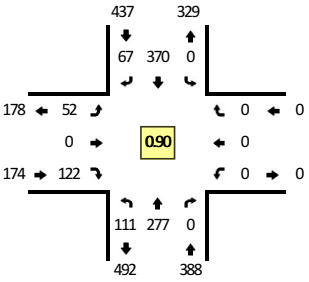
Type of peak hour being reported: Intersection Peak

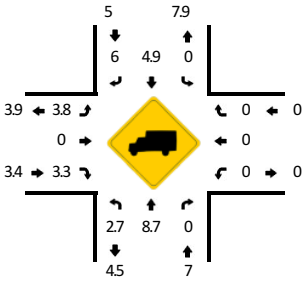
Method for determining peak hour: Total Entering Volume

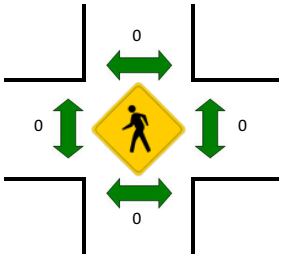
LOCATION: Hwy 101 -- Laneda Ave
CITY/STATE: Manzanita, OR

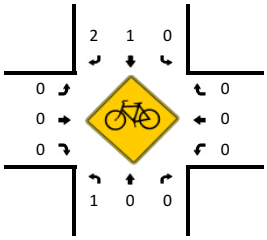
QC JOB #: 15907301
DATE: Thu, Aug 18 2022

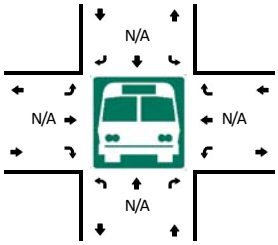
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:40 PM -- 4:55 PM

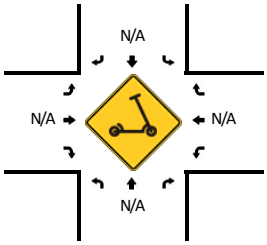












5-Min Count Period Beginning At	Hwy 101 (Northbound)				Hwy 101 (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	37	0	0	0	35	8	0	2	0	11	0	0	0	0	0	105	
4:05 PM	5	20	0	0	0	27	5	0	2	0	11	0	0	0	0	0	70	
4:10 PM	13	14	0	0	0	27	7	0	4	0	11	0	0	0	0	0	76	
4:15 PM	12	23	0	0	0	35	12	0	4	0	15	0	0	0	0	0	101	
4:20 PM	7	19	0	0	0	33	4	0	5	0	10	0	0	0	0	0	78	
4:25 PM	4	25	0	0	0	19	1	0	4	0	8	0	0	0	0	0	61	
4:30 PM	7	23	0	0	0	27	3	0	3	0	13	0	0	0	0	0	76	
4:35 PM	7	23	0	0	0	35	3	0	3	0	13	0	0	0	0	0	84	
4:40 PM	11	20	0	0	0	41	3	0	7	0	6	0	0	0	0	0	88	
4:45 PM	12	26	0	0	0	32	10	0	8	0	6	0	0	0	0	0	94	
4:50 PM	12	29	0	0	0	32	4	0	7	0	10	0	0	0	0	0	94	
4:55 PM	9	18	0	0	0	27	7	0	3	0	8	0	0	0	0	0	72	999
5:00 PM	4	19	0	0	0	30	5	0	1	0	12	0	0	0	0	0	71	965
5:05 PM	10	27	0	0	0	27	3	0	2	0	10	0	0	0	0	0	79	974
5:10 PM	10	23	0	0	0	22	6	0	2	0	7	0	0	0	0	0	70	968
5:15 PM	4	10	0	0	0	26	2	0	3	0	9	0	0	0	0	0	54	921
5:20 PM	12	22	0	0	0	29	5	0	3	0	9	0	0	0	0	0	80	923
5:25 PM	4	31	0	0	0	25	2	0	4	0	14	0	0	0	0	0	80	942
5:30 PM	4	24	0	0	0	34	2	0	3	0	8	0	0	0	0	0	75	941
5:35 PM	4	11	0	0	0	27	4	0	2	0	7	0	0	0	0	0	55	912
5:40 PM	9	19	0	0	0	24	1	0	3	0	9	0	0	0	0	0	65	889
5:45 PM	5	24	0	0	0	34	4	0	4	0	6	0	0	0	0	0	77	872
5:50 PM	9	25	0	0	0	25	2	0	1	0	5	0	0	0	0	0	67	845
5:55 PM	8	11	0	0	0	28	7	0	2	0	7	0	0	0	0	0	63	836

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	140	300	0	0	0	420	68	0	88	0	88	0	0	0	0	0	1104
Heavy Trucks	0	24	0		0	16	0		4	0	4		0	0	0		48
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	4	0	0		0	0	0		0	0	0		0	0	0		4
Scooters																	

Comments:

Report generated on 8/31/2022 11:26 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

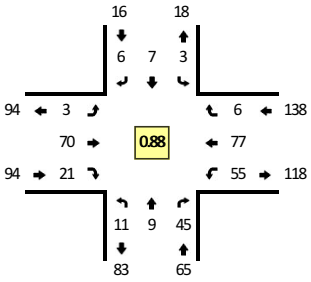
Type of peak hour being reported: Intersection Peak

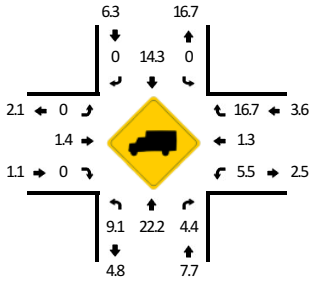
Method for determining peak hour: Total Entering Volume

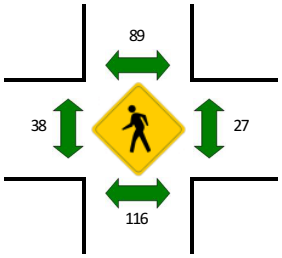
LOCATION: Carmel Ave -- Laneda Ave
CITY/STATE: Manzanita, OR

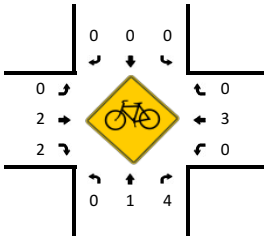
QC JOB #: 15907203
DATE: Thu, Aug 18 2022

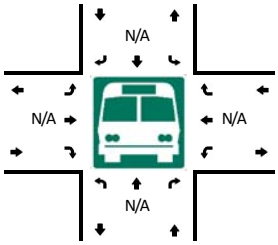
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:35 PM -- 4:50 PM

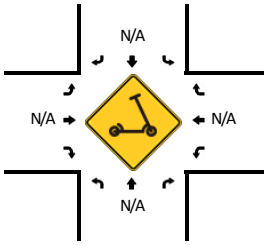












5-Min Count Period Beginning At	Carmel Ave (Northbound)				Carmel Ave (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	1	2	0	0	0	0	0	1	3	2	0	5	8	0	0	22	
4:05 PM	2	1	3	0	1	0	1	0	0	9	1	0	2	5	0	0	25	
4:10 PM	2	0	2	0	0	0	1	0	0	9	1	0	8	2	1	0	26	
4:15 PM	0	0	6	0	0	1	1	0	0	9	4	0	6	8	1	0	36	
4:20 PM	2	2	2	0	0	1	0	0	0	7	1	0	4	4	0	0	23	
4:25 PM	1	0	5	0	0	2	0	0	0	6	1	0	4	7	0	0	26	
4:30 PM	0	1	6	0	0	0	0	0	0	0	1	0	4	9	0	0	21	
4:35 PM	0	2	4	0	0	1	0	0	0	7	3	0	3	8	0	0	28	
4:40 PM	0	2	2	0	0	1	0	0	0	6	4	0	4	6	0	0	25	
4:45 PM	2	0	6	0	0	0	2	0	2	6	1	0	6	10	1	0	36	
4:50 PM	1	0	4	0	0	1	1	0	0	3	0	0	5	3	1	0	19	
4:55 PM	1	0	3	0	2	0	0	0	0	5	2	0	4	7	2	0	26	313
5:00 PM	3	0	3	0	1	0	0	0	0	5	0	0	5	2	1	0	20	311
5:05 PM	0	0	8	0	0	1	0	0	0	2	0	0	6	4	2	0	23	309
5:10 PM	1	0	3	0	0	0	1	0	0	7	0	0	0	10	0	0	22	305
5:15 PM	2	2	4	0	0	1	1	0	0	6	2	0	6	5	0	0	29	298
5:20 PM	3	1	8	0	0	1	0	0	0	5	0	0	3	4	1	0	26	301
5:25 PM	2	0	6	0	1	0	1	0	0	6	4	0	5	8	1	0	34	309
5:30 PM	2	1	5	0	0	0	0	0	0	4	0	0	1	4	0	0	17	305
5:35 PM	3	0	3	0	0	0	0	0	0	5	1	0	2	2	0	0	16	293
5:40 PM	0	1	7	0	0	0	1	0	1	4	5	0	1	11	0	0	31	299
5:45 PM	0	0	3	0	0	0	1	0	0	6	3	0	4	3	1	0	21	284
5:50 PM	2	0	5	0	0	1	0	0	1	4	0	0	3	7	0	0	23	288
5:55 PM	1	1	1	0	1	0	0	0	0	6	0	0	3	9	1	0	23	285

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	8	16	48	0	0	8	8	0	8	76	32	0	52	96	4	0	356
Heavy Trucks	0	4	4		0	0	0		0	0	0		0	0	0		8
Buses																	
Pedestrians		88				84				36				48			256
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/30/2022 1:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

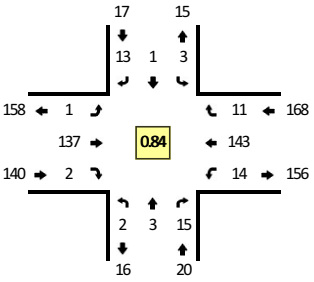
Type of peak hour being reported: Intersection Peak

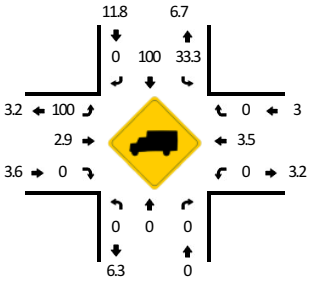
Method for determining peak hour: Total Entering Volume

LOCATION: 3rd St -- Laneda Ave
CITY/STATE: Manzanita, OR

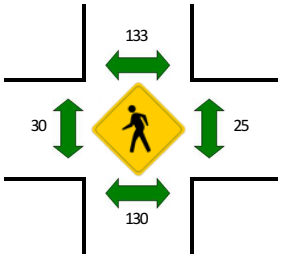
QC JOB #: 15907205
DATE: Thu, Aug 18 2022

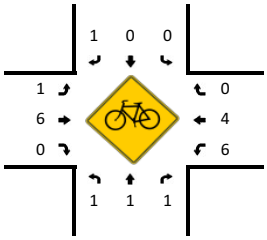
Peak-Hour: 4:05 PM -- 5:05 PM
Peak 15-Min: 4:05 PM -- 4:20 PM

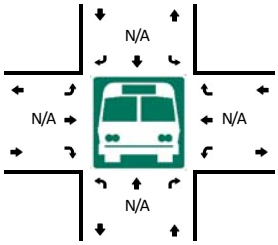


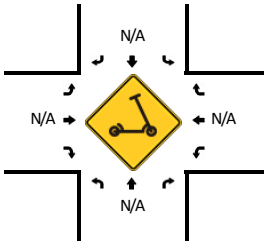


Quality Counts
DATA THAT DRIVES COMMUNITIES









5-Min Count Period Beginning At	3rd St (Northbound)				3rd St (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	1	0	0	0	0	0	3	0	0	9	0	0	0	14	1	0	28	
4:05 PM	1	0	1	0	1	0	0	0	0	14	0	0	1	10	2	1	31	
4:10 PM	0	2	1	0	0	0	2	0	0	13	1	0	0	12	1	0	32	
4:15 PM	0	0	2	0	0	0	0	0	0	14	0	0	1	19	4	0	40	
4:20 PM	0	0	1	0	1	0	0	0	0	13	0	0	2	9	1	0	27	
4:25 PM	1	0	2	0	0	0	2	0	0	10	0	0	2	13	1	0	31	
4:30 PM	0	0	3	0	0	0	1	0	1	13	0	0	0	8	0	0	26	
4:35 PM	0	0	1	0	0	0	1	0	0	11	0	0	0	9	0	0	22	
4:40 PM	0	0	2	0	1	0	2	0	0	9	0	0	0	9	0	0	23	
4:45 PM	0	0	0	0	0	0	1	0	0	12	0	0	2	16	0	0	31	
4:50 PM	0	0	1	0	0	0	2	0	0	9	0	0	1	16	0	0	29	
4:55 PM	0	0	0	0	0	0	0	0	0	6	1	0	3	12	0	0	22	342
5:00 PM	0	1	1	0	0	1	2	0	0	13	0	0	1	10	2	0	31	345
5:05 PM	0	0	0	0	0	0	0	0	0	6	1	0	2	14	0	0	23	337
5:10 PM	0	0	0	0	1	0	1	0	2	7	1	0	3	10	0	0	25	330
5:15 PM	0	0	0	0	0	0	3	0	1	14	0	0	2	9	1	0	30	320
5:20 PM	0	0	4	0	0	0	0	0	0	13	0	0	2	10	2	0	31	324
5:25 PM	0	0	3	0	0	0	2	0	0	10	1	0	0	15	0	0	31	324
5:30 PM	0	0	3	0	0	1	0	0	0	9	1	0	2	3	2	0	21	319
5:35 PM	0	0	1	0	0	0	1	0	0	7	0	0	1	7	0	0	17	314
5:40 PM	0	0	2	0	0	0	1	0	0	10	0	0	1	9	0	0	23	314
5:45 PM	0	0	0	0	0	0	0	0	1	9	1	0	0	11	1	0	23	306
5:50 PM	0	0	2	0	1	0	0	0	1	6	1	0	1	8	0	0	20	297
5:55 PM	0	0	1	0	0	0	0	0	0	6	0	0	0	16	0	0	23	298

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	8	16	0	4	0	8	0	0	164	4	0	8	164	28	4	412
Heavy Trucks	0	0	0		0	0	0		0	8	0		0	12	0		20
Buses																	
Pedestrians		136				104				12				16			268
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/30/2022 1:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

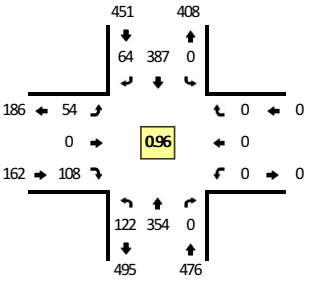
Type of peak hour being reported: Intersection Peak

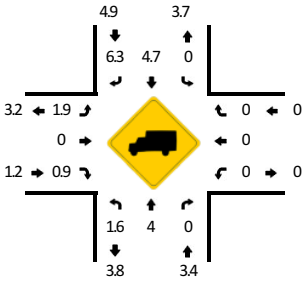
Method for determining peak hour: Total Entering Volume

LOCATION: Hwy 101 -- Laneda Ave
CITY/STATE: Manzanita, OR

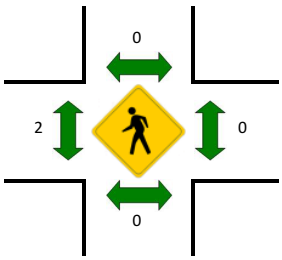
QC JOB #: 15907302
DATE: Sat, Aug 20 2022

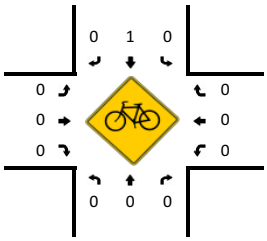
Peak-Hour: 1:50 PM -- 2:50 PM
Peak 15-Min: 2:30 PM -- 2:45 PM

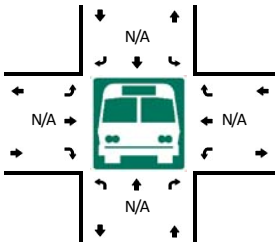


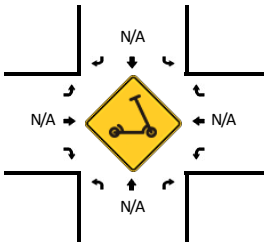


Quality Counts
DATA THAT DRIVES COMMUNITIES









5-Min Count Period Beginning At	Hwy 101 (Northbound)				Hwy 101 (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	10	36	0	0	0	32	3	0	7	0	11	0	0	0	0	0	99	
12:05 PM	12	31	0	0	0	22	3	0	1	0	3	0	0	0	0	0	72	
12:10 PM	13	23	0	0	0	21	4	0	5	0	3	0	0	0	0	0	69	
12:15 PM	14	13	0	0	0	29	3	0	7	0	6	0	0	0	0	0	72	
12:20 PM	5	22	0	0	0	28	7	0	10	0	11	0	0	0	0	0	83	
12:25 PM	11	26	0	0	0	27	4	0	1	0	11	0	0	0	0	0	80	
12:30 PM	10	44	0	0	0	26	7	0	8	0	11	0	0	0	0	0	106	
12:35 PM	9	24	0	0	0	26	7	0	3	0	0	1	0	0	0	0	70	
12:40 PM	9	27	0	0	0	22	5	0	4	0	15	0	0	0	0	0	82	
12:45 PM	8	15	0	0	0	24	6	0	6	0	13	0	0	0	0	0	72	
12:50 PM	10	22	0	0	0	22	4	0	2	0	12	0	0	0	0	0	72	
12:55 PM	15	25	0	0	0	22	2	0	4	0	10	0	0	0	0	0	78	955
1:00 PM	10	22	0	0	0	36	11	0	6	0	7	0	0	0	0	0	92	948
1:05 PM	18	34	0	0	0	26	8	0	5	0	7	0	0	0	0	0	98	974
1:10 PM	15	30	0	0	0	36	5	0	2	0	7	0	0	0	0	0	95	1000
1:15 PM	15	23	0	0	0	22	6	0	4	0	5	0	0	0	0	0	75	1003
1:20 PM	11	25	0	0	0	29	5	0	5	0	16	0	0	0	0	0	91	1011
1:25 PM	21	29	0	0	0	17	3	0	5	0	11	0	0	0	0	0	86	1017
1:30 PM	12	22	0	0	0	29	8	0	3	0	6	0	0	0	0	0	80	991
1:35 PM	13	23	0	0	0	26	6	0	8	0	10	0	0	0	0	0	86	1007
1:40 PM	9	36	0	0	0	27	1	0	6	0	12	0	0	0	0	0	91	1016
1:45 PM	10	24	0	0	0	27	4	0	4	0	13	0	0	0	0	0	82	1026
1:50 PM	16	30	0	0	0	24	3	0	6	0	11	0	0	0	0	0	90	1044
1:55 PM	7	26	0	0	0	43	9	0	4	0	11	0	0	0	0	0	100	1066
2:00 PM	13	24	0	0	0	31	7	0	2	0	10	0	0	0	0	0	87	1061
2:05 PM	10	22	0	0	0	30	1	0	5	0	14	0	0	0	0	0	82	1045
2:10 PM	13	32	0	0	0	25	3	0	5	0	7	0	0	0	0	0	85	1035
2:15 PM	7	27	0	0	0	34	4	0	5	0	6	0	0	0	0	0	83	1043
2:20 PM	7	39	0	0	0	35	8	0	2	0	8	0	0	0	0	0	99	1051
2:25 PM	9	28	0	0	0	28	2	0	5	0	6	0	0	0	0	0	78	1043
2:30 PM	9	29	0	0	0	38	11	0	6	0	9	0	0	0	0	0	102	1065
2:35 PM	7	28	0	0	0	34	8	0	7	0	5	0	0	0	0	0	89	1068
2:40 PM	14	28	0	0	0	28	7	0	6	0	10	0	0	0	0	0	93	1070
2:45 PM	10	41	0	0	0	37	1	0	1	0	11	0	0	0	0	0	101	1089
2:50 PM	14	24	0	0	0	25	7	0	6	0	2	0	0	0	0	0	78	1077
2:55 PM	10	31	0	0	0	30	2	0	3	0	8	0	0	0	0	0	84	1061
3:00 PM	8	27	0	0	0	22	6	0	3	0	11	0	0	0	0	0	77	1051
3:05 PM	12	19	0	0	0	26	4	0	5	0	5	0	0	0	0	0	71	1040

5-Min Count Period Beginning At	Hwy 101 (Northbound)				Hwy 101 (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:10 PM	11	28	0	0	0	40	7	0	4	0	5	0	0	0	0	0	95	1050
3:15 PM	15	22	0	0	0	30	6	0	5	0	10	0	0	0	0	0	88	1055
3:20 PM	12	19	0	0	0	20	4	0	5	0	4	0	0	0	0	0	64	1020
3:25 PM	8	17	0	0	0	28	4	0	7	0	9	0	0	0	0	0	73	1015
3:30 PM	11	15	0	0	0	38	7	0	9	0	11	0	0	0	0	0	91	1004
3:35 PM	8	9	0	0	0	29	6	0	6	0	8	0	0	0	0	0	66	981
3:40 PM	12	43	0	0	0	37	6	0	0	0	6	0	0	0	0	0	104	992
3:45 PM	5	25	0	0	0	30	5	0	4	0	13	0	0	0	0	0	82	973
3:50 PM	5	22	0	0	0	28	4	0	7	0	4	0	0	0	0	0	70	965
3:55 PM	10	28	0	0	0	28	2	0	3	0	13	0	0	0	0	0	84	965

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	120	340	0	0	0	400	104	0	76	0	96	0	0	0	0	0	1136
Heavy Trucks	4	20	0		0	12	0		4	0	4		0	0	0		44
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 8/31/2022 11:26 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

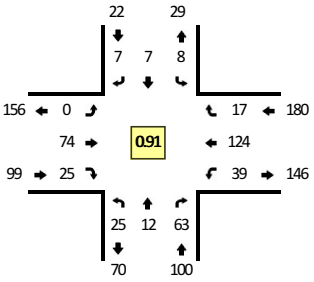
Type of peak hour being reported: Intersection Peak

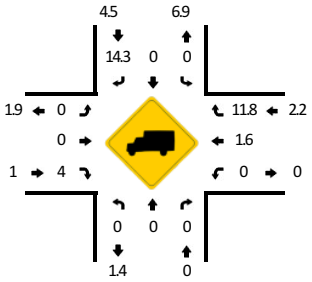
Method for determining peak hour: Total Entering Volume

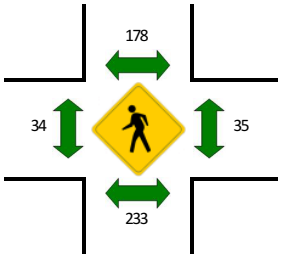
LOCATION: Carmel Ave -- Laneda Ave
CITY/STATE: Manzanita, OR

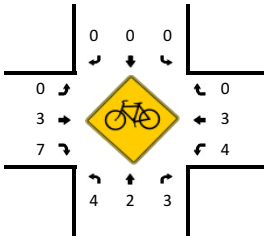
QC JOB #: 15907204
DATE: Sat, Aug 20 2022

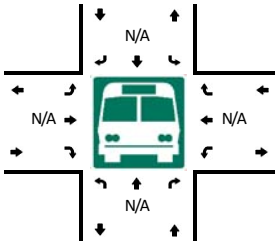
Peak-Hour: 1:05 PM -- 2:05 PM
Peak 15-Min: 1:10 PM -- 1:25 PM

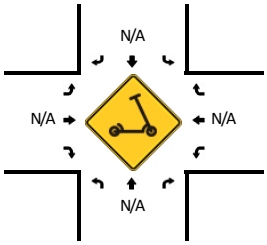












5-Min Count Period Beginning At	Carmel Ave (Northbound)				Carmel Ave (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	0	7	0	0	1	0	0	0	7	1	0	1	9	0	0	26	
12:05 PM	3	2	1	0	1	0	1	0	0	7	3	0	1	9	0	0	28	
12:10 PM	1	1	8	0	0	1	1	0	0	6	2	0	2	11	1	0	34	
12:15 PM	2	3	8	0	0	1	0	0	1	7	1	0	3	8	1	0	35	
12:20 PM	4	2	3	0	0	1	0	0	0	4	0	0	2	9	0	0	25	
12:25 PM	2	1	4	0	0	0	0	0	0	5	5	0	3	7	1	0	28	
12:30 PM	2	0	6	0	1	1	0	0	0	7	0	0	1	6	0	0	24	
12:35 PM	1	0	4	0	0	0	0	0	0	5	2	0	3	9	0	0	24	
12:40 PM	0	0	10	0	1	1	1	0	0	8	2	0	5	7	0	0	35	
12:45 PM	2	0	8	0	1	0	0	0	1	5	2	0	8	9	1	0	37	
12:50 PM	2	0	4	0	3	0	1	0	1	2	1	0	5	7	1	0	27	
12:55 PM	1	1	3	0	0	1	0	0	1	8	0	0	3	5	1	0	24	347
1:00 PM	5	0	3	0	0	0	1	0	0	3	0	0	3	9	2	0	26	347
1:05 PM	2	1	5	0	1	1	1	0	0	6	1	0	4	14	0	0	36	355
1:10 PM	1	1	5	0	0	2	2	0	0	6	1	0	4	12	1	0	35	356
1:15 PM	2	2	6	0	0	1	0	0	0	5	2	0	3	12	1	0	34	355
1:20 PM	2	1	6	0	0	0	0	0	0	6	3	0	3	19	1	0	41	371
1:25 PM	1	1	4	0	0	0	1	0	0	3	4	0	3	3	0	0	20	363
1:30 PM	1	2	8	0	1	0	0	0	0	5	0	0	5	11	1	0	34	373
1:35 PM	4	0	3	0	0	0	1	0	0	6	2	0	3	10	1	0	30	379
1:40 PM	2	0	5	0	1	0	0	0	0	8	2	0	3	6	4	0	31	375
1:45 PM	4	0	3	0	3	2	1	0	0	7	2	0	1	11	4	0	38	376
1:50 PM	2	2	8	0	0	0	0	0	0	8	2	0	2	11	2	1	38	387
1:55 PM	2	0	6	0	1	1	1	0	0	5	3	0	6	8	0	0	33	396
2:00 PM	2	2	4	0	1	0	0	0	0	9	3	0	1	7	2	0	31	401
2:05 PM	1	1	0	0	0	0	0	0	1	8	0	0	2	9	1	0	23	388
2:10 PM	2	0	3	0	0	1	0	0	0	3	1	0	2	3	1	0	16	369
2:15 PM	0	2	9	0	0	1	1	0	0	4	0	0	6	11	0	0	34	369
2:20 PM	2	0	3	0	1	1	0	0	0	5	1	0	1	6	0	0	20	348
2:25 PM	3	0	4	0	2	2	1	0	0	5	0	0	4	8	1	0	30	358
2:30 PM	3	2	2	0	2	3	1	0	0	5	2	0	5	14	2	0	41	365
2:35 PM	0	1	5	0	1	3	0	0	0	7	3	0	6	6	1	0	33	368
2:40 PM	5	0	8	0	1	1	0	0	0	3	2	0	1	10	0	0	31	368
2:45 PM	0	0	5	0	0	0	1	0	0	13	1	0	7	8	2	0	37	367
2:50 PM	1	2	4	0	1	0	0	0	0	6	1	0	5	12	0	0	32	361
2:55 PM	1	0	4	0	0	3	0	0	0	7	1	0	3	6	1	1	27	355
3:00 PM	1	0	3	0	0	0	0	0	0	7	1	0	4	6	1	0	23	347
3:05 PM	0	0	7	0	2	2	0	0	1	4	2	0	6	7	1	0	32	356

5-Min Count Period Beginning At	Carmel Ave (Northbound)				Carmel Ave (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:10 PM	4	1	1	0	0	1	1	0	0	5	2	0	6	12	0	0	33	373
3:15 PM	2	1	5	0	0	1	0	0	0	4	2	0	2	8	1	1	27	366
3:20 PM	2	5	1	0	0	1	0	0	0	4	2	0	6	6	1	0	28	374
3:25 PM	4	0	4	0	1	3	1	0	0	9	0	0	5	3	1	1	32	376
3:30 PM	0	0	3	0	2	0	0	0	0	5	1	0	8	11	0	1	31	366
3:35 PM	1	1	4	0	0	0	0	0	0	3	0	0	2	11	0	0	22	355
3:40 PM	2	1	4	0	0	2	0	0	0	5	1	0	6	5	1	0	27	351
3:45 PM	0	1	5	0	0	1	3	0	0	4	4	0	6	8	3	0	35	349
3:50 PM	1	2	8	0	0	2	0	0	0	6	1	0	4	2	3	0	29	346
3:55 PM	4	0	6	0	0	2	1	0	0	6	2	0	4	4	2	0	31	350

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	16	68	0	0	12	8	0	0	68	24	0	40	172	12	0	440
Heavy Trucks	0	0	0		0	0	0		0	0	4		0	8	4		16
Buses																	
Pedestrians		236				172				12				56			476
Bicycles	8	0	8		0	0	0		0	8	0		0	4	0		28
Scooters																	

Comments:

Report generated on 8/30/2022 1:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

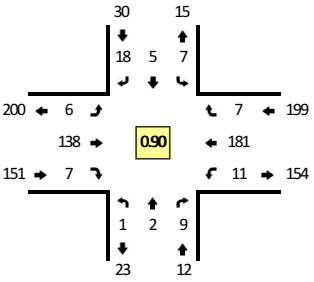
Type of peak hour being reported: Intersection Peak

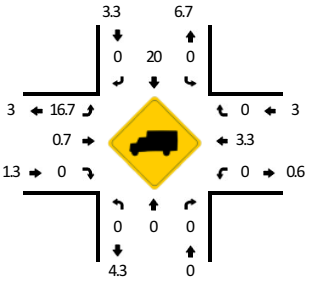
Method for determining peak hour: Total Entering Volume

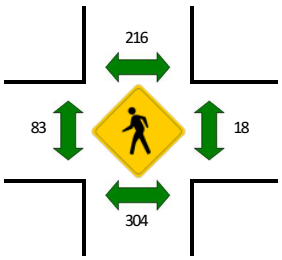
LOCATION: 3rd St -- Laneda Ave
CITY/STATE: Manzanita, OR

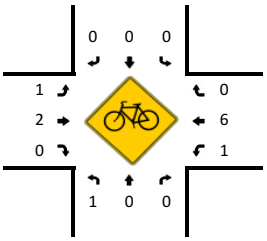
QC JOB #: 15907206
DATE: Sat, Aug 20 2022

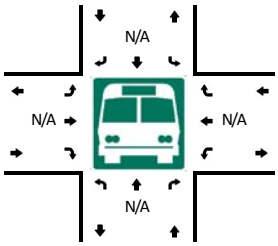
Peak-Hour: 1:05 PM -- 2:05 PM
Peak 15-Min: 1:10 PM -- 1:25 PM

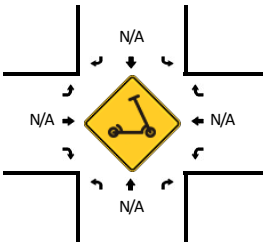












5-Min Count Period Beginning At	3rd St (Northbound)				3rd St (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	1	0	0	0	2	0	0	0	0	15	0	0	2	12	1	0	33	
12:05 PM	0	0	1	0	0	0	3	0	3	4	1	0	0	12	0	0	24	
12:10 PM	0	0	1	0	0	0	1	0	1	11	0	0	1	12	3	0	30	
12:15 PM	0	0	0	0	1	0	1	0	2	19	1	0	1	13	0	0	38	
12:20 PM	0	0	0	0	1	0	0	0	0	9	1	0	1	9	1	0	22	
12:25 PM	0	0	0	0	0	0	1	0	0	9	0	0	2	11	1	0	24	
12:30 PM	0	0	0	0	0	0	2	0	1	10	1	0	2	12	0	0	28	
12:35 PM	0	0	3	0	3	2	1	0	0	7	0	0	1	15	0	0	32	
12:40 PM	0	0	1	0	2	0	2	0	0	13	2	0	3	9	0	0	32	
12:45 PM	0	0	2	0	1	0	1	0	0	14	0	0	0	15	3	0	36	
12:50 PM	0	0	3	0	1	0	1	0	0	9	3	0	2	12	0	0	31	
12:55 PM	0	0	1	0	1	0	1	0	0	8	1	0	1	10	1	0	24	354
1:00 PM	0	0	0	0	1	0	1	0	1	7	0	0	0	15	0	0	25	346
1:05 PM	0	0	0	0	0	1	2	0	1	9	1	0	1	24	1	0	40	362
1:10 PM	0	0	0	0	1	0	0	0	0	11	0	0	1	16	1	0	30	362
1:15 PM	0	1	0	0	1	2	2	0	0	10	1	0	1	19	1	0	38	362
1:20 PM	0	0	1	0	0	2	4	0	0	15	2	0	0	16	1	0	41	381
1:25 PM	0	0	0	0	0	0	1	0	0	7	1	0	3	9	0	0	21	378
1:30 PM	0	0	1	0	0	0	0	0	2	10	0	0	0	21	1	0	35	385
1:35 PM	0	0	1	0	2	0	4	0	1	9	0	0	1	13	0	0	31	384
1:40 PM	0	1	2	0	1	0	2	0	1	11	1	0	0	11	1	0	31	383
1:45 PM	0	0	2	0	1	0	2	0	0	18	1	0	1	15	0	0	40	387
1:50 PM	0	0	2	0	0	0	1	0	1	17	0	0	0	14	0	0	35	391
1:55 PM	0	0	0	0	1	0	0	0	0	10	0	0	1	10	1	0	23	390
2:00 PM	1	0	0	0	0	0	0	0	0	11	0	0	2	13	0	0	27	392
2:05 PM	0	0	1	0	0	0	0	0	1	5	0	0	0	9	0	0	16	368
2:10 PM	0	0	2	0	0	1	1	0	0	8	0	0	2	10	0	0	24	362
2:15 PM	0	0	0	0	2	1	1	0	1	10	1	0	0	13	1	0	30	354
2:20 PM	0	0	1	0	1	0	1	0	0	11	0	0	0	19	2	0	35	348
2:25 PM	0	0	1	0	1	0	0	0	1	8	1	0	0	14	0	0	26	353
2:30 PM	2	0	4	0	0	1	0	0	0	8	2	0	3	21	0	0	41	359
2:35 PM	0	0	2	0	2	0	2	0	1	10	2	0	0	16	2	0	37	365
2:40 PM	0	0	3	0	0	1	0	0	0	9	1	0	2	14	1	0	31	365
2:45 PM	0	1	0	0	1	0	3	0	0	15	0	0	0	17	1	0	38	363
2:50 PM	1	0	1	0	0	1	0	0	0	13	1	0	2	10	0	0	29	357
2:55 PM	2	1	2	0	0	0	0	0	0	13	0	0	0	9	0	0	27	361
3:00 PM	0	1	1	0	0	0	1	0	1	11	1	0	2	14	0	0	32	366
3:05 PM	0	0	0	0	0	0	2	0	0	9	1	0	0	15	0	0	27	377

5-Min Count Period Beginning At	3rd St (Northbound)				3rd St (Southbound)				Laneda Ave (Eastbound)				Laneda Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:10 PM	0	0	3	0	0	0	0	0	0	4	3	0	1	17	0	0	28	381
3:15 PM	2	0	0	0	1	1	0	0	1	9	0	0	0	22	1	0	37	388
3:20 PM	0	0	1	0	0	1	0	0	0	10	0	0	1	17	0	0	30	383
3:25 PM	0	0	2	0	0	0	0	0	0	14	0	0	0	14	2	0	32	389
3:30 PM	0	0	1	0	0	0	2	0	0	7	0	0	0	20	1	0	31	379
3:35 PM	0	0	0	0	1	1	1	0	1	10	1	0	0	16	1	0	32	374
3:40 PM	0	0	0	0	1	1	0	0	0	5	0	0	1	17	2	0	27	370
3:45 PM	0	0	2	0	0	0	1	0	1	12	0	0	1	11	0	0	28	360
3:50 PM	1	0	0	0	2	1	1	0	0	9	0	0	0	11	0	0	25	356
3:55 PM	0	0	0	0	1	2	1	0	1	13	0	0	1	8	0	0	27	356

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	4	4	0	8	16	24	0	0	144	12	0	8	204	12	0	436
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	12	0		12
Buses																	
Pedestrians		328				160				76				8			572
Bicycles	0	0	0		0	0	0		4	8	0		0	12	0		24
Scooters																	

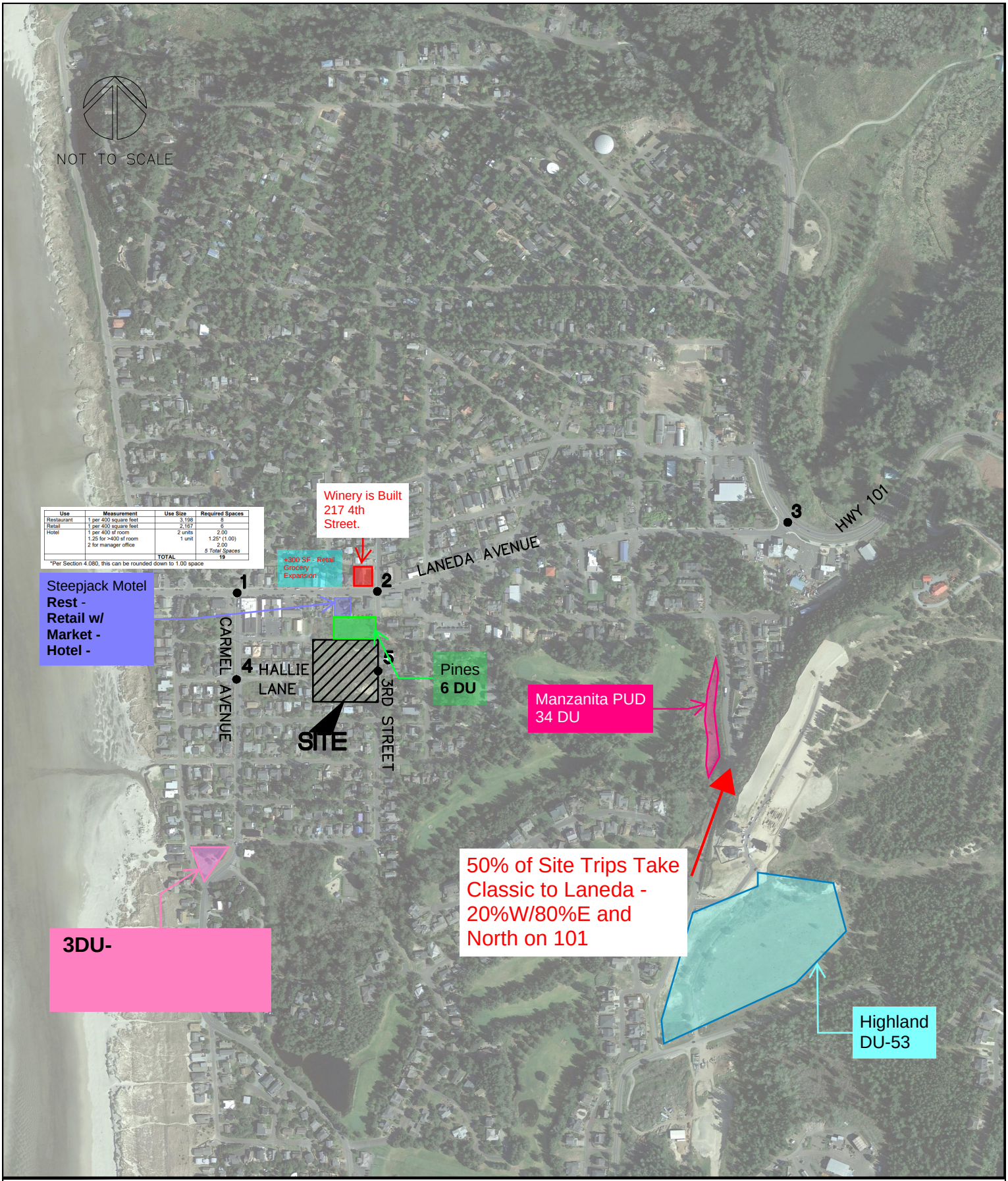
Comments:

Report generated on 8/30/2022 1:33 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

APPENDIX E

IN-PROCESS TRIPS & VICINITY MAP



Use	Measurement	Use Size	Required Spaces
Restaurant	1 per 400 square feet	3,198	8
Retail	1 per 400 square feet	2,167	6
Hotel	1 per 400 sf room	2 units	2.00
	1.25 for >400 sf room	1 unit	1.25* (1.00)
	2 for manager office		2.00
			5 Total Spaces
		TOTAL	19

*Per Section 4.080, this can be rounded down to 1.00 space

Portland 503.224.9560 | Vancouver 360.695.7879 | Seattle 206.749.9993
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Planning ▪ Engineering
MACKENZIE

DATE: 9.2.2022
DRAWN BY: CNL
CHECKED BY: JTJ
JOB NO: 222019400

VICINITY MAP

HERON'S REST
MANZANITA, OREGON

FIGURE 1

MACKENZIE.

May 9, 2022

Manzanita Lofts LLC
Attention: Vito Cerelli
31987 Maxwell Lane
Arch Cape, OR 97102

Re: **Manzanita Lofts PUD**
Traffic Analysis
Project Number 2220120.00

Dear Mr. Cerelli:

This letter has been prepared to address traffic impacts of the proposed Manzanita Lofts vacation rentals. The project consists of 9 cabins (1,000 SF), 6 small cottages (350 SF) and 19 studio hotel rooms (350 SF) for a total of 34 units. Access to the site is proposed on Dorcas Lane, approximately 75 ft west of the intersection with Classic Street.

We understand Planning Commission members have asked for a review of impacts on the intersection of Classic Street with Dorcas Lane, currently stop controlled on the Classic Street approaches. The intersection has a single lane in each direction, and the roadways are approximately 21-22 ft in width. No sidewalks or bicycle facilities are currently provided. Classic Street has a slight offset across the intersection. Traffic volumes are not available from the City. Volumes are typically low on these streets, even during peak season.

Trip Generation

Trip estimates were made based on ITE's Trip Generation Manual, 11th Edition for the Motel Land Use. Weekday trip estimates are 114 daily, 17 AM peak hour, and 19 PM peak hour. On a weekend, Saturday volumes are highest at 309 daily trips. Other Land Uses, such as a hotel, were considered as well, but have lower trip rates and less available data.

Sight Distance

For these low volume and low speed local roadways, sight distances recommendations are 280 ft for 25 mph and 225 ft for 20 mph in accordance with the AASHTO Policy on Geometric Design of Highways and Streets. At the intersection of Classic Street with Dorcas Lane, sight distances can be met on each approach, although brush at the northeast corner of the intersection may need to be trimmed to meet the recommendations. Sight distance of 280 ft can be met at the proposed site access on Dorcas Lane with trimming of brush to the west of the driveway.

Crash History

A review of the last five years of crash data on the ODOT database did not indicate any crashes at the intersection of Dorcas Lane with Classic Street. One crash was noted on Laneda Avenue near the intersection with Classic Street, involving a vehicle backing up.

Pedestrian Access

No sidewalks are provided. Consistent with the character of the neighborhood, the project will not provide sidewalks on the street frontages. The roadways are intended to be shared by all users with slow speeds and low volumes encouraged by the narrow roadways.

Traffic Impacts

Most of the added trips from the project will travel through the Classic Street with Dorcas Lane intersection. With fewer than 20 trips added in even the busiest hour (one vehicle every three minutes) and an average of less than one vehicle every three minutes during even the busiest day, the intersection impact will be small. While a detailed analysis has not been prepared for this review, it is expected the intersection operates at a level of service "A" with very low delays with the exiting two-way stop control.

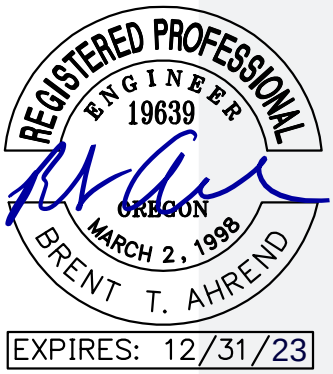
Summary

The addition of trips from the proposed Manzanita Lofts PUD will have a small impact on the existing roadways in the area, with operation remaining at a level of service "A" with low delays. Sight distances can be met and there are no noted safety deficiencies in the area based on a review of available crash data.

Sincerely,

Brent Ahrend, PE
Associate Principal | Traffic Engineer

Enclosure(s): Site Plan, crash data



SITE INFORMATION:

OWNER:
MANZANITA LOFTS LLC

TAX LOT
3N 10W TAX LOT 2600 + 2100

ZONING:
SR-R

LOT AREA:
146,456 SF

HOTEL AREA:
6,521 SF

CABIN AREA:
9,000 SF

MICRO CABIN AREA:
2,100 SF

ROAD/PARKING AREA:
26,479 SF

PERCENTAGE LOT COVERAGE w/ ROAD:
(6,521 + 9,000 + 2,100 + 26,479 SF) / (146,456 SF) x 100 = 30.11%

PERCENTAGE LOT COVERAGE w/o ROAD:
(6,521 + 9,000 + 2,100 SF) / (146,456 SF) x 100 = 12.03%

1 SITE PLAN
1" = 50'-0"

NOT FOR CONSTRUCTION

11251 SE 232nd AVE

DC STRUCTURES

DAMASCUS, OR 97089

MANZANITA RETREAT

TAX LOT:
3N 10W TAX LOT 2600 + 2100

SITE PLAN

Drawn By
TL
4/29/2022 2:44:43 PM

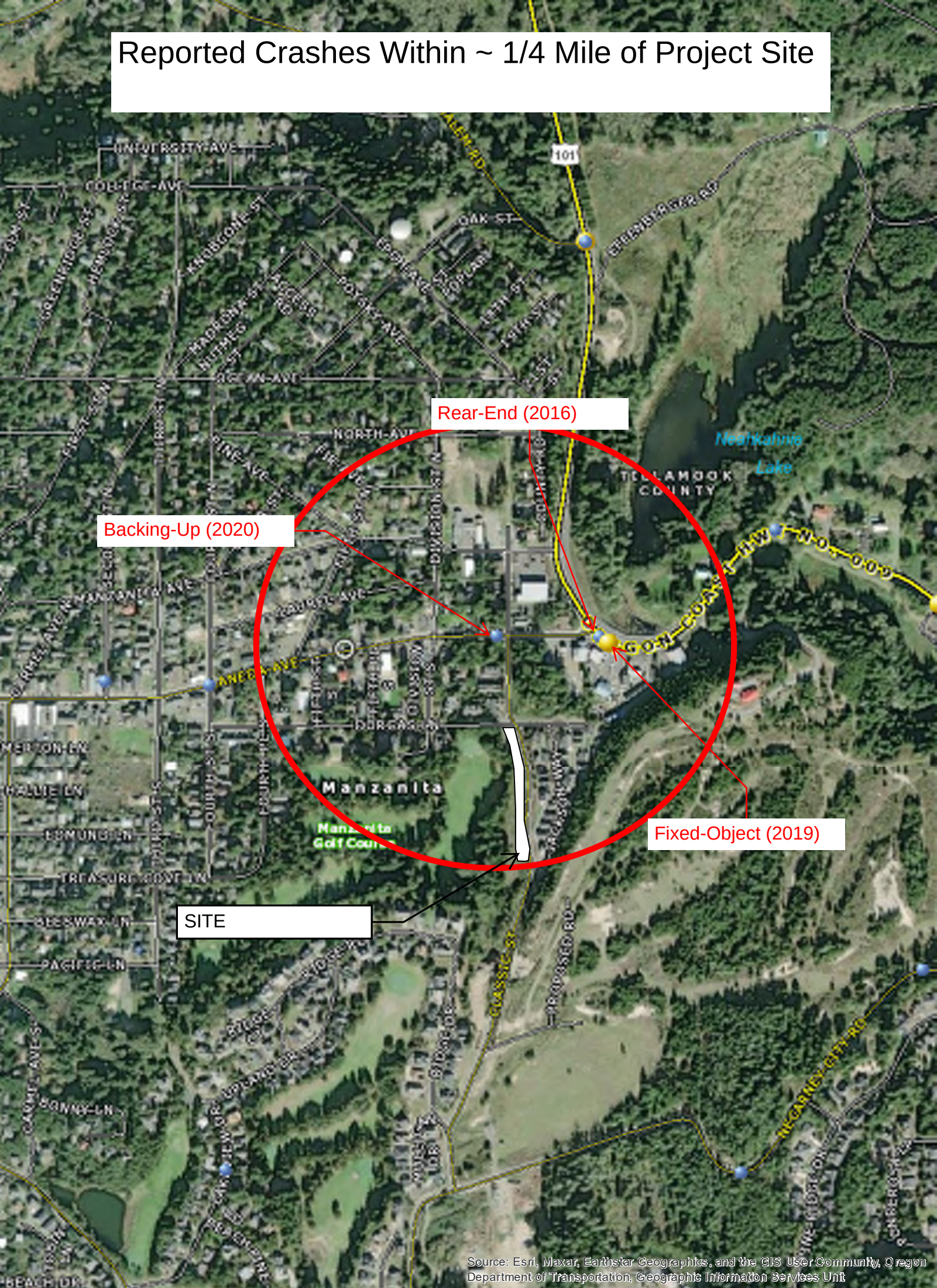
Drawing Index

No.	Date	Description

SITE

4/29/2022 2:44:43 PM

Reported Crashes Within ~ 1/4 Mile of Project Site



APPENDIX F

CRASH DATA

URBAN NON-SYSTEM CRASH LISTING

CITY OF MANZANITA, TILLAMOOK COUNTY

LANEDA AVE at CARMEL AVE, City of Manzanita, Tillamook County, 01/01/2016 to 12/31/2020

SER# / INVEST / RD DPT / UNLOC?	S P E E D	D R A L U C G S	J I N V	S C W H L	M W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / 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	SPCL USE / TRLR QTY / OWNER / V# TYPE	MOVE / FROM / TO	PRTC / P# TYPE	INJ / SVRTY	A G E	S E X	LICNS / RES	PED / LOC	ERROR	ACT EVENT	CAUSE

CITY OF MANZANITA, TILLAMOOK COUNTY

LANEDA AVE at 3RD ST, City of Manzanita, Tillamook County, 01/01/2016 to 12/31/2020

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / FIRST STREET / SECOND STREET / LRS	RD CHAR / DIRECT / LOCTN	INT-TYPE (MEDIAN) (#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

CITY OF MANZANITA, TILLAMOOK COUNTY

LANEDA AVE at OREGON COAST HY, City of Manzanita, Tillamook County, 01/01/2016 to 12/31/2020

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R U G S	M J I N V	S C H L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / 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

2016 (2:00PM) - Crash ID (1706759) Rear-End - Failed to Avoid Vehicle ahead - Both Vehicles from the Same Direction (From the West) - Property Damage Only

CITY OF MANZANITA, TILLAMOOK COUNTY

LANEDA AVE and Intersectional Crashes at LANEDA AVE, City of Manzanita, Tillamook County, 01/01/2016 to 12/31/2020

1 - 3 of 3 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	M R U G S	J N H V	S I C L	W O R K	DATE / DAY / TIME / LAT	CLASS / DIST / FROM / LONG	CITY STREET / 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
00153	N	N	N				06/25/2020	07	CLASSIC ST	INTER	CROSS	N	N	CLR	O-OTHER	01	NONE 9	STRGHT											10
NO RPT							TH	0	LANEDA AVE	N		UNKNOWN	N	DRY	BACK		N/A	W -E									088		00
N							5P			05	0		N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 43 9.38	-123 55 47.67																UNK					
																02	NONE 9	STOP											
																	N/A	E -W									011		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					
00029	N	N	N				02/13/2018	07	LANEDA AVE	STRGHT		N	Y	CLR	PRKD MV	01	NONE 9	STRGHT											10
NONE							TU	25	1ST ST	W	(NONE)	UNKNOWN	N	DRY	SS-O		N/A	E -W									000		00
Y							5P			05			N	DUSK	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 43 6.53	-123 56 23.35			(02)													UNK					
																02	NONE 9	PRKD-P											
																	N/A	E -W									008		00
																	PSNGR CAR												
00266	N	N	N				08/19/2016	07	LANEDA AVE	INTER	CROSS	N	N	CLR	ANGL-STP	01	NONE 9	TURN-L											08
NO RPT							FR	0	4TH ST	NE		STOP SIGN	N	DRY	TURN		N/A	N -NE									015		00
N							12P			06	0		N	DAY	PDO		SEMI TOW		01	DRVR	NONE	00	Unk	UNK		000	000		00
N							45 43 7.15	-123 56 6.36																UNK					
																02	NONE 9	STOP											
																	N/A	NE-SW									011		00
																	PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
																								UNK					

Not Study Area Intersection

CONTINUOUS SYSTEM CRASH LISTING

009: OREGON COAST **Highway 009 ALL ROAD TYPES, MP 43.0 to 43.9 01/01/2016 to 12/31/2020, Both Add and Non-Add mileage**

1 - 5 of 11 Crash records shown.

SER# / INVEST / RD DPT / UNLOC?	S D M / P R J S W / E A U I C O / E L G N H R / D C S V 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	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
00362	N N Y N N N	09/16/2019	TILLAMOOK	1 02		CURVE		N	Y	CLR	FIX OBJ	01	NONE	STRGHT										040	17,12
STATE		MO		MN 0		UN	(NONE)	UNKNOWN	N	DRY	FIX		PRVTE	N -S									088	040	00
Y		7A		43.19		06			Y	DAY	INJ		OTH BUS		01	DRVR	INJA	44	M	OTH-Y		079,081	028		12,17
N		45 43 9.06	-123 55 40.38		000900100S00		(02)													N-RES					
00317	Y N N N	09/14/2018	TILLAMOOK	1 02		CURVE		N	Y	CLR	FIX OBJ	01	NONE 9	STRGHT										079	01
NO RPT		FR		MN 0		UN	(NONE)	UNKNOWN	N	DRY	FIX		N/A	S -N									000		00
Y		11A		43.38		06			N	DAY	PDO		PSNGR CAR		01	DRVR	NONE	00	Unk	UNK		000	000		00
N		45 43 14.19	-123 55 29.53		000900100S00		(02)													UNK					
00256	N N N N N N	08/03/2019	TILLAMOOK	1 02		INTER	3-LEG	N	N	CLR	S-OTHER	01	NONE 0	U-TURN											02
CITY		SA		MN 0		N		NONE	N	DRY	TURN		PRVTE	N -N									051		00
N		12P		43.54		06	0		N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	37	F	OR-Y		028	000		02
N		45 43 10.81	-123 55 18.9		000900100S00															OR>25					
												02	NONE 0	STRGHT											
													PRVTE	N -S									000		00
			Neahkahnie Creek Rd										PSNGR CAR		01	DRVR	INJC	16	F	OR-Y		000	000		00
																				OR<25					
												02	NONE 0	STRGHT											
													PRVTE	N -S									000		00
													PSNGR CAR		02	PSNG	INJB	10	M			000	000		00
00395	N N N N N N	11/17/2018	TILLAMOOK	1 02		CURVE		N	Y	CLR	O-STRGHT	01	NONE 0	STRGHT											32,05,16
STATE		SA		MN 0		UN	(NONE)	NONE	N	DRY	SS-M		PRVTE	N -S									000		00
Y		5P		43.55		06			N	DARK	INJ		PSNGR CAR		01	DRVR	NONE	26	M	OR-Y		052,080,081	025		32,05,16
N		45 43 10.52	-123 55 18.34		000900100S00		(02)													OR<25					
												02	NONE 0	STRGHT											
													PRVTE	S -N									088		00
													PSNGR CAR		01	DRVR	INJC	58	M	OR-Y		000	000		00
																				OR>25					
												02	NONE 0	STRGHT											
													PRVTE	S -N									088		00
													PSNGR CAR		02	PSNG	INJC	58	F			000	000		00
												02	NONE 0	STRGHT											
													PRVTE	S -N									088		00
													PSNGR CAR		03	PSNG	INJC	16	F			000	000		00
00248	N N N N N N	07/22/2017	TILLAMOOK	1 02		ALLEY		N	N	CLR	BIKE	01	NONE	TURN-L											02,40
STATE		SA		MN 0		UN	(NONE)	UNKNOWN	N	DRY	TURN		PRVTE	S -W									019		00
N		4P		43.66		03			N	DAY	INJ		PSNGR CAR		01	DRVR	NONE	80	M	OTH-Y		027	026		02,40
N		45 43 7.76	-123 55 11.69		000900100S00		(02)													N-RES					
														-											
														STRGHT	01	BIKE	INJB	27	M		SHLDR	000	046		00
														N S											
00341	N N N N	10/02/2018	TILLAMOOK	1 02		ALLEY		N	N	CLR	ANGL-OTH	01	NONE 0	TURN-L											02
NONE		TU		MN 0		UN	(NONE)	UNKNOWN	N	DRY	TURN		PRVTE	W -N									018		00
N		7P		43.75		04			N	DARK	INJ		PSNGR CAR		01	DRVR	INJC	19	F	OR-Y		028	000		02
N		45 43 5.87	-123 55 5.96		000900100S00		(02)													OR<25					

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R G S	M J N V	S I H L	W C O K	DATE / DAY / TIME / LAT	COUNTY / CITY / URBAN AREA / LONG	RD# / COMPNT / MLG / MILEPNT	FC / TYP	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 / TO	MOVE / FROM	P#	PRTC TYPE	INJ SVRTY	A G E	S E X	LICNS RES	PED LOC	ERROR	ACT	EVENT	CAUSE
																		02	NONE 0 PRVTE PSNGR CAR	UNK UN-W	01	DRVR	NONE	00	M	OR-Y OR<25		000	019 000		00 00
00325 STATE N N	N	N	N	N	N	N	10/29/2020 TH 8A 45 43 5.87	TILLAMOOK -123 55 5.95	1 02 MN 0 43.75		000900100S00	STRGHT UN 04	(NONE) (02)	N UNKNOWN	N N	CLR DRY DAY	S-1STOP REAR INJ	01	NONE PRVTE PSNGR CAR	STRGHT S -N	01	DRVR	NONE	61	M	OR-Y OR<25		026	000 000		27,10 00 10,27
																		02	NONE PRVTE PSNGR CAR	STOP S -N	01	DRVR	INJC	20	M	OR-Y OR<25		000	012 000		00 00
00378 STATE N N	N	N	N	N	N	N	10/19/2017 TH 10A 45 43 4.18	TILLAMOOK -123 55 .86	1 02 MN 0 43.83		000900100S00	STRGHT UN 03	(NONE) (02)	N UNKNOWN	N N	RAIN WET DAY	S-STRGHT REAR INJ	01	NONE PRVTE PSNGR CAR	STRGHT W -E	01	DRVR	NONE	71	F	OR-Y OR<25		016,042	000 038		27,29 00 27,29
																		02	NONE RENTL PSNGR CAR	STRGHT W -E	01	DRVR	INJC	41	M	OTH-Y N-RES		000	006 000		00 00
																		02	NONE RENTL PSNGR CAR	STRGHT W -E	02	PSNG	INJC	39	F			000	006 000		00 00
																		02	NONE RENTL PSNGR CAR	STRGHT W -E	03	PSNG	INJC	13	M			000	006 000		00 00
00145 NONE N N	N	N	N	N			05/25/2018 FR 2P 45 43 3.75	TILLAMOOK -123 54 59.6	1 02 MN 0 43.85		000900100S00	ALLEY UN 04	(NONE) (02)	N STOP SIGN	N N	CLR DRY DAY	S-1STOP REAR INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT E -W	01	DRVR	NONE	69	F	OR-Y OR<25		026	000 000		29 00 29
																		02	NONE 0 PRVTE PSNGR CAR	STOP E -W	01	DRVR	INJC	17	F	OR-Y OR<25		000	012 000		00 00
																		02	NONE 0 PRVTE PSNGR CAR	STOP E -W	02	PSNG	INJC	00	Unk			000	012 000		00 00
00188 STATE N N	N	N	N	N	N	N	06/24/2019 MO 5P 45 43 3.56	TILLAMOOK -123 54 58.95	1 02 MN 0 43.86		000900100S00	ALLEY UN 04	(NONE) (02)	N NONE	N N	CLR DRY DAY	S-1STOP REAR INJ	01	NONE 0 PRVTE PSNGR CAR	STRGHT S -N	01	DRVR	NONE	68	M	OR-Y OR<25		016,043	000 038		27,29 00 27,29
																		02	NONE 0 PRVTE PSNGR CAR	STOP S -N	01	DRVR	INJB	39	F	OR-Y OR<25		000	012 000		00 00

Lighthouse Grill Driveway

Shell Driveway

Shell Driveway

Shell Driveway

SER# / INVEST / RD DPT / UNLOC?	S P E D	A L C	D R G S	M J U N V	S I H L	C N R K	W O 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 PRVTE PSNGR CAR	STOP S -N	02	PSNG	INJB	00	F			000	012 000		00 00
00227 STATE N N	N	Y	N	N	N	N	07/19/2018 TH 9P 45 43 3.07	TILLAMOOK -123 54 56.95	1 02 MN 0 43.89	 000900100S00	INTER S 05 0	3-LEG	N STOP SIGN	Y N N	CLR DRY DUSK	FIX OBJ FIX INJ	01	NONE 0 PRVTE PSNGR CAR	TURN-L E -S	01	DRVR	INJB	45	M	OR-Y OR>25		001,081	088	053 053	08 00 08

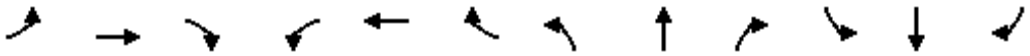
Carney City Rd

APPENDIX G

OPERATIONS CALCULATIONS

HCM Unsignalized Intersection Capacity Analysis
1: Carmel Avenue & Laneda Avenue

09/20/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	70	21	55	77	6	11	9	45	3	7	6
Future Volume (vph)	3	70	21	55	77	6	11	9	45	3	7	6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	80	24	62	88	7	12	10	51	3	8	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	107	157	73	18
Volume Left (vph)	3	62	12	3
Volume Right (vph)	24	7	51	7
Hadj (s)	-0.10	0.12	-0.26	-0.08
Departure Headway (s)	4.2	4.3	4.2	4.5
Degree Utilization, x	0.12	0.19	0.09	0.02
Capacity (veh/h)	835	809	793	740
Control Delay (s)	7.8	8.4	7.6	7.6
Approach Delay (s)	7.8	8.4	7.6	7.6
Approach LOS	A	A	A	A

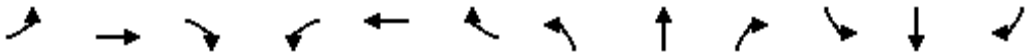
Intersection Summary			
Delay	8.0		
Level of Service	A		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	70	21	55	77	6	11	9	45	3	7	6
Future Vol, veh/h	3	70	21	55	77	6	11	9	45	3	7	6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	2	1	6	2	17	9	22	4	1	14	1
Mvmt Flow	3	80	24	63	88	7	13	10	51	3	8	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.7	8.4	7.7	7.5
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	3%	40%	19%
Vol Thru, %	14%	74%	56%	44%
Vol Right, %	69%	22%	4%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	94	138	16
LT Vol	11	3	55	3
Through Vol	9	70	77	7
RT Vol	45	21	6	6
Lane Flow Rate	74	107	157	18
Geometry Grp	1	1	1	1
Degree of Util (X)	0.088	0.121	0.187	0.022
Departure Headway (Hd)	4.279	4.07	4.299	4.401
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	842	865	825	818
Service Time	2.28	2.168	2.377	2.403
HCM Lane V/C Ratio	0.088	0.124	0.19	0.022
HCM Control Delay	7.7	7.7	8.4	7.5
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.4	0.7	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	137	2	14	143	11	2	3	15	3	1	13
Future Volume (Veh/h)	1	137	2	14	143	11	2	3	15	3	1	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	1	163	2	17	170	13	2	4	18	4	1	15
Pedestrians		30			25			130			133	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		3			2			12			13	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	316			295			552	646	319	554	640	340
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	316			295			552	646	319	554	640	340
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	100			98			99	99	97	98	100	97
cM capacity (veh/h)	1097			1115			299	295	619	264	298	598

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	166	200	24	20
Volume Left	1	17	2	4
Volume Right	2	13	18	15
cSH	1097	1115	487	459
Volume to Capacity	0.00	0.02	0.05	0.04
Queue Length 95th (ft)	0	1	4	3
Control Delay (s)	0.1	0.8	12.8	13.2
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	0.8	12.8	13.2
Approach LOS			B	B

Intersection Summary				
Average Delay	1.8			
Intersection Capacity Utilization	36.5%	ICU Level of Service	A	
Analysis Period (min)	15			

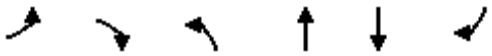
Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	137	2	14	143	11	2	3	15	3	1	13
Future Vol, veh/h	1	137	2	14	143	11	2	3	15	3	1	13
Conflicting Peds, #/hr	133	0	130	130	0	133	30	0	25	25	0	30
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	2	1	1	4	1	1	1	1	33	0	1
Mvmt Flow	1	163	2	17	170	13	2	4	18	4	1	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	316	0	0	295	0	0	545	646	319	546	641	340
Stage 1	-	-	-	-	-	-	296	296	-	344	344	-
Stage 2	-	-	-	-	-	-	249	350	-	202	297	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.11	6.51	6.21	7.43	6.5	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.43	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.43	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.509	4.009	3.309	3.797	4	3.309
Pot Cap-1 Maneuver	1256	-	-	1272	-	-	451	392	724	404	395	705
Stage 1	-	-	-	-	-	-	715	670	-	612	640	-
Stage 2	-	-	-	-	-	-	757	635	-	734	671	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1097	-	-	1115	-	-	368	294	619	327	297	598
Mov Cap-2 Maneuver	-	-	-	-	-	-	368	294	-	327	297	-
Stage 1	-	-	-	-	-	-	626	586	-	534	549	-
Stage 2	-	-	-	-	-	-	703	545	-	691	587	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	12.5	12.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	502	1097	-	-	1115	-	-	496
HCM Lane V/C Ratio	0.047	0.001	-	-	0.015	-	-	0.041
HCM Control Delay (s)	12.5	8.3	0	-	8.3	0	-	12.6
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.1



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	57	122	111	277	370	67
Future Volume (Veh/h)	57	122	111	277	370	67
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	63	136	123	308	411	74
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1002	448	485			
vC1, stage 1 conf vol	448					
vC2, stage 2 conf vol	554					
vCu, unblocked vol	1002	448	485			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	86	78	89			
cM capacity (veh/h)	438	609	1073			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	199	123	308	485
Volume Left	63	123	0	0
Volume Right	136	0	0	74
cSH	542	1073	1700	1700
Volume to Capacity	0.37	0.11	0.18	0.29
Queue Length 95th (ft)	42	10	0	0
Control Delay (s)	15.4	8.8	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	15.4	2.5		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	55.1%	ICU Level of Service	B
Analysis Period (min)	15		

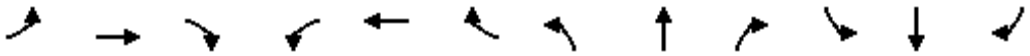
Intersection	
Int Delay, s/veh	4.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	122	111	277	370	67
Future Vol, veh/h	57	122	111	277	370	67
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	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	4	3	3	9	5	6
Mvmt Flow	63	136	123	308	411	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1002	448	485	0	-	0
Stage 1	448	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Critical Hdwy	6.44	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	266	609	1073	-	-	-
Stage 1	639	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	235	609	1073	-	-	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	566	-	-	-	-	-
Stage 2	572	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.2	2.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1073	-	404	-	-
HCM Lane V/C Ratio	0.115	-	0.492	-	-
HCM Control Delay (s)	8.8	-	22.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2.6	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	1	0	0	3	0	48	0	5	69	9
Future Volume (Veh/h)	5	0	1	0	0	3	0	48	0	5	69	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	6	0	1	0	0	3	0	55	0	6	78	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	153	150	83	151	155	55	88			55		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	153	150	83	151	155	55	88			55		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	809	739	976	813	734	1012	1508			1550		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	3	55	94
Volume Left	6	0	0	6
Volume Right	1	3	0	10
cSH	830	1012	1508	1550
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	9.4	8.6	0.0	0.5
Lane LOS	A	A		A
Approach Delay (s)	9.4	8.6	0.0	0.5
Approach LOS	A	A		

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	20.6%	ICU Level of Service	A	
Analysis Period (min)	15			

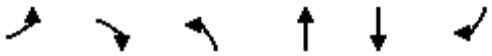
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	1	0	0	3	0	48	0	5	69	9
Future Vol, veh/h	5	0	1	0	0	3	0	48	0	5	69	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	6	0	1	0	0	3	0	55	0	6	78	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	152	150	83	151	155	55	88	0	0	55	0	0
Stage 1	95	95	-	55	55	-	-	-	-	-	-	-
Stage 2	57	55	-	96	100	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	815	742	976	816	737	1012	1508	-	-	1550	-	-
Stage 1	912	816	-	957	849	-	-	-	-	-	-	-
Stage 2	955	849	-	911	812	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	810	739	976	813	734	1012	1508	-	-	1550	-	-
Mov Cap-2 Maneuver	810	739	-	813	734	-	-	-	-	-	-	-
Stage 1	912	813	-	957	849	-	-	-	-	-	-	-
Stage 2	952	849	-	906	809	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.4	8.6	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	834	1012	1550	-	-
HCM Lane V/C Ratio	-	-	-	0.008	0.003	0.004	-	-
HCM Control Delay (s)	0	-	-	9.4	8.6	7.3	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	20	17	0
Future Volume (Veh/h)	0	0	0	20	17	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	0	0	24	20	0
Pedestrians	30					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	3					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	74	50	50			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	74	50	50			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	908	995	1525			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	24	20
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1525	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	12.3%	ICU Level of Service	A
Analysis Period (min)	15		

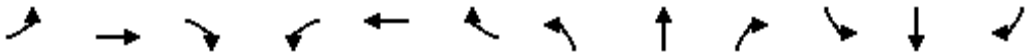
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	20	17	0
Future Vol, veh/h	0	0	0	20	17	0
Conflicting Peds, #/hr	0	0	30	0	0	25
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	0	0	24	20	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	74	50	50	0	-	0
Stage 1	50	-	-	-	-	-
Stage 2	24	-	-	-	-	-
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	935	1024	1570	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	882	995	1525	-	-	-
Mov Cap-2 Maneuver	882	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1525	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	74	25	39	124	17	25	12	63	8	7	7
Future Volume (vph)	1	74	25	39	124	17	25	12	63	8	7	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1	81	27	43	136	19	27	13	69	9	8	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	109	198	109	25
Volume Left (vph)	1	43	27	9
Volume Right (vph)	27	19	69	8
Hadj (s)	-0.12	0.03	-0.31	-0.03
Departure Headway (s)	4.3	4.4	4.3	4.7
Degree Utilization, x	0.13	0.24	0.13	0.03
Capacity (veh/h)	800	789	778	702
Control Delay (s)	8.0	8.7	8.0	7.9
Approach Delay (s)	8.0	8.7	8.0	7.9
Approach LOS	A	A	A	A

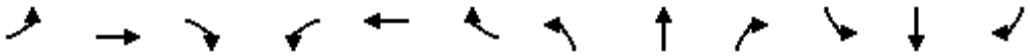
Intersection Summary			
Delay	8.3		
Level of Service	A		
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	74	25	39	124	17	25	12	63	8	7	7
Future Vol, veh/h	1	74	25	39	124	17	25	12	63	8	7	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	4	1	2	13	1	1	1	1	1	14
Mvmt Flow	1	81	27	43	136	19	27	13	69	9	8	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	8.7	8	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	1%	22%	36%
Vol Thru, %	12%	74%	69%	32%
Vol Right, %	63%	25%	9%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	100	100	180	22
LT Vol	25	1	39	8
Through Vol	12	74	124	7
RT Vol	63	25	17	7
Lane Flow Rate	110	110	198	24
Geometry Grp	1	1	1	1
Degree of Util (X)	0.131	0.131	0.238	0.031
Departure Headway (Hd)	4.301	4.281	4.337	4.61
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	835	840	833	777
Service Time	2.32	2.299	2.337	2.634
HCM Lane V/C Ratio	0.132	0.131	0.238	0.031
HCM Control Delay	8	7.9	8.7	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.5	0.9	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	138	7	11	181	7	1	2	9	7	5	18
Future Volume (Veh/h)	6	138	7	11	181	7	1	2	9	7	5	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	153	8	12	201	8	1	2	10	8	6	20
Pedestrians		86			18			304			216	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		8			2			29			21	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	425			465			813	924	479	645	924	507
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	425			465			813	924	479	645	924	507
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.7	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.2	3.3
p0 queue free %	99			98			99	99	98	96	96	95
cM capacity (veh/h)	841			783			116	149	411	189	139	414

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	168	221	13	34
Volume Left	7	12	1	8
Volume Right	8	8	10	20
cSH	841	783	281	254
Volume to Capacity	0.01	0.02	0.05	0.13
Queue Length 95th (ft)	1	1	4	11
Control Delay (s)	0.5	0.7	18.5	21.4
Lane LOS	A	A	C	C
Approach Delay (s)	0.5	0.7	18.5	21.4
Approach LOS			C	C

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		

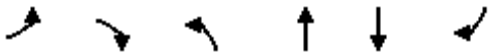
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	6	138	7	11	181	7	1	2	9	7	5	18
Future Vol, veh/h	6	138	7	11	181	7	1	2	9	7	5	18
Conflicting Peds, #/hr	216	0	304	304	0	216	86	0	18	18	0	83
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	17	2	1	1	3	1	1	1	1	1	20	1
Mvmt Flow	7	153	8	12	201	8	1	2	10	8	6	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	425	0	0	465	0	0	803	924	479	640	924	507
Stage 1	-	-	-	-	-	-	475	475	-	445	445	-
Stage 2	-	-	-	-	-	-	328	449	-	195	479	-
Critical Hdwy	4.27	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.7	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.7	-
Follow-up Hdwy	2.353	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.18	3.309
Pot Cap-1 Maneuver	1058	-	-	1102	-	-	303	270	589	390	252	568
Stage 1	-	-	-	-	-	-	572	559	-	594	545	-
Stage 2	-	-	-	-	-	-	687	574	-	809	526	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	840	-	-	783	-	-	179	148	411	288	138	414
Mov Cap-2 Maneuver	-	-	-	-	-	-	179	148	-	288	138	-
Stage 1	-	-	-	-	-	-	403	394	-	467	426	-
Stage 2	-	-	-	-	-	-	582	448	-	764	370	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.4	0.5	17.9	19.1
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	293	840	-	-	783	-	-	288
HCM Lane V/C Ratio	0.046	0.008	-	-	0.016	-	-	0.116
HCM Control Delay (s)	17.9	9.3	0	-	9.7	0	-	19.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0.4



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	54	108	122	354	387	64
Future Volume (Veh/h)	54	108	122	354	387	64
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	56	112	127	369	403	67
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1062	438	472			
vC1, stage 1 conf vol	438					
vC2, stage 2 conf vol	623					
vCu, unblocked vol	1062	438	472			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	87	82	88			
cM capacity (veh/h)	417	617	1088			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	168	127	369	470
Volume Left	56	127	0	0
Volume Right	112	0	0	67
cSH	532	1088	1700	1700
Volume to Capacity	0.32	0.12	0.22	0.28
Queue Length 95th (ft)	34	10	0	0
Control Delay (s)	14.9	8.7	0.0	0.0
Lane LOS	B	A		
Approach Delay (s)	14.9	2.2		0.0
Approach LOS	B			

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		

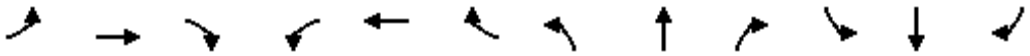
Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	54	108	122	354	387	64
Future Vol, veh/h	54	108	122	354	387	64
Conflicting Peds, #/hr	0	0	2	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
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	4	5	6
Mvmt Flow	56	113	127	369	403	67

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1062	439	472	0	-	0
Stage 1	439	-	-	-	-	-
Stage 2	623	-	-	-	-	-
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	247	618	1090	-	-	-
Stage 1	650	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	217	617	1088	-	-	-
Mov Cap-2 Maneuver	217	-	-	-	-	-
Stage 1	573	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.7	2.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1088	-	382	-	-
HCM Lane V/C Ratio	0.117	-	0.442	-	-
HCM Control Delay (s)	8.7	-	21.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.4	-	2.2	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	1	0	0	4	0	89	0	4	60	7
Future Volume (Veh/h)	7	0	1	0	0	4	0	89	0	4	60	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	0	1	0	0	4	0	98	0	4	66	8
Pedestrians		34			35							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		3			3							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	214	245	104	212	249	133	108			133		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	214	245	104	212	249	133	108			133		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	683	616	925	686	613	891	1447			1415		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	4	98	78
Volume Left	8	0	0	4
Volume Right	1	4	0	8
cSH	703	891	1447	1415
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	10.2	9.1	0.0	0.4
Lane LOS	B	A		A
Approach Delay (s)	10.2	9.1	0.0	0.4
Approach LOS	B	A		

Intersection Summary				
Average Delay	0.8			
Intersection Capacity Utilization	24.1%	ICU Level of Service	A	
Analysis Period (min)	15			

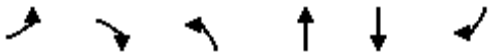
Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	1	0	0	4	0	89	0	4	60	7
Future Vol, veh/h	7	0	1	0	0	4	0	89	0	4	60	7
Conflicting Peds, #/hr	0	0	0	0	0	0	34	0	35	35	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	8	0
Mvmt Flow	8	0	1	0	0	4	0	98	0	4	66	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	212	245	104	212	249	133	108	0	0	133	0	0
Stage 1	112	112	-	133	133	-	-	-	-	-	-	-
Stage 2	100	133	-	79	116	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	749	661	956	749	657	922	1495	-	-	1464	-	-
Stage 1	898	807	-	875	790	-	-	-	-	-	-	-
Stage 2	911	790	-	935	803	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	720	617	925	721	613	891	1447	-	-	1415	-	-
Mov Cap-2 Maneuver	720	617	-	721	613	-	-	-	-	-	-	-
Stage 1	869	779	-	846	764	-	-	-	-	-	-	-
Stage 2	907	764	-	931	775	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.1	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1447	-	-	741	891	1415	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.005	0.003	-	-
HCM Control Delay (s)	0	-	-	9.9	9.1	7.6	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	12	23	0
Future Volume (Veh/h)	0	0	0	12	23	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	13	26	0
Pedestrians	83					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	8					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	122	109	109			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	122	109	109			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	809	875	1376			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	13	26
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1376	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

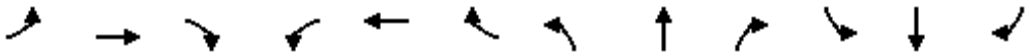
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	12	23	0
Future Vol, veh/h	0	0	0	12	23	0
Conflicting Peds, #/hr	0	0	83	0	0	83
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	0	0	0	13	26	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	122	109	109	0	-	0
Stage 1	109	-	-	-	-	-
Stage 2	13	-	-	-	-	-
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	878	950	1494	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	745	875	1376	-	-	-
Mov Cap-2 Maneuver	745	-	-	-	-	-
Stage 1	848	-	-	-	-	-
Stage 2	935	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1376	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	81	21	58	86	6	11	9	47	3	7	6
Future Volume (vph)	3	81	21	58	86	6	11	9	47	3	7	6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	92	24	66	98	7	12	10	53	3	8	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	119	171	75	18
Volume Left (vph)	3	66	12	3
Volume Right (vph)	24	7	53	7
Hadj (s)	-0.09	0.12	-0.22	-0.08
Departure Headway (s)	4.2	4.4	4.3	4.6
Degree Utilization, x	0.14	0.21	0.09	0.02
Capacity (veh/h)	826	804	772	726
Control Delay (s)	7.9	8.5	7.8	7.7
Approach Delay (s)	7.9	8.5	7.8	7.7
Approach LOS	A	A	A	A

Intersection Summary				
Delay	8.1			
Level of Service	A			
Intersection Capacity Utilization	33.2%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

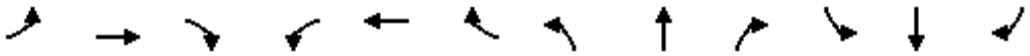
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	81	21	58	86	6	11	9	47	3	7	6
Future Vol, veh/h	3	81	21	58	86	6	11	9	47	3	7	6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	2	1	6	2	17	4	22	9	1	14	1
Mvmt Flow	3	92	24	66	98	7	13	10	53	3	8	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	8.5	7.7	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	16%	3%	39%	19%
Vol Thru, %	13%	77%	57%	44%
Vol Right, %	70%	20%	4%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	105	150	16
LT Vol	11	3	58	3
Through Vol	9	81	86	7
RT Vol	47	21	6	6
Lane Flow Rate	76	119	170	18
Geometry Grp	1	1	1	1
Degree of Util (X)	0.09	0.139	0.204	0.023
Departure Headway (Hd)	4.247	4.203	4.312	4.462
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	847	858	822	805
Service Time	2.254	2.203	2.399	2.472
HCM Lane V/C Ratio	0.09	0.139	0.207	0.022
HCM Control Delay	7.7	7.9	8.5	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.8	0.1

HCM Unsignalized Intersection Capacity Analysis
2: 3rd Street & Laneda Avenue

09/20/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	158	2	17	170	11	2	3	15	3	1	13
Future Volume (Veh/h)	1	158	2	17	170	11	2	3	15	3	1	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	1	188	2	20	202	13	2	4	18	4	1	15
Pedestrians		30			25			130			133	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		3			2			12			13	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	348			320			615	709	344	618	704	372
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	348			320			615	709	344	618	704	372
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.0	3.3
p0 queue free %	100			98			99	99	97	98	100	97
cM capacity (veh/h)	1067			1091			270	270	600	238	273	574

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	191	235	24	20
Volume Left	1	20	2	4
Volume Right	2	13	18	15
cSH	1067	1091	460	429
Volume to Capacity	0.00	0.02	0.05	0.05
Queue Length 95th (ft)	0	1	4	4
Control Delay (s)	0.1	0.9	13.3	13.8
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	0.9	13.3	13.8
Approach LOS			B	B

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	40.5%	ICU Level of Service	A	
Analysis Period (min)	15			

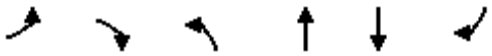
Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	158	2	17	170	11	2	3	15	3	1	13
Future Vol, veh/h	1	158	2	17	170	11	2	3	15	3	1	13
Conflicting Peds, #/hr	133	0	130	130	0	133	30	0	25	25	0	30
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	2	1	1	4	1	1	1	1	33	0	1
Mvmt Flow	1	188	2	20	202	13	2	4	18	4	1	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	348	0	0	320	0	0	608	709	344	609	704	372
Stage 1	-	-	-	-	-	-	321	321	-	382	382	-
Stage 2	-	-	-	-	-	-	287	388	-	227	322	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.11	6.51	6.21	7.43	6.5	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.43	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.43	5.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.509	4.009	3.309	3.797	4	3.309
Pot Cap-1 Maneuver	1222	-	-	1246	-	-	409	360	701	366	364	676
Stage 1	-	-	-	-	-	-	693	653	-	582	616	-
Stage 2	-	-	-	-	-	-	723	611	-	711	655	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1067	-	-	1092	-	-	332	269	600	295	272	574
Mov Cap-2 Maneuver	-	-	-	-	-	-	332	269	-	295	272	-
Stage 1	-	-	-	-	-	-	606	571	-	508	527	-
Stage 2	-	-	-	-	-	-	668	522	-	669	573	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0.7	13	13.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	474	1067	-	-	1092	-	-	466
HCM Lane V/C Ratio	0.05	0.001	-	-	0.019	-	-	0.043
HCM Control Delay (s)	13	8.4	0	-	8.4	0	-	13.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	71	138	133	283	377	92
Future Volume (Veh/h)	71	138	133	283	377	92
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	79	153	148	314	419	102
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1080	470	521			
vC1, stage 1 conf vol	470					
vC2, stage 2 conf vol	610					
vCu, unblocked vol	1080	470	521			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	81	74	86			
cM capacity (veh/h)	407	589	1040			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	232	148	314	521
Volume Left	79	148	0	0
Volume Right	153	0	0	102
cSH	511	1040	1700	1700
Volume to Capacity	0.45	0.14	0.18	0.31
Queue Length 95th (ft)	58	12	0	0
Control Delay (s)	17.8	9.0	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	17.8	2.9		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

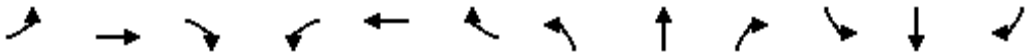
Intersection	
Int Delay, s/veh	7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	71	138	133	283	377	92
Future Vol, veh/h	71	138	133	283	377	92
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	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	4	3	9	5	6
Mvmt Flow	79	153	148	314	419	102

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1080	470	521	0	-	0
Stage 1	470	-	-	-	-	-
Stage 2	610	-	-	-	-	-
Critical Hdwy	6.42	6.24	4.13	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.336	2.227	-	-	-
Pot Cap-1 Maneuver	241	589	1040	-	-	-
Stage 1	629	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	207	589	1040	-	-	-
Mov Cap-2 Maneuver	207	-	-	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	542	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	31.1	2.9	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1040	-	362	-	-
HCM Lane V/C Ratio	0.142	-	0.641	-	-
HCM Control Delay (s)	9	-	31.1	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.5	-	4.3	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	1	0	0	3	0	50	0	9	72	5
Future Volume (Veh/h)	5	0	1	0	0	3	0	50	0	9	72	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	6	0	1	0	0	3	0	57	0	10	82	6
Pedestrians		38			27							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		4			3							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	203	227	123	190	230	84	126			84		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203	227	123	190	230	84	126			84		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			99		
cM capacity (veh/h)	692	630	900	715	628	956	1420			1486		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	3	57	98
Volume Left	6	0	0	10
Volume Right	1	3	0	6
cSH	716	956	1420	1486
Volume to Capacity	0.01	0.00	0.00	0.01
Queue Length 95th (ft)	1	0	0	1
Control Delay (s)	10.1	8.8	0.0	0.8
Lane LOS	B	A		A
Approach Delay (s)	10.1	8.8	0.0	0.8
Approach LOS	B	A		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	24.4%	ICU Level of Service	A	
Analysis Period (min)	15			

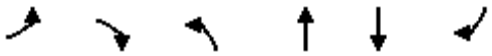
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	1	0	0	3	0	50	0	9	72	5
Future Vol, veh/h	5	0	1	0	0	3	0	50	0	9	72	5
Conflicting Peds, #/hr	0	0	0	0	0	0	38	0	27	27	0	38
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	9	0	0	5	0
Mvmt Flow	6	0	1	0	0	3	0	57	0	10	82	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	202	227	123	190	230	84	126	0	0	84	0	0
Stage 1	143	143	-	84	84	-	-	-	-	-	-	-
Stage 2	59	84	-	106	146	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	761	676	933	774	673	981	1473	-	-	1526	-	-
Stage 1	865	782	-	929	829	-	-	-	-	-	-	-
Stage 2	958	829	-	905	780	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	727	630	899	749	627	956	1420	-	-	1487	-	-
Mov Cap-2 Maneuver	727	630	-	749	627	-	-	-	-	-	-	-
Stage 1	834	748	-	905	807	-	-	-	-	-	-	-
Stage 2	955	807	-	898	746	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	8.8	0	0.8
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1420	-	-	751	956	1487	-	-
HCM Lane V/C Ratio	-	-	-	0.009	0.004	0.007	-	-
HCM Control Delay (s)	0	-	-	9.8	8.8	7.4	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	20	17	0
Future Volume (Veh/h)	0	0	0	20	17	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	0	0	0	24	20	0
Pedestrians	30					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	3					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	74	50	50			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	74	50	50			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	908	995	1525			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	24	20
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1525	1700
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	12.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	20	17	0
Future Vol, veh/h	0	0	0	20	17	0
Conflicting Peds, #/hr	0	0	30	0	0	25
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	0	0	0	24	20	0

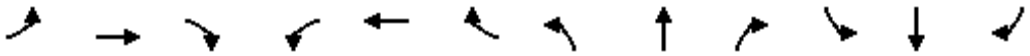
Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	74	50	50	0	-	0
Stage 1	50	-	-	-	-	-
Stage 2	24	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	935	1024	1570	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	882	995	1525	-	-	-
Mov Cap-2 Maneuver	882	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1525	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM Unsignalized Intersection Capacity Analysis
1: Carmel Avenue & Laneda Avenue

09/20/2022



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	88	26	42	137	17	26	12	65	8	7	7
Future Volume (vph)	1	88	26	42	137	17	26	12	65	8	7	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1	97	29	46	151	19	29	13	71	9	8	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	127	216	113	25
Volume Left (vph)	1	46	29	9
Volume Right (vph)	29	19	71	8
Hadj (s)	-0.11	0.04	-0.31	-0.03
Departure Headway (s)	4.4	4.4	4.4	4.8
Degree Utilization, x	0.15	0.26	0.14	0.03
Capacity (veh/h)	791	783	758	684
Control Delay (s)	8.1	9.0	8.1	8.0
Approach Delay (s)	8.1	9.0	8.1	8.0
Approach LOS	A	A	A	A

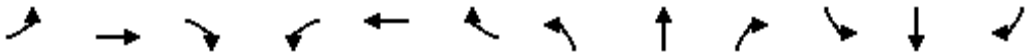
Intersection Summary				
Delay	8.5			
Level of Service	A			
Intersection Capacity Utilization	37.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	88	26	42	137	17	26	12	65	8	7	7
Future Vol, veh/h	1	88	26	42	137	17	26	12	65	8	7	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	4	1	2	13	1	1	1	1	1	14
Mvmt Flow	1	97	29	46	151	19	29	13	71	9	8	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.1	8.9	8.1	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	1%	21%	36%
Vol Thru, %	12%	77%	70%	32%
Vol Right, %	63%	23%	9%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	103	115	196	22
LT Vol	26	1	42	8
Through Vol	12	88	137	7
RT Vol	65	26	17	7
Lane Flow Rate	113	126	215	24
Geometry Grp	1	1	1	1
Degree of Util (X)	0.138	0.152	0.261	0.032
Departure Headway (Hd)	4.378	4.328	4.356	4.696
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	819	829	825	762
Service Time	2.402	2.35	2.376	2.725
HCM Lane V/C Ratio	0.138	0.152	0.261	0.031
HCM Control Delay	8.1	8.1	8.9	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.5	1	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	165	7	13	215	7	1	2	11	7	5	18
Future Volume (Veh/h)	6	165	7	13	215	7	1	2	11	7	5	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	183	8	14	239	8	1	2	12	8	6	20
Pedestrians		83			18			304			216	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		8			2			29			21	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	463			495			882	996	509	719	996	542
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	463			495			882	996	509	719	996	542
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.7	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.2	3.3
p0 queue free %	99			98			99	99	97	95	95	95
cM capacity (veh/h)	813			763			104	135	395	167	125	397

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	198	261	15	34
Volume Left	7	14	1	8
Volume Right	8	8	12	20
cSH	813	763	274	232
Volume to Capacity	0.01	0.02	0.05	0.15
Queue Length 95th (ft)	1	1	4	13
Control Delay (s)	0.4	0.7	18.9	23.1
Lane LOS	A	A	C	C
Approach Delay (s)	0.4	0.7	18.9	23.1
Approach LOS			C	C

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	38.5%	ICU Level of Service	A	
Analysis Period (min)	15			

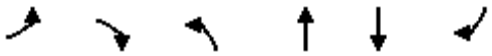
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	165	7	13	215	7	1	2	11	7	5	18
Future Vol, veh/h	6	165	7	13	215	7	1	2	11	7	5	18
Conflicting Peds, #/hr	216	0	304	304	0	216	83	0	18	18	0	83
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	17	2	1	1	3	1	1	1	1	1	20	1
Mvmt Flow	7	183	8	14	239	8	1	2	12	8	6	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	463	0	0	495	0	0	872	996	509	713	996	542
Stage 1	-	-	-	-	-	-	505	505	-	487	487	-
Stage 2	-	-	-	-	-	-	367	491	-	226	509	-
Critical Hdwy	4.27	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.7	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.7	-
Follow-up Hdwy	2.353	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.18	3.309
Pot Cap-1 Maneuver	1024	-	-	1074	-	-	272	245	566	348	228	542
Stage 1	-	-	-	-	-	-	551	542	-	564	522	-
Stage 2	-	-	-	-	-	-	655	550	-	779	510	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	813	-	-	763	-	-	159	134	395	254	124	396
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	134	-	254	124	-
Stage 1	-	-	-	-	-	-	387	381	-	443	406	-
Stage 2	-	-	-	-	-	-	553	427	-	730	359	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.5	18.4	20.5
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	285	813	-	-	763	-	-	265
HCM Lane V/C Ratio	0.055	0.008	-	-	0.019	-	-	0.126
HCM Control Delay (s)	18.4	9.5	0	-	9.8	0	-	20.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.4



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	76	133	155	361	395	90
Future Volume (Veh/h)	76	133	155	361	395	90
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	79	139	161	376	411	94
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1158	460	507			
vC1, stage 1 conf vol	460					
vC2, stage 2 conf vol	698					
vCu, unblocked vol	1158	460	507			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	77	85			
cM capacity (veh/h)	374	600	1056			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	218	161	376	505
Volume Left	79	161	0	0
Volume Right	139	0	0	94
cSH	492	1056	1700	1700
Volume to Capacity	0.44	0.15	0.22	0.30
Queue Length 95th (ft)	56	13	0	0
Control Delay (s)	18.0	9.0	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	18.0	2.7		0.0
Approach LOS	C			

Intersection Summary				
Average Delay	4.3			
Intersection Capacity Utilization	62.5%	ICU Level of Service	B	
Analysis Period (min)	15			

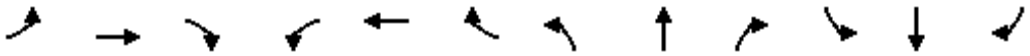
Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	76	133	155	361	395	90
Future Vol, veh/h	76	133	155	361	395	90
Conflicting Peds, #/hr	0	0	2	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
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	4	5	6
Mvmt Flow	79	139	161	376	411	94

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1158	460	507	0	-	0
Stage 1	460	-	-	-	-	-
Stage 2	698	-	-	-	-	-
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	217	601	1058	-	-	-
Stage 1	636	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	183	600	1056	-	-	-
Mov Cap-2 Maneuver	183	-	-	-	-	-
Stage 1	538	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	35.2	2.7	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1056	-	328	-	-
HCM Lane V/C Ratio	0.153	-	0.664	-	-
HCM Control Delay (s)	9	-	35.2	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.5	-	4.5	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	0	1	0	0	4	0	92	0	4	63	7
Future Volume (Veh/h)	4	0	1	0	0	4	0	92	0	4	63	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	4	0	1	0	0	4	0	101	0	4	69	8
Pedestrians		34			35							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		3			3							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	220	251	107	218	255	136	111			136		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	220	251	107	218	255	136	111			136		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	100	100			100		
cM capacity (veh/h)	676	611	922	680	608	887	1443			1412		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	5	4	101	81
Volume Left	4	0	0	4
Volume Right	1	4	0	8
cSH	714	887	1443	1412
Volume to Capacity	0.01	0.00	0.00	0.00
Queue Length 95th (ft)	1	0	0	0
Control Delay (s)	10.1	9.1	0.0	0.4
Lane LOS	B	A		A
Approach Delay (s)	10.1	9.1	0.0	0.4
Approach LOS	B	A		

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	22.2%	ICU Level of Service	A	
Analysis Period (min)	15			

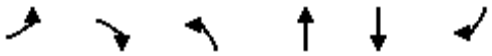
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	0	1	0	0	4	0	92	0	4	63	7
Future Vol, veh/h	4	0	1	0	0	4	0	92	0	4	63	7
Conflicting Peds, #/hr	0	0	0	0	0	0	34	0	35	35	0	34
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	8	0
Mvmt Flow	4	0	1	0	0	4	0	101	0	4	69	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	218	251	107	218	255	136	111	0	0	136	0	0
Stage 1	115	115	-	136	136	-	-	-	-	-	-	-
Stage 2	103	136	-	82	119	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	743	656	953	743	652	918	1492	-	-	1461	-	-
Stage 1	895	804	-	872	788	-	-	-	-	-	-	-
Stage 2	908	788	-	931	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	714	612	922	716	608	887	1444	-	-	1412	-	-
Mov Cap-2 Maneuver	714	612	-	716	608	-	-	-	-	-	-	-
Stage 1	866	776	-	843	762	-	-	-	-	-	-	-
Stage 2	904	762	-	927	773	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	9.1	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1444	-	-	748	887	1412	-	-
HCM Lane V/C Ratio	-	-	-	0.007	0.005	0.003	-	-
HCM Control Delay (s)	0	-	-	9.8	9.1	7.6	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	12	23	0
Future Volume (Veh/h)	0	0	0	12	23	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	13	26	0
Pedestrians	83					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	8					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	122	109	109			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	122	109	109			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	809	875	1376			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	0	13	26
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1376	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	16.0%	ICU Level of Service	A
Analysis Period (min)	15		

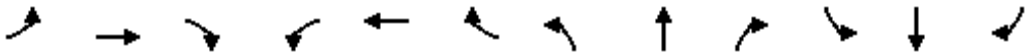
Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	12	23	0
Future Vol, veh/h	0	0	0	12	23	0
Conflicting Peds, #/hr	0	0	83	0	0	83
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	0	0	0	13	26	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	122	109	109	0	-	0
Stage 1	109	-	-	-	-	-
Stage 2	13	-	-	-	-	-
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	878	950	1494	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	745	875	1376	-	-	-
Mov Cap-2 Maneuver	745	-	-	-	-	-
Stage 1	848	-	-	-	-	-
Stage 2	935	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1376	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	3	84	21	58	86	6	12	9	51	3	7	6
Future Volume (vph)	3	84	21	58	86	6	12	9	51	3	7	6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	95	24	66	98	7	14	10	58	3	8	7

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	122	171	82	18
Volume Left (vph)	3	66	14	3
Volume Right (vph)	24	7	58	7
Hadj (s)	-0.08	0.12	-0.22	-0.08
Departure Headway (s)	4.2	4.4	4.4	4.6
Degree Utilization, x	0.14	0.21	0.10	0.02
Capacity (veh/h)	821	790	771	723
Control Delay (s)	7.9	8.5	7.8	7.7
Approach Delay (s)	7.9	8.5	7.8	7.7
Approach LOS	A	A	A	A

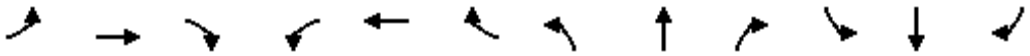
Intersection Summary				
Delay	8.2			
Level of Service	A			
Intersection Capacity Utilization	33.4%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	3	84	21	58	86	6	12	9	51	3	7	6
Future Vol, veh/h	3	84	21	58	86	6	12	9	51	3	7	6
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	2	1	6	2	17	4	22	9	1	14	1
Mvmt Flow	3	95	24	66	98	7	14	10	58	3	8	7
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	7.9	8.6	7.7	7.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	3%	39%	19%
Vol Thru, %	12%	78%	57%	44%
Vol Right, %	71%	19%	4%	38%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	72	108	150	16
LT Vol	12	3	58	3
Through Vol	9	84	86	7
RT Vol	51	21	6	6
Lane Flow Rate	82	123	170	18
Geometry Grp	1	1	1	1
Degree of Util (X)	0.097	0.144	0.205	0.023
Departure Headway (Hd)	4.253	4.221	4.324	4.479
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	846	854	818	802
Service Time	2.261	2.221	2.417	2.49
HCM Lane V/C Ratio	0.097	0.144	0.208	0.022
HCM Control Delay	7.7	7.9	8.6	7.6
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.8	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1	164	5	27	170	11	2	3	17	3	1	13
Future Volume (Veh/h)	1	164	5	27	170	11	2	3	17	3	1	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	1	195	6	32	202	13	2	4	20	4	1	15
Pedestrians		30			25			130			133	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		3			2			12			13	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	348			331			648	742	353	652	738	372
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	348			331			648	742	353	652	738	372
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.4	7.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.8	4.9	3.3
p0 queue free %	100			97			99	98	97	98	99	97
cM capacity (veh/h)	1067			1081			254	256	593	222	186	574

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	202	247	26	20
Volume Left	1	32	2	4
Volume Right	6	13	20	15
cSH	1067	1081	454	404
Volume to Capacity	0.00	0.03	0.06	0.05
Queue Length 95th (ft)	0	2	5	4
Control Delay (s)	0.1	1.3	13.4	14.4
Lane LOS	A	A	B	B
Approach Delay (s)	0.1	1.3	13.4	14.4
Approach LOS			B	B

Intersection Summary				
Average Delay	2.0			
Intersection Capacity Utilization	46.5%	ICU Level of Service	A	
Analysis Period (min)	15			

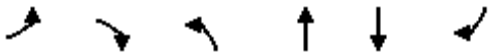
Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	164	5	27	170	11	2	3	17	3	1	13
Future Vol, veh/h	1	164	5	27	170	11	2	3	17	3	1	13
Conflicting Peds, #/hr	133	0	130	130	0	133	30	0	25	25	0	30
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	0	2	1	1	4	1	1	1	1	33	100	1
Mvmt Flow	1	195	6	32	202	13	2	4	20	4	1	15

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	348	0	0	331	0	0	641	742	353	643	739	372
Stage 1	-	-	-	-	-	-	330	330	-	406	406	-
Stage 2	-	-	-	-	-	-	311	412	-	237	333	-
Critical Hdwy	4.1	-	-	4.11	-	-	7.11	6.51	6.21	7.43	7.5	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.43	6.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.43	6.5	-
Follow-up Hdwy	2.2	-	-	2.209	-	-	3.509	4.009	3.309	3.797	4.9	3.309
Pot Cap-1 Maneuver	1222	-	-	1234	-	-	389	345	693	346	250	676
Stage 1	-	-	-	-	-	-	685	648	-	564	459	-
Stage 2	-	-	-	-	-	-	702	596	-	702	501	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1067	-	-	1081	-	-	312	255	593	274	185	574
Mov Cap-2 Maneuver	-	-	-	-	-	-	312	255	-	274	185	-
Stage 1	-	-	-	-	-	-	599	567	-	492	387	-
Stage 2	-	-	-	-	-	-	639	502	-	657	438	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	1.1	13.1	13.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	470	1067	-	-	1081	-	-	436
HCM Lane V/C Ratio	0.056	0.001	-	-	0.03	-	-	0.046
HCM Control Delay (s)	13.1	8.4	0	-	8.4	0	-	13.7
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.1



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	73	142	140	283	377	95
Future Volume (Veh/h)	73	142	140	283	377	95
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	81	158	156	314	419	106
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1098	472	525			
vC1, stage 1 conf vol	472					
vC2, stage 2 conf vol	626					
vCu, unblocked vol	1098	472	525			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	79	73	85			
cM capacity (veh/h)	395	590	1037			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	239	156	314	525
Volume Left	81	156	0	0
Volume Right	158	0	0	106
cSH	505	1037	1700	1700
Volume to Capacity	0.47	0.15	0.18	0.31
Queue Length 95th (ft)	63	13	0	0
Control Delay (s)	18.4	9.1	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	18.4	3.0		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	61.4%	ICU Level of Service	B
Analysis Period (min)	15		

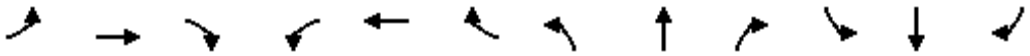
Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	73	142	140	283	377	95
Future Vol, veh/h	73	142	140	283	377	95
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	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	4	3	3	9	5	6
Mvmt Flow	81	158	156	314	419	106

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1098	472	525	0	-	0
Stage 1	472	-	-	-	-	-
Stage 2	626	-	-	-	-	-
Critical Hdwy	6.44	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	233	590	1037	-	-	-
Stage 1	623	-	-	-	-	-
Stage 2	529	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	198	590	1037	-	-	-
Mov Cap-2 Maneuver	198	-	-	-	-	-
Stage 1	530	-	-	-	-	-
Stage 2	529	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34.1	3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1037	-	353	-	-
HCM Lane V/C Ratio	0.15	-	0.677	-	-
HCM Control Delay (s)	9.1	-	34.1	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.5	-	4.7	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	1	0	0	8	0	50	0	5	72	9
Future Volume (Veh/h)	5	0	1	0	0	8	0	50	0	5	72	9
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	6	0	1	0	0	9	0	57	0	6	82	10
Pedestrians		38			27							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		4			3							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	203	221	125	184	226	84	130			84		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203	221	125	184	226	84	130			84		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	99	100			100		
cM capacity (veh/h)	689	637	897	723	633	956	1415			1486		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	7	9	57	98
Volume Left	6	0	0	6
Volume Right	1	9	0	10
cSH	713	956	1415	1486
Volume to Capacity	0.01	0.01	0.00	0.00
Queue Length 95th (ft)	1	1	0	0
Control Delay (s)	10.1	8.8	0.0	0.5
Lane LOS	B	A		A
Approach Delay (s)	10.1	8.8	0.0	0.5
Approach LOS	B	A		

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	23.8%	ICU Level of Service	A	
Analysis Period (min)	15			

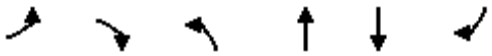
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	1	0	0	8	0	50	0	5	72	9
Future Vol, veh/h	5	0	1	0	0	8	0	50	0	5	72	9
Conflicting Peds, #/hr	0	0	0	0	0	0	38	0	27	27	0	38
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	9	0	0	5	0
Mvmt Flow	6	0	1	0	0	9	0	57	0	6	82	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	199	221	125	184	226	84	130	0	0	84	0	0
Stage 1	137	137	-	84	84	-	-	-	-	-	-	-
Stage 2	62	84	-	100	142	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	764	681	931	781	677	981	1468	-	-	1526	-	-
Stage 1	871	787	-	929	829	-	-	-	-	-	-	-
Stage 2	954	829	-	911	783	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	727	637	897	758	633	956	1415	-	-	1487	-	-
Mov Cap-2 Maneuver	727	637	-	758	633	-	-	-	-	-	-	-
Stage 1	840	756	-	905	807	-	-	-	-	-	-	-
Stage 2	945	807	-	906	752	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	8.8	0	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1415	-	-	751	956	1487	-	-
HCM Lane V/C Ratio	-	-	-	0.009	0.01	0.004	-	-
HCM Control Delay (s)	0	-	-	9.8	8.8	7.4	0	-
HCM Lane LOS	A	-	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	20	17	13
Future Volume (Veh/h)	2	0	0	20	17	13
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	2	0	0	24	20	15
Pedestrians	30					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	3					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	82	58	65			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	82	58	65			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	899	985	1506			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	24	35
Volume Left	2	0	0
Volume Right	0	0	15
cSH	899	1506	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	19.0%	ICU Level of Service	A
Analysis Period (min)	15		

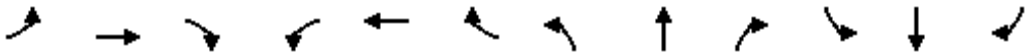
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	0	0	20	17	13
Future Vol, veh/h	2	0	0	20	17	13
Conflicting Peds, #/hr	0	0	30	0	0	25
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	2	0	0	24	20	15

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	82	58	65	0	-	0
Stage 1	58	-	-	-	-	-
Stage 2	24	-	-	-	-	-
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	925	1014	1550	-	-	-
Stage 1	970	-	-	-	-	-
Stage 2	1004	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	872	985	1506	-	-	-
Mov Cap-2 Maneuver	872	-	-	-	-	-
Stage 1	942	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1506	-	872	-	-
HCM Lane V/C Ratio	-	-	0.003	-	-
HCM Control Delay (s)	0	-	9.1	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	1	89	26	42	137	17	28	12	69	8	7	7
Future Volume (vph)	1	89	26	42	137	17	28	12	69	8	7	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	1	98	29	46	151	19	31	13	76	9	8	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	128	216	120	25
Volume Left (vph)	1	46	31	9
Volume Right (vph)	29	19	76	8
Hadj (s)	-0.11	0.04	-0.31	-0.03
Departure Headway (s)	4.4	4.4	4.4	4.8
Degree Utilization, x	0.16	0.27	0.15	0.03
Capacity (veh/h)	786	778	758	681
Control Delay (s)	8.2	9.0	8.2	8.0
Approach Delay (s)	8.2	9.0	8.2	8.0
Approach LOS	A	A	A	A

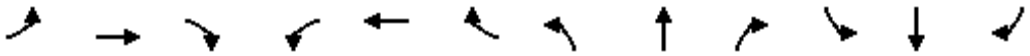
Intersection Summary				
Delay	8.5			
Level of Service	A			
Intersection Capacity Utilization	37.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	1	89	26	42	137	17	28	12	69	8	7	7
Future Vol, veh/h	1	89	26	42	137	17	28	12	69	8	7	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	4	1	2	13	1	1	1	1	1	14
Mvmt Flow	1	98	29	46	151	19	31	13	76	9	8	8
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.2	8.9	8.2	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	1%	21%	36%
Vol Thru, %	11%	77%	70%	32%
Vol Right, %	63%	22%	9%	32%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	109	116	196	22
LT Vol	28	1	42	8
Through Vol	12	89	137	7
RT Vol	69	26	17	7
Lane Flow Rate	120	127	215	24
Geometry Grp	1	1	1	1
Degree of Util (X)	0.146	0.154	0.262	0.032
Departure Headway (Hd)	4.383	4.344	4.372	4.709
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	818	826	823	760
Service Time	2.407	2.369	2.394	2.739
HCM Lane V/C Ratio	0.147	0.154	0.261	0.032
HCM Control Delay	8.2	8.2	8.9	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.5	0.5	1.1	0.1



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	169	9	18	215	7	1	2	13	7	5	18
Future Volume (Veh/h)	6	169	9	18	215	7	1	2	13	7	5	18
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	7	188	10	20	239	8	1	2	14	8	6	20
Pedestrians		86			18			304			216	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		8			2			29			21	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	463			502			903	1014	515	739	1015	545
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	463			502			903	1014	515	739	1015	545
tC, single (s)	4.3			4.1			7.1	6.5	6.2	7.1	6.7	6.2
tC, 2 stage (s)												
tF (s)	2.4			2.2			3.5	4.0	3.3	3.5	4.2	3.3
p0 queue free %	99			97			99	98	96	95	95	95
cM capacity (veh/h)	813			758			100	130	392	160	121	394

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	205	267	17	34
Volume Left	7	20	1	8
Volume Right	10	8	14	20
cSH	813	758	278	226
Volume to Capacity	0.01	0.03	0.06	0.15
Queue Length 95th (ft)	1	2	5	13
Control Delay (s)	0.4	1.0	18.8	23.7
Lane LOS	A	A	C	C
Approach Delay (s)	0.4	1.0	18.8	23.7
Approach LOS			C	C

Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	41.1%	ICU Level of Service	A
Analysis Period (min)	15		

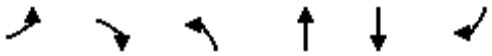
Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	6	169	9	18	215	7	1	2	13	7	5	18
Future Vol, veh/h	6	169	9	18	215	7	1	2	13	7	5	18
Conflicting Peds, #/hr	216	0	304	304	0	216	86	0	18	18	0	83
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	17	2	1	1	3	1	1	1	1	1	20	1
Mvmt Flow	7	188	10	20	239	8	1	2	14	8	6	20

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	463	0	0	502	0	0	893	1014	515	732	1015	545
Stage 1	-	-	-	-	-	-	511	511	-	499	499	-
Stage 2	-	-	-	-	-	-	382	503	-	233	516	-
Critical Hdwy	4.27	-	-	4.11	-	-	7.11	6.51	6.21	7.11	6.7	6.21
Critical Hdwy Stg 1	-	-	-	-	-	-	6.11	5.51	-	6.11	5.7	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.11	5.51	-	6.11	5.7	-
Follow-up Hdwy	2.353	-	-	2.209	-	-	3.509	4.009	3.309	3.509	4.18	3.309
Pot Cap-1 Maneuver	1024	-	-	1068	-	-	263	239	562	338	222	540
Stage 1	-	-	-	-	-	-	547	539	-	555	515	-
Stage 2	-	-	-	-	-	-	643	543	-	772	506	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	813	-	-	759	-	-	152	129	392	243	120	394
Mov Cap-2 Maneuver	-	-	-	-	-	-	152	129	-	243	120	-
Stage 1	-	-	-	-	-	-	385	379	-	436	396	-
Stage 2	-	-	-	-	-	-	535	418	-	719	356	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0.7	18.2	21
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	290	813	-	-	759	-	-	258
HCM Lane V/C Ratio	0.061	0.008	-	-	0.026	-	-	0.129
HCM Control Delay (s)	18.2	9.5	0	-	9.9	0	-	21
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.2	0	-	-	0.1	-	-	0.4



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	78	137	159	361	395	92
Future Volume (Veh/h)	78	137	159	361	395	92
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	81	143	166	376	411	96
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	0					
Right turn flare (veh)						
Median type				TWLTL	None	
Median storage veh)				2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1169	461	509			
vC1, stage 1 conf vol	461					
vC2, stage 2 conf vol	708					
vCu, unblocked vol	1169	461	509			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3	2.2			
p0 queue free %	78	76	84			
cM capacity (veh/h)	368	599	1054			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	224	166	376	507
Volume Left	81	166	0	0
Volume Right	143	0	0	96
cSH	489	1054	1700	1700
Volume to Capacity	0.46	0.16	0.22	0.30
Queue Length 95th (ft)	59	14	0	0
Control Delay (s)	18.5	9.1	0.0	0.0
Lane LOS	C	A		
Approach Delay (s)	18.5	2.8		0.0
Approach LOS	C			

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

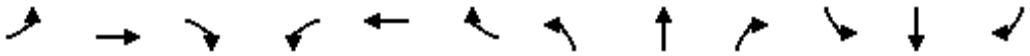
Intersection	
Int Delay, s/veh	7.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	78	137	159	361	395	92
Future Vol, veh/h	78	137	159	361	395	92
Conflicting Peds, #/hr	0	0	2	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
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	4	5	6
Mvmt Flow	81	143	166	376	411	96

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1169	461	509	0	-	0
Stage 1	461	-	-	-	-	-
Stage 2	708	-	-	-	-	-
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	213	600	1056	-	-	-
Stage 1	635	-	-	-	-	-
Stage 2	488	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	179	599	1054	-	-	-
Mov Cap-2 Maneuver	179	-	-	-	-	-
Stage 1	534	-	-	-	-	-
Stage 2	487	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	37.6	2.8	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1054	-	324	-	-
HCM Lane V/C Ratio	0.157	-	0.691	-	-
HCM Control Delay (s)	9.1	-	37.6	-	-
HCM Lane LOS	A	-	E	-	-
HCM 95th %tile Q(veh)	0.6	-	4.8	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	0	1	0	0	10	0	92	0	4	63	7
Future Volume (Veh/h)	7	0	1	0	0	10	0	92	0	4	63	7
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	8	0	1	0	0	11	0	101	0	4	69	8
Pedestrians		34			35							
Lane Width (ft)		12.0			12.0							
Walking Speed (ft/s)		3.5			3.5							
Percent Blockage		3			3							
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	227	251	107	218	255	136	111			136		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	227	251	107	218	255	136	111			136		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	100	100	100	99	100			100		
cM capacity (veh/h)	664	611	922	680	608	887	1443			1412		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	9	11	101	81
Volume Left	8	0	0	4
Volume Right	1	11	0	8
cSH	685	887	1443	1412
Volume to Capacity	0.01	0.01	0.00	0.00
Queue Length 95th (ft)	1	1	0	0
Control Delay (s)	10.3	9.1	0.0	0.4
Lane LOS	B	A		A
Approach Delay (s)	10.3	9.1	0.0	0.4
Approach LOS	B	A		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	24.9%	ICU Level of Service	A	
Analysis Period (min)	15			

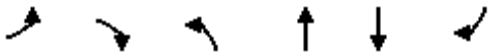
Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	7	0	1	0	0	10	0	92	0	4	63	7
Future Vol, veh/h	7	0	1	0	0	10	0	92	0	4	63	7
Conflicting Peds, #/hr	0	0	0	0	0	0	34	0	35	35	0	34
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	1	0	0	8	0
Mvmt Flow	8	0	1	0	0	11	0	101	0	4	69	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	222	251	107	218	255	136	111	0	0	136	0	0
Stage 1	115	115	-	136	136	-	-	-	-	-	-	-
Stage 2	107	136	-	82	119	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	738	656	953	743	652	918	1492	-	-	1461	-	-
Stage 1	895	804	-	872	788	-	-	-	-	-	-	-
Stage 2	903	788	-	931	801	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	703	612	922	716	608	887	1444	-	-	1412	-	-
Mov Cap-2 Maneuver	703	612	-	716	608	-	-	-	-	-	-	-
Stage 1	866	776	-	843	762	-	-	-	-	-	-	-
Stage 2	892	762	-	927	773	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	9.1	0	0.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1444	-	-	725	887	1412	-	-
HCM Lane V/C Ratio	-	-	-	0.012	0.012	0.003	-	-
HCM Control Delay (s)	0	-	-	10	9.1	7.6	0	-
HCM Lane LOS	A	-	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-	-



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	2	0	0	12	23	7
Future Volume (Veh/h)	2	0	0	12	23	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	0	0	13	26	8
Pedestrians	83					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	3.5					
Percent Blockage	8					
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	126	113	117			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	126	113	117			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	804	871	1367			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	2	13	34
Volume Left	2	0	0
Volume Right	0	0	8
cSH	804	1367	1700
Volume to Capacity	0.00	0.00	0.02
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.5	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.5	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	0	0	12	23	7
Future Vol, veh/h	2	0	0	12	23	7
Conflicting Peds, #/hr	0	0	83	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	1	2	0
Mvmt Flow	2	0	0	13	26	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	126	113	117	0	-	0
Stage 1	113	-	-	-	-	-
Stage 2	13	-	-	-	-	-
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	874	945	1484	-	-	-
Stage 1	917	-	-	-	-	-
Stage 2	1015	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	741	870	1367	-	-	-
Mov Cap-2 Maneuver	741	-	-	-	-	-
Stage 1	845	-	-	-	-	-
Stage 2	935	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1367	-	741	-	-
HCM Lane V/C Ratio	-	-	0.003	-	-
HCM Control Delay (s)	0	-	9.9	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

APPENDIX H

QUEUING ANALYSIS

Intersection: 1: Carmel Avenue & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	81	112	85	30
Average Queue (ft)	41	50	39	11
95th Queue (ft)	66	85	69	32
Link Distance (ft)	272	136	373	125
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: 3rd Street & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	41	82	42	43
Average Queue (ft)	4	10	15	13
95th Queue (ft)	21	46	43	40
Link Distance (ft)	188	236	378	411
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Highway 101 & Laneda Avenue

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	208	95	10
Average Queue (ft)	76	36	1
95th Queue (ft)	153	69	7
Link Distance (ft)	308		319
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Carmel Avenue & Hallie Lane

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	34	34	6
Average Queue (ft)	7	2	0
95th Queue (ft)	30	16	5
Link Distance (ft)	98	302	373
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 3rd Street & 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)

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Carmel Avenue & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	86	138	103	52
Average Queue (ft)	42	59	46	15
95th Queue (ft)	71	103	80	40
Link Distance (ft)	272	136	373	125
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: 3rd Street & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	96	66	32	70
Average Queue (ft)	14	14	12	21
95th Queue (ft)	57	45	37	54
Link Distance (ft)	188	236	378	411
Upstream Blk Time (%)	0			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Highway 101 & Laneda Avenue

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	153	90	10
Average Queue (ft)	60	36	1
95th Queue (ft)	112	73	6
Link Distance (ft)	308		319
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Carmel Avenue & Hallie Lane

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	34	34	20
Average Queue (ft)	6	4	1
95th Queue (ft)	28	22	12
Link Distance (ft)	98	302	373
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 3rd Street & 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)

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Carmel Avenue & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	79	104	82	46
Average Queue (ft)	41	52	38	12
95th Queue (ft)	66	84	71	35
Link Distance (ft)	272	136	373	125
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: 3rd Street & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	53	86	36	48
Average Queue (ft)	5	12	14	14
95th Queue (ft)	29	51	40	42
Link Distance (ft)	188	236	378	411
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Highway 101 & Laneda Avenue

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	228	84	16
Average Queue (ft)	94	37	1
95th Queue (ft)	181	73	10
Link Distance (ft)	308		319
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Carmel Avenue & Hallie Lane

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	35	34	19
Average Queue (ft)	7	4	1
95th Queue (ft)	29	23	10
Link Distance (ft)	98	302	373
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 3rd Street & 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)

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Carmel Avenue & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	84	137	85	42
Average Queue (ft)	45	59	44	14
95th Queue (ft)	74	105	74	36
Link Distance (ft)	272	136	373	125
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: 3rd Street & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	63	73	32	62
Average Queue (ft)	11	15	11	21
95th Queue (ft)	44	54	36	49
Link Distance (ft)	188	236	378	411
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Highway 101 & Laneda Avenue

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	225	108	15
Average Queue (ft)	90	45	1
95th Queue (ft)	179	88	7
Link Distance (ft)	308		319
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		150	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 4: Carmel Avenue & Hallie Lane

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	34	34	13
Average Queue (ft)	6	4	0
95th Queue (ft)	26	21	7
Link Distance (ft)	98	302	373
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 3rd Street & 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)

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Carmel Avenue & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	77	105	78	36
Average Queue (ft)	42	49	41	13
95th Queue (ft)	68	81	68	35
Link Distance (ft)	272	136	373	125
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: 3rd Street & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	41	76	52	52
Average Queue (ft)	4	16	19	15
95th Queue (ft)	24	56	46	43
Link Distance (ft)	188	236	378	411
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Highway 101 & Laneda Avenue

Movement	EB	NB	SB
Directions Served	LR	L	TR
Maximum Queue (ft)	247	97	17
Average Queue (ft)	86	38	1
95th Queue (ft)	176	72	7
Link Distance (ft)	308		319
Upstream Blk Time (%)	0		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		150	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: Carmel Avenue & Hallie Lane

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	34	34	20
Average Queue (ft)	7	9	1
95th Queue (ft)	28	33	8
Link Distance (ft)	98	302	373
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 3rd Street & Site Driveway

Movement	EB
Directions Served	LR
Maximum Queue (ft)	21
Average Queue (ft)	2
95th Queue (ft)	15
Link Distance (ft)	194
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Carmel Avenue & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	92	144	94	53
Average Queue (ft)	47	65	45	15
95th Queue (ft)	81	114	74	39
Link Distance (ft)	272	136	373	125
Upstream Blk Time (%)		0		0
Queuing Penalty (veh)		0		0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: 3rd Street & Laneda Avenue

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	81	102	42	73
Average Queue (ft)	14	15	13	22
95th Queue (ft)	51	56	39	57
Link Distance (ft)	188	236	378	411
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Highway 101 & Laneda Avenue

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	243	103
Average Queue (ft)	89	44
95th Queue (ft)	177	80
Link Distance (ft)	308	
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: Carmel Avenue & Hallie Lane

Movement	EB	WB	SB
Directions Served	LTR	LTR	LTR
Maximum Queue (ft)	35	34	12
Average Queue (ft)	9	8	0
95th Queue (ft)	33	32	8
Link Distance (ft)	98	302	373
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: 3rd Street & Site Driveway

Movement	EB
Directions Served	LR
Maximum Queue (ft)	26
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	194
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 0

Supplemental Findings Report Regarding Proposed Off-Street Parking Requirement Ratio

Purpose of Supplemental Findings:

The Applicant is revising its Planned Unit Development ("PUD") for the Heron's Rest residential development under the City's PUD Ordinance by providing an off-street parking ratio of less than two spaces for each dwelling unit. These Supplemental Findings address the requirements of the PUD Ordinance in support of providing a deviation from applying the strict off-street parking requirements of two spaces for each dwelling unit. The Applicant is also submitting a revised site plan that depicts the requested off-street parking ratio as part of the City's review of the Heron's Rest PUD. The off-street parking requested is 37 total spaces for 26 units, or a ratio of 1.423 parking spaces per unit.

Applicable Criteria:

Section 4.136 (1) (Purpose) of the Planned Unit Development (PUD) ordinance states:

> *Purpose. The purpose of "planned development" is to permit the application of greater freedom of design in land development than may be possible under a strict interpretation of the provisions of this Ordinance. The use of these provisions is dependent upon the submission of an acceptable plan and satisfactory assurance it will be carried out. Such plan should accomplish substantially the same general objectives as proposed by the Comprehensive Plan for the area.*

Additionally, Section 4.136 (3)(c)(1) (Planned Development Procedure) states:

> *There are special physical conditions of objectives of development which the proposal will satisfy to warrant a departure from the standard ordinance requirements.*

Supplemental Findings:

The following findings support that this unique parcel warrants deviation from a strict application of Off-Street Parking Requirements 4.090 (3)(a), which states a requirement of "*Two spaces per dwelling unit*" are required for a "*Dwelling Use*".

3. Requirements for specific uses [Amended by Ord. 11-04, passed November 9, 2011]

	USE	REQUIREMENTS
(a)	Dwelling	Two spaces for each dwelling unit.

The purpose and general objectives of Section 4.090 is an attempt to satisfy adequate parking needs for an average dwelling home. A cottage cluster home is not a typical dwelling unit, and therefore these unique units warrant a greater evaluation into what off-street parking requirements would be appropriate for this special development.

The Applicant has submitted a traffic impact analysis and parking study, which was completed by Brent Ahred of Mackenzie. The study evaluates parking needs for the 26 units. Please refer to Section V of the study, but some salient items to highlight:

1. Shared parking – The site plan shows small cottage/cabin units with a common shared parking area located in the center of the development. All units are within 150 ft. of the common parking area. This shared parking area consists of 15 parking spaces, which corresponds to 15 units in close proximity to these 15 parking spaces. The units are intended to be owner occupied as either primary or second home residences. It is unlikely that all units will be occupied at the same time, therefore unoccupied units will utilize zero spaces while other occupied homes can utilize one or two spaces. None of these units have dedicated parking spaces, and therefore, all parking for these homes will be satisfied by the common parking area.

2. Size of units – As all homes are one and two bedroom and approximately 650 sq. ft., they will naturally have fewer residents inside the homes.

3. R3 High-Density Residential Zoning – This is the only remaining large parcel for development within the R3 residential zone. Residents living in this area choose this area because of the walkability to the beach and to the downtown area of Manzanita, along Laneda Avenue. Due to the walkability of this area, less vehicular transportation is required, and therefore, less vehicles will be parked on site.

4. Empirical data – Traffic and parked car counts were performed at multiple similar locations, during peak traffic and parking times of the year (July 4th weekend and Memorial Day weekend). In other similar clustered developments, an average ratio of parked cars to dwelling units was found to be 1.09 or less at all times. In fact, the ratio was likely even lower than this ratio since it was conservatively assumed that a car was parked in every garage space that was closed and not immediately visable.

5. Garage units to supply two dedicated parking spaces – 11 homes will have garages. As those garage spaces are not shared, they will also have a second dedicated parking space directly in front of the garage.

6. The ITE Parking Generation Manual includes data for attached single family housing, which is similar to a cottage cluster development. Clustered housing results in reduced parking demands, and suggests, a rate of 0.74 spaces per bedroom. The proposed development is a mix of one- and two-bedroom units, indicating an appropriate parking ratio between 0.74 and 1.48 spaces, depending on unit mix.

In addition to these points within the Mackenzie parking study, there are further justifications for freedom of design.

There is greater public benefit with less parking. Each impervious concrete or asphalt parking space will be replaced by 162 additional square feet of green space. Larger shared common areas and additional trees and manicured landscaping will replace these unneeded parking spaces.

This lot is highly unique within Manzanita, and especially within the R3 High-Density residential zone. The parcel's special physical condition of

size warrants a deviation Off-Street Parking 4.090. During the original platting of the first addition of Manzanita in 1948, the landowner of this parcel did not participate with the platting of the first addition. Lots were typically platted as 50x100 5,000 sq. ft. lots, with a standard rectangular grid pattern. This lot has remained a unique, undeveloped parcel and the vast majority of lots surrounding this parcel have been built up over the past 75 years. The majority of construction recently within the R3 zone has consisted of very large single-family custom homes–often used for vacation rentals. The developer wishes to use the unique nature of this parcel to the greater advantage of the community in constructing cottage-cluster homes. Neighbors have voiced their support for smaller cluster homes, which would be more in nature of the older homes originally built within this first addition of Manzanita.

The parking ratio within the zoning ordinance does not differentiate between a one-bedroom cottage cluster home and a six-bedroom custom beach house. It provides a blanket statement regarding "dwelling units" without any greater detail. The "strict interpretation" of this ordinance would be unwise in determining an appropriate number of off-street parking requirements for this unique cottage cluster development, which is located within an R3 High-Density residential zone.

Conclusion:

Based on the foregoing, the Applicant respectfully requests the City to approve its proposed PUD and allow a parking ratio of 1.423 spaces per unit as shown on the revised Site Plan.

Applicable policies from the City of Manzanita Comprehensive Plan

Manzanita's primary asset is its residential character. The preservation of the quality of the City's neighborhoods is therefore an important element of the development plan.

This pocket neighborhood is designed with smaller homes, more in line with the surrounding neighborhood within this area in Manzanita. Much of the recent new construction in Manzanita are large scale vacation homes, and this smaller home development is more in character with the historical homes of the city. The shared common spaces promote neighborhood community interaction, which helps preserve the communal residential aspect of the city. The quality of construction will be high quality, as the builder, Scott Imholt, has a long history of custom home building construction within Manzanita.

GOAL:
To maintain and create residential living areas which are safe and convenient, which make a positive contribution to the quality of life, and which are harmonious with the coastal environment.

OBJECTIVES:

1. *Maintain livability by preserving within residential areas natural places and other environmental amenities.*

   Unfortunately, this site was hit by a tornado many years ago. The previous owner of the land removed the trees from the parcel and the site was left as an eyesore. This development promotes a large area of open space. Lot coverage within the R3 zone is permitted up to 55%. This development preserves open spaces with grassy and natural areas. Building lot coverage is approximately 22%.

2. *Establish residential densities suited to topography and soil conditions, public facilities, accessibility and prior land platting.*

   This lot resides in both R2 and R3 zoning, with the majority in R3. Applicant's legal counsel and Manzanita's legal counsel have opined on the maximum density calculation per the comprehensive plan. 27 would be allowed. Density proposed is slightly less than allowable density as outlined; 26 units are proposed.

3. *Protect the character and quality of existing residential areas and neighborhoods from incompatible new development.*

This site is zoned residential R3 and R2. Allowable uses for this zone are single family dwellings. This is compatible with current zoning.

4. *Encourage street patterns which are curving and responsive to natural terrain rather than the traditional rectilinear grid pattern.*

   No street is proposed. A gently curving driveway provides private access to a majority of the homes.

5. *Make effective use of vacant city residential lots, particularly odd-shaped parcels and those isolated within blocks.*

   The current site is vacant and isolated in between fully developed lots on all sides.

6. *Encourage new residential development in established areas already zoned, serviced and developed for residential use.*

   This new residential development is already zoned and fully serviced by utilities.

7. *Foster housing and living environments to meet the needs of families of different size, income, age, taste and life style.*

   The scale of the homes is smaller than most other current development in the city. This allows for diversity of housing types offered within the city. As the homes are smaller and therefore will be offered at a lower than median price, it is anticipated that a larger percentage of full-time residence will purchase these homes than is typical for Manzanita. Additionally, as the homes are small, a larger percentage of retirees are anticipated to purchase these homes. Although not implemented yet, Oregon House Bill 406 was enacted into law in 2023. HB 406 specifically addresses middle income housing needs in Tillamook County and notes “Cottage Cluster” as one of the types of housing in which cities will need to formulate strategies on and adopt in 2025. Middle housing projects are greatly needed within Manzanita. This project supports the goals of HB 406 in addition to the policies of the current Manzanita Comprehensive Plan.

8. *Enhance the quality of residential areas with attractive public improvements. To eliminate conditions which contribute to blight, neglect and unsightliness, such as*

shacks, abandoned vehicles and machinery, dilapidated signs, fences, open storage and junk.

The site is currently vacant. The new development will be high quality construction and will include attractive public improvements including, landscaping, sidewalks, two public greens, and a picnic shelter. An HOA will be established to ensure the development is well-kept.

POLICIES:

1. *Protect living qualities by requiring landscaped screening or buffering between dwellings and commercial uses.*

   This site does not abut any commercial uses, therefore fencing is not required per the plan. That said, natural or wood fencing will be placed around the property perimeter in order to provide a natural delineation of property lines, with a design that continues to allow wildlife passage through the property. This was incorporated based upon feedback from the neighbors surrounding the development and their desire for this addition.

2. *Require that subdivisions include adequate public street access for each house and lot, paved streets, adequate water and sewer systems, storm drainage,*

   Access to S 3rd street and Hallie Lane is made available by short, walkable pathways from each home. A new drive through the site will be paved with textured paving, as a traffic calming measure and to accentuate the private nature of the drive. Water and sewer laterals for each home will be connected to city mains in adjacent rights-of-way. Stormwater will be detained in engineered underground chambers and overflow will be routed to city infrastructure.

3. *underground telephone, TV Cable and electrical lines. Street plantings and trees are desirable. Improvements should be of good quality.*

   New powerlines, telephone, TV Cable/WiFi will be buried underground. Street trees will be planted along third street, within the boundaries of the property (not in the right of way).

4. *Permit a variety of dwellings and flexibility in densities and site design for large planned developments. Density standard established in the vicinity will generally serve as the basis for the overall density of such planned developments. Special review and approval by the Planning Commission will be required. Projects will be expected to provide usable*

open space, community facilities and other special amenities. The clustering of dwelling units in order to leave a greater amount of land for open space is encouraged.

The comprehensive plan allows for flexibility in density, and is explicit regarding encouraging clustering. This proposal is in line with the allowable density, per the calculations included within Manzanita's comprehensive plan (full calculation provided later in this narrative). The units will be available in at least three different sizes (one bedroom, two bedroom, and a garage unit) and have been clustered in order to provide for a larger amount of open area. In addition, the units are much smaller than is typical, and therefore will naturally result in less people occupying the homes. These smaller homes bring more variety overall to the much larger homes being built in the city.

5. *Require minimum lot sizes for single-family homes which adequately accommodate contemporary dwellings; separate structures for adequate light, air, fire-fighting access and prevention of the spread of fire; provide space for two family automobiles per single-family dwelling. Pre-existing lots of sub-standard size may be developed under special conditions.*

   The lot sizes are smaller than those prescribed by R3 and R2 zoning. As a planned unit development, more flexibility is allowed under the provisions of Manzanita Zoning Ordinance (hereafter referred to as MZO), section 4.136. Smaller lot sizes are desirable due to the smaller nature of the homes themselves. The planned unit development allows us to control the orientation of each unit and the space and landscaping between them to maximize light, air, and views for each unit. Fire access is provided via 20' wide private driveway, to ensure a 20' minimum fire lane is provided. All portions of the buildings are within 150' of fire department access.

6. *Require, in areas without urban services, minimum lot sizes which will assure that no danger to the public health will result from water supply or sewage disposal into the ground.*

   No wells or septic tanks will be used. Water is supplied by the City of Manzanita, and sewerage service by Nehalem Bay Wastewater Agency.

LAND USE CATEGORIES

For purposes of determining allowable density, the term "net acre" shall mean the gross area of an acre parcel less the amount of land needed for public right-of-way or 86% of the gross area of an acre parcel, whichever is greater. (Amended by Ord.14-02; passed on April 9, 2014)

See supplemental email exchange between City of Manzanita legal counsel and applicant's counsel. In short, a net-acre is defined as "gross area of an acre parcel, less the amount of land needed for public-right-away or 86% of the gross area".

Define one gross acre: 43,560 square feet

Calculate one net acre: 86% of the gross acre: 43,560 * 86% = 37,461 square feet

From R3 Zoning – "15 units per net acre": 37,461 ÷ 15 => ~1 unit per ~2500 sqft.

This density is further confirmed, as it is in line with general zoning standards for R2 and R3 zones, which permit 2 units per 5,000 sqft lot (duplex), or 3 units within 7,500 sqft lot (triplex).

The subject site contains 79,700 sqft. After carving away space for right-of-way, 86% of this would result in 68,542 sqft. At a rate of 15 units per net acre, total allowable density per R3 Zoning, would allow 27.44 units. Rounded down to 27 units. The proposed development contains 26 units.

URBAN MEDIUM DENSITY RESIDENTIAL (R-2 Zone)
This area is the primary residential zone of Manzanita. Single family dwellings and duplexes are both allowed on 5,000 square feet. Public water and sewer facilities are available throughout this area and are required. Other factors which may affect development are the presence of active dunes, foredunes (south of Laneda Avenue), or steep slopes, in which case the policies of the development hazards section of the Comprehensive Plan predominate.

URBAN HIGH DENSITY RESIDENTIAL (R-3 Zone)
High density development, including multifamily dwellings or apartment houses, are permitted outright in this area up to a density limit of fifteen dwellings per net acre. Low cost, affordable housing requiring lower land costs is encouraged to locate in this area.

This lot resides within both R2 and R3 zone, with a majority in R3. Per the planned development ordinance (4.136 2b), the standards for this developed should be **guided** by the zone in which the majority of the of the parcel lies. Therefore, Urban High Density Residential R3 zoning, was evaluated for this project. That said, it should be noted that R2 and R3 zones are substantially the same within the MZO. The main difference is that R3 allows greater lot coverage than R2 and R3 also allows for triplex units. These differences are not relevant to this project as all

homes proposed are single family homes and the total lot coverage is well below requirements for R2 and R3 zone. Overall, the density of 1 unit per 2500 sqft is the same in either zones.

HOUSING

GOAL:

The City of Manzanita supports the Statewide Housing goal by its intention to provide opportunities for development of a wide variety of housing types and price ranges within the Urban Growth Area and the City of Manzanita. (Amended by Ord. 08-02, passed May 7, 2008)

POLICIES:

1. *Zone adequate land to meet identified future housing needs for a broad range of housing types, including single-family attached and detached homes, manufactured homes, duplexes and multi-family dwellings. (Amended by Ord. 08-02, passed May 7, 2008)*

   This proposal is for a "cottage cluster" or "pocket housing" development of single-family homes. Although the homes are single family, with separate tax lots, they will be a part of an HOA, and share a significant amount of common open space as well as a community picnic shelter.

2. *The City supports the efforts of the Northwest Oregon Housing Authority and other public, private and non-profit entities to provide needed low and moderate income housing, including for seniors. (Amended by Ord. 08-02, passed May 7, 2008)*

   Oregon Senate Bill 406, passed in 2023, notes that cottage cluster development is a "middle housing" type that is to be specifically encouraged within Tillamook County. Due to the smaller nature of the homes, it is expected that a greater number of full-time residents will purchase these homes due to their size and price point. A letter of support from the Tillamook County Housing Coordinator office is included with this application as well.

3. *The City, through its enforcement of the Oregon Residential Specialty Code, shall maintain a high standard of housing construction. (Amended by Ord. 08-02, passed May 7, 2008)*

Scott Imholt, builder on this project, has a long history of high-quality construction within Manzanita and Tillamook county. He understands unique challenges of building on the Oregon Coast and its salt-air and wet climate.

4. *Dangerous buildings and other structures deemed to be hazardous shall be controlled by the City. Unsafe or unhealthy housing conditions shall be eliminated.*

   All of the structures in the development are of new construction, and will comply with all applicable building codes and ordinances.

5. *The City shall encourage innovative design techniques such as cluster development in order to promote the preservation of open space, to lower the costs of public facilities, and to maintain vegetative cover.*

   The Manzanita Comprehensive plan specifically **encourages** innovative design and even calls out clustered developments as an example of this. Very few clustered development projects have occurred in Manzanita. Classic Street cottages is another very successful project that provides more affordably priced housing within the city. Cluster developments have the advantage over traditional single family builds in that they provide greater amounts of open space, put less of a burden on public infrastructure, and result in larger landscaped areas. This project provides the Manzanita community an opportunity for a unique cottage cluster development, rather than a typical subdivision with large-scale homes, which has been the current highest-and-best use for the majority of development the past several years.

6. *The City, in conformance with State law, will permit manufactured homes wherever conventional or site built single family dwellings are permitted. Standards for manufactured homes and manufactured dwellings shall be included in the zoning ordinance. Consideration should be given to allowing older manufactured dwellings, as well as single wide units, in manufactured dwelling parks.*

   No manufactured dwellings are proposed for this development.

7. *Rehabilitation of existing dwellings, by public or private means, is encouraged as a method of conserving the housing stock.*

   The existing lot is vacant, and contains no existing dwellings.

8. *The City should allow for and encourage and support the development of housing units in conjunction with commercial development (e.g., housing located above commercial uses) to provide diversity and security in commercial areas and a range of housing options. (Added by Ord. 08-02, passed May 7, 2008)*

   Lot is surrounded on all sides by other residential use zones.

9. *The City should regularly maintain and update the City's inventory of buildable land and use it to both identify housing development opportunities and assess the ability to meet future housing needs. If growth is occurring at a faster rate than previously predicted, work with the County to update the county's coordinated population forecast and the City's housing needs analysis. (Added by Ord. 08-02, passed May 7, 2008)*

   This unique parcel within the city is the only remaining large lot with the Urban High Density R3 Zone. Infrastructure, such as city street and utilities, were planned accordingly during the establishment and planning of these zones, to be able to handle the impacts of the density and traffic in this high density zone.

ENERGY CONSERVATION

1. *The City should encourage the use of alternative energy forms, such as solar, wind and tidal power generation. The installation of alternative energy devices should be given consideration in variance requests.*

   The developer will initially build a "model home" as an example for what future residents will be purchasing. As part of this model home, many green solutions will be incorporated into the home. Some solar panel roofing, electric vehicle charging station(s), energy efficient appliances, all LED lighting, recycled building materials, battery power backup units, and so forth will be included. The project architect (Viridian Architecture LLC) specializes in sustainable design and will evaluate these systems for their appropriateness and implement as many as are practical.

SEWER & UNDERGROUND UTILITY POLICIES

1. *The City shall require that all development proposals be approved by the Nehalem Bay Wastewater Agency (NBWA) prior to review by the City.*

During the pre-application meeting in January, NBWA reviewed the siteplan and determined that wastewater lines are accessible to existing sewerage lines either in Hallie Ln or S 3rd st. NBWA's letter is included with this application. The lot is surrounded by existing residential homes, all serviced by sewer as well. Final engineering will be completed post planning commission approval and reviewed prior to the issuance of building permits.

Applicable policies from the City of Manzanita Zoning Ordinance #95-4

Section 3.010 Medium Density Residential Zone, R-2*. In an R-2 zone, the following regulations shall apply:*

(1) Uses Permitted Outright. In an R-2 zone, the following uses and their accessory uses are permitted outright:

(a) One-family and two-family dwellings.

Section 3.020 High Density Residential Zone, R-3*. In an R-3 zone, the following regulations shall apply:*

(1) Uses Permitted Outright. In an R-3 zone, the following uses and their accessory uses are permitted outright:

(a) One-family dwelling.

The uses within both R2 and R3 zones are substantially similar. Single family homes are noted as outright uses within these zones. The planned development ordinance allows greater flexibility when it comes to the more specific standards as outlined below, to allow a tradeoff to provide the community with more greenspace, landscaping, and other desirable traits. The proposed design does not meet the strict standards as outlined below, but generally does conform in nature for the intention behind these standards.

(2) Standards. In an R-3 zone the following standards shall apply:

(a) The minimum lot size shall be 5,000 square feet for single family or duplexes, plus 2,500 square feet for each additional dwelling unit.

Planned unit developments are provided more flexibility regarding minimum lot size. See MZO 4.136 and further details below. Lot sizes to vary between 1,500 – 2,500 sqft per lot.

(b) The minimum lot width shall be 40 feet, except on a corner lot it shall be 60 feet.

The entire lot for the development is 280 x 285. The individual lot width for these smaller homes will be less than 40 feet. Planned developments are provided more flexibility on this. See MZO 4.136 and further details below.

(c) The minimum lot depth shall be 90 feet. [Amended by Ord. 95-4, passed March 6, 1996.]

The entire lot for the development is 280 x 285. The individual lot depth for these smaller homes will be less than 90 feet. Planned developments are provided more flexibility on this. See MZO 4.136 and further details below.

(d) The minimum front yard shall be 20 feet, or the average setback of buildings within 100 feet of both sides of the proposed building on the same side of the street, whichever is less. For purposes of determining the average setback of buildings, vacant lots within 100 feet of both sides of the proposed building on the same side of the street shall be included and shall be assumed to have a building placed 20 feet from the front lot line to the nearest part of the building. In no case shall the front yard setbacks be less than 12 feet. [Amended by Ord. 01-03, passed 8/27/01]

(e) The minimum side yard setback shall be 5 feet for the portion of the building at the setback line up to 10 feet in height as measured vertically from average finished grade to the highest point of that portion of the building and shall be 8 feet for any portion of the building where this height is exceeded; except that a roof with a pitch of less than or equal to 8 in 12 may extend upward from the 5 foot setback line to the 8 foot setback line. The street side yard setback of a corner lot shall be 12 feet. [Amended by Ord. 95-4, passed March 6, 1996; Amended by Ord. 01-03, passed 10/27/01; Amended by Ord. 16-04, passed November 9, 2016] [SEE DIAGRAM ON PAGE 14]

(f) The maximum building or structure height shall be 28 feet, 6 inches. However, if more than one-half of the roof area has a roof pitch of less than 3 in 12 , the building or structure height shall not exceed 24 feet. The height of a stepped or terraced building shall be the maximum height of any segment of the building or structure. [Amended by Ord. 95-4, passed March 6, 1996; Amended by Ord. 01-03, passed 8/27/01]

All units will be less than 28 ft 6 inches in height. See supplemental material for house elevations and renderings.

(g) The minimum rear yard setback shall be 10 feet. [Added by Ord. 95-4, passed March 6, 1996; Amended by Ord. 01-03, passed 8/27/01]

Front, rear, and side yard setbacks in relation to the existing neighboring homes will all meet or exceed MZO standards. Setbacks for the front, rear and side yards between all the newly proposed units themselves will be 5' or greater. The lots will be arranged in a freer form, rather than rectangular grid pattern as it typical with clustered home developments per the provisions of MZO 4.136.

Front yard setbacks along S 3rd street will conform to the 20' minimum. Side yard setback for the greater lot will conform to the 5' minimum. Rear yard setbacks between the back (western edge) of the lot, and homes on Hallie Lane will conform to a minimum 10 ft.

(h) The maximum lot coverage in the R-3 zone shall not exceed 55%. Less lot coverage may be required in steeply sloping areas or areas with drainage problems. In all cases, the property owner must provide the City with a storm drainage plan which conducts storm runoff into adequately sized storm drains or approved natural drainage as approved by the Public Works Director. [Added by Ord. 01-03, passed 8/27/01]

Building lot coverage will be approximately 22%. Total lot coverage, including driveway, parking spaces, and all impervious surface will be approximately 50%. Initial stormwater calculations are included with this application, and final engineered stormwater drainage plans will be provide to the city for approval prior to start of construction.

(i) In areas of the City without a high water table, a dry well capable of absorbing the storm runoff of the impervious surfaces of the property shall be provided in accordance with City standards. [Added by Ord. 01-03, passed 8/27/01]

Stormwater facilities provided will comply with City standards. Stormwater on the impervious surfaces will be handled by catch basins and gutters. These will be connected to infiltrators and will be sized for a 50-year storm, or 1 cubic foot per 44 square feet of impervious surface. A preliminary design schematic has been provided. Applicant's

civil engineer will provide final engineering of the site in accordance with applicable engineering standards and final review by city staff.

Section 4.080 Off-Street Parking and Off-Street Loading Requirements*.*

At the time a new structure is erected or the use of an existing structure is changed or enlarged, off-street parking spaces, loading areas and access thereto shall be provided as set forth in this section unless greater requirements are otherwise established. If such facilities have been provided in connection with an existing use, they shall not be reduced below the requirements of this Ordinance.

1. *Requirements for types of buildings and uses not specifically listed herein shall be determined by the Planning Commission, based upon the requirements of comparable uses listed.*

   The use of parking is for residential dwelling units

2. *In the event several uses occupy a single structure or parcel of land, the total requirements shall be the sum of the requirements of the several uses computed separately.*

   The only use is residential dwelling units

3. *Owners of 2 or more uses, structures, or parcels of land may agree to utilize the same parking and loading spaces when the hours of operation do not overlap, provided that satisfactory legal evidence is presented to the Planning Commission in the form of deeds, leases, or contracts to establish the joint use.*

   There is only one use on this property, so this provision does not apply.

4. *Off-street parking spaces for dwellings shall be located on the same lot with the dwelling. Other parking spaces required by this Section may be located on another parcel of land, provided that the furthest parking space is no more than 500 feet from an entrance of a use it serves, measured by following a sidewalk or other pedestrian route. The right to use the offsite parking must be evidenced by a recorded deed, lease, easement or similar written instrument. Any use of offsite parking spaces may not decrease the parking spaces of any other use below the requirements of Sections 4.080 or 4.090. [Amended by Ord. 11-04, passed November 9, 2011]*

All parking spaces are provided on the 280 x 285 development lot. Distance from parking space to the homes are all under 150 feet.

5. *Required parking spaces shall be available for the parking of operable passenger automobiles of residents, customers, patrons, and employees only, and shall not be used for storage of vehicles or materials or for the parking of trucks used in conducting business or use.*

   The HOA CC&R's will specify that all parking spaces will be used for automobiles and not storage.

6. *Areas used for standing and maneuvering of vehicles shall have durable and dustless surfaces maintained adequately for all-weather use and drained so as to avoid flow of water across public sidewalks or adjacent property.*

   All driveways will be sloped adequately for drainage

7. *Except for parking to serve dwelling uses, parking and loading areas adjacent to or within residential zones or adjacent to residential uses shall be designed to minimize disturbances of residents by the erection between the uses of a sight-obstructing fence of not less than 5 or more than 6 feet in height except where vision clearance is required.*

   All parking is for dwelling units.

8. *Parking spaces along the outer boundaries of a lot shall be contained by a curb or bumper rail at least 4 inches high and set back a minimum of 4 1/2 feet from the property line.*

   There is one parking lot in the center of the property, along the private drive. That lot will be bounded by a 6" curb.

9. *Artificial lighting which may be provided shall not create or reflect glare in a residential zone or on any adjacent dwelling.*

   All lighting to be "dark sky" compliant.

10. *Groups of more than 4 parking spaces shall be served by a driveway so that no backing movements or other maneuvering within a street, other than an alley, will be required.*

The group of 15 shared parking spaces is provided interior to the site and is serviced by a private drive. No backing movements or maneuvering with a public street is required.

Section 4.090 Off-Street Parking Requirements*.*

1. *In determining the number of parking spaces required by this section, all fractions shall be rounded to the nearest whole number. [Added by Ord. 11-04, passed November 9, 2011]*

   **Amended – Refer to Supplemental Findings Report

2. *Requirements for specific uses [Amended by Ord. 11-04, passed November 9, 2011]*

USE	*REQUIREMENTS*
(a) Dwelling	*Two spaces for each dwelling unit.*

   **Amended – Refer to Supplemental Findings Report

Section 4.136 Planned Unit Development (PD). *In a planned development the following regulations shall apply:*

1. *Purpose. The purpose of "planned development" is to permit the application of greater freedom of design in land development than may be possible under a strict interpretation of the provisions of this Ordinance. The use of these provisions is dependent upon the submission of an acceptable plan and satisfactory assurance it will be carried out. Such plan should accomplish substantially the same general objectives as proposed by the Comprehensive Plan for the area.*

   It should be highlighted that the PUD zoning ordinance, first and foremost calls out the permission of "**greater freedom of design in land development that may be possible under a strict interpretation**". This proposal conforms to most strict interpretations of the MZO code, but it does deviate in regards to setbacks and parking configurations. The goals of the MZO parking and setback provisions are to is to ensure that sufficient parking is provided and that setbacks from neighbors are appropriate and in scale. These goals are met.

2. *Standards and Requirements. The following standards and requirements shall govern the application of a planned development in an area in which it is permitted.*

(b) A planned development may include any uses and conditional uses permitted in any underlying zone. Standards governing area, density, yards, off-street parking, or other requirements shall be guided by the standards that most nearly portray the character of the zone in which the greatest percentage of the planned development is proposed.

Single family dwelling units are permitted as an outright use within both R2 and R3 zones. Density of both zones is the same as well - allowing one unit per 2500 sqft.

(c) The developer may aggregate the dwellings in this zone in "cluster" or multiple-dwelling structures so long as it does not exceed the density limits of the Comprehensive Plan.

In order to “cluster” these homes and provide larger areas of open spaces, the setbacks within the development itself are less than the setbacks within R2/R3 zones. But will at all times be equal to or greater than 5’.

(d) Assurances such as a bond or work agreement with the City may be required to insure that a development proposal as submitted is completed within the time limit agreed upon by the developer and the commission.

Homes will be constructed in phases of 4-6 homes at a time to allow for efficient construction, while maintaining a high level of quality control. The anticipated timeline for completion of the entire project is 2-3 years.

2. Planned Development Procedure. The following procedures shall be observed in applying for and acting on a planned development:

(a) An applicant shall submit 10 copies of a preliminary development plan to the Planning Commission for study at least 10 days prior to the public hearing at which it will be discussed. In addition to publicizing the public hearing, the City Manager shall notify all property owners within 250 feet of the proposed development by mail. The preliminary plan shall include the following information:

1. *A map of existing conditions showing contour lines, major vegetation, natural drainage, streams, water bodies and wetlands.*
2. *Proposed land uses, lot overages, building locations and housing unit densities.*
3. *Proposed circulation pattern indicating the status of street ownership.*
4. *Proposed open space uses.*
5. *Proposed grading and drainage pattern.*
6. *Geologic hazards study where required.*
7. *Proposed method of water supply and sewage disposal.*
8. *Relation of the proposed development to the surrounding area and the Comprehensive Plan.*

For items 1-8 above, the original survey, site pictures, and surrounding area pictures are provided with this application. Refer to the site plan for building locations, densities, traffic circulation pattern, and open spaces. A storm water management plan is provided. The site is relatively flat and a Geological Hazard study is not required. Water will be supplied from existing city water infrastructure in both Hallie Ln and S 3rd St. The homes will be individually metered. The meters will be placed in groups on HOA property along the East and West property lines. Applicant will consult with Manzanita Public Works as to the exact location during the permitting process. Similarly, sanitary sewer will utilize existing infrastructure available on S 3rd and Hallie Lane. No public sewer extension will be required. The proposed development is surrounded on all 4 sides by existing residential development.

(b) Prior to discussion of the plan at a public hearing, the City Manager shall distribute copies of the proposal to appropriate City agencies or staff for study and comment.

(c) The Planning Commission shall consider the preliminary development plan at a meeting, at which time the comments of persons receiving the plan for study shall be reviewed. In considering the plan, the Planning Commission shall seek to determine that:

1. *There are special physical conditions of objectives of development which the proposal will satisfy to warrant a departure from the standard ordinance requirements.*

   The lot is a uniquely large undeveloped parcel located in the heart of Manzanita. Utilizing the lot efficiently to provide larger areas of communal open space and a more cohesive cluster development.

2. *Resulting development will not be inconsistent with the Comprehensive Plan provisions or zoning objectives of the area, particularly with regard to dune stabilization, geologic hazards and storm drainage.*

   The subject property is mostly level and has no concerns in regard to dune stabilization, geological hazards. Storm water will be handled per the engineering proposed plans.

3. *The area around the development can be planned to be in substantial harmony with the proposed plan.*

   The surrounding neighborhood on all 4 sides contains single family homes. The proposed development also are single family homes.

4. *The plan can be completed within a reasonable period of time.*

   The development timeline is 2-3 years.

5. *The streets are adequate to support the anticipated traffic and the development will not overload the streets outside the planned area.*

   Please refer to the traffic study provided. Streets are adequate to support the traffic and are not overloaded.

6. *Proposed utility and drainage facilities are adequate for the population densities and type of development proposed.*

   See stormwater plans from the engineer included. The area is well served in terms of water/sewer/electrical as well.

(d) The Planning Commission shall notify the applicant whether, in its opinion, the foregoing provisions have been satisfied and, if not, whether they can be satisfied with further plan revision.

(e) Following this preliminary meeting, the applicant may proceed with his request for approval of the planned development by filing an application for an amendment to this Ordinance.

(f) In addition to the requirements of this section, the Planning Commission may attach conditions it finds are necessary to carry out the purposes of this Ordinance.

(g) An approved planned development shall be identified on the zoning map with the letters PD in addition to the abbreviated designation of the existing zoning.

(h) Building permits in a planned development shall be issued only on a basis of the approved plan. Any changes in the approved plan shall be submitted to the Planning Commission for processing as an amendment to this Ordinance.

HATHAWAY LARSON
Koback · Connors · Heth

February 14, 2024

VIA EMAIL

Mr. Nate Palmer
President
City Center Development Partners
1233 Cherry Lane
Lake Oswego, OR 97034
natepalmer@gmail.com

Re: Heron's Rest PUD Application

Dear Nate:

I've reviewed all of the information that you've provided. I also reviewed the City's Zoning Ordinance regarding Planned Unit Development's ("PUD") and Variances. It is my opinion that if you can make adequate findings regarding Section 4.136 (1) (Purpose) and Section 4.136 (3)(c)(1) (Planned Development Procedure) as it relates to your PUD Cluster Development, you are better off not filing for a Variance to deviate from the City's standard Off-Street Parking Requirements.

As we discussed last week, the purpose of a PUD is to provide design flexibility where there is a special site that can accommodate a unique design that is not beholden to the typical development standards of the City. The Purpose Section of a PUD states this clearly: "The purpose of 'planned development' is to permit the application of greater freedom of design in land development than may be possible under a strict interpretation of the provisions of this Ordinance." The Planned Development Procedure clearly states that a PUD is appropriate if: "[T]here are special physical conditions

Gregory S. Hathaway
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Portland, OR 97209
greg@hathawaylarson.com
(503) 303-3103 Direct
(503) 303-3101 Main

of objectives of development which the proposal will satisfy to warrant a departure from the standard ordinance requirements."

Your Supplemental Findings addressing the Purpose Section and Planned Development Procedure are adequate in explaining that your proposed development requires "greater freedom of design" warranting a departure from the City's standard Off-Street Parking Requirements. In my opinion, if these findings are adopted by the City, they would be legally defensible if appealed to the Land Use Board of Appeals (LUBA). The City has the authority to adopt such findings and conclude that the Purpose Section and the Planned Development Procedure are met if those findings are supported by substantial evidence. It's all about your unique facts supporting a PUD and that your design requires a departure from the standard Off-Street Parking Requirements.

While applying for a Variance is certainly an option, circumstances for granting the Variance, in my opinion, are more difficult to prove and would make you legally vulnerable should the City's decision be appealed to LUBA. In other words, the City's Zoning Ordinance is more "wired" to depart from the standard Off-Street Parking Requirements via the PUD process rather than through a Variance.

Please let me know if you or the City have any questions.

Very truly yours,

HATHAWAY LARSON LLP

/s/ Gregory S. Hathaway

Gregory S. Hathaway

GSH/ep

CITY OF MANZANITA

P.O. Box 129, Manzanita,OR 97130-0129
Phone (503) 368-5343 | Fax (503) 368-4145 | TTY Dial 711
ci.manzanita.or.us

Date: 1/25/2024

To: *City of Manzanita Planning Department*

From: *City of Manzanita Public Works Department*

Re: *Water Availability*

Dear Sir

This letter is to inform you that water service is available to the following lot(s)

Township: 3N Range: 10 Section: 29CA Tax Lot: 200

at the above referenced location from the Manzanita Water system. The lot will require the service to be tapped to our main in S. Third St and or Hallie Ln

This letter shell not create a liability on the part of City of Manzanita or by an officer, or employee thereof, for the services described above.

Public Works Director

Signature and Title of Authorized Representative

cc: Property Owner

Nehalem Bay Fire & Rescue District
Building Review & Approval Form

36375 Hwy 101 N.
Nehalem, OR 97131
Office 503-368-7592
Fax 503-368-7580

This form must be completed and signed by the Fire District prior to applying for a Building Permit or Manufactured Dwelling Placement Permit.

Township	Range	Section	1/4 Sect	1/16 Sect	Tax Lot# (00500)	Property Address:
3N	10	29	C	A	00200	Hallie/3rd Street Manzanita

Legal Property Owner(s): Nate Palmer

Property Owner's(s') Mailing Address: 1233 Cherry Ln. Lake Oswego, OR

Form Requested by: Jim Fanjoy

Requestor's Relationship to Property: Architect

Requestor's phone # and email: 503-367-5522 / jim@veridianarch.com

Proposed Develpment/Construction: Residential

Water Source: Water District

Water District: Manzanita

----------Fire District to Complete Information Below----------

1. Does access road comply with Tillamook County Fire Defense Board Access Guidelines?

- [x] Yes, it complies.
- [ ] No, it does not comply. See comments section below

2. Is there a hydrant within 1000' of the property?

- [x] Yes, approximate GPM 2,541 Hydrant # 36
- [ ] No, Fire District water shuttle operation is needed

Comments: Developer plans to install hydrant near entrance of development and adhere to the TCFDB Road Access Guidelines.

3. Action Taken:

- [x] I have reviewed the information regarding the poperty listed above and approve.
- [ ] I have reviewed the information regarding the property listed above and **do not** approve for the following reason(s):

Printed Name: Chief Frank Knight III

Signature: Frank E. Knight III Date: 1/23/24

Nehalem Bay Wastewater Agency

SEWER AVAILABILITY

Date: 1/16/24

To: City of Manzanita Building Department

From: Nehalem Bay Wastewater Agency

RE: Sewer Availability & System Development Charges and Fees

As an Agent of Nehalem Bay Wastewater Agency, I confirm that sewer is available to the following lot within our service area boundary:

3N10 29CA 00200

Owner of Record: Nathaniel Palmer

Project Information: Heron's Rest PUD

This letter shall not create a liability on the part of Nehalem Bay Wastewater Agency, or by an agent, or employee thereof, for the services described above.

Fees must be paid in full, to Nehalem Bay Wastewater Agency, along with completed sewer connection application and a copy of the building permit, before any connection to the sewer can be completed.

$4,258.00	System Development Charge ($4,258 per EDU)	
$20.00	Permit Fee ($20)	
$54.00	Inspection Fee ($54)	
	Sewer Saddle ($110 = 4", $145 = 6")	
	Tap Machine Rental ($85 per rental)	
$4,332.00	Total	*Fees are subject to change

Ashley Myers, Office Assistant

35755 Seventh/PO Box 219 Nehalem Oregon 97131 p(503)368-5125 f(503)368-7211

Tillamook County

Office of the Tillamook County Housing Coordinator

1510-B Third Street
Tillamook, Oregon 97141

Land of Cheese, Trees and Ocean Breeze

Building (503)842-3407
Planning (503)842-3408
On-Site Sanitation (503)842-3409
FAX (503)842-1819
Toll Free 1 (800)488-8280

To Whom It May Concern,

As the Tillamook County Housing Coordinator, it is my job to help further the mission of the Tillamook County Housing Commission: "To collaboratively advocate for attainable and equitable solutions that impact Tillamook County's greatest housing needs". This letter is to express my on-going support for Nate Palmer and his efforts to bring workforce level housing to Tillamook County.

Mr. Palmer's project, Herons Rest, located in Manzanita, Oregon, is an example of high-quality-of-life workforce housing and Mr. Palmer has previously received County support as a recipient of Tillamook County's 2022 Multi-Family Rental Housing Fund.

Mr. Palmer's demonstrated commitment to Tillamook County's housing needs are commendable and is in line with the mission of the Tillamook County Housing Commission. As a cottage cluster, this project embodies the type of housing innovation that is needed in Tillamook County. It is for these reasons that Mr. Palmer has my support for his current and planned housing development projects in Tillamook County.

Sincerely,

-Parker Sammons

Parker Sammons, MBA
Tillamook County Housing Coordinator