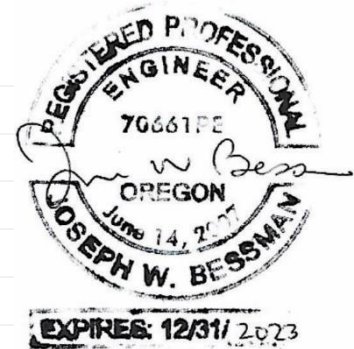




Date:	January 25, 2022
To:	Tony Martin, PE, City of Salem
From:	Joe Bessman, PE
Project Reference No.:	1603
Project Name:	Titan Hill Rezone



Thank you for the opportunity to respond to comments on the Titan Hill rezone project in West Salem. I have reviewed all the comments submitted by members of the public and agencies provided to the Applicant as of January 24, 2022. I appreciate the concern and input that has been shared related to transportation. This memorandum responds to those comments to help clarify the project team's position and relevance to the application.

GENERAL COMMENTS

This section addresses general comments raised by members of the public within various correspondence.

Comment 1: Various comments relate to current transportation issues not addressed within the Transportation Planning Rule analysis presented.

As described within the submittal materials, the proposed rezone of approximately 22.85 acres of a 36.72 parcel from Residential Agricultural and Neighborhood Center Mixed-Use to Multiple Family Residential complies with the Transportation Planning Rule with the proposed density restrictions in place. The study provides a theoretical assessment of "worst-case" analysis scenarios for rezoning and does not include an assessment of the suitability of the transportation system with the proposed apartments (which will be separately required as part of the site plan application).

The submitted analysis shows that the rezone has the potential to create a significant impact at the Wallace Road/Glen Creek Road intersection. The intersection is already forecast to operate beyond its adopted mobility standard without the rezone, and with the additional trips from the multifamily zoning the project would exacerbate this condition. Consistent with OAR 660-12-0060(2), which describes addressing significant impacts for plan amendments and zone changes, a density limitation was identified that would limit the 22.85-acre rezone area to develop with up to 500 apartment units (2,270 average daily trips at rate of 4.54 trips per multifamily unit). This condition would be considered a "density cap," and would limit what can be constructed on the rezoned portion of the site. With this cap, the impact at the affected intersection results in a minor change in the v/c ratio of 0.02 is considered "de minimis".

Our project team recognizes that developing the site with apartments will require additional mitigation measures and strategies. Our project would be responsible for improvements along the Doaks Ferry Road frontage, to provide safe walking routes and crossings to the adjacent schools, and to support the identified plans to develop Landaggard as a *Collector* that is suitable within its residential context. Depending on the ultimate density that is developed off-site improvements may also be required. While we understand and anticipate these needs, only the non-specific rezone is proposed. This land use action

does not allow any site development, and therefore creates no physical impacts to the transportation system.

We do appreciate the comments raised by area neighbors and will incorporate this feedback and input into future transportation materials.

Comment 2: Several comments relate to Landaggard Drive NW and its intended extension through the subject property as shown in the City's adopted Transportation System Plan. The comments indicate that neighbors do not support this alignment or overall connection.

The purpose of the Transportation Planning Rule is to ensure consistency with the adopted Transportation System Plan. We recognize that the Landaggard Drive NW corridor is not built to a *Collector* standard today and that it supports direct residential driveway access and lacks sidewalks and bicycle facilities.

Table 3-1 of the City's adopted Transportation System Plan outlines the basic design guidelines for various classifications of streets. This shows that the purpose of Collectors is to *"Primarily distributes traffic between neighborhoods, activity centers, and the arterial street system. Secondly provides property access."* The table also shows there are design options to provide on-street bicycle lanes or a route per the City's Bicycle Plan Map, and a two-lane section is suitable with turn lanes where appropriate. The intended volume range for this classification is between 1,600 and 10,000 vehicles per day, which the street will easily maintain given the zoning and limited land area served.

Today Landaggard Drive NW serves about 20 homes (approx. 189 daily trips), so the additional trips shown in the report will remain well within the daily travel range for this functional classification. Therefore, the rezone will not change the adopted functional classification of the facility. Within the site plan phase of the project our team can explore design treatments with traffic calming strategies to ensure that the level and types of travel remain appropriate given the current rural residential context along this overall *Collector* route.

In addition, while not part of this application, within the future site plan application our team will review potential street connections that can support access to the property and that can help reduce construction access through these streets. We recognize the development patterns along Grice Hill Road, Colorado Way, and Landaggard Drive and can explore connections to the subject property to reduce impacts to what are built as rural residential streets.

WEST SALEM NEIGHBORHOOD ASSOCIATION COMMENTS

This section responds to the more specific comments presented by the West Salem Neighborhood Association.

Comment 3: The report references the Oregon Highway Plan rather than City standards despite this being an action within the City of Salem.

A Plan and Land Use Regulation Amendment must show compliance with the adopted Transportation System Plan. While a zone change focuses on section -0060 of the Transportation Planning Rule, the preceding sections of the rule outline the requirements for agencies to develop long-term multi-modal plans, coordinate that planning with affected service providers, and develop funding mechanisms to implement the plan. A rezone must then show it does not negate this required planning work by creating impacts not anticipated when the plans were prepared.

The adopted City standards apply to facilities within the City of Salem, and ODOT's standards apply to their facilities. While ODOT's planning standards require general analysis (with overlap in City and County planning), their specific standards are contained within the Oregon Highway Plan. This document serves the "streets" modal plan element of the Oregon Transportation Plan that governs the adopted performance standards and management objectives for the facility.

Comment 4: The horizon year assesses year 2035 conditions which is a 13-year projection.

The purpose of a rezone analysis is to assess a horizon year consistent with City plans so the impact to those affected City plans can be evaluated. If the horizon period was extended beyond what the City had planned it would be changing policies and goals already established by the public and elected representatives and extend beyond what improvements and funding sources have contemplated. In the case of ODOT facilities the planning horizon within the Oregon Highway Plan is a "rolling" 15-year horizon. The assessment reviews year 2036 conditions throughout the analysis to provide consistency with both plans without separate planning horizons. Additional context and detail on planning horizons can be found within ODOT's supplemental TPR materials included as an attachment.

Comment 5: The report uses volume projections from the Salem River Crossing Technical Report of 2016 (which is now six years old) and does not consider development since that period.

The City's adopted Transportation System Plan was prepared in 2013 (and updated in 2020 primarily with pedestrian and bicycle sections with no change to the horizon year for the motor vehicle system) and assesses a 2035 horizon. Again, to assess consistency with the adopted plan similar growth forecasts were applied.

The comments imply that growth rates somehow avoid recent growth that has occurred in West Salem; that is not the case. The traffic counts are current and show conditions occurring on the system with growth and development that is present as of September 2021. Growth rates are then applied to these volumes to account for the build-out of surrounding urbanizing lands through the horizon year. While these estimates may be somewhat coarse in terms of how they project growth in rural areas (such as on Landaggard Drive), all the transportation facilities operate well within their performance standard except for Wallace Road (OR 221). The highway carries high volumes today and is best projected using "coarse" projections given its regional role that extends beyond the boundary of West Salem.

The discussion within the report highlights the basis for the growth estimates and shows that the more rural area along Doaks Ferry Road included a higher growth rate than the Wallace Road corridor consistent with these area expectations. They are higher even than what other prior projections identified given the increased uncertainty in the modeling.

Growth projections (and many other aspects of a hypothetical rezone application) can be subjective, which is why assumptions related to land use scenarios were provided to agencies within scoping materials to ensure that our assumptions are both appropriate and consistent with area planning.

Comment 6: Page 29 and 30 notes there are limited ‘minor’ approaches that could be considered, such as signal coordination or other similar strategies.

We agree with this statement. There likely are “minor transportation improvements” that could be considered per OAR 660-12-0060(2)(d). These could include items such as signal timing/phasing changes, improvements to alternate travel modes/facilities, etc. These will remain viable mitigation options as the project moves into the entitlements phase where the actual impacts (not the comparative impacts) are the relevant performance criteria. However, for TPR compliance our team recognizes that a reasonable “worst-case” scenario under the proposed zoning compares far more apartments than are likely for this site. A trip cap provides the simplest mechanism to mitigate the finding of a significant impact. The following information published by ODOT to help agencies and the public understand the TPR as it applies to zone changes is cited below¹:

Is the evaluation of significant effect based on the applicants proposed use or other uses allowed by the proposed plan or zone change?

Generally speaking the evaluation of whether there is a significant effect must consider the range of uses allowed by the proposed plan and zoning changes, not just the particular use proposed by the applicant. This is because the resulting plan amendment or zone change, once approved, would allow any of the uses listed in the zoning district without further review for compliance with the TPR. Typically, plan amendments and zone changes do not prevent an applicant (or subsequent property owners) from pursuing more intense development than is contemplated in the original application.

As explained below, an applicant or local government can modify or limit the proposed plan or zone change to reduce its traffic generating impacts and possibly avoid triggering a significant effect. Where the application or approval is limited to specific uses or a particular level of traffic generation, it is possible to limit the scope of the analysis. In many situations this is adequate to avoid triggering a significant effect.

Comment 7: The report discusses “de minimis” changes in the v/c ratio but overlooks the substantial changes in queue lengths.

The report responds to the adopted performance standards of the affected transportation facility which remains the overall v/c ratio for ODOT facilities. Similar to current conditions, the future queues at intersections operating at or over their carrying capacity will be long with or without the rezone. As a comparative analysis, our assessment is premised on the change in v/c ratio with and without the rezone.

¹ TPR Section 0060 FAQs, December 15, 2008, <http://Oregon.gov/LCD>

The specific length of a given 95th percentile queue within a horizon year analysis is less precise and critical than the overall intersection capacity, as traffic signals can reallocate green time based on demands.

Comment 8: The narrative within the TIA states that the NCMU zoning will be Outside Core, but a master plan has not been proposed or approved.

Again, the report provided is not a Transportation Impact Analysis but is a Transportation Planning Rule analysis intended to provide comparative review of hypothetical development scenarios within the existing and proposed zoning. The NCMU zoning impacts 1.05 acres of the 22.85 acres proposed for rezoning and as noted has not been master planned or approved for any specific uses, nor are there any specific plans included with the application.

The analysis presented reviews various uses that could be allowed within the NCMU zoning, but ultimately assesses more reasonable uses typically included within a large-scale system plan (see Table 4). Within the 1-acre NCMU zone our analysis focuses on the impact of five homes with 7,000 square-foot lots versus about 22 apartment units. We agree this provides a more reasonable comparison than other uses that could be allowed within this zoning.

Comment 9: The Transight Consulting TIA describes the comparison of 2020 and 2021 traffic counts collected throughout the area and the selection of the higher of the two counts for the analysis. However, the full set of both 2020 and 2021 traffic counts were not included in the attachments.

Table 6 of the report presents the summary comparison of both the morning and evening traffic counts. This shows that in the morning hours all the 2020 traffic counts were higher, but in the evening hours Doaks Ferry Road experienced higher levels of travel in 2021.

Further review showed that much of these changes were attributable to modifications to the Salem-Keizer School District's school bell schedule. This shifted the high school hours back and the elementary school hours forward, changing how these schools impact the area commute peaks. Besides the potential educational benefits that these changes were intended for, this also shows generally favorable improvements in area traffic conditions, particularly during the morning hours. The 2020 traffic counts on Doaks Ferry Road showed higher volumes and pronounced peaks from the stacking of commute and school impacts. Within the 2021 counts these profiles were flattened as shown in the traffic report. Based on review of this information, we applied the higher year 2020 traffic counts to the Wallace Road corridor but retained the 2021 traffic counts on Doaks Ferry Road, as the volume changes appeared more school-related rather than COVID.

It does appear that in my summary of the traffic counts (Table 6) I highlighted that the 2020 data was applied on Doaks Ferry Road; this is incorrect and should be revised as follows:

Table 6. Summary of Traffic Counts (Total Entering Volume shown)

Intersection	Weekday AM Peak Hour		% Change	Weekday PM Peak Hour		% Change
	January 2020	September 2021		January 2020	September 2021	
1: Doaks Ferry Rd/ Orchard Heights Rd	1,595	1,340	84%	875	1,208	138%
2: Doaks Ferry Rd/ Glen Creek Rd	1,425	1,337	94%	1,013	1,268	125%
3: Wallace Rd/ Orchard Heights Rd	2,567	2,470	96%	2,904	2,854	98%
4: Wallace Rd/ Glen Creek Rd	3,474	3,298	95%	4,094	4,049	99%

As stated in the original report, the following description remains valid:

“To provide a reasonable and conservative analysis, the intersections on Doaks Ferry Road were analyzed with the more recent September 2021 counts. These intersections are greatly impacted by school traffic and reflect the current travel patterns from the changes in school hours. These intersections also have much higher traffic volumes during the September 2021 weekday p.m. peak hour traffic counts. The intersections on Wallace Road were analyzed with the older, January 2020 traffic counts, reflecting the higher and more conservative traffic volumes. These traffic volumes are minimally impacted by the changes in school hours.”

Comment 10: The Transight report provides conclusions without citing the source of the data. For example, Table 9 on page 27 compares 2012 traffic counts with projected 2040 volumes without a source for the comparison.

The paragraph preceding the introduction of the table describes that the volume projections are based on the Salem River Crossing Project Traffic and Transportation Technical Report Addendum (River Crossing, October 2016). These materials are available on the City’s website and can be provided upon request. Please let me know if any other citations are needed.

Comment 11: The Transight report provides inconsistencies in intersection graphics, such as omitting the Total Entering Volume shown on the existing conditions graphics but omitted from the horizon analyses.

The total entering volume is simply the summation of the turning movements shown. This information is supplemental and does not relate to performance measures or requirements. The information was provided within the figure showing the 2020 versus 2021 traffic count comparison to simplify the overall selection of volumes for review purposes. If WSNA finds this information helpful for comparisons, we can easily include this information on all future submittals.

Comment 12: The trip difference between the existing and proposed zoning scenario do not match the values in the report.

The overall comment is unclear, but I have reviewed the datasets and verified that the appropriate numbers have been assessed throughout the analysis scenarios. The graphics referenced by WSNA are mixing the volumes with and without the trip cap. To simplify this specific comparison of traffic volumes

at the Doaks Ferry/Orchard Heights intersection as highlighted by WSNA, I have provided a more detailed layout of the traffic volumes at the cited intersection in Figure 1 to show how the proper addition and comparison of these traffic volumes should flow.

Additional explanatory materials can be provided as part of future land use applications to further simplify this process both for the public and agency reviewers; the appendices were prepared to a level of detail more common to agencies that are accustomed to reviewing these technical files.

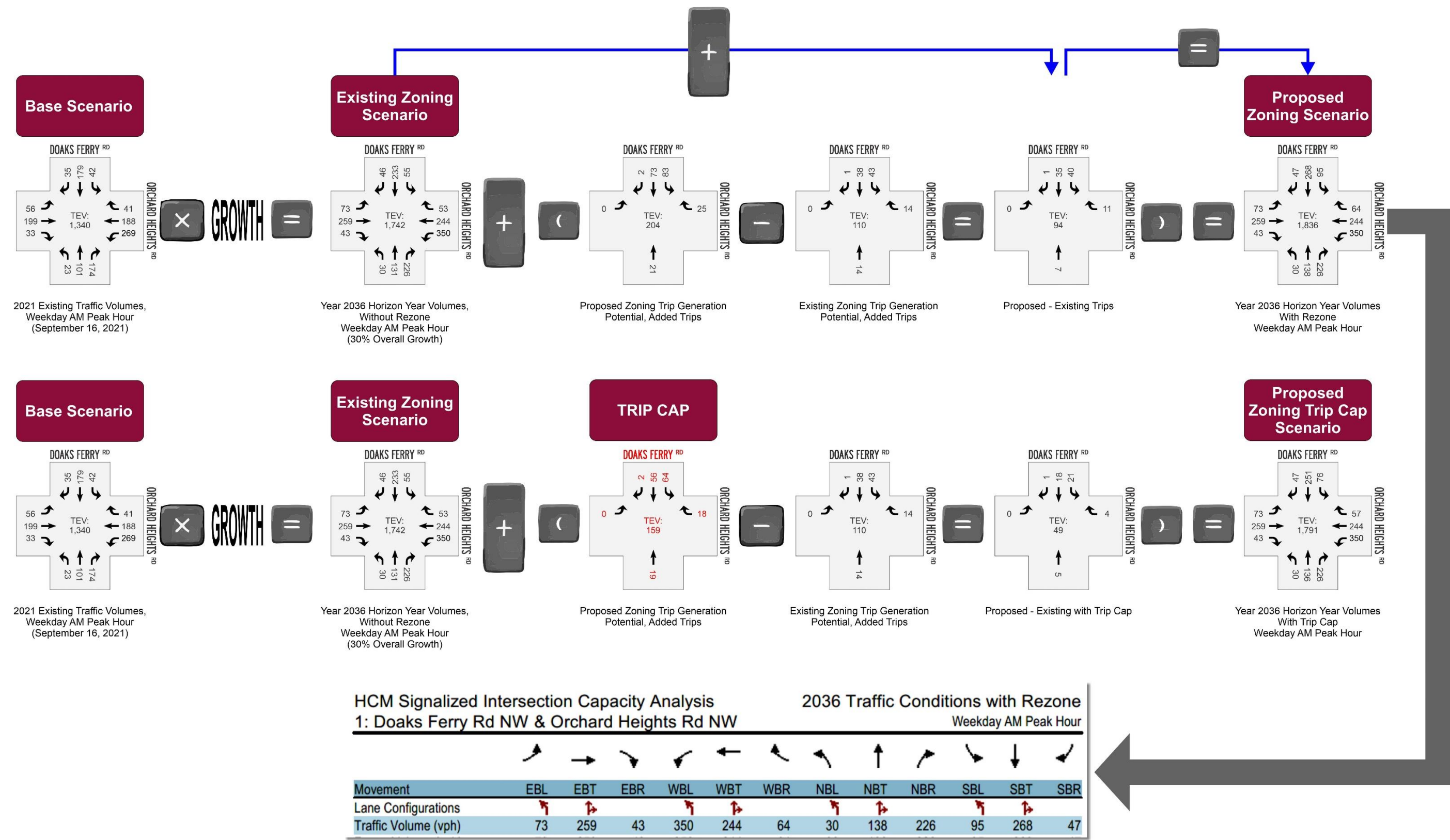


Figure 1. Example break-out of traffic volumes between the existing traffic counts and analysis volumes applied within the analysis modeling.

Comment 13: The total entering vehicles is reproduced on page 49. According to the Synchro report the volume change at the intersection differs +17 [at Wallace Road/Glen Creek] and +40 [at Wallace Road/Orchard Heights]. Please explain.

If I understand the comment correctly WSNA's comment relates to the difference in added trips between the with and without rezone scenarios at the two Wallace Road intersections with Glen Creek Road and Orchard Heights Road. The analysis prepared assigns about half the trips to Wallace Road along Orchard Heights Road and about half traveling farther south on Doaks Ferry Road and then east on Glen Creek Road. The trip assignment is a function of trip time, to include point delays at intersections and congestion on the Wallace Road corridor. If all the trips took a single route to Wallace Road the difference in total trips would be more similar at both intersections. However, review of the existing traffic counts shows this rerouting is already occurring to balance travel delays.

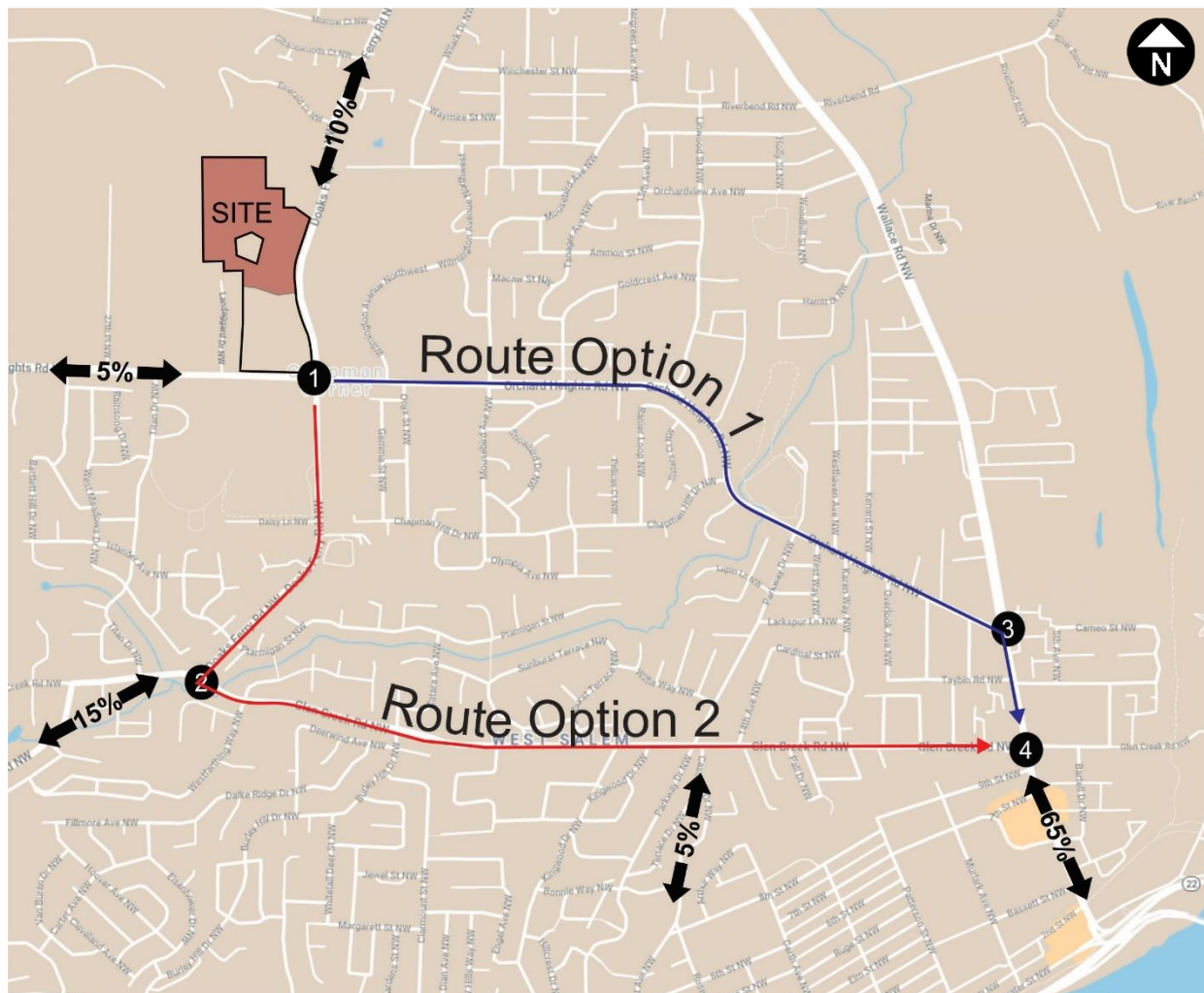


Figure 2. Routing Options toward Wallace Road.

Comment 14: The operational analysis summarized in Table 12 shows that with the trip cap the change in volume-to-capacity ratio is 0.02. This does not account for queues and the Level of Service "F"?

ODOT's adopted mobility standard is based solely on the volume-to-capacity ratio and does not account for queuing and delays. ODOT's performance standards are based on the design hour, which is typically

correlated with the evening peak hour. During this period the rezone adds 15 trips, or 0.003%² of the forecast volume. This is less than the daily volume fluctuation, and far less than regional growth that occurs in a single year from outlying areas.

E.M EASTERLY COMMENTS

Additional technical comments were provided from E.M. Easterly as outlined below.

Comment 15: The conclusions skip over current failing “F” Level of Service deficiencies on Wallace Road by presenting an overall general LOS for the intersections.

Signal timing is complex and generally attempts to minimize overall intersection delays. If throughput on Wallace Road is the primary movement, then having more green time allocated to this movement can provide better overall performance, but at the expense of lower volume (or lower priority) movements. Using an overall intersection metric as adopted by ODOT and the City of Salem provides a better comparison; particularly ODOT and City of Salem intersection metrics provide better a better measure of horizon year conditions when the specific signal timing plans (let alone motor vehicle and detection technology) are unknown.

Comment 16: Two intersections currently fail performance standards.

To clarify, both intersections meet the adopted mobility target/standard today. The Wallace Road/Orchard Heights intersection operates acceptably with and without the rezone in the horizon year (but at the boundary and near its carrying capacity). The Wallace Road/Glen Creek Road intersection exceeds adopted mobility standards with or without the rezone.

With only a single intersection shown to experience a “significant impact” the analysis of the proposed mitigation measure (the density limit) focuses only on the Wallace Road/Glen Creek Road intersection.

Comment 17: The analyst selected the higher traffic count for the analysis.

See clarification within Comment #9.

Comment 18: The graphic data does not match the total entering volume cited within the traffic count section.

Since the counts were collected in 2020 an additional year of growth was applied throughout the analysis to avoid undercounting growth through the 15-year horizon, despite the lower traffic volumes observed in 2021.

² The forecast volume in the 2036 design hour is 5,643 vehicles.

Comment 19: Comparison of traffic counts between the proposed zone change is outlined below and in the analysis output sheets.

Please see the volume development process outlined in Figure 1 and within Comment 13 to help clarify how traffic volumes were developed and assigned throughout this analysis.

Comment 20: Various data is provided with an implied argument that the growth or volumes vary from those within the study at the Glen Creek and Wallace Road intersection based on the COG 2035 projections.

The analysis within the E.M. Easterly letter compares what appears to be the COG's raw link-based year 2035 travel demand model outputs at the Glen Creek and Wallace Road intersection to the year 2036 turning movement projections presented in the traffic study. Comparison of the two forecasts shows a minor 8% difference in volume forecasts, with those in the submitted traffic study slightly higher. For clarity, I have provided a summary within Table 1 to compare these values side by side.

Table 1. Comparison between 2035 COG forecasts and 2036 projected turning movements

Movement	Inbound		Outbound		Combined	
Data Source	COG	TPR Analysis	COG	TPR Analysis	COG	TPR Analysis
Southbound	1,775	1,679	2,730	2,478	4,505	4,157
Westbound	110	242	175	228	285	470
Northbound	1,120	1,432	850	1,267	1,970	2,699
Eastbound	875	846	120	227	995	1,073
Total	3,880	4,199	3,875	4,200	7,755	8,399

This comparison shows a very close match between the raw COG link travel demands and those prepared in the TPR analysis, and I think helps to validate the reasonableness of the data presented. The more detailed turning counts provided in the traffic study include the benefit of "recalibrating" the projection eight years after the original estimates, they reflect an additional year of growth, and they include the additional detail of the turning movements rather than simply a segment-based forecast. Overall, the data within the model and forecasts align well between these two sources taken at different points in time.

I would caution comparing model-based link volumes directly with turning movement volumes. A more detailed process is typically applied as outlined within NCHRP Report 255, which essentially notes the need to calibrate the travel demand model forecasts with turning movement counts and the methods that can be employed. The specific process and accuracy depends on the quality of the travel demand model within a defined area.

NEXT STEPS

Thank you for the opportunity to provide this transportation addenda to clarify items in the report. As outlined in the report, limiting the site to 2,270 average daily trips, measured at rate of 4.54 trips per multifamily unit with 500 multifamily units, will mitigate the finding of a significant impact. The analysis presented reasonably assesses forecast conditions, and our team is aware of the specific site context and connectivity needs that will be require more detailed assessment within the future site plan application. I look forward to addressing any remaining questions that may arise at the project hearing. If you have any questions I can be reached at (503) 997-4473 or via email at joe@transightconsulting.com.

Attachments:

- TPR Section 0060 FAQs, December 15, 2008, <http://Oregon.gov/LCD>
- Year 2020 Traffic Count Dataset
- Year 2021 Traffic Count Dataset

FREQUENTLY ASKED QUESTIONS ABOUT SECTION 0060 OF THE TRANSPORTATION PLANNING RULE

What is Section 0060 of the Transportation Planning Rule?

Section 0060 of the Transportation Planning Rule (TPR) is a statewide planning requirement that directs cities and counties to assess whether proposed plan amendments and zone changes will have a significant effect on the transportation system. In essence, this means that before approving plan or zone changes, cities and counties must determine whether existing transportation facilities and planned improvements will provide adequate capacity to support the new development that would be allowed by the proposed land use changes.

If there is not adequate planned capacity, a “significant effect” occurs. When a city or county finds there is a significant effect, it must take steps to put land use and transportation in balance. Ways to do this include: adding planned transportation facilities or improvements, limiting land use or modifying performance standards to tolerate additional congestion. Section 0060 outlines the process and standards for deciding whether a plan amendment or zone change has a significant effect, and appropriate remedies.

What is the purpose of Section 0060?

Section 0060 is intended to assure that when new land uses are allowed by plan or zone changes that there is adequate planned transportation capacity, usually roadway capacity, to serve the planned land uses. The potential for traffic and congestion from new development is a major concern in communities around the state. Section 0060 is a tool to help communities understand the traffic impacts of plan and zone changes and assure that growth is adequately planned for and does not result in excessive traffic congestion. Amendments to Section 0060 adopted in 2005 also help communities address whether funding plans and strategies for needed improvements are in place before plans or zoning are changed to allow more development.

What is the legal basis for Section 0060?

State law (ORS 197.646) requires that local governments comply with statewide planning goals and rules adopted to implement them when they consider plan amendments. The TPR implements Statewide Planning Goal 12 (Transportation) which requires local governments to plan for a safe, convenient, and adequate transportation system.

What decisions does TPR Section 0060 apply to?

This portion of the TPR applies to local plan and land use regulation amendments. These include plan and zoning map changes as well as changes to the list of allowed land uses in a zone or other provisions of a zoning district.

Does Section 0060 apply to building permits, subdivisions or conditional use permits or similar authorizations?

No. As described above, Section 0060 only applies where a plan amendment or zone change of some sort is involved. Approvals that are made under the terms of existing city and county plans and zoning ordinances are not subject to Section 0060. However, in some situations local governments may have adopted local standards that are equivalent to the TPR Section 0060 that do apply during site plan review.

Does Section 0060 affect all plan amendments and zone changes?

In practice, the TPR affects relatively few plan amendments and zone changes. Most plan amendments don't affect expected traffic one way or another; and those that do are often adequately served by existing or planned roadway improvements.

Do changes to land use regulation amendments other than zone changes need to be reviewed for compliance with Section 0060?

Yes. While most changes to zoning or development codes do not affect the transportation system, some relatively minor changes may allow new or expanded uses that would have a significant effect. For example, adding "sales of building materials" as an allowed use in an industrial zoning district could have the effect of allowing a large format retail use into an industrial zoning district that would generate much more traffic than allowed industrial development. Local governments need to evaluate each land use regulation amendment and assess whether or not it would allow uses that would generate more traffic than that generated by uses currently allowed in the zone.

Section 0060 is *part* of the Transportation Planning Rule. What are the other parts of the TPR?

The Transportation Planning Rule or TPR is an administrative rule adopted by the Land Conservation and Development Commission. The rule implements Statewide Planning Goal 12 (Transportation) and other statewide planning goals that provide guidance to local governments about how they conduct transportation planning. The major requirement in the TPR is that cities and counties adopt transportation system plans (TSPs) that include plan for future streets and roadway improvements and other transportation facilities and services needed to support future land use plans. The TPR was adopted in 1991. Since that time most of the cities and counties in the state have adopted TSPs to carry out the rule. Further information about the TPR including the full text of the rule is available on the DLCDC website. Information about TSPs is available from the respective city and county planning departments.

My city and county have adopted transportation plans (TSPs). Is additional review of plan amendments and zone changes for compliance with 0060 still required?

Yes. Generally, TSPs include planned facilities that are adequate to serve uses anticipated based on existing planning and zoning. Changes to comprehensive plans and zoning can create the need for additional street or roadway improvements. Section 0060 requires cities and counties to assess whether a plan amendment or zone change would create more traffic than the plan anticipates or that facilities called for in the plan are designed to handle. In many cases, local governments find that improvements called for in TSPs will be

adequate to support the planned land use change. Where this is the case, the requirements of 0060 are met. However, where expected new traffic would exceed the capacity of planned facilities, additional planning must be done to figure out how the traffic will be handled, usually by amending the TSP to account for the additional traffic.

How is Section 0060 applied?

Local governments considering plan or land use regulation amendments evaluate whether the proposed plan amendment or zoning change would "significantly effect" the planned transportation system. Most local governments ask applicants to address this in their application. The evaluation involves reviewing applicable city, county or state transportation plans and assessing whether the proposed plan or zone change will have a significant effect on the transportation system.

What is the standard for deciding whether a plan amendment or zone change has a "significant effect"?

The standards for determining whether or not a plan or land use regulation amendment has a significant effect are set out in OAR 660-012-0060(1).¹ In most situations, an 0060 "significant effect" occurs because the plan amendment or zone change would allow uses that would result in a level traffic that exceeds the adopted performance standards for a local street or state highway. (This is the standard in 0060(1) (B): where a plan amendment or zone change reduces "...the performance of an existing or planned transportation facility below the minimum acceptable performance standard identified in the TSP or comprehensive plan.")

Local governments determine whether there is a significant effect by:

- Assessing how much new traffic would be generated by the proposed plan or zone change
- Adding the potential new traffic to traffic that is otherwise expected to occur
- Assessing whether this additional traffic will cause roadways in the vicinity of the plan amendment to exceed adopted performance standards

How do local governments determine whether or not a plan amendment or zone results in a "significant effect"?

Typically some sort of traffic analysis or traffic impact study is prepared. In either case, the analysis compares traffic allowed under the existing and proposed plan or zoning designations. A proposed plan amendment or zone change has a "significant effect" if:
(1) it generates more traffic than allowed by existing plan and zoning AND

¹ There are three other circumstances where a plan amendment could trigger a "significant effect":

- Changes to the functional classification of an existing or planned transportation facility – an example would be where a local plan designation for a planned street is changed from a "minor arterial" to a "major collector".

- Changes to standards implementing a functional classification system. Examples of this type of change would include amendments to driveway or street spacing requirements.

- Allowing types or levels of uses which would result in levels of travel or access that are inconsistent with the functional classification of a transportation facility; or

(2) planned transportation improvements do not provide adequate capacity to support the allowed land uses.

Are there some simple guidelines for assessing whether a plan amendment is likely to trigger a significant effect?

Yes. In most cases the key question is whether the proposed plan designation or zoning will result in more traffic than is allowed by current zoning.

If the proposed plan amendment or zone change would generate the same or less traffic than is allowed by the current plan and zone designations, it generally is considered *not* to have a "significant effect" on the transportation system. In essence, the rule requires further review of transportation impacts only where a plan amendment or zone change would yield more traffic than is allowed by current zoning.

If a plan amendment would result in more traffic being allowed is it automatically considered to have a "significant effect" under the TPR?

No. The local government would first need to evaluate whether planned transportation facilities will be adequate to handle the additional traffic. If they are adequate, then there would not be a significant effect.

Is the evaluation of significant effect based on the applicants proposed use or other uses allowed by the proposed plan or zone change?

Generally speaking the evaluation of whether there is a significant effect must consider the range of uses allowed by the proposed plan and zoning changes, not just the particular use proposed by the applicant. This is because the resulting plan amendment or zone change, once approved, would allow any of the uses listed in the zoning district without further review for compliance with the TPR. Typically, plan amendments and zone changes do not prevent an applicant (or subsequent property owners) from pursuing more intense development than is contemplated in the original application.

As explained below, an applicant or local government can modify or limit the proposed plan or zone change to reduce its traffic generating impacts and possibly avoid triggering a significant effect. Where the application or approval is limited to specific uses or a particular level of traffic generation, it is possible to limit the scope of the analysis. In many situations this is adequate to avoid triggering a significant effect.

What happens when a local government concludes there is a "significant effect"? Can the plan amendment or zone change still be approved?

A finding of "significant effect" does not prevent approval of a plan amendment or zone change. It does trigger the requirement for local governments to take steps to put land use and transportation "in balance"; by assuring that planned land uses are consistent with the planned transportation system. Local governments have four options for putting land use and transportation "in balance" including one or a combination of the following:

- Adding planned transportation facilities or improvements
- Limiting allowed land uses to fit available facilities

- Changing the transportation performance standards to accept lower performance
- Adopting measures that reduce auto travel

Can local governments avoid triggering a significant effect by limiting the uses allowed by a proposed plan amendment or zone change?

Yes. In practice, applicants or local governments have done this by calculating either the capacity of the planned transportation system or the intensity of use allowed by existing plans and zoning, and then including zoning restrictions that cap allowed development to avoid a "significant effect". This can be done by adopting trip caps or limits on the allowed uses. Currently, thoughtful applicants, with assistance from their traffic consultants, will carefully calculate the capacity of the planned transportation system and adjust their plan amendment proposal to fit within the available the capacity. This may include proposing roadway improvements or other measures to make the proposal fit the available capacity.

How do local governments assess whether there is adequate planned transportation capacity to support proposed uses?

Evaluation is based on applicable adopted transportation plans. These include adopted city and county transportation system plans (TSPs), and the 1999 Oregon Highway Plan adopted by the Oregon Department of Transportation (ODOT).² Basically, local governments compare expected traffic under existing plans with additional traffic that would be allowed under the proposed plan amendment. They then assess whether improvements included in adopted plans will adequately serve the additional traffic. If the increased volume of traffic would cause a performance standard not to be met, there is a significant effect on the transportation system. This assessment is usually based on a traffic impact analysis prepared by a traffic engineer for the applicant.

Does the TPR require traffic impact studies?

While the TPR does not specifically require a traffic impact study, one may be needed to determine whether or not a plan amendment or zone change results in a significant effect. The need for a traffic impact study is usually decided by local government as it reviews a proposed plan amendment. Where a proposed amendment affects a state highway, the local government needs to consult with ODOT to determine whether a traffic impact study or some other analysis is needed.

Does the TPR require a "worst case" analysis - for example, where someone is proposing a zone change to allow a specific use, such as an auto dealership, but the proposed zoning allows other more intense uses, such as fast food restaurants?

No. However, the analysis must be based on the uses that would be allowed by the proposed zoning. An applicant or local government can limit the scope of analysis by limiting the request or approval to specific uses or to a particular level of traffic generation. One approach that is often used is to calculate the amount of traffic expected to be generated by the proposed use and to adopt land use regulations that limit uses in the zone to not exceed this amount.

² The Oregon Highway Plan also includes any specific implementing plans adopted by the Oregon Transportation Commission, such as Highway Corridor Plans or Interchange Area Management Plans. These specific "facility plans" often set different or additional standards for highway performance than are in the OHP document.

Is it possible to defer compliance with the TPR to a subsequent approval, such as a site plan or conditional use approval?

Technically no. However, local governments can achieve this result by limiting development and adopting a local ordinance that essentially mirrors the requirements of Section 0060. Several LUBA rulings³ have upheld local government decisions that, in effect, defer application of the TPR where the following conditions are met:

- (1) The plan amendment and zone change themselves do not allow additional development
- (2) the plan or zoning amendment include the substance of 0060 as a standard for approving any development - typically through a site plan approval process; and
- (3) the local implementation process provides for public review and a hearing including notice to ODOT and other affected transportation providers.

In addition, the Department of Justice has provided ODOT with informal guidance about requirements for local governments to accomplish deferral.

Does DLCD recommend "deferring" transportation analysis required by the TPR?

No. The department recommends against using this approach for several reasons:

- **It undermines the predictability that zoning is intended to provide.** Zoning or rezoning land implies that the land is suitable and appropriate for uses allowed in the zone. If lands are zoned "commercial", for example, property owners rightfully assume that the public has determined that the land is suitable for many commercial uses and can be developed for commercial uses without difficult or complicated reviews. Deferring evaluation of transportation impacts and mitigation to site review works against this objective, especially where expensive improvements are needed to mitigate traffic impacts.
- **It undermines public participation in zoning decisions.** Rezoning is a key opportunity for the public, including neighboring property owners, citizens and agencies, to comment on a proposed zone change. Traffic impacts are often a major concern which the public should understand *before* a zone change is approved. Deferring transportation analysis reduces the opportunity for meaningful public participation.
- **It creates tracking and enforcement problems for local governments.** Where transportation analysis is deferred, future land use decisions and approvals have to be adjusted to include the required transportation analysis. It several years pass between the time the original zone change is approved there is likely to be uncertainty or confusion about what is required – especially if local staff turnover or if property is sold.

³ The LUBA decisions on this issue are:

- Citizens for the Protection of Neighborhoods, LLC v. City of Salem and Sustainable Fairview Associates LLC, 47 OrLUBA 111 (2004): <http://www.oregon.gov/LUBA/docs/Opinions/2004/06-04/03201.pdf>
- *Concerned citizens of Malheur County v. Malheur County and Treasure Valley Renewable Resources, LLP*, 47 OrLUBA 208 (2004).... <http://www.oregon.gov/LUBA/docs/Orders/2004/04-04/04008.pdf>

Overall, local governments, property owners and the public are better served by conducting the traffic analysis as the zone change is considered and making a clear decision about whether the planned transportation system is adequate to serve the allowed uses as part of approving the zone change.

What qualifies as a "planned transportation facility" that local governments may rely upon in determining whether there are adequate facilities to support the planned land use?

Section 0060(4) lists the types of facilities, improvements and services that can be counted as "planned" for purposes of 0060 compliance. Typically, a facility or improvement must be included in the relevant TSP and have some level of funding commitment in place to be considered to be "planned" under section 0060. The rule also allows transportation providers to issue letters to confirm that certain improvements are "reasonably likely" to be provided by the end of the planning period. Where such letters are issued, the improvements may be considered as planned. The rule also allows for improvements that are provided by the applicant, typically as a condition of approval, to be counted as planned improvements.

A detailed list of list of facilities, improvements and services that are considered planned is outlined in Section 0060(4) and includes:

- ❑ Transportation facilities, improvements or services that are funded for construction or implementation in:
 - ❑ the Statewide Transportation Improvement Program
 - ❑ a locally or regionally adopted transportation improvement program or capital improvement plan, or,
 - ❑ program of a transportation service provider. (See OAR 660-012-0060(4)(b)(A).)
- ❑ Transportation facilities, improvements or services that are authorized in a local transportation system plan and for which a funding plan or mechanism is in place or approved. These include, but are not limited to, transportation facilities, improvements or services for which:
 - ❑ transportation systems development charge revenues are being collected;
 - ❑ a local improvement district or reimbursement district has been established or will be established prior to development;
 - ❑ a development agreement has been adopted; or
 - ❑ conditions of approval to fund the improvement have been adopted. (See OAR 660-012-0060(4)(b)(B)).
- ❑ Transportation facilities, improvements or services in a metropolitan planning organization (MPO) area that are part of the area's federally-approved, financially constrained regional transportation system plan. OAR 660-012-0060(4)(b)(C).

Who decides whether a planned facility or improvement is "reasonably likely" to be provided by the end of the planning period?

The decision is made by the relevant transportation facility provider. For example, for state highways, the decision about whether an improvement is reasonably likely is made by

ODOT. For county roads, the decision is made by the county. For city streets, the determination is made by the city. In each case, the entity making the determination may establish its own procedures to determine who is authorized to make reasonably likely determinations and how such determinations will be issued. ODOT's guidelines address this issue for state highways.

Are “reasonably likely” determinations “land use decisions”?

The Commission's intent is that reasonably likely determinations not be land use decisions. The determination is essentially evidence or a finding submitted by a third-party. The rule does not ask or direct that local governments decide as part of the land use proceeding whether an improvement is “reasonably likely” to be funded; that determination is made separately and only the result, not the substance of determination, is at issue in the land use proceeding.

Why does the rule require “reasonably likely” determinations for projects that are included in TSPs? Why aren't all of the projects included in TSPs considered “planned projects” for purposes of 0060?

The amendments to Section 0060 were adopted following a broad evaluation of the TPR and of transportation planning done by Oregon communities over the last 10-15 years conducted jointly by the Oregon Transportation Commission and LCDC. A major finding of the evaluation was that there is a substantial gap between likely funding and the improvements that are called for in TSPs. In short, the transportation improvements included in plans greatly exceeds revenue likely to be generated over the next 20 years, even if there are new or expanded sources of revenue.

The consequence of this funding gap is that many of the projects that TSPs call for in the next 20 years will not be built, and for many communities traffic congestion will worsen. To a large extent, this is a result of past land use decisions – that put in place development patterns that create a need for additional roadway improvements. While LCDC recognizes that more needs to be done to address this gap, the conclusion was that it was not prudent to ignore or worsen the imbalance between land use and transportation by allowing additional land use changes that depend upon improvements that are not likely to be built in the next 20 years.

The TPR says that transportation performance is measured at the “end of the planning period”. How is the applicable “planning period” determined?

The TPR defines planning period as “... the 20-year period beginning with the date of adoption of a TSP to meet the requirements ... of the rule.” (OAR 660-012-0005(18)). This date based on the date of adoption of the applicable city or county TSP. For state highways, the Oregon Highway Plan indicates that the planning period is the one specified in the relevant local TSP applies but not less than 15 years from the date of application.

Are there additional requirements for review of plan and zone changes around freeway interchanges?

Yes. Section 0060 includes additional requirements for review of plan amendments within ½ mile of interchanges on interstate freeways. This includes interchanges on I-5 and I-84, as well as interchanges on I-205, I-405 (in the Portland Metropolitan area) and I-105 in the

Eugene-Springfield area. Additional review was required because of the special significance of the interstate system to the state transportation system.

Within freeway interchange areas the list of “planned improvements” is limited to improvements that have some form of funding commitment and does not include projects that are “reasonably likely” to be funded. However, other improvements can be counted as planned if ODOT agrees that the proposed plan amendment will not adversely affect the interstate highway system. (This part of the rule and ODOTs process for assessing whether amendments will affect the interstate system are outlined in ODOTs Guidelines for implementing Section 0060. See below.)

Who sets the performance standards for deciding whether there is "adequate" transportation capacity and what are they?

Standards for capacity and transportation system performance are set by local governments and ODOT through their adopted transportation system plans (TSPs). For state highways, mobility standards are expressed as acceptable "volume-to-capacity" ratios for traffic. Most local governments use a comparable system that uses letter grades to define acceptable “level of service” or LOS. The system rates service from "A", light traffic and free flow conditions to "F" heavily congested, with significant delays at traffic lights or to make turn movements. Most set "D" or "E" as the acceptable performance standard.

Does 0060 effectively set a "concurrency requirement", i.e. that adequate facilities have to be built or funded before development can be allowed?

No. The rule does not create the kind of “concurrency” requirement that has been adopted in other states, where transportation facilities must be built before new development is approved. . The TPR requires local governments to assess whether planned facilities – that are expected to be constructed over the planning period – will – at the end of the planning period – be adequate to meet needs. This allows for development to occur in advance of needed transportation improvements being constructed.

Will Section 0060 delay the development of "shovel-ready" industrial sites?

No. Industrial sites are not certified as "shovel-ready" until and unless they have the necessary plan and zoning designations for the appropriate industrial uses and are served by adequate public facilities, including transportation facilities. Section 0060 does not apply to sites already designated as "shovel-ready" and, therefore, will not cause a delay in their development.

Can local governments adopt concurrency requirements or other standards that are stricter than those in 0060 standards?

Yes. The TPR is basically a minimum state standard for review of plan amendments and zone changes. Individual cities can adopt ordinances regulating new development to meet particular local needs or circumstances that are stricter than the TPR. Several local governments have adopted concurrency type standards, requiring that needed improvements be constructed or funded or in place at the same time new development occurs.

Can a local government change performance standards to accept greater levels of congestion?

Yes. Where a planned development will result in an exceedance of the applicable performance standard, the TPR authorizes local governments to amend their TSPs to modify the performance standards to accept greater motor vehicle congestion OAR 660-012-0060(2)(d). Where state highways are affected, local governments need to get ODOT to agree to change its performance standards as well. Metro in the Portland metropolitan area, in coordination with the Oregon Transportation Commission and ODOT, has adopted performance standards that accomplish this objective and support the implementation of the region's Metro 2040 plan.

Where can I get more information about Section 0060?

The full text of the Transportation Planning Rule, including Section 0060, is available on DLCD's website at www.lcd.state.or.us

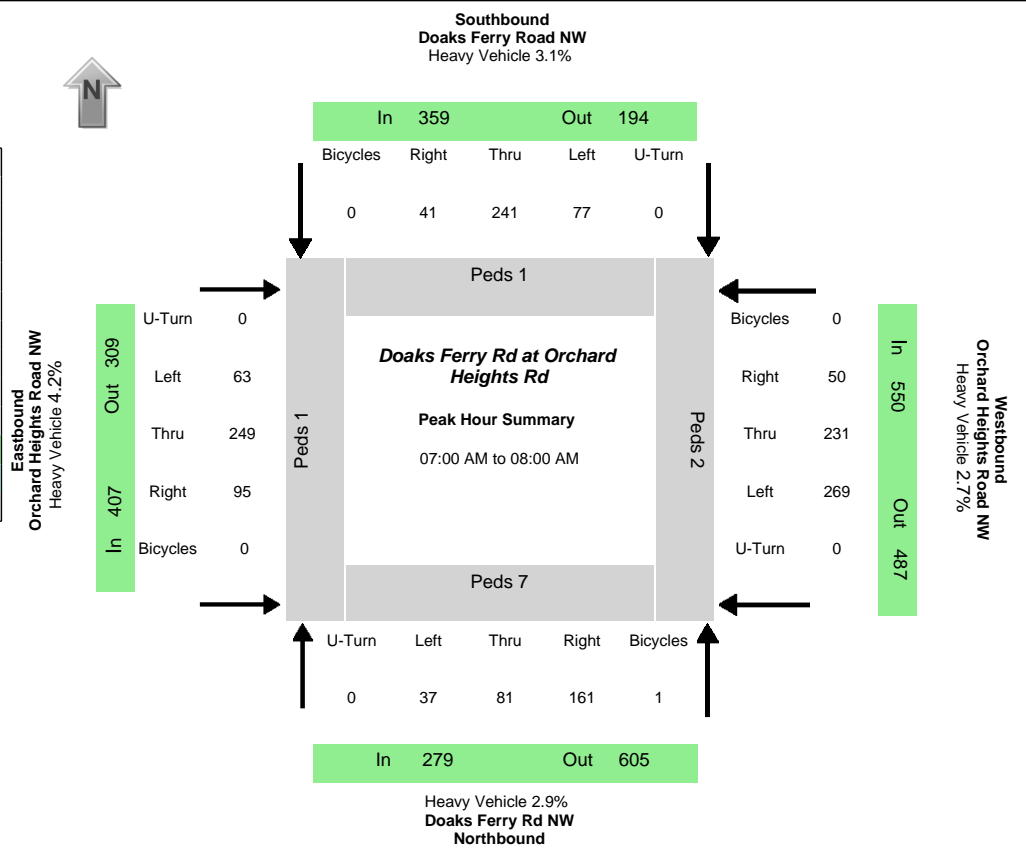
ODOT has produced guidelines for use by its staff in applying Section 0060. The guidelines are available on the ODOT website at:

<http://www.oregon.gov/ODOT/TD/TP/docs/TPR/tprGuidelines.pdf>

While the guidelines are intended principally for use by ODOT staff, they can also provide useful guidance to help local governments and applicants understand and apply Section 0060. Key to the amended rule are decisions by ODOT (and local governments) about whether or not needed improvements are funded or "reasonably likely" to be funded during the planning period. The ODOT guidance provides direction about how ODOT staff are to make reasonably likely determinations.

Numerous LUBA decisions provide useful guidance in understanding details of applying the Section 0060. The text of LUBA opinions and headnotes summarizing LUBA decisions related to Goal 12 and the Transportation Planning Rule are available on LUBA's website at www.orldba.state.or.us

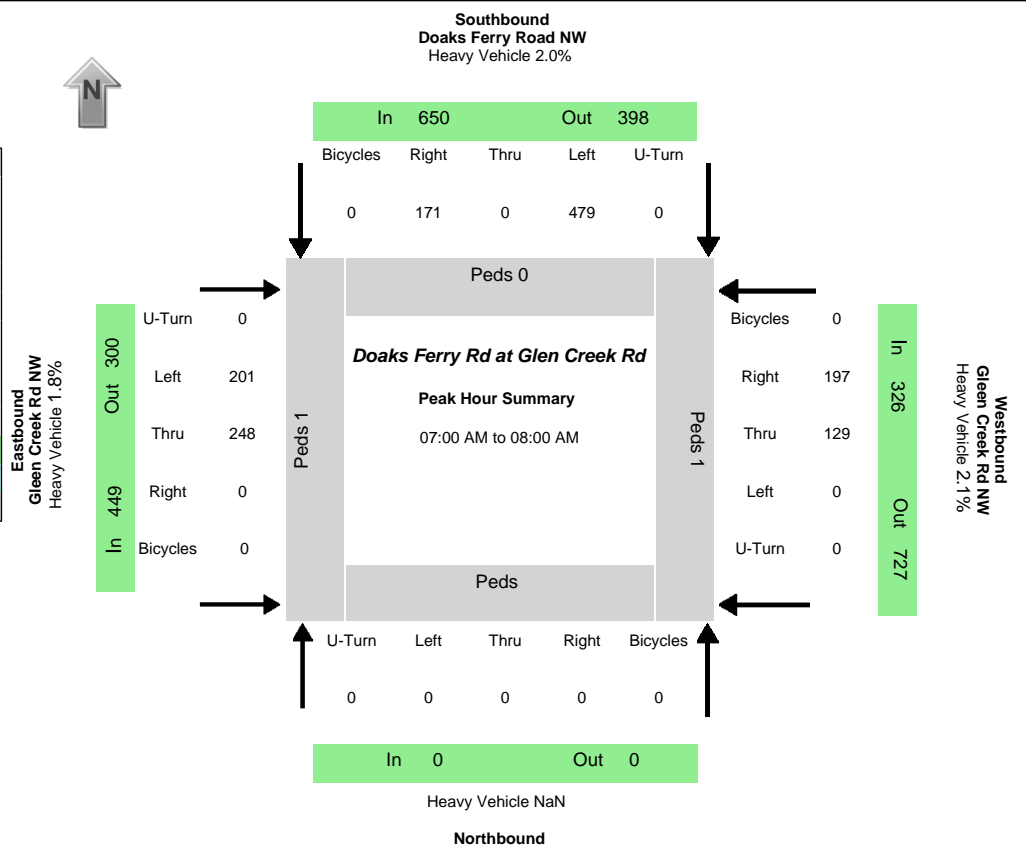
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Orchard Heights Road NW
City, State	Salem OR
Site Notes	
Location	44.960438 - -123.079714
Start Date	Wednesday, January 22, 2020
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:00:00 AM
Peak 15 Min Start	07:20:00 AM
PHF (15-Min Int)	0.77



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
37	81	161	0	77	241	41	0	63	249	95	0	269	231	50	0	279	359	407	550	605	194	309	487
Percent Heavy Vehicles																							
2.7%	1.2%	3.7%	0.0%	3.9%	1.2%	12.2%	0.0%	6.3%	3.6%	4.2%	0.0%	2.2%	3.5%	2.0%	0.0%	2.9%	3.1%	4.2%	2.7%	2.1%	3.1%	4.5%	3.7%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	1	1	2		11	
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Road NW				Eastbound Orchard Heights Road NW				Westbound Orchard Heights Road NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
06:00:00 AM	0	2	0	0	0	3	1	0	0	2	0	0	2	3	0	0							
06:05:00 AM	0	2	1	0	0	1	0	0	0	3	0	0	7	1	0	0							
06:10:00 AM	0	2	2	0	0	3	0	0	0	7	1	0	4	1	0	0	48						
06:15:00 AM	0	0	1	0	0	4	0	0	0	4	0	0	2	0	0	0	46						
06:20:00 AM	0	2	4	0	0	0	0	0	0	3	0	0	1	2	1	0	44						
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07:20:00 AM	16	11	14	0	5	20	9	0	10	25	12	0	24	22	1	0	491	981					
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Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Road NW
E/W street	Gleen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.952083 - -123.084318
Start Date	Wednesday, January 22, 2020
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:00:00 AM
Peak 15 Min Start	07:15:00 AM
PHF (15-Min Int)	0.80



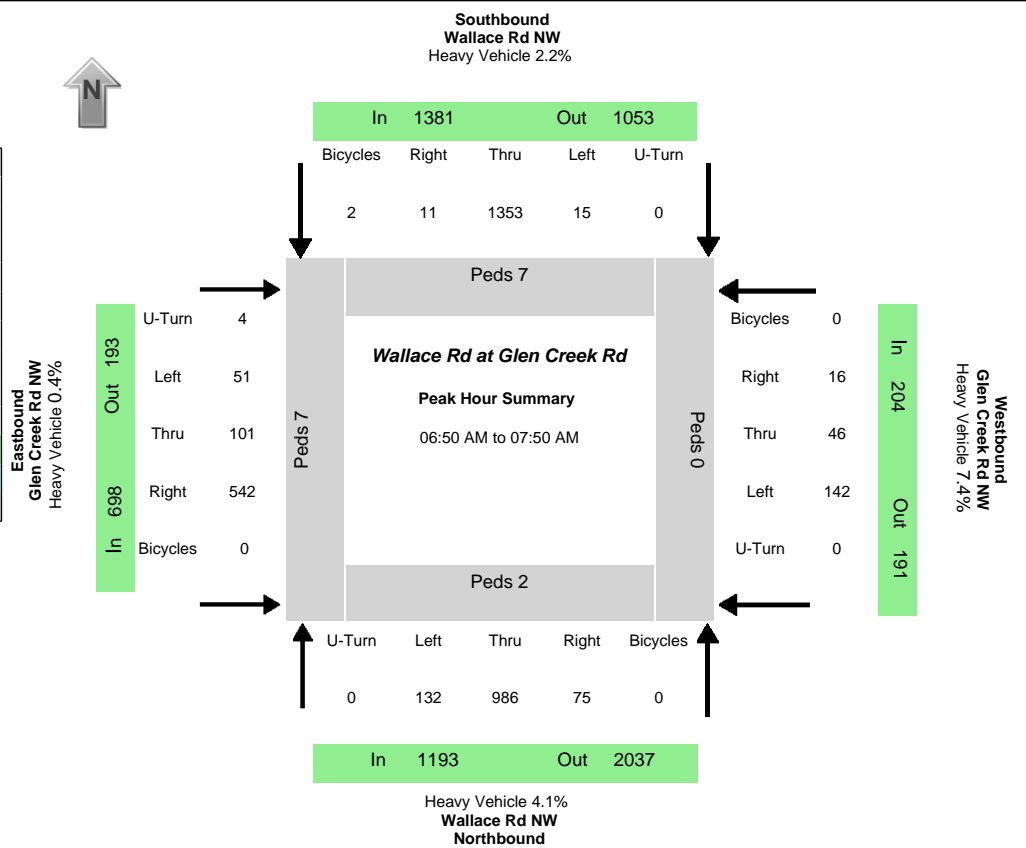
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
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Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	2.3%	0.0%	2.0%	1.6%	0.0%	0.0%	0.0%	3.9%	1.0%	0.0%	NaN	2.0%	1.8%	2.1%	NaN	1.5%	3.0%	1.8%

PHV- Bicycles																PHV - Pedestrians						
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk					Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB		
				0		0	0	0	0	0	0	0	0	0	0		0	0	1	1	2	

All Vehicle Volumes																		
Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Left	Thru	Right	Uturn	Doaks Ferry Road NW				Gleen Creek Rd NW				Gleen Creek Rd NW				Sum	Sum
					Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
06:00:00 AM					2		4	0	4	7		0	2	1	0			
06:05:00 AM					2		8	0	2	3		0	9	2	0			
06:10:00 AM					2		7	0	2	5		0	3	3	0	68		
06:15:00 AM					3		6	0	2	11		0	4	1	0	75		
06:20:00 AM					5		2	0	3	9		0	1	1	0	70		
06:25:00 AM					3		3	0	5	12		0	3	3	0	77		
06:30:00 AM					7		4	0	5	18		0	1	7	0	92		
06:35:00 AM					11		3	0	9	20		0	11	2	0	127		
06:40:00 AM					9		7	0	4	19		0	2	3	0	142		
06:45:00 AM					9		7	0	4	12		0	5	7	0	144		
06:50:00 AM					13		9	0	8	29		0	5	14	0	166		
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07:55:00 AM					24		9	0	10	21		0	4	6	0	256	1425	

08:00:00 AM		12	10	0	5	13	0	10	3	0	214	1377
08:05:00 AM		11	10	0	6	22	0	5	5	0	186	1317
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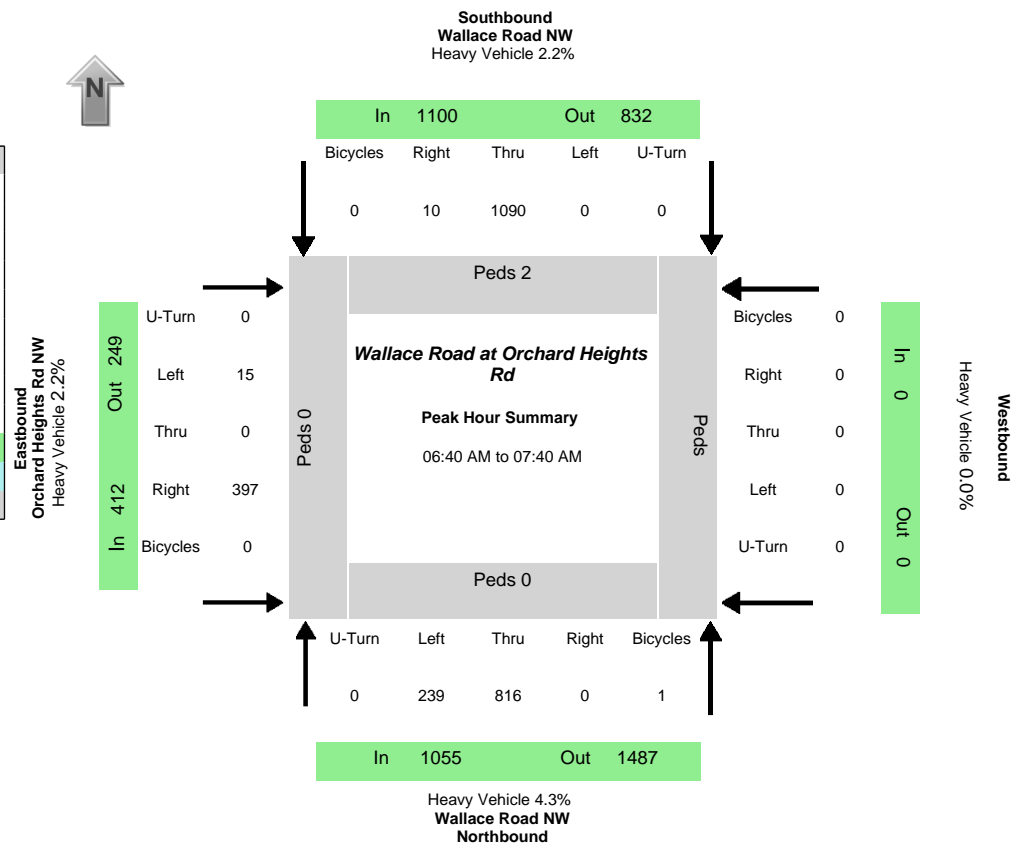
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.950175 - -123.051659
Start Date	Wednesday, January 22, 2020
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	06:50:00 AM
Peak 15 Min Start	07:05:00 AM
PHF (15-Min Int)	0.93



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
132	986	75	0	15	1353	11	0	51	101	542	4	142	46	16	0	1193	1379	698	204	2037	1053	193	191
Percent Heavy Vehicles																							
2.3%	4.6%	1.3%	0.0%	6.7%	1.9%	27.3%	0.0%	0.0%	0.0%	0.6%	0.0%	7.0%	6.5%	12.5%	0.0%	4.1%	2.2%	0.4%	7.4%	1.9%	4.5%	4.7%	1.0%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	7	7	0	16		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	3	35	2	0	1	43	0	0	4	4	13	0	4	5	3	0							
06:05:00 AM	4	22	2	0	2	45	0	0	4	3	12	0	5	4	3	0							
06:10:00 AM	7	39	2	0	0	66	0	0	2	2	12	0	17	7	5	0	382						
06:15:00 AM	1	48	2	0	1	75	0	0	1	0	23	0	8	2	3	0	429						
06:20:00 AM	2	46	3	0	1	73	1	0	3	2	26	0	7	0	1	0	488						
06:25:00 AM	2	58	6	0	1	94	0	0	0	3	27	0	7	2	2	0	531						
06:30:00 AM	1	56	2	0	1	74	0	0	3	7	29	1	9	4	0	0	554						
06:35:00 AM	5	66	1	0	1	111	1	0	3	3	26	0	6	4	1	0	617						
06:40:00 AM	7	78	5	0	0	119	0	0	5	4	47	0	8	0	0	0	688						
06:45:00 AM	8	69	5	0	0	107	1	0	2	4	29	0	15	9	3	0	753						
06:50:00 AM	9	93	2	0	1	128	4	0	3	4	28	0	15	4	4	0	820						
06:55:00 AM	7	71	3	0	1	124	3	0	2	7	40	0	8	4	2	0	819	2420					
07:00:00 AM	22	105	4	0	0	88	2	0	6	8	43	0	10	5	1	0	861	2597					
07:05:00 AM	15	111	2	0	4	147	1	0	3	4	36	1	7	3	4	0	904	2829					
07:10:00 AM	10	73	3	0	0	126	1	0	2	5	47	0	11	1	1	0	912	2950					
07:15:00 AM	13	86	3	0	1	104	0	0	2	7	75	3	15	4	0	0	931	3099					
07:20:00 AM	12	87	9	0	2	101	0	0	3	6	55	0	15	5	1	0	889	3230					
07:25:00 AM	8	74	6	0	0	119	0	0	2	6	45	0	7	0	0	0	876	3295					
07:30:00 AM	17	72	7	0	1	101	0	0	9	9	45	0	13	7	0	0	844	3389					
07:35:00 AM	3	90	15	0	3	93	0	0	7	15	41	0	18	4	2	0	839	3452					
07:40:00 AM	5	64	9	0	0	124	0	0	9	11	36	0	15	4	1	0	850	3457					
07:45:00 AM	11	60	12	0	2	98	0	0	3	19	51	0	8	5	0	0	838	3474					
07:50:00 AM	7	79	13	0	0	72	0	0	6	15	30	0	14	5	1	0	789	3421					
07:55:00 AM	7	53	8	0	2	92	0	0	7	10	31	0	14	6	4	0	745	3383					

08:00:00 AM	7	43	9	1	1	140	1	0	6	11	35	0	10	3	1	0	744	3357
08:05:00 AM	6	71	7	0	3	83	1	0	6	13	42	0	12	8	3	0	757	3274
08:10:00 AM	8	47	12	0	3	119	0	0	1	11	18	0	10	8	1	0	761	3232
08:15:00 AM	7	50	9	0	3	118	1	0	3	6	31	0	11	3	2	0	737	3163
08:20:00 AM	20	68	10	0	2	76	0	0	8	12	40	0	7	4	0	0	729	3114
08:25:00 AM	10	64	4	0	2	89	1	0	2	9	23	0	10	8	7	1	721	3077
08:30:00 AM	15	58	12	0	1	72	1	0	3	4	33	0	12	6	1	0	695	3014
08:35:00 AM	5	48	9	0	1	105	0	0	4	7	31	0	8	0	6	0	672	2947
08:40:00 AM	5	77	10	0	6	107	6	0	5	9	29	0	13	5	2	0	716	2943
08:45:00 AM	11	62	11	0	5	79	1	0	8	10	48	0	19	7	3	0	762	2938
08:50:00 AM	15	55	15	0	6	95	0	0	4	10	30	1	12	4	0	0	785	2943
08:55:00 AM	18	76	13	0	2	113	4	0	4	12	21	0	17	11	4	0	806	3004

Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Road NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.953357 - -123.05262
Start Date	Wednesday, January 22, 2020
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	06:40:00 AM
Peak 15 Min Start	06:55:00 AM
PHF (15-Min Int)	0.92



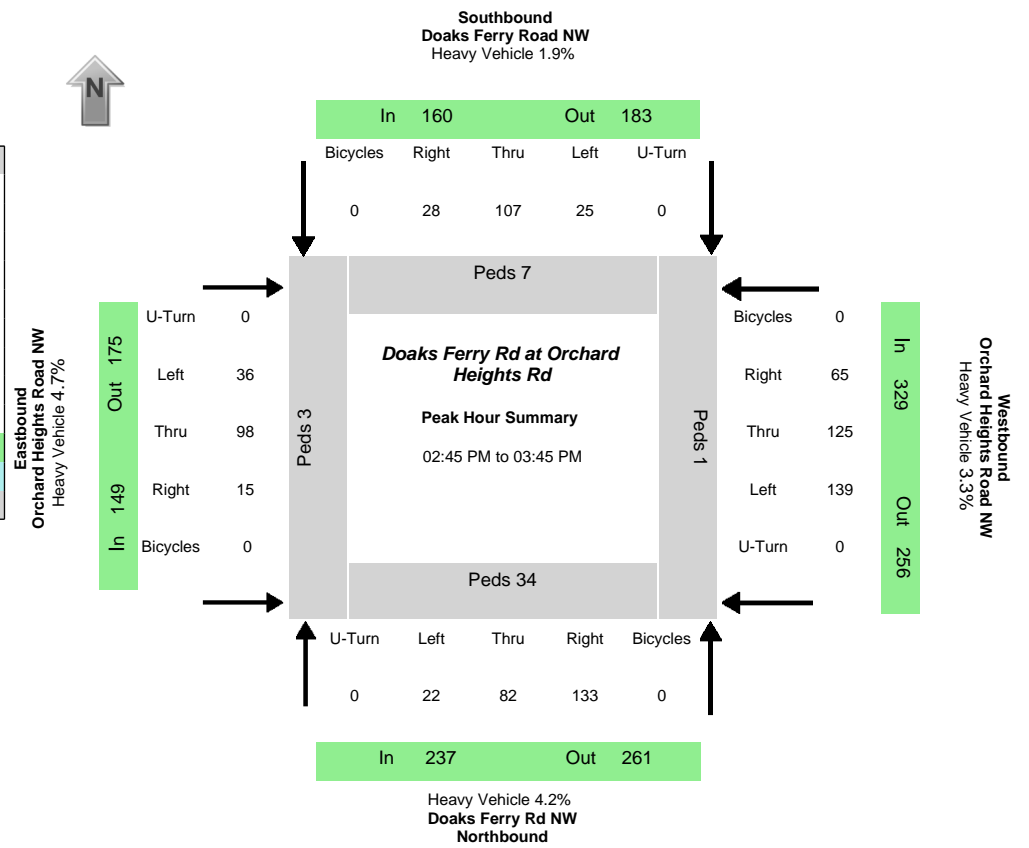
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
239	816	0	0	0	1090	10	0	15	0	397	0	0	0	0	0	1055	1100	412	0	1487	831	249	0
Percent Heavy Vehicles																							
2.9%	4.7%	0.0%	0.0%	0.0%	1.8%	40.0%	0.0%	13.3%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	2.2%	2.2%	0.0%	1.8%	4.8%	4.4%	0.0%

PHV - Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0	1		0		0	0	0	0		0	0	0					1	0	2	0	

All Vehicle Volumes																		
Time	Northbound Wallace Road NW				Southbound Wallace Road NW				Eastbound Orchard Heights Rd NW				Westbound				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
06:00:00 AM	6	36		0		36	0	0	0		12	0						
06:05:00 AM	5	26		0		39	0	0	0		8	0						
06:10:00 AM	1	44		0		52	0	0	0		22	0					287	
06:15:00 AM	8	45		0		57	0	0	1		15	0					323	
06:20:00 AM	5	46		0		61	0	0	1		27	0					385	
06:25:00 AM	6	55		0		80	0	0	1		23	0					431	
06:30:00 AM	7	49		0		67	0	0	1		15	0					444	
06:35:00 AM	10	56		0		89	0	0	0		28	0					487	
06:40:00 AM	8	91		0		104	0	0	0		30	0					555	
06:45:00 AM	9	66		0		80	0	0	2		41	0					614	
06:50:00 AM	11	77		0		101	0	0	0		33	0					653	
06:55:00 AM	17	80		0		112	1	0	2		32	0					664	1937
07:00:00 AM	33	64		0		69	0	0	0		38	0					670	2051
07:05:00 AM	28	69		0		110	1	0	0		38	0					694	2219
07:10:00 AM	30	58		0		120	2	0	0		19	0					679	2329
07:15:00 AM	25	63		0		84	1	0	1		37	0					686	2414
07:20:00 AM	20	66		0		76	0	0	3		37	0					642	2476
07:25:00 AM	25	65		0		81	3	0	1		25	0					613	2511
07:30:00 AM	17	56		0		76	2	0	4		31	0					588	2558
07:35:00 AM	16	61		0		77	0	0	2		36	0					578	2567
07:40:00 AM	8	54		0		69	2	0	1		33	0					545	2501
07:45:00 AM	12	63		0		53	1	0	1		32	0					521	2465
07:50:00 AM	22	51		0		60	1	0	1		24	0					488	2402
07:55:00 AM	16	44		0		50	3	0	1		36	0					471	2308

08:00:00 AM	13	48	0	99	3	0	0	22	0		494	2289
08:05:00 AM	10	44	0	107	3	0	1	25	0		525	2233
08:10:00 AM	19	35	0	92	0	0	2	27	0		550	2179
08:15:00 AM	9	48	0	65	0	0	1	26	0		514	2117
08:20:00 AM	17	52	0	72	0	0	0	26	0		491	2082
08:25:00 AM	19	53	0	70	1	0	0	23	0		482	2048
08:30:00 AM	21	48	0	69	0	0	1	27	0		499	2028
08:35:00 AM	9	40	0	70	0	0	2	35	0		488	1992
08:40:00 AM	23	42	0	80	1	0	0	31	0		499	2002
08:45:00 AM	18	58	0	66	1	0	2	45	0		523	2030
08:50:00 AM	15	45	0	91	1	0	1	31	0		551	2055
08:55:00 AM	34	40	0	72	4	0	1	28	0		553	2084

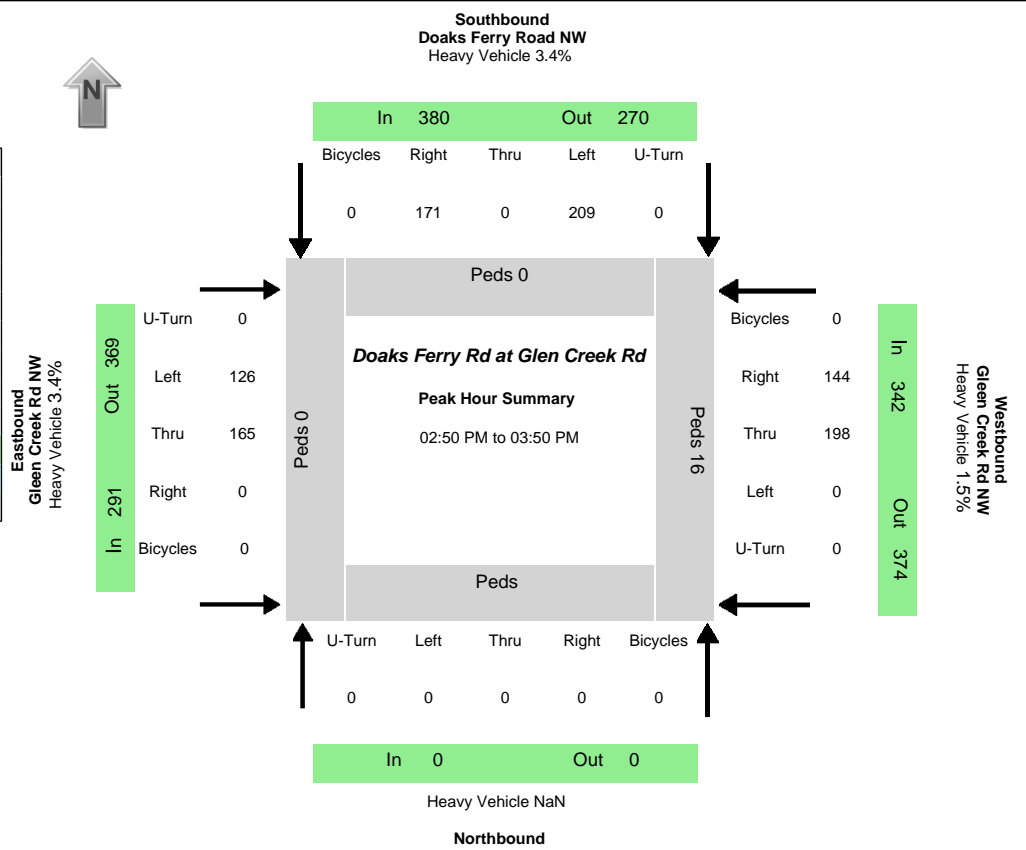
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Orchard Heights Road NW
City, State	Salem OR
Site Notes	
Location	44.960438 - -123.079714
Start Date	Wednesday, January 22, 2020
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	02:45:00 PM
Peak 15 Min Start	02:45:00 PM
PHF (15-Min Int)	0.85



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
22	82	133	0	25	107	28	0	36	98	15	0	139	125	65	0	237	160	149	329	261	183	175	256
Percent Heavy Vehicles																							
4.5%	4.9%	3.8%	0.0%	4.0%	0.9%	3.6%	0.0%	2.8%	5.1%	6.7%	0.0%	2.9%	4.0%	3.1%	0.0%	4.2%	1.9%	4.7%	3.3%	2.3%	3.8%	4.0%	4.3%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	7	3	1	45		
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Road NW				Eastbound Orchard Heights Road NW				Westbound Orchard Heights Road NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
02:00:00 PM	2	3	2	0	0	9	0	0	2	11	2	0	3	8	2	0							
02:05:00 PM	0	9	8	0	0	3	2	0	0	10	0	0	4	4	2	0							
02:10:00 PM	1	6	4	0	2	2	0	0	0	8	0	0	2	11	1	0	123						
02:15:00 PM	1	4	4	0	4	5	0	0	2	3	2	0	3	7	0	0	114						
02:20:00 PM	1	4	6	0	2	6	3	0	0	5	1	0	5	4	0	0	109						
02:25:00 PM	2	4	4	0	0	4	3	0	2	11	1	0	2	13	0	0	118						
02:30:00 PM	0	5	14	0	9	6	0	0	3	11	1	0	2	4	2	0	140						
02:35:00 PM	1	7	11	0	7	2	2	0	3	4	1	0	2	6	2	0	151						
02:40:00 PM	0	3	9	0	7	7	2	0	0	8	0	0	10	9	7	0	167						
02:45:00 PM	1	11	11	0	3	13	2	0	4	7	1	0	22	11	13	0	209						
02:50:00 PM	2	10	11	0	1	8	1	0	2	10	2	0	23	12	14	0	257						
02:55:00 PM	1	6	8	0	2	8	3	0	2	11	0	0	7	9	6	0	258	666					
03:00:00 PM	1	6	9	0	3	5	1	0	2	1	1	0	4	4	7	0	203	666					
03:05:00 PM	3	9	16	0	3	7	0	0	5	8	0	0	4	7	3	0	172	689					
03:10:00 PM	2	7	11	0	3	9	6	0	4	8	1	0	3	12	2	0	177	720					
03:15:00 PM	3	3	10	0	2	8	0	0	3	11	2	0	16	10	6	0	207	759					
03:20:00 PM	3	7	19	0	1	16	11	0	3	10	3	0	6	5	2	0	228	808					
03:25:00 PM	1	8	14	0	2	10	0	0	1	7	1	0	4	14	2	0	224	826					
03:30:00 PM	1	6	9	0	1	4	2	0	5	9	2	0	8	8	3	0	208	827					
03:35:00 PM	2	2	10	0	2	7	1	0	5	10	1	0	13	12	4	0	191	848					
03:40:00 PM	2	7	5	0	2	12	1	0	0	6	1	0	29	21	3	0	216	875					
03:45:00 PM	0	5	7	0	7	8	1	0	1	4	1	0	28	13	5	0	238	856					
03:50:00 PM	1	6	8	0	1	12	5	0	0	9	1	0	7	8	8	0	235	826					
03:55:00 PM	3	5	4	0	2	11	2	0	3	6	1	0	7	7	2	0	199	816					

04:00:00 PM	1	10	3	0	3	10	0	0	0	4	0	0	5	7	4	0	166	819
04:05:00 PM	1	9	4	0	3	14	3	0	3	3	0	0	13	6	4	0	163	817
04:10:00 PM	0	4	4	0	5	13	3	0	2	4	2	0	14	11	3	0	175	814
04:15:00 PM	3	6	6	0	0	9	1	0	1	8	1	0	4	11	4	0	182	794
04:20:00 PM	2	7	10	0	1	12	2	0	2	3	0	0	5	4	5	0	172	761
04:25:00 PM	1	11	10	0	6	13	4	0	5	8	0	0	5	14	3	0	187	777
04:30:00 PM	3	8	5	0	0	4	1	0	1	9	1	0	10	13	4	0	192	778
04:35:00 PM	2	9	15	0	1	15	2	0	4	11	0	0	10	4	3	0	215	785
04:40:00 PM	2	10	7	0	3	11	6	0	1	12	1	0	10	11	5	0	214	775
04:45:00 PM	2	11	8	0	3	10	3	0	1	5	1	0	5	6	0	0	210	750
04:50:00 PM	2	11	9	0	7	17	1	0	4	5	0	0	8	6	5	0	209	759
04:55:00 PM	0	7	10	0	2	15	0	0	0	8	1	0	8	5	2	0	188	764
05:00:00 PM	1	7	6	0	4	19	1	0	3	3	0	0	9	16	5	0	207	791
05:05:00 PM	0	11	8	0	2	4	1	0	3	9	1	0	9	7	6	0	193	789
05:10:00 PM	2	11	7	0	1	10	1	0	2	7	1	0	7	8	2	0	194	783
05:15:00 PM	2	6	6	0	1	13	2	0	3	6	2	0	3	11	2	0	177	786
05:20:00 PM	0	6	7	0	2	13	1	0	2	10	0	0	8	6	5	0	176	793
05:25:00 PM	1	11	14	0	2	7	1	0	1	5	3	0	8	8	0	0	178	774
05:30:00 PM	1	16	8	0	2	6	2	0	2	6	3	0	8	13	5	0	193	787
05:35:00 PM	1	8	6	0	1	9	0	0	1	5	2	0	4	12	1	0	183	761
05:40:00 PM	1	11	6	0	5	5	0	0	0	8	0	0	4	9	0	0	171	731
05:45:00 PM	0	7	10	0	2	9	2	0	3	1	0	0	1	8	2	0	144	721
05:50:00 PM	2	9	5	0	2	6	3	0	3	7	1	0	8	13	3	0	156	708
05:55:00 PM	1	12	1	0	2	10	5	0	0	7	1	0	5	9	0	0	160	703

Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Road NW
E/W street	Gleen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.952083 - -123.084318
Start Date	Wednesday, January 22, 2020
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	02:50:00 PM
Peak 15 Min Start	03:35:00 PM
PHF (15-Min Int)	0.92



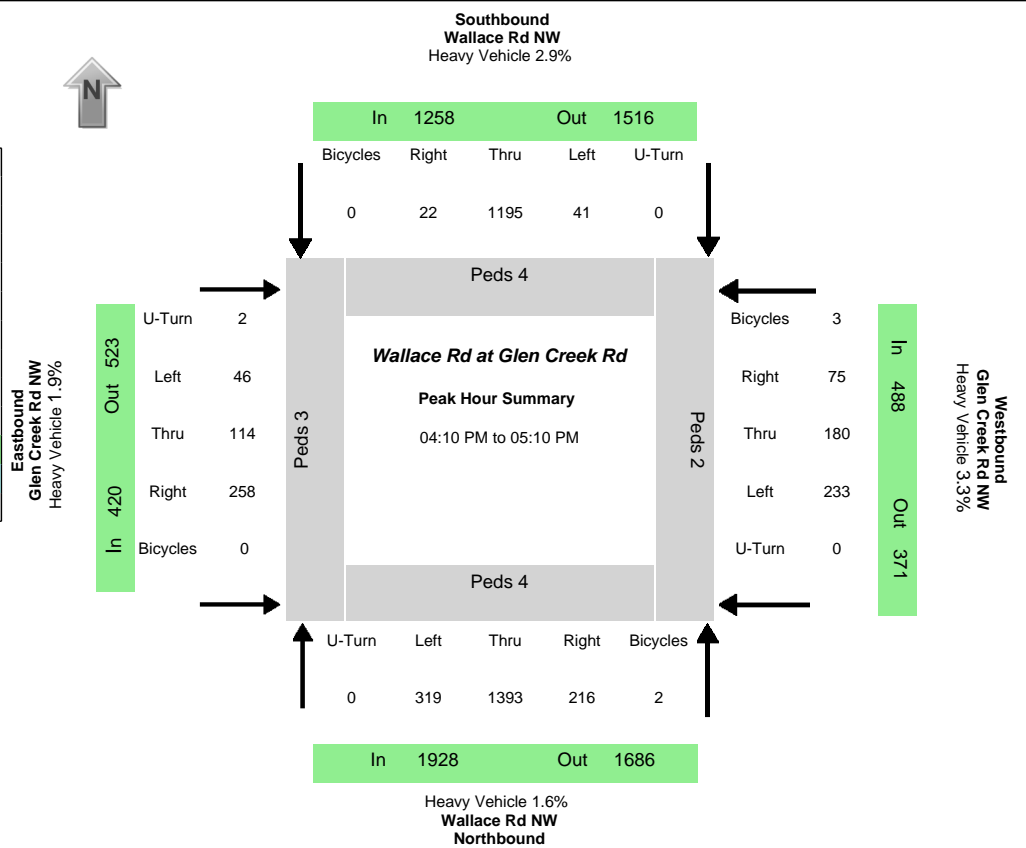
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	209	0	171	0	126	165	0	0	0	198	144	0	0	380	291	342	0	270	369	374
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	4.7%	0.0%	4.0%	3.0%	0.0%	0.0%	0.0%	0.5%	2.8%	0.0%	NaN	3.4%	3.4%	1.5%	NaN	3.3%	2.4%	2.7%

PHV - Bicycles												PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB SB EB WB
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0 16 16

All Vehicle Volumes																	
Time	Northbound				Southbound				Eastbound				Westbound				15 Min Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	
02:00:00 PM					12		6	0	6	19		0	15	8		0	
02:05:00 PM					4		4	0	11	18		0	11	5		0	
02:10:00 PM					6		3	0	6	13		0	15	3		0	165
02:15:00 PM					6		7	0	3	12		0	11	4		0	142
02:20:00 PM					11		5	0	9	9		0	17	9		0	149
02:25:00 PM					5		5	0	9	10		0	16	8		0	156
02:30:00 PM					7		2	0	13	19		0	7	6		0	167
02:35:00 PM					6		4	0	8	13		0	9	8		0	155
02:40:00 PM					11		9	0	14	11		0	10	16		0	173
02:45:00 PM					21		11	0	14	18		0	10	5		0	198
02:50:00 PM					16		18	0	15	11		0	17	26		0	253
02:55:00 PM					14		5	0	10	17		0	21	11		0	260 754
03:00:00 PM					13		8	0	14	19		0	22	17		0	274 781
03:05:00 PM					7		11	0	12	10		0	15	13		0	239 796
03:10:00 PM					17		13	0	9	13		0	13	9		0	235 824
03:15:00 PM					27		20	0	12	20		0	9	12		0	242 881
03:20:00 PM					17		13	0	17	11		0	16	3		0	251 898
03:25:00 PM					12		10	0	6	10		0	13	13		0	241 909
03:30:00 PM					13		10	0	8	17		0	20	12		0	221 935
03:35:00 PM					24		13	0	10	7		0	12	10		0	220 963
03:40:00 PM					24		25	0	7	13		0	23	8		0	256 992
03:45:00 PM					25		25	0	6	17		0	17	10		0	276 1013
03:50:00 PM					10		11	0	6	18		0	16	12		0	273 983
03:55:00 PM					9		10	0	8	16		0	16	9		0	241 973

04:00:00 PM		7	13	0	4	7	0	23	11	0	206	945
04:05:00 PM		22	14	0	9	18	0	9	5	0	210	954
04:10:00 PM		21	13	0	14	12	0	20	7	0	229	967
04:15:00 PM		11	9	0	8	12	0	18	11	0	233	936
04:20:00 PM		11	11	0	10	15	0	19	22	0	244	947
04:25:00 PM		16	6	0	10	12	0	29	14	0	244	970
04:30:00 PM		14	10	0	13	14	0	19	13	0	258	973
04:35:00 PM		19	9	0	14	9	0	16	14	0	251	978
04:40:00 PM		14	15	0	5	22	0	14	15	0	249	963
04:45:00 PM		9	11	0	22	16	0	21	12	0	257	954
04:50:00 PM		23	12	0	12	10	0	13	9	0	255	960
04:55:00 PM		18	11	0	14	19	0	15	8	0	255	977
05:00:00 PM		16	17	0	12	13	0	25	9	0	256	1004
05:05:00 PM		11	9	0	15	13	0	22	12	0	259	1009
05:10:00 PM		10	7	0	17	21	0	15	8	0	252	1000
05:15:00 PM		13	12	0	9	11	0	14	14	0	233	1004
05:20:00 PM		12	8	0	13	16	0	20	12	0	232	997
05:25:00 PM		14	9	0	18	11	0	15	10	0	231	987
05:30:00 PM		10	4	0	10	10	0	12	9	0	213	959
05:35:00 PM		14	8	0	12	16	0	13	14	0	209	955
05:40:00 PM		9	6	0	15	13	0	12	10	0	197	935
05:45:00 PM		6	9	0	13	12	0	20	17	0	219	921
05:50:00 PM		12	11	0	10	13	0	17	13	0	218	918
05:55:00 PM		13	7	0	13	15	0	18	7	0	226	906

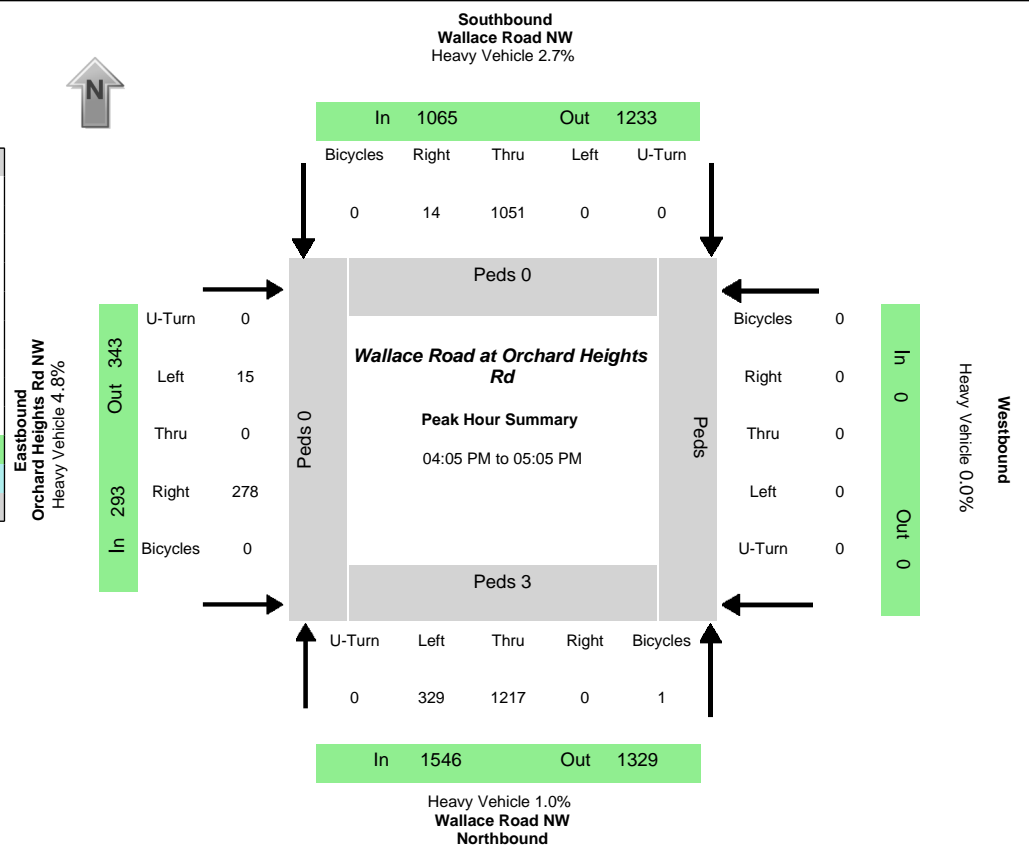
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.950175 - -123.051659
Start Date	Wednesday, January 22, 2020
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:10:00 PM
Peak 15 Min Start	04:40:00 PM
PHF (15-Min Int)	0.97



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
319	1393	216	0	41	1195	22	0	46	114	258	2	233	180	75	0	1928	1258	420	488	1686	1514	523	371
Percent Heavy Vehicles																							
1.6%	1.8%	0.5%	0.0%	4.9%	2.8%	0.0%	0.0%	2.2%	0.0%	2.7%	0.0%	5.6%	1.1%	1.3%	0.0%	1.6%	2.9%	1.9%	3.3%	3.2%	1.8%	1.3%	0.8%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	5	4	4	3	2		13	
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
02:00:00 PM	16	79	20	0	4	63	1	0	3	11	19	0	39	10	2	0							
02:05:00 PM	15	72	9	0	9	80	1	0	2	8	25	0	19	9	4	0							
02:10:00 PM	24	90	12	1	2	62	1	0	4	7	29	1	18	7	5	0	783						
02:15:00 PM	27	120	21	0	2	52	2	0	3	14	23	0	19	9	6	0	814						
02:20:00 PM	21	80	9	0	7	72	2	0	3	5	22	0	26	12	8	0	828						
02:25:00 PM	16	79	19	0	0	70	2	0	10	6	17	0	25	11	3	0	823						
02:30:00 PM	25	92	10	1	6	52	3	0	4	10	17	0	16	12	4	0	777						
02:35:00 PM	15	96	14	0	10	94	1	0	0	9	25	0	19	12	5	0	810						
02:40:00 PM	10	80	14	0	3	81	2	0	2	7	15	0	21	9	7	0	803						
02:45:00 PM	29	116	16	0	1	70	0	0	3	7	25	0	25	8	4	0	855						
02:50:00 PM	20	129	12	0	4	57	0	0	6	7	20	2	28	16	7	0	863						
02:55:00 PM	18	106	16	0	8	86	6	0	0	8	22	0	13	7	4	0	906	3315					
03:00:00 PM	34	102	18	0	2	78	4	0	4	5	28	0	16	10	3	0	906	3352					
03:05:00 PM	18	106	18	0	2	60	1	0	6	11	22	0	25	17	5	0	889	3390					
03:10:00 PM	22	106	14	0	9	96	4	0	1	9	16	0	18	8	9	0	907	3439					
03:15:00 PM	22	91	18	0	6	87	1	0	3	7	22	0	7	8	1	0	876	3414					
03:20:00 PM	29	118	10	0	7	73	3	0	9	9	32	0	20	13	2	0	910	3472					
03:25:00 PM	18	110	16	0	7	70	2	0	1	2	28	0	10	21	7	0	890	3506					
03:30:00 PM	17	81	13	0	0	86	7	0	3	5	20	0	18	16	5	0	888	3525					
03:35:00 PM	35	115	13	0	2	79	2	0	7	12	36	0	24	14	6	0	908	3570					
03:40:00 PM	27	105	13	0	12	89	1	0	2	8	29	1	21	23	8	0	955	3658					
03:45:00 PM	18	94	18	0	3	118	3	0	3	11	16	0	16	8	4	0	996	3666					
03:50:00 PM	24	93	14	0	6	82	1	0	8	13	37	0	11	17	5	0	962	3669					
03:55:00 PM	26	143	18	0	2	63	1	0	2	7	20	0	17	16	10	0	948	3700					

04:00:00 PM	25	104	13	0	6	88	3	0	7	8	15	0	23	7	6	0	941	3701
04:05:00 PM	33	87	23	0	2	91	3	0	3	9	21	0	22	11	7	0	942	3722
04:10:00 PM	15	128	15	0	3	77	4	0	2	18	21	0	24	22	8	0	954	3747
04:15:00 PM	29	113	24	0	6	105	1	0	5	6	20	0	25	19	3	0	1005	3830
04:20:00 PM	38	92	22	0	1	88	1	0	7	3	21	0	17	10	7	0	1000	3812
04:25:00 PM	28	135	18	0	0	98	2	0	5	12	24	0	18	13	7	0	1023	3880
04:30:00 PM	25	122	18	0	1	114	3	0	4	8	20	1	16	24	6	0	1029	3971
04:35:00 PM	18	101	18	0	2	114	2	0	1	8	15	0	21	17	6	0	1045	3949
04:40:00 PM	31	121	21	0	4	97	0	0	7	12	39	0	16	12	3	0	1048	3973
04:45:00 PM	18	119	18	0	4	108	1	0	3	10	11	0	19	15	12	0	1024	3999
04:50:00 PM	22	122	11	0	6	133	1	0	3	5	21	1	19	10	2	0	1057	4044
04:55:00 PM	44	99	19	0	7	89	1	0	3	10	24	0	15	10	5	0	1020	4045
05:00:00 PM	23	120	15	0	5	77	3	0	4	10	22	0	30	19	11	0	1021	4079
05:05:00 PM	28	121	17	0	2	95	3	0	2	12	20	0	13	9	5	0	992	4094
05:10:00 PM	28	103	23	0	1	76	3	0	3	7	26	0	21	15	7	0	979	4070
05:15:00 PM	15	134	21	0	4	59	2	0	3	15	16	1	15	13	6	0	944	4018
05:20:00 PM	15	132	24	0	3	64	2	0	5	8	13	0	25	16	1	0	925	4019
05:25:00 PM	34	100	15	0	1	78	4	0	4	11	23	1	9	10	9	0	911	3958
05:30:00 PM	31	126	13	0	5	62	4	0	6	7	16	0	16	15	11	0	919	3908
05:35:00 PM	15	137	15	0	9	99	3	0	6	6	24	0	14	12	5	0	956	3930
05:40:00 PM	22	103	15	0	6	107	1	0	4	9	20	0	8	9	3	0	964	3874
05:45:00 PM	35	121	12	0	6	83	2	0	4	7	32	0	18	11	9	0	992	3876
05:50:00 PM	23	129	17	1	5	75	1	0	6	8	17	0	15	10	3	0	957	3830
05:55:00 PM	24	93	14	0	2	83	6	0	1	6	17	0	7	11	1	0	915	3769

Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Road NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.953357 - -123.05262
Start Date	Wednesday, January 22, 2020
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:05:00 PM
Peak 15 Min Start	04:40:00 PM
PHF (15-Min Int)	0.92



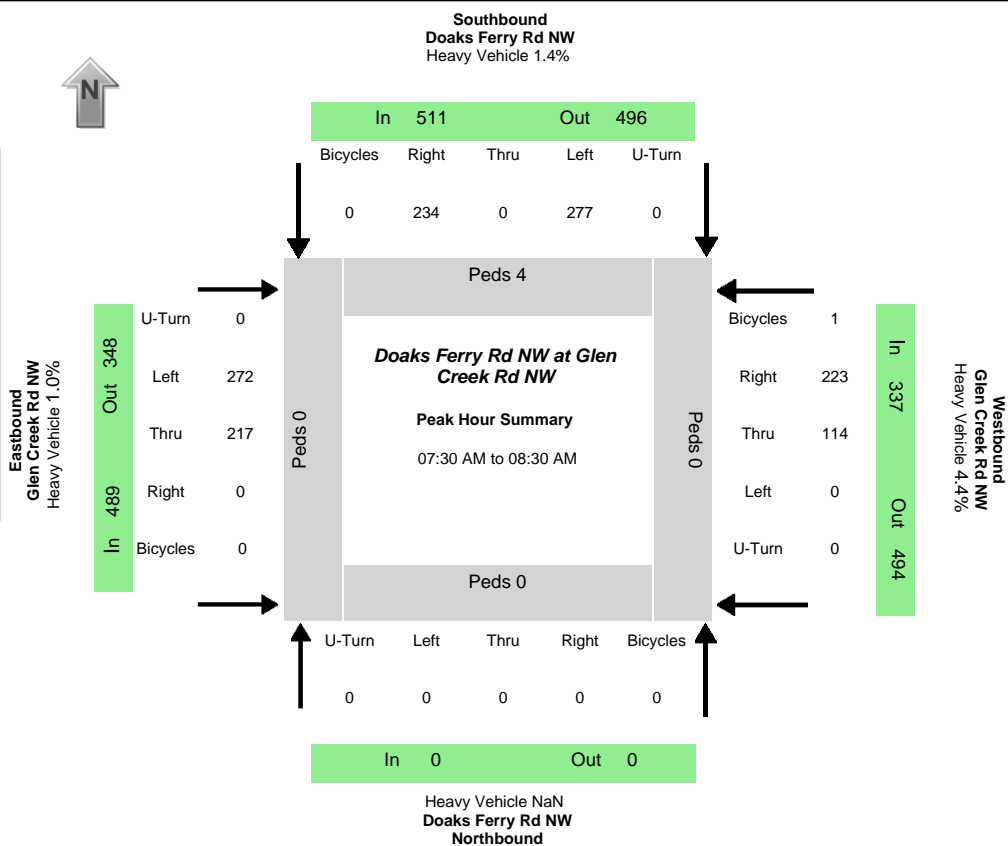
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
329	1217	0	0	0	1051	14	0	15	0	278	0	0	0	0	0	1546	1065	293	0	1329	1232	343	0
Percent Heavy Vehicles																							
0.9%	1.0%	0.0%	0.0%	0.0%	2.7%	7.1%	0.0%	13.3%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	2.7%	4.8%	0.0%	3.0%	1.1%	1.2%	0.0%

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	1		0		0	0	0	0			0	0				1	3	0	0		3

All Vehicle Volumes																		
Time	Northbound Wallace Road NW				Southbound Wallace Road NW				Eastbound Orchard Heights Rd NW				Westbound				15 Min	1 HR
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
02:00:00 PM	18	68		0		57	1	0	1		18	0						
02:05:00 PM	23	53		0		55	3	0	0		22	0						
02:10:00 PM	22	89		0		57	0	0	1		19	0					507	
02:15:00 PM	27	87		0		45	3	0	1		23	0					530	
02:20:00 PM	27	60		0		62	2	0	3		12	0					540	
02:25:00 PM	35	84		0		56	1	0	0		16	0					544	
02:30:00 PM	18	70		0		56	1	0	0		18	0					521	
02:35:00 PM	28	56		0		84	1	0	1		20	0					545	
02:40:00 PM	26	66		0		57	1	0	2		22	0					527	
02:45:00 PM	43	94		0		55	2	0	1		24	0					583	
02:50:00 PM	29	83		0		57	2	0	4		28	0					596	
02:55:00 PM	26	89		0		55	3	0	0		30	0					625	2203
03:00:00 PM	32	103		0		61	0	0	2		27	0					631	2265
03:05:00 PM	34	79		0		60	0	0	2		20	0					623	2304
03:10:00 PM	22	90		0		91	3	0	2		23	0					651	2347
03:15:00 PM	27	83		0		60	0	0	0		37	0					633	2368
03:20:00 PM	35	85		0		57	3	0	1		29	0					648	2412
03:25:00 PM	34	81		0		70	0	0	0		19	0					621	2424
03:30:00 PM	25	79		0		61	0	0	0		22	0					601	2448
03:35:00 PM	28	112		0		74	3	0	4		40	0					652	2519
03:40:00 PM	19	94		0		85	1	0	1		27	0					675	2572
03:45:00 PM	22	74		0		78	2	0	4		35	0					703	2568
03:50:00 PM	26	105		0		66	1	0	2		30	0					672	2595
03:55:00 PM	33	110		0		75	3	0	0		18	0					684	2631

04:00:00 PM	19	87	0	59	1	0	1	20	0		656	2593
04:05:00 PM	26	94	0	80	1	0	2	23	0		652	2624
04:10:00 PM	23	115	0	77	1	0	1	24	0		654	2634
04:15:00 PM	17	87	0	78	1	0	1	20	0		671	2631
04:20:00 PM	32	87	0	92	0	0	0	17	0		673	2649
04:25:00 PM	40	110	0	87	0	0	1	38	0		708	2721
04:30:00 PM	18	94	0	114	0	0	3	13	0		746	2776
04:35:00 PM	33	96	0	73	1	0	1	21	0		743	2740
04:40:00 PM	29	111	0	112	4	0	0	20	0		743	2789
04:45:00 PM	26	96	0	100	2	0	2	36	0		763	2836
04:50:00 PM	22	122	0	81	1	0	1	23	0		788	2856
04:55:00 PM	33	107	0	89	2	0	1	25	0		769	2874
05:00:00 PM	30	98	0	68	1	0	2	18	0		724	2904
05:05:00 PM	37	71	0	63	2	0	2	21	0		670	2874
05:10:00 PM	36	99	0	73	0	0	0	22	0		643	2863
05:15:00 PM	29	106	0	59	2	0	2	11	0		635	2868
05:20:00 PM	34	98	0	56	0	0	1	12	0		640	2841
05:25:00 PM	38	115	0	56	3	0	1	27	0		650	2805
05:30:00 PM	41	109	0	62	1	0	2	20	0		676	2798
05:35:00 PM	27	120	0	99	1	0	1	26	0		749	2847
05:40:00 PM	31	93	0	79	0	0	0	24	0		736	2798
05:45:00 PM	32	107	0	81	5	0	0	24	0		750	2785
05:50:00 PM	31	99	0	70	2	0	2	19	0		699	2758
05:55:00 PM	26	80	0	57	0	0	1	19	0		655	2684

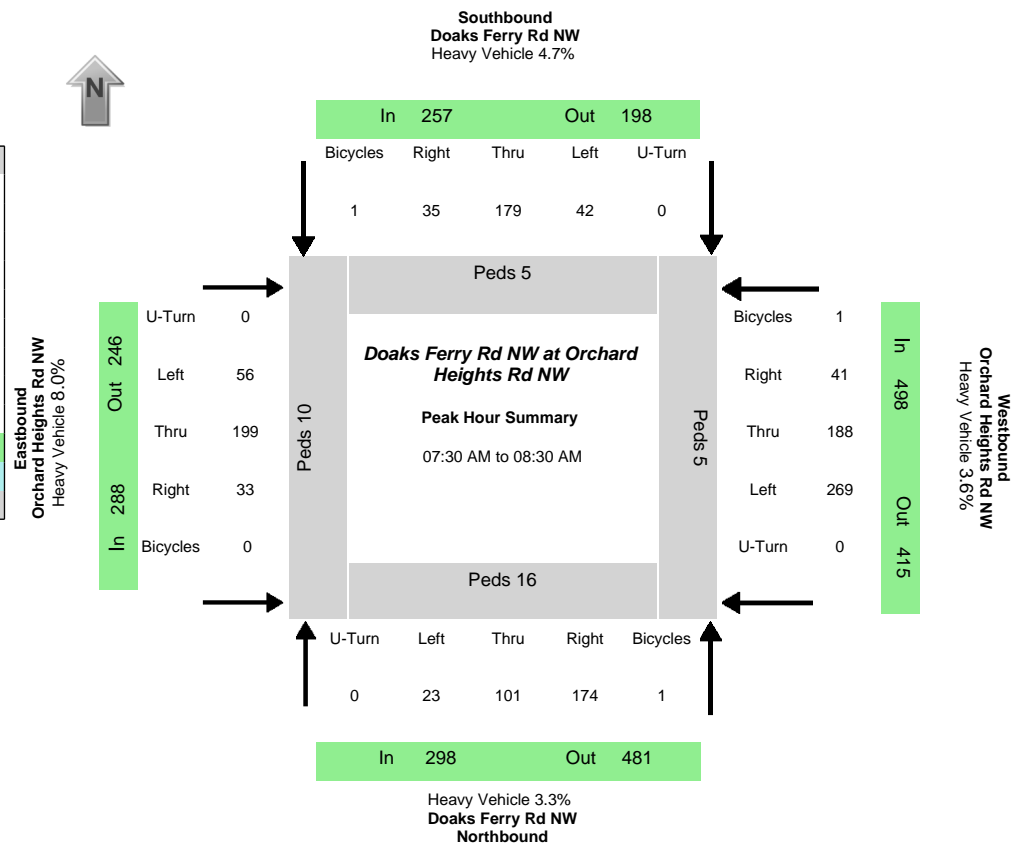
N/S street	Doaks Ferry Rd NW		
E/W street	Glen Creek Rd NW		
City, State	Salem OR		
Site Notes			
Location	44.95208	-	-123.08433
Start Date	Thursday, September 16, 2021		
Start Time	06:00:00 AM		
Weather			
Study ID #			
Peak Hour Start	07:30:00 AM		
Peak 15 Min Start	08:00:00 AM		
PHF (15-Min Int)	0.92		



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	277	0	234	0	272	217	0	0	0	114	223	0	0	511	489	337	0	495	348	494
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	1.3%	0.0%	0.7%	1.4%	0.0%	0.0%	0.0%	7.9%	2.7%	0.0%	NaN	1.4%	1.0%	4.5%	NaN	1.6%	3.4%	1.4%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound					in Crosswalk						
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum		
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	4	0	0	4		
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
06:00:00 AM	0	0	0	0	2	0	2	0	0	10	0	0	0	3	0	0							
06:05:00 AM	0	0	0	0	1	0	4	0	1	9	0	0	0	3	1	0							
06:10:00 AM	0	0	0	0	3	0	5	0	2	4	0	0	0	3	1	0	54						
06:15:00 AM	0	0	0	0	1	0	4	0	2	12	0	0	0	0	3	0	59						
06:20:00 AM	0	0	0	0	4	0	3	0	3	5	0	0	0	1	3	0	59						
06:25:00 AM	0	0	0	0	1	0	4	0	5	10	0	0	0	0	3	0	64						
06:30:00 AM	0	0	0	0	5	0	5	0	4	12	0	0	0	5	2	0	75						
06:35:00 AM	0	0	0	0	4	0	4	0	3	16	0	0	0	7	1	0	91						
06:40:00 AM	0	0	0	0	5	0	3	0	2	10	0	0	0	6	3	0	97						
06:45:00 AM	0	0	0	0	4	0	7	0	6	11	0	0	0	5	2	0	99						
06:50:00 AM	0	0	0	0	7	0	8	0	6	13	0	0	0	9	1	0	108						
06:55:00 AM	0	0	0	0	3	0	3	0	9	23	0	0	0	8	6	0	131	346					
07:00:00 AM	0	0	0	0	2	0	11	0	14	16	0	0	0	8	3	0	150	383					
07:05:00 AM	0	0	0	0	13	0	14	0	11	11	0	0	0	6	8	0	169	427					
07:10:00 AM	0	0	0	0	11	0	13	0	9	17	0	0	0	5	11	0	183	475					
07:15:00 AM	0	0	0	0	9	0	14	0	12	18	0	0	0	9	8	0	199	523					
07:20:00 AM	0	0	0	0	11	0	10	0	22	15	0	0	0	9	4	0	207	575					
07:25:00 AM	0	0	0	0	8	0	8	0	28	11	0	0	0	6	9	0	211	622					
07:30:00 AM	0	0	0	0	10	0	14	0	41	19	0	0	0	6	18	0	249	697					
07:35:00 AM	0	0	0	0	13	0	14	0	33	21	0	0	0	7	21	0	287	771					
07:40:00 AM	0	0	0	0	20	0	20	0	44	15	0	0	0	6	22	0	344	869					
07:45:00 AM	0	0	0	0	25	0	37	0	14	18	0	0	0	5	9	0	344	942					
07:50:00 AM	0	0	0	0	15	0	32	0	20	17	0	0	0	15	16	0	350	1013					
07:55:00 AM	0	0	0	0	22	0	21	0	18	14	0	0	0	16	17	0	331	1069					

08:00:00 AM	0	0	0	0	22	0	20	0	22	16	0	0	0	13	20	0	336	1128
08:05:00 AM	0	0	0	0	35	0	11	0	30	17	0	0	0	7	24	0	345	1189
08:10:00 AM	0	0	0	0	27	0	20	0	23	13	0	0	0	16	29	0	365	1251
08:15:00 AM	0	0	0	0	32	0	16	0	10	20	0	0	0	8	26	0	364	1293
08:20:00 AM	0	0	0	0	22	0	14	0	9	22	0	0	0	14	13	0	334	1316
08:25:00 AM	0	0	0	0	34	0	15	0	8	25	0	0	0	1	8	0	297	1337
08:30:00 AM	0	0	0	0	27	0	11	0	6	22	0	0	0	11	5	0	267	1311
08:35:00 AM	0	0	0	0	14	0	7	0	11	16	0	0	0	10	7	0	238	1267
08:40:00 AM	0	0	0	0	9	0	5	0	10	15	0	0	0	12	13	0	211	1204
08:45:00 AM	0	0	0	0	11	0	7	0	10	20	0	0	0	15	12	0	204	1171
08:50:00 AM	0	0	0	0	14	0	8	0	9	15	0	0	0	11	5	0	201	1118
08:55:00 AM	0	0	0	0	14	0	6	0	5	16	0	0	0	8	7	0	193	1066

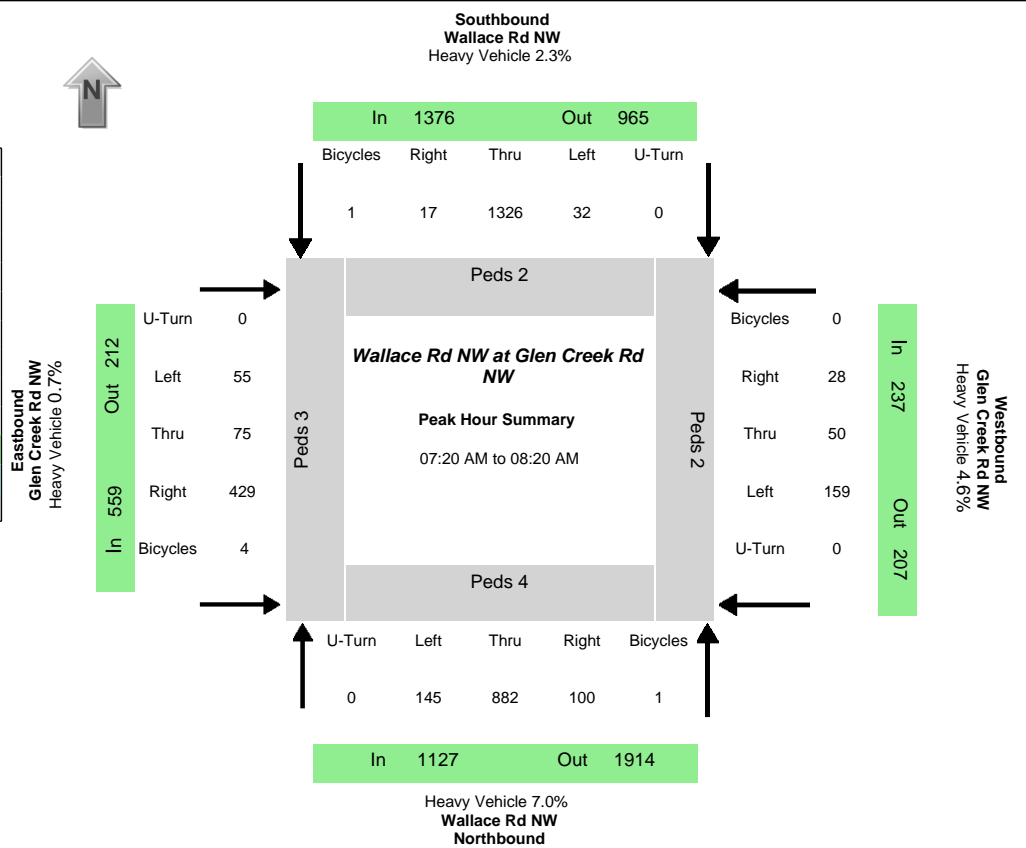
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.96044 - -123.07966
Start Date	Thursday, September 16, 2021
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:30:00 AM
Peak 15 Min Start	08:05:00 AM
PHF (15-Min Int)	0.87



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
23	101	174	0	42	179	35	0	56	199	33	0	269	188	41	0	298	256	288	498	481	198	246	415
Percent Heavy Vehicles																							
8.7%	5.9%	1.1%	0.0%	11.9%	0.6%	17.1%	0.0%	10.7%	6.0%	15.2%	0.0%	3.0%	5.3%	0.0%	0.0%	3.4%	4.7%	8.0%	3.6%	2.9%	6.1%	7.3%	4.6%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	3	16	5	10	5		36	
All Vehicle Volumes																							
Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR	Sum	Sum			
	Doaks Ferry Rd NW				Doaks Ferry Rd NW				Orchard Heights Rd NW				Orchard Heights Rd NW										
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	0	1	0	0	1	1	0	0	1	1	0	0	2	0	0	0							
06:05:00 AM	0	2	0	0	0	0	0	0	1	3	1	0	4	1	1	0							
06:10:00 AM	0	5	0	0	0	4	0	0	0	3	1	0	1	3	0	0	37						
06:15:00 AM	0	2	1	0	2	5	0	0	0	2	0	0	1	2	0	0	45						
06:20:00 AM	0	9	0	0	0	3	0	0	2	1	0	0	2	3	3	0	55						
06:25:00 AM	0	1	1	0	1	2	0	0	0	3	0	0	1	0	1	0	48						
06:30:00 AM	0	4	2	0	1	2	1	0	0	1	2	0	2	2	1	0	51						
06:35:00 AM	0	2	2	0	2	4	1	0	0	3	0	0	1	4	0	0	47						
06:40:00 AM	0	2	1	0	3	4	0	0	0	6	0	0	2	0	0	0	55						
06:45:00 AM	0	4	2	0	1	3	1	0	1	10	1	0	5	4	2	0	71						
06:50:00 AM	0	8	1	0	1	3	0	0	1	4	1	0	7	6	3	0	87						
06:55:00 AM	0	5	3	0	2	3	3	0	1	7	2	0	2	5	1	0	103	243					
07:00:00 AM	0	3	9	0	3	9	0	0	2	13	0	0	5	5	4	0	122	289					
07:05:00 AM	1	6	9	0	1	7	2	0	2	6	1	0	7	3	3	0	135	324					
07:10:00 AM	0	4	13	0	6	8	0	0	2	7	1	0	14	3	3	0	162	368					
07:15:00 AM	0	11	9	0	3	9	0	0	1	15	0	0	11	3	3	0	174	418					
07:20:00 AM	0	4	7	0	3	5	0	0	2	6	3	0	12	8	4	0	180	449					
07:25:00 AM	0	7	16	0	4	6	0	0	0	7	3	0	11	5	4	0	182	502					
07:30:00 AM	0	10	24	0	2	11	0	0	3	20	0	0	11	6	4	0	208	575					
07:35:00 AM	1	17	25	0	3	11	2	0	7	13	4	0	20	18	4	0	279	681					
07:40:00 AM	3	11	27	0	4	6	2	0	2	24	2	0	28	12	6	0	343	790					
07:45:00 AM	1	10	28	0	5	7	2	0	7	12	1	0	35	21	4	0	385	889					
07:50:00 AM	0	9	11	0	3	12	0	0	2	10	0	0	30	18	5	0	360	954					
07:55:00 AM	1	4	11	0	4	11	4	0	2	7	2	0	23	17	2	0	321	1008					

08:00:00 AM	0	9	17	0	10	8	1	0	3	14	2	0	10	9	4	0	275	1042
08:05:00 AM	1	4	6	0	4	19	4	0	4	17	4	0	23	27	4	0	292	1111
08:10:00 AM	2	10	9	0	4	22	7	0	5	18	5	0	33	15	1	0	335	1181
08:15:00 AM	6	5	8	0	1	29	3	0	10	27	6	0	21	20	3	0	387	1255
08:20:00 AM	5	5	6	0	2	32	5	0	4	13	4	0	21	14	1	0	382	1313
08:25:00 AM	3	7	2	0	0	11	5	0	7	24	3	0	14	11	3	0	341	1340
08:30:00 AM	2	8	7	0	1	6	1	0	1	11	2	0	5	4	1	0	251	1298
08:35:00 AM	3	6	5	0	1	4	1	0	3	7	2	0	2	1	3	0	177	1211
08:40:00 AM	2	10	3	0	4	3	0	0	3	11	1	0	7	8	3	0	142	1139
08:45:00 AM	0	16	2	0	4	8	1	0	5	9	1	0	4	2	4	0	149	1062
08:50:00 AM	0	3	5	0	7	5	1	0	3	7	2	0	8	7	5	0	164	1015
08:55:00 AM	0	6	10	0	4	14	0	0	1	9	3	0	4	5	9	0	174	992

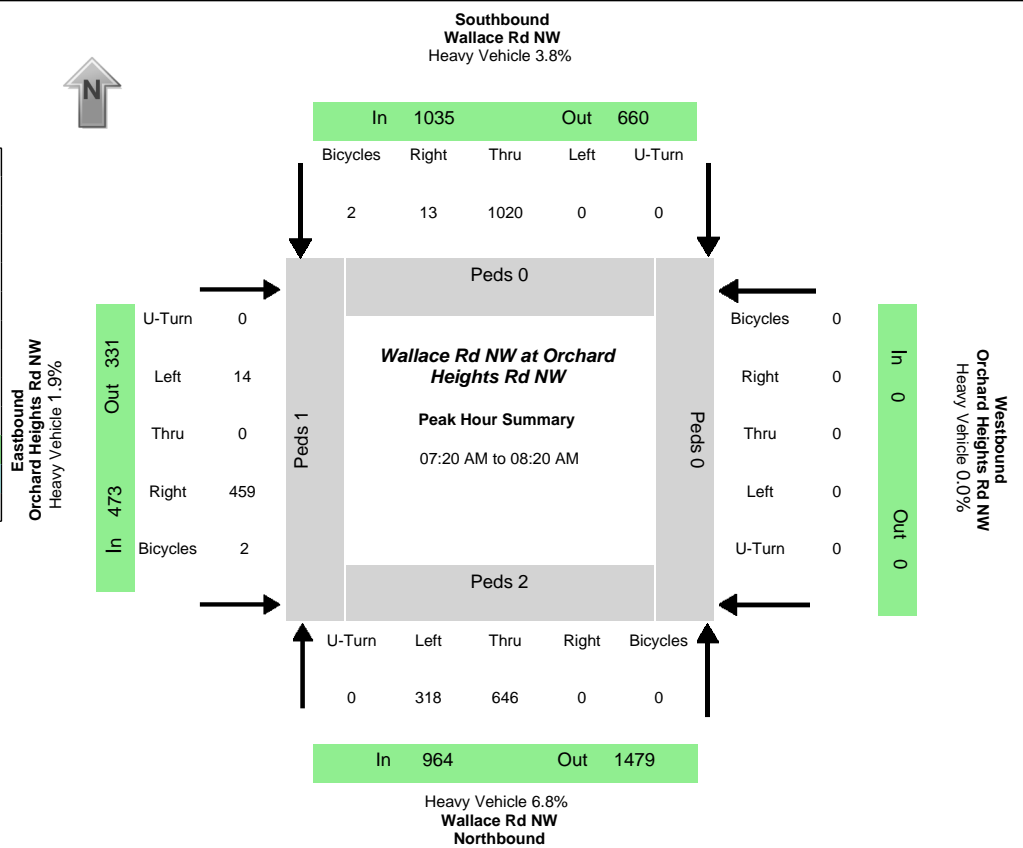
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.95009 - -123.05165
Start Date	Thursday, September 16, 2021
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:20:00 AM
Peak 15 Min Start	07:40:00 AM
PHF (15-Min Int)	0.94



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
145	882	100	0	32	1326	17	0	55	75	429	0	159	50	28	0	1127	1375	559	237	1914	965	212	207
Percent Heavy Vehicles																							
7.6%	6.9%	7.0%	0.0%	3.1%	2.3%	0.0%	0.0%	0.0%	1.3%	0.7%	0.0%	4.4%	6.0%	3.6%	0.0%	7.0%	2.3%	0.7%	4.6%	2.1%	6.4%	6.6%	4.3%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	1	0	0	0	3	1	0	0	0	0	0	6	4	2	3	2	11		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn			Sum	Sum			
06:00:00 AM	2	54	3	0	3	41	0	0	2	1	19	0	4	1	0	0							
06:05:00 AM	0	51	2	0	1	38	1	0	4	1	17	1	2	1	2	0							
06:10:00 AM	3	48	1	0	0	51	0	0	2	1	18	0	5	2	3	0	385						
06:15:00 AM	2	50	0	0	0	56	0	0	2	2	23	0	6	2	5	0	403						
06:20:00 AM	4	52	3	0	2	58	0	0	1	6	20	0	7	1	1	0	437						
06:25:00 AM	2	50	0	0	0	68	1	0	1	8	17	0	7	5	1	0	463						
06:30:00 AM	4	47	2	0	0	67	0	0	2	3	23	0	5	6	1	0	475						
06:35:00 AM	4	52	3	0	0	101	0	0	3	3	18	0	11	3	2	0	520						
06:40:00 AM	3	50	2	0	2	83	0	0	3	1	34	0	10	3	1	0	552						
06:45:00 AM	6	51	3	0	1	78	1	0	7	5	38	0	9	2	4	0	597						
06:50:00 AM	4	79	9	0	0	97	1	0	2	2	17	0	16	6	1	0	631						
06:55:00 AM	5	47	4	0	1	83	1	0	2	8	27	0	6	5	1	0	629	2029					
07:00:00 AM	5	55	4	0	1	103	0	0	5	4	37	0	8	2	1	0	649	2124					
07:05:00 AM	9	44	3	0	0	115	1	0	4	2	25	0	13	4	0	0	635	2223					
07:10:00 AM	4	54	9	0	0	105	2	0	0	3	27	0	3	7	5	0	664	2308					
07:15:00 AM	11	64	7	0	1	108	2	0	1	4	45	0	18	2	2	0	704	2425					
07:20:00 AM	8	63	10	0	1	99	0	0	2	5	34	0	10	4	1	0	721	2507					
07:25:00 AM	7	90	9	0	1	106	3	0	6	2	32	0	9	5	2	0	774	2619					
07:30:00 AM	10	73	9	0	2	116	1	0	3	6	34	0	10	5	2	0	780	2730					
07:35:00 AM	7	66	5	0	2	116	2	0	5	5	38	0	17	9	3	0	818	2805					
07:40:00 AM	9	89	8	0	2	118	0	0	8	9	26	0	18	0	3	0	836	2903					
07:45:00 AM	14	65	8	0	3	137	1	0	3	7	41	0	12	5	3	0	864	2997					
07:50:00 AM	22	63	3	0	2	107	0	0	7	10	47	0	16	4	3	0	873	3047					
07:55:00 AM	11	68	12	0	5	100	3	0	6	4	34	0	14	2	1	0	843	3117					

08:00:00 AM	15	91	9	0	5	125	3	0	1	4	31	0	15	5	2	0	850	3198
08:05:00 AM	18	60	6	0	4	95	3	0	2	4	32	0	13	5	2	0	810	3222
08:10:00 AM	14	67	14	0	4	96	1	0	9	12	48	0	10	2	2	0	829	3282
08:15:00 AM	10	87	7	0	1	111	0	0	3	7	32	0	15	4	4	0	804	3298
08:20:00 AM	14	64	5	0	1	68	2	0	4	3	48	0	11	4	2	0	786	3287
08:25:00 AM	13	74	6	0	5	77	0	0	4	7	34	0	14	7	4	0	752	3260
08:30:00 AM	5	78	8	0	5	82	1	0	6	12	38	0	9	5	4	0	724	3242
08:35:00 AM	11	71	10	0	2	92	1	0	1	9	42	0	25	8	3	0	773	3242
08:40:00 AM	18	58	13	0	3	79	1	0	2	10	43	0	19	6	1	0	781	3205
08:45:00 AM	17	74	7	0	3	84	0	0	5	9	38	0	22	6	7	0	800	3178
08:50:00 AM	14	78	13	0	5	85	0	0	6	16	31	0	16	2	2	0	793	3162
08:55:00 AM	11	72	7	0	3	111	1	0	4	3	26	0	20	8	3	0	809	3171

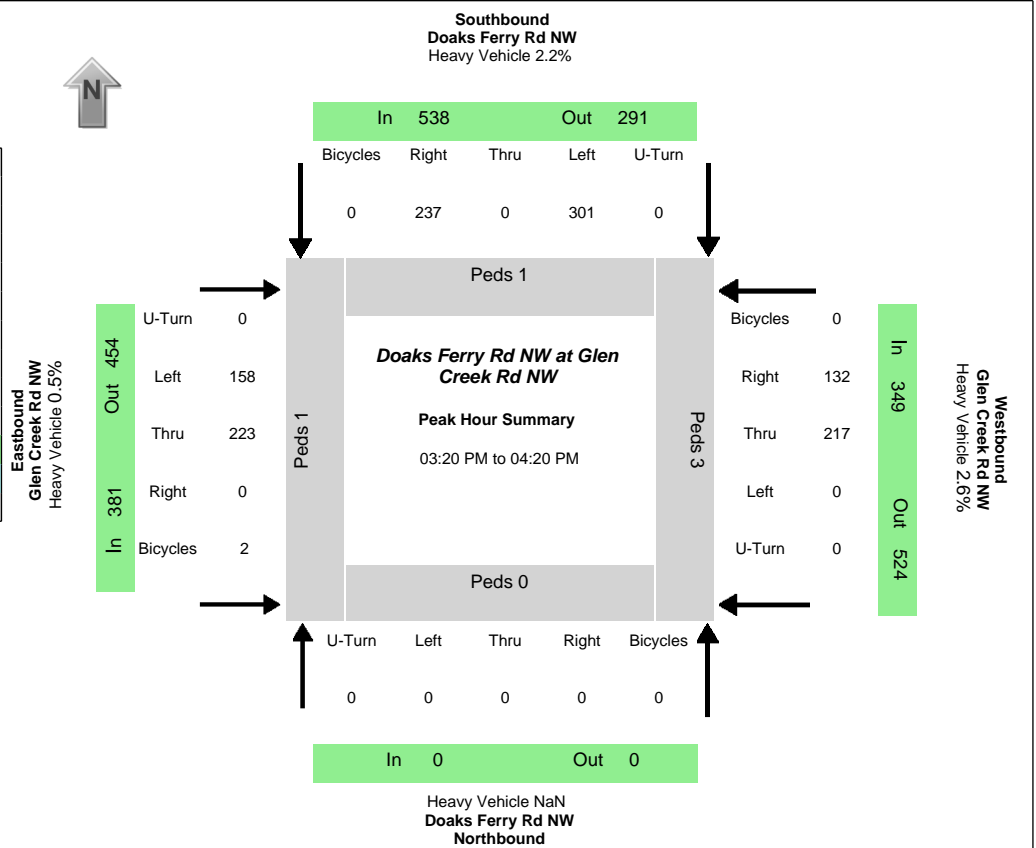
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.95334 - -123.05251
Start Date	Thursday, September 16, 2021
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:20:00 AM
Peak 15 Min Start	07:30:00 AM
PHF (15-Min Int)	0.88



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
318	646	0	0	0	1020	13	0	14	0	459	0	0	0	0	0	964	1033	473	0	1479	660	331	0
Percent Heavy Vehicles																							
2.5%	9.0%	0.0%	0.0%	0.0%	3.5%	23.1%	0.0%	7.1%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	6.8%	3.8%	1.9%	0.0%	3.0%	8.9%	3.3%	0.0%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	4	2	0	1	0		3	
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Orchard Heights Rd NW				Westbound Orchard Heights Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	2	43	0	0	0	27	0	0	0	0	8	0	0	0	0	0							
06:05:00 AM	7	43	0	0	0	37	0	0	0	0	6	0	0	0	0	0							
06:10:00 AM	5	48	0	0	0	42	0	0	0	0	12	0	0	0	0	0	280						
06:15:00 AM	7	58	0	0	0	61	1	0	1	0	9	0	0	0	0	0	337						
06:20:00 AM	4	35	0	0	0	41	0	0	1	0	14	0	0	0	0	0	339						
06:25:00 AM	3	57	0	0	0	58	1	0	1	0	23	0	0	0	0	0	375						
06:30:00 AM	6	44	0	0	0	63	1	0	3	0	17	0	0	0	0	0	372						
06:35:00 AM	5	48	0	0	0	77	0	0	0	0	18	0	0	0	0	0	425						
06:40:00 AM	6	42	0	0	0	79	1	0	1	0	29	0	0	0	0	0	440						
06:45:00 AM	11	58	0	0	0	68	0	0	1	0	24	0	0	0	0	0	468						
06:50:00 AM	13	53	0	0	0	68	1	0	1	0	24	0	0	0	0	0	480						
06:55:00 AM	12	40	0	0	0	75	0	0	1	0	30	0	0	0	0	0	480	1575					
07:00:00 AM	16	35	0	0	0	85	1	0	0	0	35	0	0	0	0	0	490	1667					
07:05:00 AM	11	46	0	0	0	101	1	0	1	0	25	0	0	0	0	0	515	1759					
07:10:00 AM	14	44	0	0	0	78	1	0	1	0	27	0	0	0	0	0	522	1817					
07:15:00 AM	19	43	0	0	0	81	1	0	0	0	31	0	0	0	0	0	525	1855					
07:20:00 AM	15	63	0	0	0	75	2	0	0	0	34	0	0	0	0	0	529	1949					
07:25:00 AM	29	54	0	0	0	84	0	0	1	0	21	0	0	0	0	0	553	1995					
07:30:00 AM	37	49	0	0	0	88	1	0	0	0	55	0	0	0	0	0	608	2091					
07:35:00 AM	28	63	0	0	0	104	1	0	0	0	41	0	0	0	0	0	656	2180					
07:40:00 AM	26	65	0	0	0	103	2	0	1	0	37	0	0	0	0	0	701	2256					
07:45:00 AM	21	48	0	0	0	93	0	0	2	0	58	0	0	0	0	0	693	2316					
07:50:00 AM	24	48	0	0	0	97	0	0	0	0	32	0	0	0	0	0	657	2357					
07:55:00 AM	21	53	0	0	0	83	3	0	2	0	38	0	0	0	0	0	623	2399					

08:00:00 AM	35	52	0	0	0	86	2	0	2	0	45	0	0	0	0	0	623	2449
08:05:00 AM	21	41	0	0	0	68	0	0	3	0	19	0	0	0	0	0	574	2416
08:10:00 AM	30	58	0	0	0	77	0	0	1	0	40	0	0	0	0	0	580	2457
08:15:00 AM	31	52	0	0	0	62	2	0	2	0	39	0	0	0	0	0	546	2470
08:20:00 AM	20	39	0	0	0	60	3	0	2	0	31	0	0	0	0	0	549	2436
08:25:00 AM	15	78	0	0	0	66	0	0	1	0	35	0	0	0	0	0	538	2442
08:30:00 AM	18	64	0	0	0	52	1	0	5	0	30	0	0	0	0	0	520	2382
08:35:00 AM	13	54	0	0	0	47	1	0	3	0	34	0	0	0	0	0	517	2297
08:40:00 AM	12	59	0	0	0	86	0	0	0	0	31	0	0	0	0	0	510	2251
08:45:00 AM	22	52	0	0	0	78	4	0	1	0	32	0	0	0	0	0	529	2218
08:50:00 AM	22	56	0	0	0	95	2	0	1	0	32	0	0	0	0	0	585	2225
08:55:00 AM	27	62	0	0	0	64	1	0	2	0	25	0	0	0	0	0	578	2206

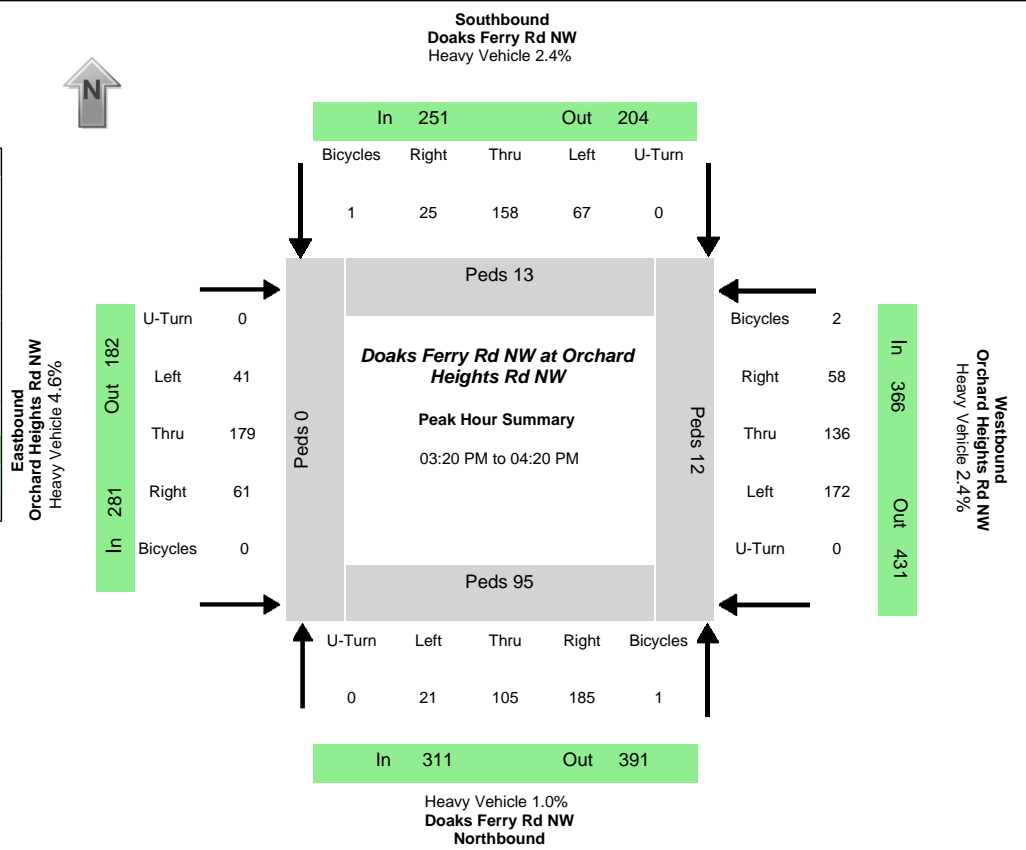
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.95208 - -123.08433
Start Date	Thursday, September 16, 2021
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	03:20:00 PM
Peak 15 Min Start	03:30:00 PM
PHF (15-Min Int)	0.91



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	301	0	237	0	158	223	0	0	0	217	132	0	0	538	381	349	0	290	454	524
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	2.1%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	2.8%	2.3%	0.0%	NaN	2.2%	0.5%	2.6%	NaN	1.0%	2.4%	1.7%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	1	1	3	5		
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
02:00:00 PM	0	0	0	0	6	0	8	0	9	14	0	0	0	10	13	0							
02:05:00 PM	0	0	0	0	5	0	4	0	20	15	0	0	0	15	15	0							
02:10:00 PM	0	0	0	0	9	0	3	0	17	16	0	0	0	16	9	0	204						
02:15:00 PM	0	0	0	0	11	0	6	0	13	9	0	0	0	14	9	0	206						
02:20:00 PM	0	0	0	0	7	0	11	0	14	11	0	0	0	11	6	0	192						
02:25:00 PM	0	0	0	0	19	0	23	0	4	11	0	0	0	9	10	0	198						
02:30:00 PM	0	0	0	0	21	0	30	0	10	12	0	0	0	12	13	0	234						
02:35:00 PM	0	0	0	0	15	0	15	0	5	13	0	0	0	16	10	0	248						
02:40:00 PM	0	0	0	0	11	0	12	0	8	18	0	0	0	11	6	0	238						
02:45:00 PM	0	0	0	0	16	0	8	0	13	10	0	0	0	14	7	0	208						
02:50:00 PM	0	0	0	0	7	0	8	0	16	12	0	0	0	14	15	0	206						
02:55:00 PM	0	0	0	0	4	0	10	0	10	9	0	0	0	9	16	0	198	838					
03:00:00 PM	0	0	0	0	7	0	5	0	9	14	0	0	0	12	13	0	190	838					
03:05:00 PM	0	0	0	0	6	0	13	0	15	13	0	0	0	23	18	0	206	852					
03:10:00 PM	0	0	0	0	10	0	10	0	15	5	0	0	0	18	21	0	227	861					
03:15:00 PM	0	0	0	0	13	0	6	0	14	19	0	0	0	13	13	0	245	877					
03:20:00 PM	0	0	0	0	26	0	10	0	10	22	0	0	0	15	7	0	247	907					
03:25:00 PM	0	0	0	0	24	0	26	0	12	14	0	0	0	22	10	0	276	939					
03:30:00 PM	0	0	0	0	39	0	17	0	17	19	0	0	0	18	8	0	316	959					
03:35:00 PM	0	0	0	0	32	0	16	0	15	19	0	0	0	18	10	0	336	995					
03:40:00 PM	0	0	0	0	33	0	34	0	16	15	0	0	0	16	8	0	350	1051					
03:45:00 PM	0	0	0	0	29	0	20	0	10	25	0	0	0	18	13	0	347	1098					
03:50:00 PM	0	0	0	0	12	0	18	0	16	18	0	0	0	19	21	0	341	1130					
03:55:00 PM	0	0	0	0	15	0	11	0	12	17	0	0	0	11	15	0	300	1153					

04:00:00 PM	0	0	0	0	16	0	11	0	11	23	0	0	0	16	17	0	279	1187
04:05:00 PM	0	0	0	0	23	0	32	0	12	11	0	0	0	28	4	0	285	1209
04:10:00 PM	0	0	0	0	28	0	25	0	11	22	0	0	0	17	8	0	315	1241
04:15:00 PM	0	0	0	0	24	0	17	0	16	18	0	0	0	19	11	0	326	1268
04:20:00 PM	0	0	0	0	16	0	13	0	10	19	0	0	0	21	10	0	305	1267
04:25:00 PM	0	0	0	0	15	0	11	0	11	9	0	0	0	17	14	0	271	1236
04:30:00 PM	0	0	0	0	13	0	5	0	8	20	0	0	0	15	13	0	240	1192
04:35:00 PM	0	0	0	0	16	0	11	0	8	19	0	0	0	20	13	0	238	1169
04:40:00 PM	0	0	0	0	16	0	11	0	10	14	0	0	0	16	13	0	241	1127
04:45:00 PM	0	0	0	0	21	0	17	0	13	21	0	0	0	22	7	0	268	1113
04:50:00 PM	0	0	0	0	11	0	8	0	14	15	0	0	0	19	9	0	257	1085
04:55:00 PM	0	0	0	0	12	0	6	0	15	17	0	0	0	12	6	0	245	1072
05:00:00 PM	0	0	0	0	7	0	11	0	14	18	0	0	0	25	8	0	227	1061
05:05:00 PM	0	0	0	0	14	0	12	0	9	18	0	0	0	17	10	0	231	1031
05:10:00 PM	0	0	0	0	12	0	10	0	11	9	0	0	0	24	9	0	238	995
05:15:00 PM	0	0	0	0	20	0	7	0	14	9	0	0	0	14	8	0	227	962
05:20:00 PM	0	0	0	0	12	0	8	0	19	11	0	0	0	17	22	0	236	962
05:25:00 PM	0	0	0	0	11	0	8	0	16	18	0	0	0	15	13	0	242	966
05:30:00 PM	0	0	0	0	12	0	8	0	14	12	0	0	0	14	18	0	248	970
05:35:00 PM	0	0	0	0	20	0	6	0	10	10	0	0	0	16	21	0	242	966
05:40:00 PM	0	0	0	0	9	0	9	0	19	13	0	0	0	9	23	0	243	968
05:45:00 PM	0	0	0	0	17	0	11	0	20	8	0	0	0	22	13	0	256	958
05:50:00 PM	0	0	0	0	14	0	7	0	25	10	0	0	0	10	11	0	250	959
05:55:00 PM	0	0	0	0	8	0	12	0	15	20	0	0	0	30	21	0	274	997

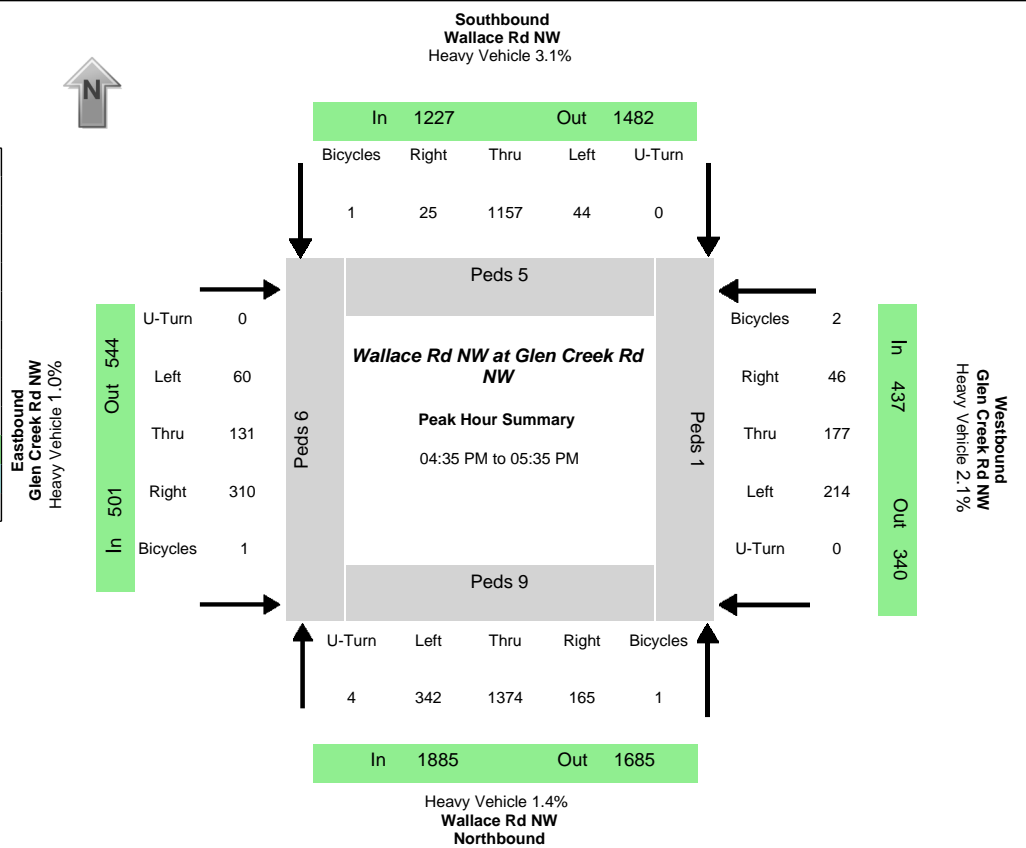
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.96044 - -123.07966
Start Date	Thursday, September 16, 2021
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	03:20:00 PM
Peak 15 Min Start	03:30:00 PM
PHF (15-Min Int)	0.88



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
21	105	185	0	67	158	25	0	41	179	61	0	172	136	58	0	311	250	281	366	391	204	182	431
Percent Heavy Vehicles																							
0.0%	1.0%	1.1%	0.0%	6.0%	0.6%	4.0%	0.0%	7.3%	3.4%	6.6%	0.0%	1.7%	4.4%	0.0%	0.0%	1.0%	2.4%	4.6%	2.5%	2.0%	2.0%	3.8%	2.8%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	4	95	13	0	12	120		
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Rd NW				Eastbound Orchard Heights Rd NW				Westbound Orchard Heights Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
02:00:00 PM	1	6	10	0	1	5	0	0	0	9	2	0	4	4	1	0							
02:05:00 PM	0	6	12	0	1	5	0	0	1	10	1	0	4	5	1	0							
02:10:00 PM	1	5	9	0	2	6	1	0	2	12	0	0	3	10	5	0	145						
02:15:00 PM	1	10	17	0	3	3	2	0	2	11	6	0	3	3	0	0	163						
02:20:00 PM	0	6	6	0	4	8	0	0	3	7	1	0	4	4	4	0	164						
02:25:00 PM	1	7	9	0	1	3	0	0	1	5	1	0	26	13	5	0	180						
02:30:00 PM	0	11	8	0	3	4	1	0	3	3	1	0	32	17	1	0	203						
02:35:00 PM	2	6	6	0	3	4	0	0	0	9	0	0	23	7	6	0	222						
02:40:00 PM	1	8	5	0	4	8	2	0	2	5	3	0	13	7	3	0	211						
02:45:00 PM	1	6	2	0	1	8	1	0	3	10	1	0	12	3	2	0	177						
02:50:00 PM	1	6	13	0	3	7	2	0	1	8	1	0	5	9	4	0	171						
02:55:00 PM	1	8	6	0	2	3	1	0	1	7	2	0	10	10	1	0	162	698					
03:00:00 PM	2	11	3	0	3	5	3	0	2	6	0	0	3	17	3	0	170	713					
03:05:00 PM	4	8	4	0	1	8	0	0	1	10	3	0	15	7	2	0	173	730					
03:10:00 PM	1	10	11	0	0	8	4	0	2	10	2	0	11	22	3	0	205	758					
03:15:00 PM	5	10	6	0	5	19	3	0	1	2	0	0	13	14	0	0	225	775					
03:20:00 PM	3	6	10	0	4	15	1	0	4	12	3	0	8	21	2	0	251	817					
03:25:00 PM	0	5	6	0	3	26	4	0	6	25	11	0	11	12	3	0	279	857					
03:30:00 PM	0	6	12	0	5	14	3	0	8	25	11	0	6	8	3	0	302	874					
03:35:00 PM	6	16	18	0	4	10	1	0	8	19	9	0	9	12	7	0	332	927					
03:40:00 PM	1	17	30	0	4	15	3	0	5	19	10	0	12	6	2	0	344	990					
03:45:00 PM	1	5	23	0	5	10	1	0	1	19	3	0	19	8	1	0	339	1036					
03:50:00 PM	2	9	16	0	10	7	2	0	0	8	4	0	12	6	2	0	298	1054					
03:55:00 PM	3	7	22	0	13	9	5	0	1	14	2	0	9	9	3	0	271	1099					

04:00:00 PM	2	14	10	0	7	10	1	0	4	10	0	0	12	4	5	0	254	1120
04:05:00 PM	2	3	13	0	6	19	1	0	2	13	4	0	22	17	9	0	287	1168
04:10:00 PM	0	9	9	0	2	15	3	0	1	12	1	0	29	23	15	0	309	1203
04:15:00 PM	1	8	16	0	4	8	0	0	1	3	3	0	23	10	6	0	313	1208
04:20:00 PM	2	12	8	0	4	8	3	0	0	5	2	0	13	7	6	0	272	1189
04:25:00 PM	0	13	4	0	5	14	1	0	1	4	0	0	6	7	2	0	210	1134
04:30:00 PM	1	8	3	0	5	7	2	0	5	8	1	0	4	6	3	0	180	1086
04:35:00 PM	4	8	8	0	2	15	2	0	2	4	1	0	8	9	3	0	176	1033
04:40:00 PM	0	8	5	0	3	11	1	0	2	8	2	0	4	9	4	0	176	966
04:45:00 PM	1	9	4	0	6	21	1	0	2	4	0	0	5	9	1	0	186	933
04:50:00 PM	2	10	4	0	1	9	1	0	8	4	3	0	7	9	4	0	182	917
04:55:00 PM	2	13	6	0	4	5	3	0	1	7	3	0	5	10	1	0	185	880
05:00:00 PM	0	8	2	0	3	10	4	0	2	6	0	0	5	13	1	0	176	855
05:05:00 PM	1	12	5	0	1	16	2	0	1	6	2	0	4	5	0	0	169	799
05:10:00 PM	0	8	6	0	0	10	3	0	1	18	0	0	9	9	3	0	176	747
05:15:00 PM	3	9	3	0	3	17	1	0	1	5	1	0	6	10	5	0	186	728
05:20:00 PM	1	17	9	0	6	9	1	0	4	4	2	0	6	14	5	0	209	736
05:25:00 PM	0	14	12	0	2	7	3	0	1	2	2	0	8	10	2	0	205	742
05:30:00 PM	1	13	6	0	4	10	2	0	2	4	0	0	4	10	1	0	198	746
05:35:00 PM	1	12	4	0	3	18	4	0	2	7	1	0	3	13	8	0	196	756
05:40:00 PM	2	9	4	0	5	12	0	0	1	10	1	0	10	12	1	0	200	766
05:45:00 PM	1	8	8	0	5	18	3	0	2	8	1	0	6	15	2	0	220	780
05:50:00 PM	2	17	12	0	5	11	9	0	0	6	2	0	7	22	4	0	241	815
05:55:00 PM	1	9	7	0	3	10	3	0	4	4	2	0	4	15	4	0	240	821

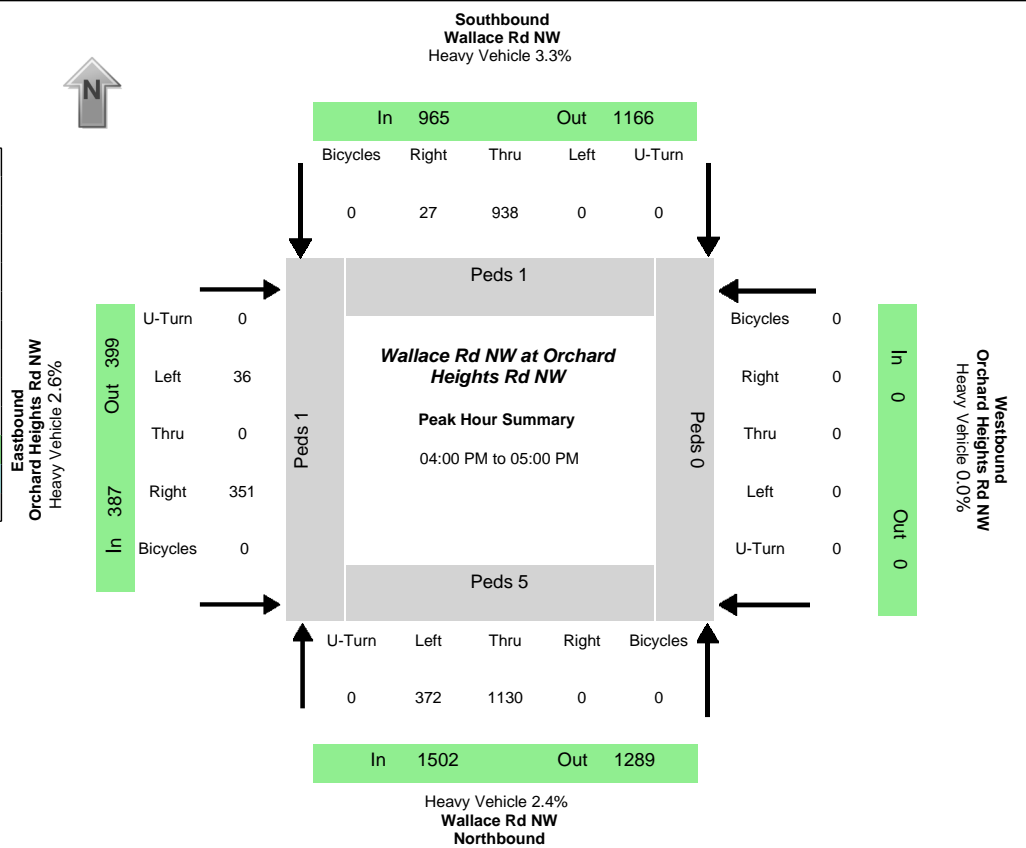
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.95009 - -123.05165
Start Date	Thursday, September 16, 2021
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:35:00 PM
Peak 15 Min Start	04:35:00 PM
PHF (15-Min Int)	0.98



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
342	1374	165	4	44	1157	25	0	60	131	310	0	214	177	46	0	1885	1226	501	437	1685	1480	544	340
Percent Heavy Vehicles																							
1.2%	1.5%	1.2%	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	2.8%	1.1%	2.2%	0.0%	1.4%	3.1%	1.0%	2.1%	2.9%	1.4%	1.1%	0.6%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	5	9	5	6	1	21		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
02:00:00 PM	21	70	17	0	3	59	2	0	3	16	31	1	32	11	5	0							
02:05:00 PM	15	96	15	0	5	103	3	0	2	12	24	1	26	17	9	0							
02:10:00 PM	24	109	11	0	3	78	1	0	5	7	15	0	23	13	2	0	890						
02:15:00 PM	20	100	15	0	3	69	3	0	3	6	24	0	18	15	7	0	902						
02:20:00 PM	24	84	17	0	7	69	1	0	6	5	17	1	27	8	1	0	841						
02:25:00 PM	14	111	16	0	5	109	1	0	4	15	12	0	11	8	4	0	860						
02:30:00 PM	28	90	15	0	6	87	3	0	4	8	38	1	14	8	4	0	883						
02:35:00 PM	26	78	13	0	1	93	4	0	9	17	24	1	24	18	10	0	934						
02:40:00 PM	19	100	8	0	3	112	1	0	4	5	21	0	20	10	1	0	928						
02:45:00 PM	25	79	12	0	2	94	1	0	5	8	45	1	18	8	1	0	921						
02:50:00 PM	33	84	18	0	3	70	5	0	6	10	25	1	22	16	6	0	902						
02:55:00 PM	18	108	19	0	5	105	3	0	4	6	20	0	22	5	8	0	921	3599					
03:00:00 PM	24	87	17	0	3	77	1	0	4	3	21	0	19	12	2	0	892	3598					
03:05:00 PM	34	98	13	0	2	67	0	0	5	14	17	0	15	11	5	0	874	3551					
03:10:00 PM	30	98	14	0	10	88	1	0	5	4	19	0	23	14	7	0	864	3573					
03:15:00 PM	23	141	11	0	4	113	2	0	3	4	21	0	12	10	2	0	940	3636					
03:20:00 PM	35	115	15	0	2	74	2	0	2	8	30	0	14	10	3	0	969	3679					
03:25:00 PM	24	86	19	1	2	93	5	0	6	4	33	0	15	13	11	0	968	3681					
03:30:00 PM	16	106	11	0	2	115	5	0	8	10	26	0	17	9	3	0	950	3703					
03:35:00 PM	39	110	12	0	7	75	2	0	4	8	30	0	24	15	0	0	966	3711					
03:40:00 PM	24	101	13	0	3	78	1	0	10	5	30	0	23	16	11	0	969	3722					
03:45:00 PM	27	105	16	0	6	111	0	0	8	10	29	0	14	18	2	0	987	3769					
03:50:00 PM	35	141	15	0	4	101	1	0	7	9	25	0	15	9	8	0	1031	3840					
03:55:00 PM	23	99	11	0	2	85	2	0	7	21	16	0	21	19	3	0	1025	3826					

04:00:00 PM	24	103	21	0	4	99	2	0	2	7	28	0	22	14	4	0	1009	3886
04:05:00 PM	31	112	12	0	4	105	1	0	7	11	32	0	10	20	7	0	991	3957
04:10:00 PM	22	103	20	0	4	83	3	0	5	15	34	0	21	11	3	0	1006	3968
04:15:00 PM	28	95	15	0	7	67	1	0	7	8	25	0	26	21	7	0	983	3929
04:20:00 PM	22	124	15	0	1	111	5	0	5	8	27	0	18	10	4	0	981	3969
04:25:00 PM	26	111	16	0	2	79	1	0	4	13	39	0	15	15	5	0	983	3983
04:30:00 PM	20	94	14	0	9	96	5	0	4	8	23	0	21	10	4	0	984	3963
04:35:00 PM	22	124	18	0	6	113	4	0	5	6	25	0	14	16	5	0	992	3995
04:40:00 PM	30	126	18	1	1	88	2	0	7	12	33	0	19	20	4	0	1027	4041
04:45:00 PM	26	91	14	1	2	83	1	0	6	19	20	0	22	21	3	0	1028	4004
04:50:00 PM	14	126	11	0	4	108	4	0	5	12	26	0	15	5	8	0	1008	3972
04:55:00 PM	44	135	12	1	2	95	2	0	5	11	31	0	13	10	2	0	1010	4026
05:00:00 PM	27	99	13	0	5	87	3	0	4	17	23	0	21	23	4	0	1027	4022
05:05:00 PM	28	100	17	0	4	103	0	0	7	9	21	0	23	15	2	0	1018	3999
05:10:00 PM	40	126	13	0	1	93	3	0	1	5	30	0	21	14	3	0	1005	4025
05:15:00 PM	28	113	18	0	2	81	2	0	6	12	32	0	15	14	2	0	1004	4043
05:20:00 PM	17	98	7	1	6	93	1	0	2	9	25	0	29	19	7	0	989	4007
05:25:00 PM	29	121	11	0	6	115	0	0	3	8	16	0	9	9	3	0	969	4011
05:30:00 PM	37	115	13	0	5	98	3	0	9	11	28	0	13	11	3	0	990	4049
05:35:00 PM	25	95	17	0	6	96	1	0	6	14	25	0	27	18	3	0	1009	4024
05:40:00 PM	29	111	11	0	3	85	1	0	6	7	16	0	16	15	3	0	982	3966
05:45:00 PM	34	119	19	0	2	89	3	0	5	11	21	1	18	6	4	0	968	3989
05:50:00 PM	26	112	18	0	5	82	1	0	5	10	33	1	9	22	1	0	960	3976
05:55:00 PM	23	110	18	0	2	92	5	0	2	16	13	0	13	16	1	0	968	3924

Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.95334 - -123.05251
Start Date	Thursday, September 16, 2021
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:00:00 PM
Peak 15 Min Start	04:45:00 PM
PHF (15-Min Int)	0.97



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
372	1130	0	0	0	938	27	0	36	0	351	0	0	0	0	0	1502	965	387	0	1289	1166	399	0
Percent Heavy Vehicles																							
1.6%	2.7%	0.0%	0.0%	0.0%	3.3%	3.7%	0.0%	2.8%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	3.3%	2.6%	0.0%	3.1%	2.7%	1.8%	0.0%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	1	0	7		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Orchard Heights Rd NW				Westbound Orchard Heights Rd NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
02:00:00 PM	23	50	0	0	0	65	4	0	2	0	21	0	0	0	0	0							
02:05:00 PM	47	77	0	0	0	55	2	0	1	0	28	0	0	0	0	0							
02:10:00 PM	35	65	0	0	0	65	0	0	2	0	24	0	0	0	0	0	566						
02:15:00 PM	33	71	0	0	0	61	1	0	3	0	25	0	0	0	0	0	595						
02:20:00 PM	21	74	0	0	0	60	3	0	0	0	29	0	0	0	0	0	572						
02:25:00 PM	25	79	0	0	0	86	1	0	0	0	23	0	0	0	0	0	595						
02:30:00 PM	24	73	0	0	0	86	0	0	2	0	39	0	0	0	0	0	625						
02:35:00 PM	28	84	0	0	0	80	0	0	0	0	36	0	0	0	0	0	666						
02:40:00 PM	21	86	0	0	0	74	2	0	0	0	43	0	0	0	0	0	678						
02:45:00 PM	21	70	0	0	0	74	1	0	1	0	26	0	0	0	0	0	647						
02:50:00 PM	29	68	0	0	0	60	2	0	4	0	35	0	0	0	0	0	617						
02:55:00 PM	30	88	0	0	0	43	1	1	1	0	24	0	0	0	0	0	579	2418					
03:00:00 PM	27	74	0	0	0	69	1	0	1	0	28	0	0	0	0	0	586	2453					
03:05:00 PM	23	69	0	0	0	82	2	0	0	0	26	0	0	0	0	0	590	2445					
03:10:00 PM	40	96	0	0	0	74	3	0	1	0	24	0	0	0	0	0	640	2492					
03:15:00 PM	36	86	0	0	0	65	1	0	2	0	25	0	0	0	0	0	655	2513					
03:20:00 PM	28	90	0	0	0	110	1	0	0	0	11	0	0	0	0	0	693	2566					
03:25:00 PM	22	82	0	0	0	83	1	0	3	0	31	0	0	0	0	0	677	2574					
03:30:00 PM	44	77	0	0	0	67	5	0	3	0	31	0	0	0	0	0	689	2577					
03:35:00 PM	26	82	0	0	0	75	1	0	3	0	39	0	0	0	0	0	675	2575					
03:40:00 PM	27	105	0	0	0	87	2	0	3	0	30	0	0	0	0	0	707	2603					
03:45:00 PM	41	86	0	0	0	61	3	0	3	0	43	0	0	0	0	0	717	2647					
03:50:00 PM	28	93	0	0	0	73	0	0	3	0	27	0	0	0	0	0	715	2673					
03:55:00 PM	24	82	0	0	0	103	3	0	0	0	19	0	0	0	0	0	692	2716					

04:00:00 PM	35	90	0	0	0	75	9	0	0	0	30	0	0	0	0	0	694	2755
04:05:00 PM	31	82	0	0	0	86	2	0	5	0	30	0	0	0	0	0	706	2789
04:10:00 PM	33	83	0	0	0	74	1	0	4	0	31	0	0	0	0	0	701	2777
04:15:00 PM	26	99	0	0	0	58	1	0	9	0	39	0	0	0	0	0	694	2794
04:20:00 PM	32	100	0	0	0	59	2	0	3	0	36	0	0	0	0	0	690	2786
04:25:00 PM	34	76	0	0	0	92	2	0	0	0	22	0	0	0	0	0	690	2790
04:30:00 PM	28	91	0	0	0	94	6	0	0	0	17	0	0	0	0	0	694	2799
04:35:00 PM	30	108	0	0	0	78	1	0	1	0	29	0	0	0	0	0	709	2820
04:40:00 PM	26	95	0	0	0	76	0	0	6	0	43	0	0	0	0	0	729	2812
04:45:00 PM	29	83	0	0	0	72	1	0	5	0	25	0	0	0	0	0	708	2790
04:50:00 PM	45	118	0	0	0	75	0	0	0	0	31	0	0	0	0	0	730	2835
04:55:00 PM	23	105	0	0	0	99	2	0	3	0	18	0	0	0	0	0	734	2854
05:00:00 PM	43	79	0	0	0	88	2	0	0	0	20	0	0	0	0	0	751	2847
05:05:00 PM	26	95	0	0	0	77	2	0	2	0	24	0	0	0	0	0	708	2837
05:10:00 PM	31	91	0	0	0	69	1	0	2	0	35	0	0	0	0	0	687	2840
05:15:00 PM	37	83	0	0	0	70	0	0	0	0	22	0	0	0	0	0	667	2820
05:20:00 PM	23	104	0	0	0	91	2	0	2	0	25	0	0	0	0	0	688	2835
05:25:00 PM	27	87	0	0	0	89	1	0	0	0	16	0	0	0	0	0	679	2829
05:30:00 PM	33	90	0	0	0	96	5	0	2	0	15	0	0	0	0	0	708	2834
05:35:00 PM	41	93	0	0	0	86	2	0	2	0	23	0	0	0	0	0	708	2834
05:40:00 PM	41	84	0	0	0	72	2	0	0	0	32	0	0	0	0	0	719	2819
05:45:00 PM	29	77	0	0	0	67	2	0	3	0	38	0	0	0	0	0	694	2820
05:50:00 PM	44	89	0	0	0	73	1	0	1	0	24	0	0	0	0	0	679	2783
05:55:00 PM	38	90	0	0	0	74	2	0	5	0	24	0	0	0	0	0	681	2766



Date:	January 31, 2022
To:	Arielle Ferber, PE
From:	Joe Bessman, PE
Project Reference No.:	1603
Project Name:	Titan Hill Rezone



Thank you for the continued opportunity to coordinate with ODOT through the rezone process for the Titan Hill site located west of Doaks Ferry Road. This memorandum provides responses to the ODOT letter dated January 18, 2022 (received on January 26, 2022, following the Planning Commission hearing). The ODOT letter provides three primary comments related to technical aspects of the analysis and concludes by stating these issues would not change the overall findings. However, I have prepared the enclosed responses that will be provided to ODOT seeking concurrence and agreement. Based on informal discussions with ODOT staff, I believe their concurrence, while not necessary, will be provided to the City.

Comment 1: This study utilized the outdated Highway Capacity Manual (HCM) 2000 and did not utilize methodology from the HCM 6th Edition for signalized intersections. Our review showed that use of HCM6, as opposed to HCM 2000, did not affect the conclusions of this analysis.

I respectfully disagree with this statement and the characterization of the analysis submitted. The analysis was prepared using the HCM 6th Edition (the most current) analysis methodology, and all queuing and delays are provided from these reports. However, the HCM 6th Edition methodology no longer provides a volume-to-capacity ratio for the intersection as a whole, only for individual lane groups.

ODOT's adopted mobility standards within the Oregon Highway Plan are premised on the overall intersection v/c ratio, and so to get around this methodology limitation, ODOT's Transportation Planning and Analysis Unit (TPAU) devised a methodology to "approximate" the overall v/c ratio using a combination of the HCM 6th Edition outputs, the HCM2000 outputs, and the 1985 version of the Highway Capacity Manual methods for a Critical Movement Analysis. Simply stated, the 1985 Critical Movement Analysis combines conflicting movements and sums these combinations against the total capacity of the intersection.

The problem with this approach is that it does not respond well to more complicated signal timing and phasing strategies or high volumes of right-turns on red from dedicated turn lanes, such as those present along the Wallace Road corridor, and experiences other challenges with nuances of the software outputs. While the HCM 2000 is an older version of the Highway Capacity Manual, the results of the overall v/c metric are more realistic than this blended critical movement approach at complex intersections, and the calculations in the HCM6th Edition and HCM2000 remain very similar in how they account for pedestrians,

cyclists, trucks, cars, and various geometric factors.¹ For the comparative assessment between rezone scenarios this provides reasonable results appropriate for long-range planning analyses (and is what was presented in the adopted Transportation System Plan).

To address the suggestion that our analysis software or methods may have altered the results (a suggestion I reject and ODOT has already rejected), I have worked with ODOT staff to complete this analysis for the Wallace Road intersections as best as is possible per the ODOT Analysis Procedures Manual and limitations of this methodology (all other metrics such as queuing and delays were already reported from the HCM 6th Edition and need not be updated). These revised results are provided in Table 1 to avoid any speculation this could change the outcome of the analysis.

Table 1. Summary of ODOT v/c Ratios (CMA Technique)

Intersection	Year 2036 Existing Zoning	Year 2036 Proposed Zoning	Year 2036 Proposed Zoning with Density Cap	Meets OHP 1F.5?
Weekday AM Peak Hour				
Wallace Road/ Orchard Heights	v/c = 1.071	v/c = 1.114 (+0.043)	v/c = 1.092 (+0.021)	Yes with Density Cap
Wallace Road/ Glen Creek Road	v/c = 1.122	v/c = 1.156 (+0.034)	v/c = 1.136 (+0.014)	Yes with Density Cap
Weekday PM Peak Hour (ODOT Design Hour)				
Wallace Road/ Orchard Heights	v/c = 1.212	v/c = 1.241 (+0.029)	v/c = 1.221 (+0.009)	Yes
Wallace Road/ Glen Creek Road	v/c = 1.139	v/c = 1.156 (+0.017)	v/c = 1.152 (+0.013)	Yes

Please note that the applicable standard to assess a significant impact is cited within Action 1F.5 of the Oregon Highway Plan; this states the following:

In applying OHP mobility targets to analyze mitigation, ODOT recognizes that there are many variables and levels of uncertainty in calculating volume-to-capacity ratios, particularly over a specified planning horizon. After negotiating reasonable levels of mitigation for actions required under OAR 660-012-0060, ODOT considers calculated values for v/c ratios that are within 0.03 of the adopted target in the OHP to be considered in compliance with the target. The adopted mobility target still applies for determining significant affect under OAR 660-012-0060.

Accordingly, during the ODOT Design Hour (which is built around the weekday p.m. peak hour consistent with long-range planning efforts) the change in the v/c ratio is less than 0.03 at both intersections. With

¹ Refer to ODOT TPAU's July 21, 2021 presentation describing the basis and limitations of this methodology as included within the attachments.

the density cap in place this difference is further reduced. Accordingly, the rezone complies with the TPR section on Plan and Land Use Regulation Amendments.

Comment 2: This study does not contain a simulation-based queuing analysis. Such analysis would have been scoped if this study had been required under ODOT's authority.

As part of general practice for traffic impact analysis reports (TIAs), ODOT requires microsimulation for closely spaced and coordinated signalized corridors. This is neither practical nor appropriate on Wallace Road or for a TPR analysis:

- Microsimulation of a congested system would need to study the “pinch point” – in this case that would be the limited bridge capacity at the merge which is well outside of the study area.
- Microsimulation is a detailed analysis tool applicable to corridor projects and signal timing plan development and is not relevant to a TPR analysis. Our requirement is to show consistency with the adopted Transportation System Plan, which was not prepared using microscopic assessment tools, nor would it have been appropriate given the sweeping assumptions inherent within a long-term analysis that outweigh the higher levels of precision.
- Microsimulation does not provide ODOT with an overall v/c ratio that would respond to their standards. Its purpose is to understand queue lengths and queue blockage impacts. This is helpful information, but it does not respond to ODOT standards. The limitation is exacerbated without a broader assessment that extends to the bridge and a more detailed assessment that accounts for private driveways between intersections.
- Microsimulation of a signalized corridor relies on specific signal timing parameters for its outputs. The future timing plans, vehicle technologies, and even the signal detection and controller technologies that will be in place in 2036 remain highly speculative.

Within a Transportation Planning Rule analysis, a queuing analysis is useful supporting information that shows what the public, staff, and the consultant team already know – there is congestion on Wallace Road associated with the available bridge capacity. However, our analysis provides a comparative assessment of whether the impact of the rezone is significant under the Transportation Planning Rule – nothing else. This assessment is measured by the adopted v/c ratios and guidance within Action 1F.5 of the Oregon Highway Plan.

Comment 3: Our review identified multiple trip generation errors. The combination of these errors has underestimated reasonable worst-case trip generation under the current zone and proposed zone. Multiple land uses utilized the weighted average trip rate instead of the fitted equation.

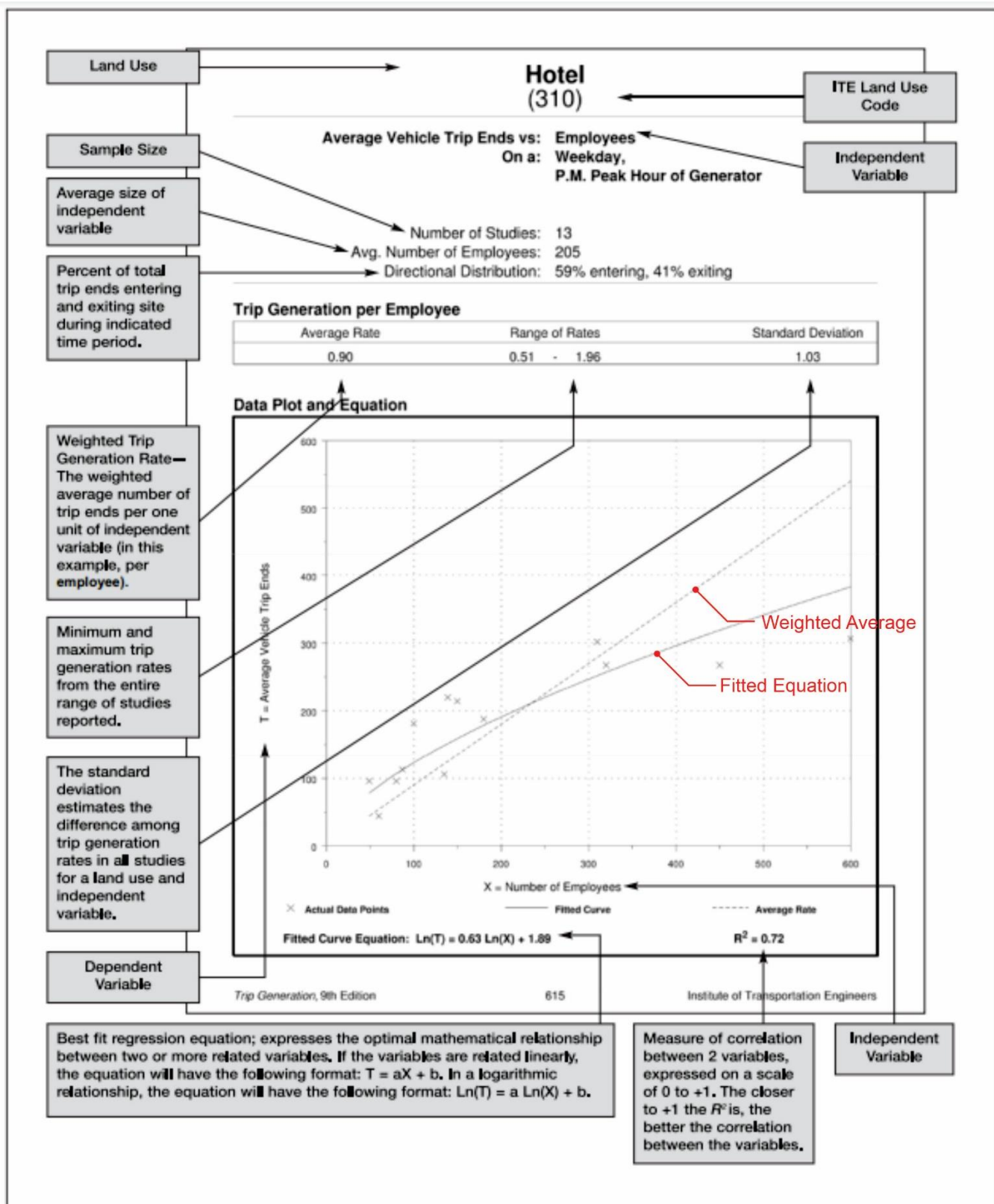
The City of Salem requires application of the weighted average trip rate for all of its trip generation calculations, and the report consistently applies this approach. This “straight-line” approach has the benefits of avoiding adjusting the results between mixing of the two equations, providing simple tracking mechanisms to monitor development, and consistency across all submitted studies. I recognize this analysis requires greater context, and so I have explained the ITE-recommended practice to highlight how this City policy is appropriate and conservative within this application.

The premise of the comment is that certain uses (e.g., a shopping center) exhibit an increasingly lower trip rate as they increase in size. If a retail center is 10,000 square-feet an expansion to 100,000 square-feet will not directly increase the trip rate ten-fold. The ITE manual has the same premise for residential uses, showing that surveys of larger suburban neighborhoods exhibit a lower trip rate per home than smaller suburban areas neighborhoods. From a practical perspective, this result does not look at other

factors (house size, number of persons, income, age, etc.), and this finding reflects other demographic characteristics and the very limited datapoints at the upper end of the range. The suggestion that building more houses of an identical type within an area will generate fewer trips per house is unreasonable. Salem is not the only jurisdiction to require the use of the average trip rate, which usually provides a more conservative analysis, and avoids anomalies when the size of the use is near the x-intercept on the graph.

To further help understand the context and implications of this technical comment, an example sheet with labels from the ITE *Trip Generation Handbook* is presented in Figure 1. This shows several data points, each of which represent a cordon-area survey that counts every inbound and outbound vehicle that passes through the cordon line during the specified period. These are plotted as a function of the size of development (“units” for most residential applications) on the x-axis and the number of trips on the y-axis.

These surveys are aggregated to develop a weighted-average trip rate, which essentially provides an averaged trip rate across the entire range of development sizes. This average rate is plotted as a straight dashed line intersecting at the graph origin. In addition, a fitted equation is developed using a regression analysis to better match this line to the data points; this line does not necessarily extend from the chart origin. Where there is a good fit to the data (meaning that the survey points are closer to this curved line), a higher R^2 (coefficient of determination) value results. Figure 2 provides recommended guidance on when it is recommended to select the weighted average or fitted curve. There is substantial guidance within the manual related to use of engineering judgement in making these determinations, and this is not intended to be universally applied as a “flow-chart” process.



Source: *Trip Generation Manual*, 9th Edition, Institute of Transportation Engineers, Washington, DC, 2012.

Figure 1. Sample Data Page in Trip Generation Manual. Source: *ITE Trip Generation Handbook*, 3rd Edition

Use Fitted Curve Equation when:

- A fitted curve equation is provided and the data plot has at least 20 data points

OR

- A fitted curve equation is provided, the curve has an R^2 of at least 0.75, the fitted curve falls within data cluster, and the weighted standard deviation is more than 55 percent of the weighted average rate.

Use Weighted Average Rate when:

- The data plot has at least three data points (and preferably, six or more);
- The R^2 value for the fitted curve is less than 0.75 or no fitted curve equation is provided;
- The weighted standard deviation for the average rate is less than 55 percent of the weighted average rate; and
- The weighted average rate is within data cluster in plot.

Collect Local Data when:

- Study site is not compatible with ITE Land Use Code definition;
- Data plot has only one or two data points (and preferably, when five or fewer);
- The weighted standard deviation for the average rate is greater than 55 percent of the weighted average rate;
- Independent variable value is not within range of data; or
- Neither weighted average rate line nor fitted curve is within data cluster at size of study site.

Figure 2. ITE Trip Generation Handbook Guidance on Selection of the Weighted Average vs. Fitted Curve Equation.
Source: ITE Trip Generation Handbook, 3rd Edition, pp28

Within the submitted Transportation Planning Rule analysis the critical land use classifications include use of ITE 210: *Single-Family Detached Housing* and ITE 221: *Multifamily Housing (Mid-Rise)*. Based on review of the ITE data I found:

- For the single-family housing classification, the ITE provides a robust dataset, the number of units considered falls within the range of the data, and the R^2 is higher than 0.75. The ITE recommends use of the fitted curve equation.
- For the multifamily housing the ITE again provides a robust dataset, but the number of units contemplated (640 uncapped or 500 capped) fall outside the data cluster in the plot. For this use the weighted average rate is recommended.

The net result is that the analysis would be premised on 33 fewer weekday daily trips, 1 less trip during the morning, and 3 fewer trips during the evening peak hour. With a reduction across all time periods this would show better results than those reported within the submitted TPR analysis and would not affect the findings of “no significant impact” with the proposed trip cap.

Comment 4: Similar to public comments responded to within the prior materials, ODOT requested receipt of the full set of traffic counts (2020 and 2021).

These were inadvertently omitted from the original report, I have enclosed the full sets of counts as an attachment.

IMPACT OF HOUSE BILL 2001

Subsequent to the preparation of this analysis, the City of Salem incorporated House Bill 2001 into its Development Code. The impact of this legislation is to allow higher density multifamily housing products within single-family zoning to address *needed housing*. As this rezone is premised on the comparison of a single-family zoning and the change in moving to allow multifamily housing, with this change to what is now allowed in the existing zoning the relative impact will be significantly less.

The Code adopted by the City of Salem impacts the RS, RA, RD, and RM-I zones. This will allow duplex units on all lots that are larger than 4,000 square-feet. Triplex units will be allowed on lots that are at least 5,000 square-feet, and quadplex units will be allowed on lots that are 7,000 square-feet, and cottage clusters (the number of units appears to be undefined) are allowed on lots larger than 7,000 square-feet.

Instead of showing the equivalent of 183 single-family lots, each that are approximately 5,000 square-feet, this would allow this same number of triplex units. With the release of the ITE 11th Edition a new land use classification was introduced: ITE Land Use 215: *Single-Family Attached Housing* now describes duplex and triplex products, as defined below.

Single-family attached housing includes any single-family housing unit that shares a wall with an adjoining dwelling unit, whether the walls are for living space, a vehicle garage, or storage space.

Additional Data: The database for this land use includes duplexes (defined as a single structure with two distinct dwelling units, typically joined side-by-side and each with at least one outside entrance) and townhouses/rowhouses (defined as a single structure with three or more distinct dwelling units, joined side-by-side in a row and each with an outside entrance).

This new scenario could result in the development of 549 (183 lots with three attached units per lot), with trip generation estimates for this use summarized in Table 2.

Table 2. Summary of Existing Zoning Potential with HB2001, ITE 11th Edition

Land Use	ITE Code	Est. Size	Daily Trips	Weekday AM Peak Hour			Weekday PM Peak Hour		
				Total	In	Out	Total	In	Out
Single-Family Detached Housing	215	549 Units 22.85 Acres	3,953 7.20/Unit	264 0.48/Unit	82 31%	182 69%	313 0.57/Unit	178 57%	135 43%

In comparison to the existing zoning scenarios presented within Table 3 of the January 3, 2022 report, this scenario would generate more trips on a weekday daily basis (+2,178), and during the morning (+94) and evening (+103) commute hours than the uncapped allowance of 630 apartments. In comparison to this scenario, further assessment of the TPR would not even be required. Accordingly, with approval of this middle housing legislation a trip cap should no longer be necessary to support the rezone.

NEXT STEPS

I appreciate the coordination and support of ODOT staff throughout the review of this application and trust these additional materials address any remaining concerns about the analysis. I hope these materials can be expeditiously reviewed by ODOT, and a written response can be provided into the record, supporting or refuting these responses so that the public can appropriately trust that the information provided to the Planning Commission is complete and accurate. If you have questions you can reach me at (503) 997-4473 or via email at joe@transightconsulting.com.

Attachments:

- July 21, 2021 ODOT TPAU APM guidance (Excerpt)
- Supplemental Level of Service Worksheets (Capped Scenario)
- Critical Movement Analysis Worksheets
- Year 2020 Traffic Count Dataset
- Year 2021 Traffic Count Dataset
- Middle Housing: HB2001 Frequently Asked Questions



Analysis Procedures Manual Web Site Usage & Analysis Issues

Analysis Procedures Manual User Group

Peter Schuytema, P.E.

July 21, 2021



Image – Google Maps Streetview



Critical Volume to Capacity Ratios

Calculating intersection v/c's

- Numerous recent issues relating to critical intersection v/c's
- Synchro HCM2000 report and lead-lag left turn phasing
- Limitations with HCM6 reports for permitted-protected phasing
- HCM is the best reference (1985 forward)
- Flow ratio calculation depends on summing flow ratios for each phase



- Issues are mainly related to picking critical movements ; shows over-reliance on report critical movements ; shows need to have extra guidance on fundamentals
- Synchro HCM2000 report may show extra critical movements that are not used in the calculations especially if lead-lag phasing is used ; need to make sure have good grasp of fundamentals of picking critical movements
- Still can be useful for showing the range that calculation should be
- Limitations in HCM6 – doesn't show permitted and protected sat flows (will have to use HCM2000 based sat flows here)
- Can use any edition of HCM – 1985 , 2000, 2010, 6th etc
- Flow ratios – v/s (volume/sat flow)

Queues

3: Wallace Road NW & Orchard Heights Rd NW

2036 Traffic Conditions with Rezone

Weekday AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	20	536	313	1054	1421
v/c Ratio	0.29	1.00	0.51	0.36	0.82
Control Delay	69.8	77.9	28.7	3.4	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	77.9	28.7	3.4	31.6
Queue Length 50th (ft)	17	~507	223	53	474
Queue Length 95th (ft)	44	#545	m335	244	#780
Internal Link Dist (ft)	1063			1080	560
Turn Bay Length (ft)	125		115		
Base Capacity (vph)	317	536	608	2912	1741
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.06	1.00	0.51	0.36	0.82

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.







Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: Wallace Road NW & Orchard Heights Rd NW

2036 Traffic Conditions with Rezone
Weekday AM Peak Hour












						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	18	493	288	970	1295	12
Future Volume (vph)	18	493	288	970	1295	12
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5	4.5	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1471	1456	1614	3167	3244	
Flt Permitted	0.95	1.00	0.08	1.00	1.00	
Satd. Flow (perm)	1471	1456	131	3167	3244	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	536	313	1054	1408	13
RTOR Reduction (vph)	0	10	0	0	0	0
Lane Group Flow (vph)	20	526	313	1054	1421	0
Confl. Peds. (#/hr)		2				
Heavy Vehicles (%)	13%	2%	3%	5%	2%	40%
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	8	1	1	6	2	
Permitted Phases		8	6			
Actuated Green, G (s)	4.2	47.1	115.3	115.3	67.9	
Effective Green, g (s)	4.2	47.1	115.3	115.3	67.9	
Actuated g/C Ratio	0.03	0.36	0.89	0.89	0.52	
Clearance Time (s)	4.5	4.5	4.5	6.0	6.0	
Vehicle Extension (s)	1.5	1.0	1.0	0.5	0.5	
Lane Grp Cap (vph)	47	577	605	2808	1694	
v/s Ratio Prot	0.01	c0.30	0.17	0.33	c0.44	
v/s Ratio Perm		0.06	0.29			
v/c Ratio	0.43	0.91	0.52	0.38	0.84	
Uniform Delay, d1	61.7	39.5	25.3	1.2	26.4	
Progression Factor	1.00	1.00	1.34	2.52	1.00	
Incremental Delay, d2	2.2	18.5	0.2	0.3	5.2	
Delay (s)	64.0	58.0	34.0	3.4	31.5	
Level of Service	E	E	C	A	C	
Approach Delay (s)	58.2			10.4	31.5	
Approach LOS	E			B	C	
Intersection Summary						
HCM 2000 Control Delay			27.3		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.90			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	15.0
Intersection Capacity Utilization			81.4%		ICU Level of Service	D
Analysis Period (min)			15			

c Critical Lane Group

HCM 6th Signalized Intersection Summary

3: Wallace Road NW & Orchard Heights Rd NW

2036 Traffic Conditions with Rezone
Weekday AM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	18	493	288	970	1295	12
Future Volume (veh/h)	18	493	288	970	1295	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1573	1723	1709	1682	1723	1204
Adj Flow Rate, veh/h	20	536	313	1054	1408	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	2	3	5	2	40
Cap, veh/h	324	496	329	2247	1810	17
Arrive On Green	0.22	0.22	0.25	1.00	0.54	0.54
Sat Flow, veh/h	1498	1460	1628	3279	3409	31
Grp Volume(v), veh/h	20	536	313	1054	693	728
Grp Sat Flow(s),veh/h/ln	1498	1460	1628	1598	1637	1717
Q Serve(g_s), s	1.4	28.1	14.0	0.0	43.5	43.6
Cycle Q Clear(g_c), s	1.4	28.1	14.0	0.0	43.5	43.6
Prop In Lane	1.00	1.00	1.00			0.02
Lane Grp Cap(c), veh/h	324	496	329	2247	891	935
V/C Ratio(X)	0.06	1.08	0.95	0.47	0.78	0.78
Avail Cap(c_a), veh/h	324	496	487	2247	891	935
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.57	0.57	1.00	1.00
Uniform Delay (d), s/veh	40.5	42.9	25.3	0.0	23.4	23.4
Incr Delay (d2), s/veh	0.0	63.5	12.9	0.4	6.6	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	24.5	9.5	0.1	18.0	18.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.5	106.4	38.3	0.4	30.0	29.8
LnGrp LOS	D	F	D	A	C	C
Approach Vol, veh/h	556			1367	1421	
Approach Delay, s/veh	104.1			9.1	29.9	
Approach LOS	F			A	C	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	20.6	76.8			97.4	32.6
Change Period (Y+Rc), s	4.5	6.0			6.0	4.5
Max Green Setting (Gmax), s	28.7	58.2			91.4	28.1
Max Q Clear Time (g_c+I1), s	16.0	45.6			2.0	30.1
Green Ext Time (p_c), s	0.1	2.2			2.3	0.0
Intersection Summary						
HCM 6th Ctrl Delay			33.7			
HCM 6th LOS			C			

Queues

2036 Traffic Conditions with Rezone

3: Wallace Road NW & Orchard Heights Rd NW

Weekday PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	23	430	508	1858	1626
v/c Ratio	0.32	0.70	0.76	0.62	1.02
Control Delay	70.8	36.7	36.5	7.4	61.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	70.8	36.7	36.5	7.4	61.8
Queue Length 50th (ft)	19	287	401	315	~771
Queue Length 95th (ft)	49	370	m363	m286	#1004
Internal Link Dist (ft)	1063			1080	560
Turn Bay Length (ft)	125		115		
Base Capacity (vph)	317	612	667	3021	1588
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.07	0.70	0.76	0.62	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.







Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: Wallace Road NW & Orchard Heights Rd NW













2036 Traffic Conditions with Rezone
Weekday PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	396	467	1709	1476	20
Future Volume (vph)	21	396	467	1709	1476	20
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750
Total Lost time (s)	4.5	4.5	4.5	6.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1471	1430	1646	3292	3220	
Flt Permitted	0.95	1.00	0.06	1.00	1.00	
Satd. Flow (perm)	1471	1430	104	3292	3220	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	430	508	1858	1604	22
RTOR Reduction (vph)	0	4	0	0	1	0
Lane Group Flow (vph)	23	426	508	1858	1625	0
Confl. Peds. (#/hr)	3					
Heavy Vehicles (%)	13%	4%	1%	1%	3%	7%
Turn Type	Prot	pm+ov	pm+pt	NA	NA	
Protected Phases	8	1	1	6	2	
Permitted Phases		8	6			
Actuated Green, G (s)	4.4	52.7	115.1	115.1	62.3	
Effective Green, g (s)	4.4	52.7	115.1	115.1	62.3	
Actuated g/C Ratio	0.03	0.41	0.89	0.89	0.48	
Clearance Time (s)	4.5	4.5	4.5	6.0	6.0	
Vehicle Extension (s)	1.5	1.0	1.0	0.5	0.5	
Lane Grp Cap (vph)	49	629	664	2914	1543	
v/s Ratio Prot	0.02	c0.25	c0.28	0.56	c0.50	
v/s Ratio Perm		0.05	0.39			
v/c Ratio	0.47	0.68	0.77	0.64	1.05	
Uniform Delay, d1	61.7	31.7	31.7	2.0	33.9	
Progression Factor	1.00	1.00	1.21	3.55	1.00	
Incremental Delay, d2	2.6	2.3	0.4	0.1	38.4	
Delay (s)	64.2	34.0	38.6	7.1	72.3	
Level of Service	E	C	D	A	E	
Approach Delay (s)	35.5			13.8	72.3	
Approach LOS	D			B	E	
Intersection Summary						
HCM 2000 Control Delay			37.4		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			130.0		Sum of lost time (s)	15.0
Intersection Capacity Utilization			89.7%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th Signalized Intersection Summary

3: Wallace Road NW & Orchard Heights Rd NW

2036 Traffic Conditions with Rezone
Weekday PM Peak Hour

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	21	396	467	1709	1476	20
Future Volume (veh/h)	21	396	467	1709	1476	20
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1573	1695	1736	1736	1709	1654
Adj Flow Rate, veh/h	23	430	508	1858	1604	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	13	4	1	1	3	7
Cap, veh/h	324	659	456	2319	1398	19
Arrive On Green	0.22	0.22	0.48	1.00	0.43	0.43
Sat Flow, veh/h	1498	1437	1654	3386	3365	45
Grp Volume(v), veh/h	23	430	508	1858	793	833
Grp Sat Flow(s),veh/h/ln	1498	1437	1654	1650	1624	1701
Q Serve(g_s), s	1.6	28.1	31.5	0.0	55.4	55.4
Cycle Q Clear(g_c), s	1.6	28.1	31.5	0.0	55.4	55.4
Prop In Lane	1.00	1.00	1.00			0.03
Lane Grp Cap(c), veh/h	324	659	456	2319	692	725
V/C Ratio(X)	0.07	0.65	1.11	0.80	1.15	1.15
Avail Cap(c_a), veh/h	324	659	456	2319	692	725
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	40.6	27.2	26.6	0.0	37.3	37.3
Incr Delay (d2), s/veh	0.0	1.8	54.5	0.3	82.2	82.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	10.6	15.3	0.1	37.3	39.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	40.6	29.0	81.1	0.3	119.5	119.8
LnGrp LOS	D	C	F	A	F	F
Approach Vol, veh/h	453			2366	1626	
Approach Delay, s/veh	29.6			17.6	119.7	
Approach LOS	C			B	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	36.0	61.4			97.4	32.6
Change Period (Y+Rc), s	4.5	6.0			6.0	4.5
Max Green Setting (Gmax), s	31.5	55.4			91.4	28.1
Max Q Clear Time (g_c+l1), s	33.5	57.4			2.0	30.1
Green Ext Time (p_c), s	0.0	0.0			5.2	0.0
Intersection Summary						
HCM 6th Ctrl Delay			56.2			
HCM 6th LOS			E			

Project Name:	Doaks Ferry (Titan Hill) Rezone
Project Number:	1603
Analysis Period:	Future Horizon Year 2036
Scenario:	Without Rezone Scenario

Intersection	Wallace at Glen (AM)													Notes HCM2000 Used for RTOR on EBR HCM6th
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Adjust Flow Rate	129		619	182	169			1729						
Saturated Flow Rate	1750		2544	3057	3183			3327						
	0	0.073714	0.243318	0.059535	0	0	0.053095	0	0	0	0.519687	0		
Cycle Length	130													
Lost Time	20		v/c Ratio= 1.121958											
Intersection	Wallace at Glen (PM)													Critical Movements HCM2000 Used for RTOR on EBR HCM6th 0 I see higher crit combination with EBTR and WBL than with EBL and WBTR
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Adjust Flow Rate	148		304	304	462			1678						
Saturated Flow Rate	1750		2516	3082	3183			3261						
	0	0.084571	0.120827	0.098637	0	0	0.145146	0	0	0	0.514566	0		
Cycle Length	130													
Lost Time	20		v/c Ratio= 1.138974											
Intersection	Wallace at Orchard Hts (AM)													Only shows 10 EB RTOR, seems very low for a dedicated lane; likely closer to 100 (3 per cycle) HCM2000 implies one RTOR for every three cycles
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Adjust Flow Rate	20		503	309			1408							
Saturated Flow Rate	1498		1460	1628			3409							
	excluded		0.344521	0	0	0	0.189803	0	0	0	0.413024	0		
Cycle Length	130													
Lost Time	15		v/c Ratio= 1.070916											
Intersection	Wallace at Orchard Hts (PM)													Only shows 4 EB RTOR, this is unrealistic for a dedicated lane.
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Adjust Flow Rate	23		420	502			1604							
Saturated Flow Rate	1498		1437	1654			3365							
	excluded		0.292276	0	0	0	0.303507	0	0	0	0.476672	0		
Cycle Length	130													
Lost Time	15		v/c Ratio= 1.212339											

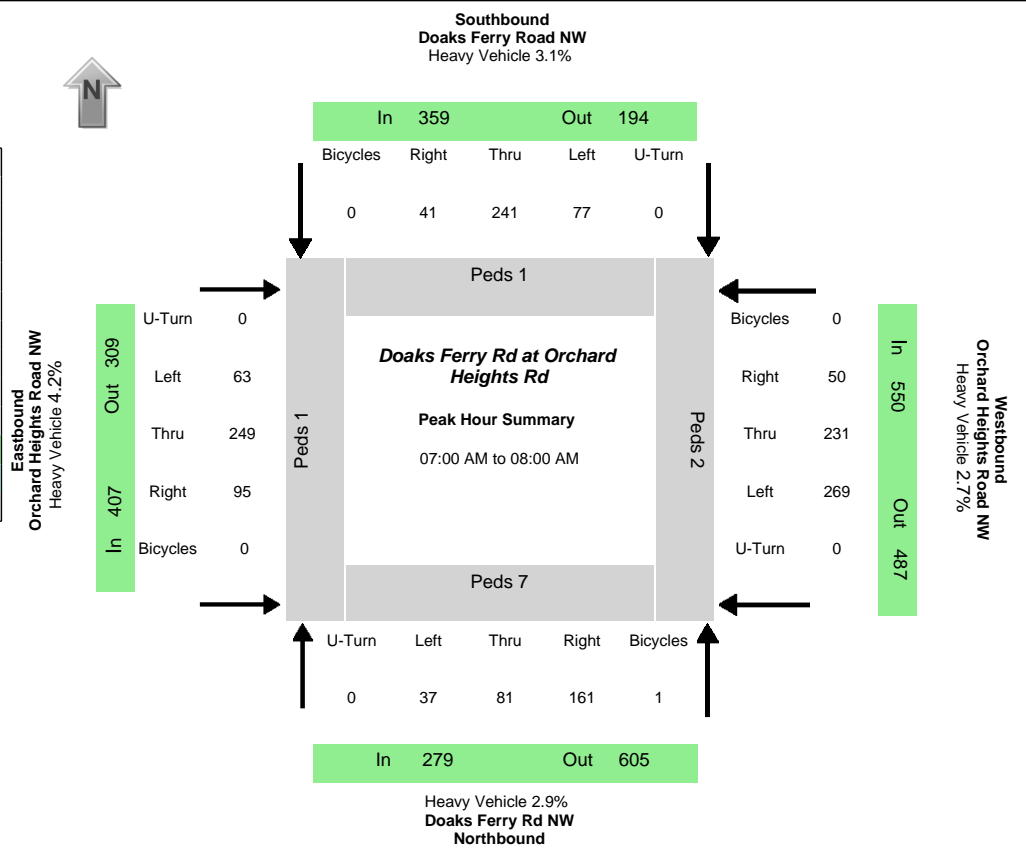
Project Name:	Doaks Ferry (Titan Hill) Rezone
Project Number:	1603
Analysis Period:	Future Horizon Year 2036
Scenario:	With Rezone Scenario

Intersection	Wallace at Glen (AM)												Notes	
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Adjust Flow Rate	129		639	182	172			1772						
Saturated Flow Rate	1750		2544	3057	3183			3328						
	0	0.073714	0.251179	0.059535	0	0	0.054037	0	0	0	0.532452	0		
Cycle Length	130													
Lost Time	20													
	v/c Ratio= 1.147449													
Intersection	Wallace at Glen (PM)												Critical Movements	
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Adjust Flow Rate	148		310	304	471			1709						
Saturated Flow Rate	1750		2516	3082	3183			3262						
	0	0.084571	0.123211	0.098637	0	0	0.147974	0	0	0	0.523912	0		
Cycle Length	130													
Lost Time	20													
	v/c Ratio= 1.156179													
Intersection	Wallace at Orchard Hts (AM)												Only shows 10 EB RTOR, seems very low for a dedicated lane; likely closer to 100 (3 per cycle) HCM2000 implies one RTOR for every three cycles	
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Adjust Flow Rate	20		548	321			1408							
Saturated Flow Rate	1498		1460	1628			3409							
	excluded		0.375342	0	0	0	0.197174	0	0	0	0.413024	0		
Cycle Length	130													
Lost Time	15													
	v/c Ratio= 1.11409													
Intersection	Wallace at Orchard Hts (PM)												Only shows 4 EB RTOR, this is unrealistic for a dedicated lane.	
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Adjust Flow Rate	23		437	524			1604							
Saturated Flow Rate	1498		1437	1654			3365							
	excluded		0.304106	0	0	0	0.316808	0	0	0	0.476672	0		
Cycle Length	130													
Lost Time	15													
	v/c Ratio= 1.240748													

Project Name:	Doaks Ferry (Titan Hill) Rezone
Project Number:	1603
Analysis Period:	Future Horizon Year 2036
Scenario:	With Rezone and Trip Cap

Intersection	Wallace at Glen (AM)												Notes
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Adjust Flow Rate	129		630	182	171			1752					
Saturated Flow Rate	1750		2544	3057	3183			3327					
	0	0.073714	0.247642	0.059535	0	0	0.053723	0	0	0	0.526601	0	
Cycle Length	130												
Lost Time	20												
	v/c Ratio= 1.135981												
Intersection	Wallace at Glen (PM)												Critical Movements
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Adjust Flow Rate	148		306	304	464			1709					
Saturated Flow Rate	1750		2516	3082	3183			3262					
	0	0.084571	0.121622	0.098637	0	0	0.145774	0	0	0	0.523912	0	
Cycle Length	130												
Lost Time	20												
	v/c Ratio= 1.151701												
Intersection	Wallace at Orchard Hts (AM)												Only shows 10 EB RTOR, seems very low for a dedicated lane; likely closer to 100 (3 per cycle) HCM2000 implies one RTOR for every three cycles
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Adjust Flow Rate	20		526	313			1408						
Saturated Flow Rate	1498		1460	1628			3409						
	excluded		0.360274	0	0	0	0.19226	0	0	0	0.413024	0	
Cycle Length	130												
Lost Time	15												
	v/c Ratio= 1.091501												
Intersection	Wallace at Orchard Hts (PM)												Only shows 4 EB RTOR, this is unrealistic for a dedicated lane.
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Adjust Flow Rate	23		426	508			1604						
Saturated Flow Rate	1498		1437	1654			3365						
	excluded		0.296451	0	0	0	0.307134	0	0	0	0.476672	0	
Cycle Length	130												
Lost Time	15												
	v/c Ratio= 1.22116												

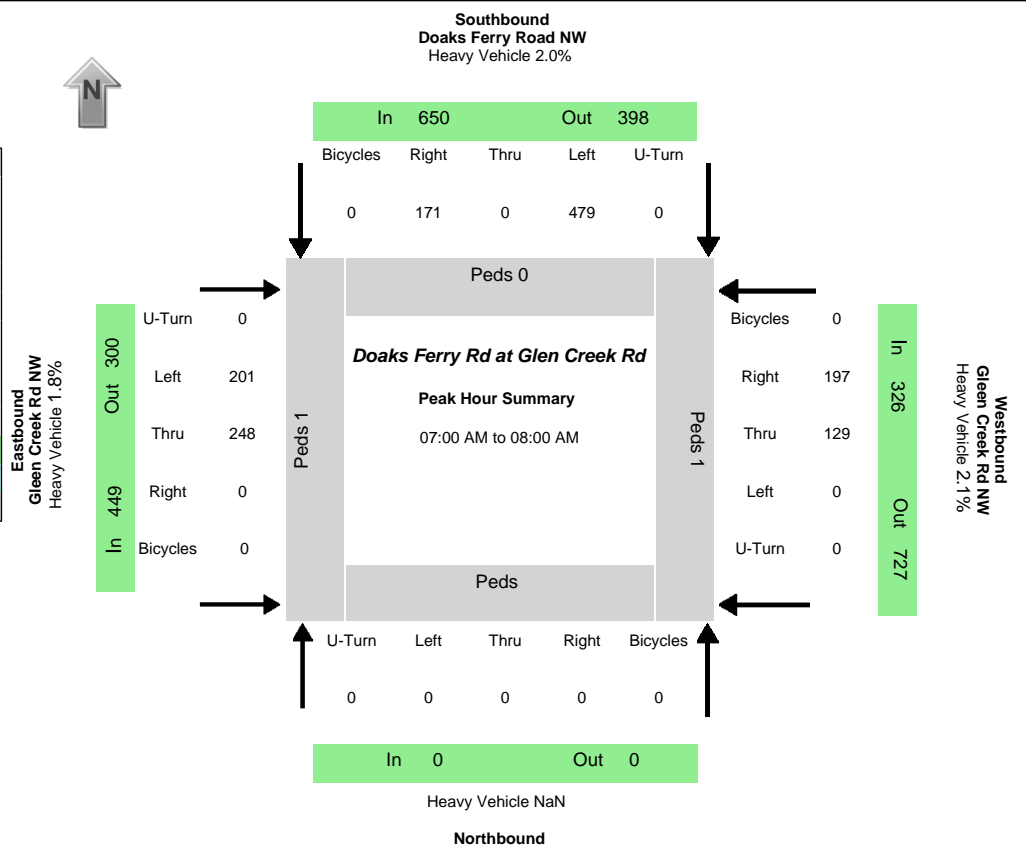
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Orchard Heights Road NW
City, State	Salem OR
Site Notes	
Location	44.960438 - -123.079714
Start Date	Wednesday, January 22, 2020
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:00:00 AM
Peak 15 Min Start	07:20:00 AM
PHF (15-Min Int)	0.77



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
37	81	161	0	77	241	41	0	63	249	95	0	269	231	50	0	279	359	407	550	605	194	309	487
Percent Heavy Vehicles																							
2.7%	1.2%	3.7%	0.0%	3.9%	1.2%	12.2%	0.0%	6.3%	3.6%	4.2%	0.0%	2.2%	3.5%	2.0%	0.0%	2.9%	3.1%	4.2%	2.7%	2.1%	3.1%	4.5%	3.7%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7	1	1	2		11	
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Road NW				Eastbound Orchard Heights Road NW				Westbound Orchard Heights Road NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	0	2	0	0	0	3	1	0	0	2	0	0	2	3	0	0							
06:05:00 AM	0	2	1	0	0	1	0	0	0	3	0	0	7	1	0	0							
06:10:00 AM	0	2	2	0	0	3	0	0	0	7	1	0	4	1	0	0	48						
06:15:00 AM	0	0	1	0	0	4	0	0	0	4	0	0	2	0	0	0	46						
06:20:00 AM	0	2	4	0	0	0	0	0	0	3	0	0	1	2	1	0	44						
06:25:00 AM	0	2	4	0	0	1	1	0	1	6	0	0	2	2	0	0	43						
06:30:00 AM	0	4	5	0	2	3	0	0	1	6	1	0	6	3	0	0	63						
06:35:00 AM	0	5	2	0	0	1	0	0	3	10	0	0	6	1	2	0	80						
06:40:00 AM	0	5	4	0	2	6	3	0	1	7	2	0	2	6	2	0	101						
06:45:00 AM	0	4	1	0	0	8	2	0	3	14	1	0	8	2	1	0	114						
06:50:00 AM	2	3	4	0	1	6	3	0	2	8	4	0	8	6	1	0	132						
06:55:00 AM	1	4	5	0	0	8	5	0	4	15	1	0	6	10	3	0	154	346					
07:00:00 AM	3	5	4	0	2	13	4	0	7	19	3	0	15	15	2	0	202	425					
07:05:00 AM	2	11	5	0	3	19	5	0	2	25	12	0	22	18	0	0	278	534					
07:10:00 AM	3	3	8	0	5	19	7	0	4	25	16	0	24	47	1	0	378	676					
07:15:00 AM	3	4	9	0	1	29	5	0	7	19	13	0	33	35	2	0	446	825					
07:20:00 AM	16	11	14	0	5	20	9	0	10	25	12	0	24	22	1	0	491	981					
07:25:00 AM	8	8	19	0	8	24	3	0	8	39	10	0	25	29	4	0	514	1147					
07:30:00 AM	1	8	18	0	10	21	5	0	7	41	12	0	20	14	4	0	515	1277					
07:35:00 AM	0	6	22	0	12	19	1	0	8	23	6	0	28	13	12	0	496	1397					
07:40:00 AM	0	5	24	0	14	22	1	0	2	14	5	0	24	17	6	0	445	1491					
07:45:00 AM	0	10	14	0	7	25	0	0	1	9	1	0	24	6	13	0	394	1557					
07:50:00 AM	0	3	11	0	7	13	1	0	6	8	4	0	18	9	4	0	328	1593					
07:55:00 AM	1	7	13	0	3	17	0	0	1	2	1	0	12	6	1	0	258	1595					

08:00:00 AM	1	7	4	0	1	17	2	0	2	7	1	0	5	4	0	0	199	1554
08:05:00 AM	0	9	3	0	2	12	0	0	0	7	2	0	7	5	1	0	163	1478
08:10:00 AM	0	3	1	0	1	12	1	0	0	8	3	0	4	5	2	0	139	1356
08:15:00 AM	1	4	1	0	3	10	1	0	2	6	2	0	2	5	1	0	126	1234
08:20:00 AM	0	6	4	0	4	4	1	0	0	10	1	0	0	3	0	0	111	1098
08:25:00 AM	0	3	6	0	1	7	1	0	1	4	2	0	2	6	1	0	105	947
08:30:00 AM	1	3	7	0	2	9	1	0	0	10	3	0	2	6	2	0	113	832
08:35:00 AM	0	4	6	0	2	9	0	0	0	11	2	0	5	4	1	0	124	726
08:40:00 AM	1	5	8	0	4	8	0	0	2	8	1	0	7	7	3	0	144	646
08:45:00 AM	0	2	6	0	0	4	1	0	3	10	3	0	9	5	5	0	146	584
08:50:00 AM	0	3	10	0	2	15	1	0	2	7	0	0	10	7	2	0	161	559
08:55:00 AM	0	10	15	0	0	3	4	0	2	11	2	0	11	4	1	0	170	558

Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Road NW
E/W street	Gleen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.952083 - -123.084318
Start Date	Wednesday, January 22, 2020
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:00:00 AM
Peak 15 Min Start	07:15:00 AM
PHF (15-Min Int)	0.80



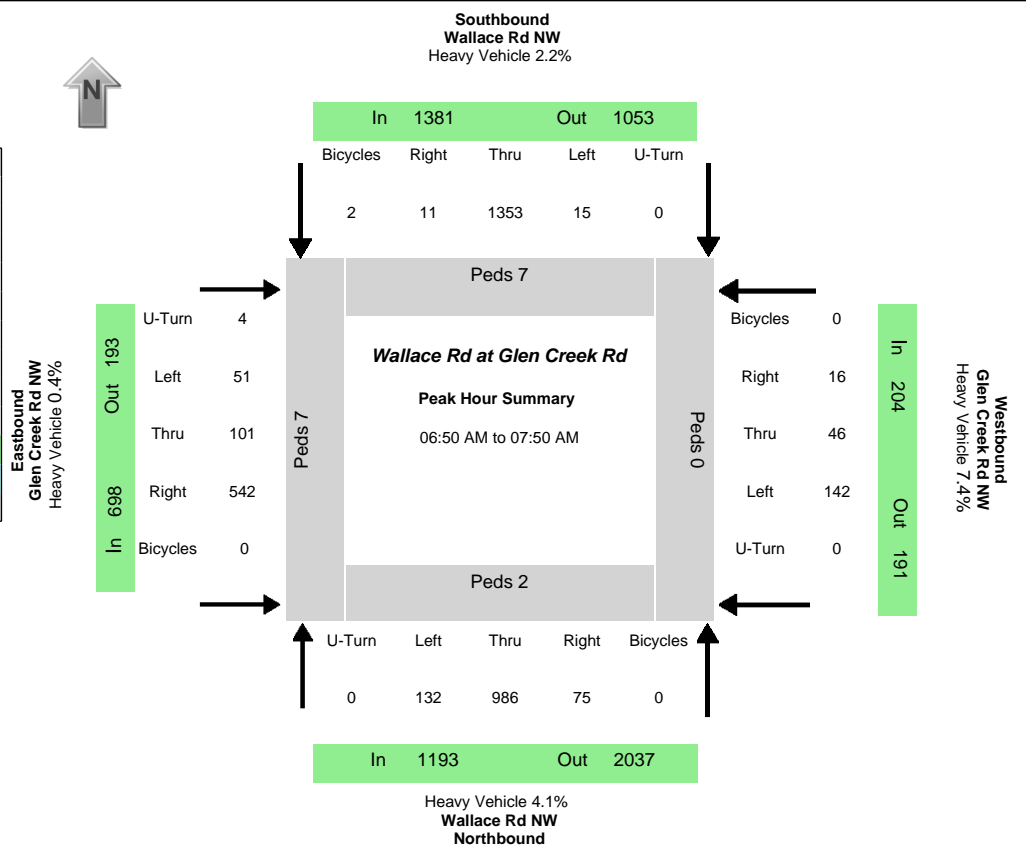
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	479	0	171	0	201	248	0	0	0	129	197	0	0	650	449	326	0	398	300	727
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	1.9%	0.0%	2.3%	0.0%	2.0%	1.6%	0.0%	0.0%	0.0%	3.9%	1.0%	0.0%	NaN	2.0%	1.8%	2.1%	NaN	1.5%	3.0%	1.8%

PHV- Bicycles												PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB SB EB WB
0				0		0	0	0	0	0	0	0	0	0	0	0	0 1 1 2

All Vehicle Volumes																	
Time	Northbound				Southbound				Eastbound				Westbound				15 Min Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	
06:00:00 AM					2		4	0	4	7		0	2	1		0	
06:05:00 AM					2		8	0	2	3		0	9	2		0	
06:10:00 AM					2		7	0	2	5		0	3	3		0	68
06:15:00 AM					3		6	0	2	11		0	4	1		0	75
06:20:00 AM					5		2	0	3	9		0	1	1		0	70
06:25:00 AM					3		3	0	5	12		0	3	3		0	77
06:30:00 AM					7		4	0	5	18		0	1	7		0	92
06:35:00 AM					11		3	0	9	20		0	11	2		0	127
06:40:00 AM					9		7	0	4	19		0	2	3		0	142
06:45:00 AM					9		7	0	4	12		0	5	7		0	144
06:50:00 AM					13		9	0	8	29		0	5	14		0	166
06:55:00 AM					13		6	0	16	14		0	13	8		0	192 479
07:00:00 AM					26		11	0	18	12		0	11	23		0	249 560
07:05:00 AM					30		13	0	16	11		0	20	29		0	290 653
07:10:00 AM					48		14	0	16	13		0	21	20		0	352 763
07:15:00 AM					50		20	0	19	14		0	18	35		0	407 892
07:20:00 AM					46		10	0	25	24		0	13	26		0	432 1015
07:25:00 AM					49		18	0	15	34		0	12	18		0	446 1132
07:30:00 AM					61		15	0	17	35		0	5	8		0	431 1231
07:35:00 AM					45		18	0	16	25		0	5	14		0	410 1298
07:40:00 AM					47		12	0	22	21		0	2	3		0	371 1361
07:45:00 AM					37		18	0	12	16		0	5	7		0	325 1412
07:50:00 AM					16		13	0	15	22		0	13	8		0	289 1421
07:55:00 AM					24		9	0	10	21		0	4	6		0	256 1425

08:00:00 AM		12	10	0	5	13	0	10	3	0	214	1377
08:05:00 AM		11	10	0	6	22	0	5	5	0	186	1317
08:10:00 AM		15	9	0	4	15	0	6	9	0	170	1243
08:15:00 AM		8	10	0	7	18	0	6	7	0	173	1143
08:20:00 AM		5	5	0	8	15	0	6	7	0	160	1045
08:25:00 AM		8	7	0	15	11	0	5	7	0	155	952
08:30:00 AM		19	9	0	24	18	0	5	16	0	190	902
08:35:00 AM		18	13	0	17	12	0	8	13	0	225	860
08:40:00 AM		31	12	0	11	16	0	5	8	0	255	836
08:45:00 AM		20	15	0	10	18	0	4	4	0	235	812
08:50:00 AM		12	12	0	23	20	0	5	11	0	237	808
08:55:00 AM		12	9	0	10	9	0	15	8	0	217	797

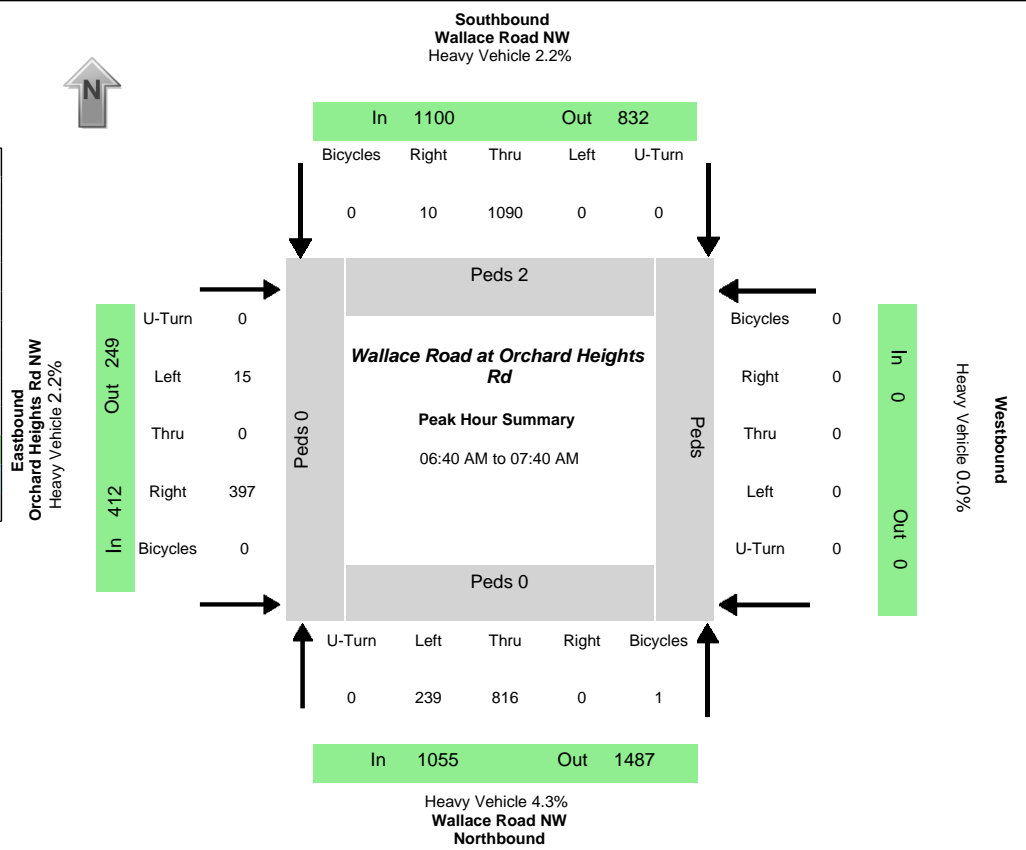
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.950175 - -123.051659
Start Date	Wednesday, January 22, 2020
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	06:50:00 AM
Peak 15 Min Start	07:05:00 AM
PHF (15-Min Int)	0.93



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
132	986	75	0	15	1353	11	0	51	101	542	4	142	46	16	0	1193	1379	698	204	2037	1053	193	191
Percent Heavy Vehicles																							
2.3%	4.6%	1.3%	0.0%	6.7%	1.9%	27.3%	0.0%	0.0%	0.0%	0.6%	0.0%	7.0%	6.5%	12.5%	0.0%	4.1%	2.2%	0.4%	7.4%	1.9%	4.5%	4.7%	1.0%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	7	7	0	16		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
06:00:00 AM	3	35	2	0	1	43	0	0	4	4	13	0	4	5	3	0							
06:05:00 AM	4	22	2	0	2	45	0	0	4	3	12	0	5	4	3	0							
06:10:00 AM	7	39	2	0	0	66	0	0	2	2	12	0	17	7	5	0	382						
06:15:00 AM	1	48	2	0	1	75	0	0	1	0	23	0	8	2	3	0	429						
06:20:00 AM	2	46	3	0	1	73	1	0	3	2	26	0	7	0	1	0	488						
06:25:00 AM	2	58	6	0	1	94	0	0	0	3	27	0	7	2	2	0	531						
06:30:00 AM	1	56	2	0	1	74	0	0	3	7	29	1	9	4	0	0	554						
06:35:00 AM	5	66	1	0	1	111	1	0	3	3	26	0	6	4	1	0	617						
06:40:00 AM	7	78	5	0	0	119	0	0	5	4	47	0	8	0	0	0	688						
06:45:00 AM	8	69	5	0	0	107	1	0	2	4	29	0	15	9	3	0	753						
06:50:00 AM	9	93	2	0	1	128	4	0	3	4	28	0	15	4	4	0	820						
06:55:00 AM	7	71	3	0	1	124	3	0	2	7	40	0	8	4	2	0	819	2420					
07:00:00 AM	22	105	4	0	0	88	2	0	6	8	43	0	10	5	1	0	861	2597					
07:05:00 AM	15	111	2	0	4	147	1	0	3	4	36	1	7	3	4	0	904	2829					
07:10:00 AM	10	73	3	0	0	126	1	0	2	5	47	0	11	1	1	0	912	2950					
07:15:00 AM	13	86	3	0	1	104	0	0	2	7	75	3	15	4	0	0	931	3099					
07:20:00 AM	12	87	9	0	2	101	0	0	3	6	55	0	15	5	1	0	889	3230					
07:25:00 AM	8	74	6	0	0	119	0	0	2	6	45	0	7	0	0	0	876	3295					
07:30:00 AM	17	72	7	0	1	101	0	0	9	9	45	0	13	7	0	0	844	3389					
07:35:00 AM	3	90	15	0	3	93	0	0	7	15	41	0	18	4	2	0	839	3452					
07:40:00 AM	5	64	9	0	0	124	0	0	9	11	36	0	15	4	1	0	850	3457					
07:45:00 AM	11	60	12	0	2	98	0	0	3	19	51	0	8	5	0	0	838	3474					
07:50:00 AM	7	79	13	0	0	72	0	0	6	15	30	0	14	5	1	0	789	3421					
07:55:00 AM	7	53	8	0	2	92	0	0	7	10	31	0	14	6	4	0	745	3383					

08:00:00 AM	7	43	9	1	1	140	1	0	6	11	35	0	10	3	1	0	744	3357
08:05:00 AM	6	71	7	0	3	83	1	0	6	13	42	0	12	8	3	0	757	3274
08:10:00 AM	8	47	12	0	3	119	0	0	1	11	18	0	10	8	1	0	761	3232
08:15:00 AM	7	50	9	0	3	118	1	0	3	6	31	0	11	3	2	0	737	3163
08:20:00 AM	20	68	10	0	2	76	0	0	8	12	40	0	7	4	0	0	729	3114
08:25:00 AM	10	64	4	0	2	89	1	0	2	9	23	0	10	8	7	1	721	3077
08:30:00 AM	15	58	12	0	1	72	1	0	3	4	33	0	12	6	1	0	695	3014
08:35:00 AM	5	48	9	0	1	105	0	0	4	7	31	0	8	0	6	0	672	2947
08:40:00 AM	5	77	10	0	6	107	6	0	5	9	29	0	13	5	2	0	716	2943
08:45:00 AM	11	62	11	0	5	79	1	0	8	10	48	0	19	7	3	0	762	2938
08:50:00 AM	15	55	15	0	6	95	0	0	4	10	30	1	12	4	0	0	785	2943
08:55:00 AM	18	76	13	0	2	113	4	0	4	12	21	0	17	11	4	0	806	3004

Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Road NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.953357 - -123.05262
Start Date	Wednesday, January 22, 2020
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	06:40:00 AM
Peak 15 Min Start	06:55:00 AM
PHF (15-Min Int)	0.92



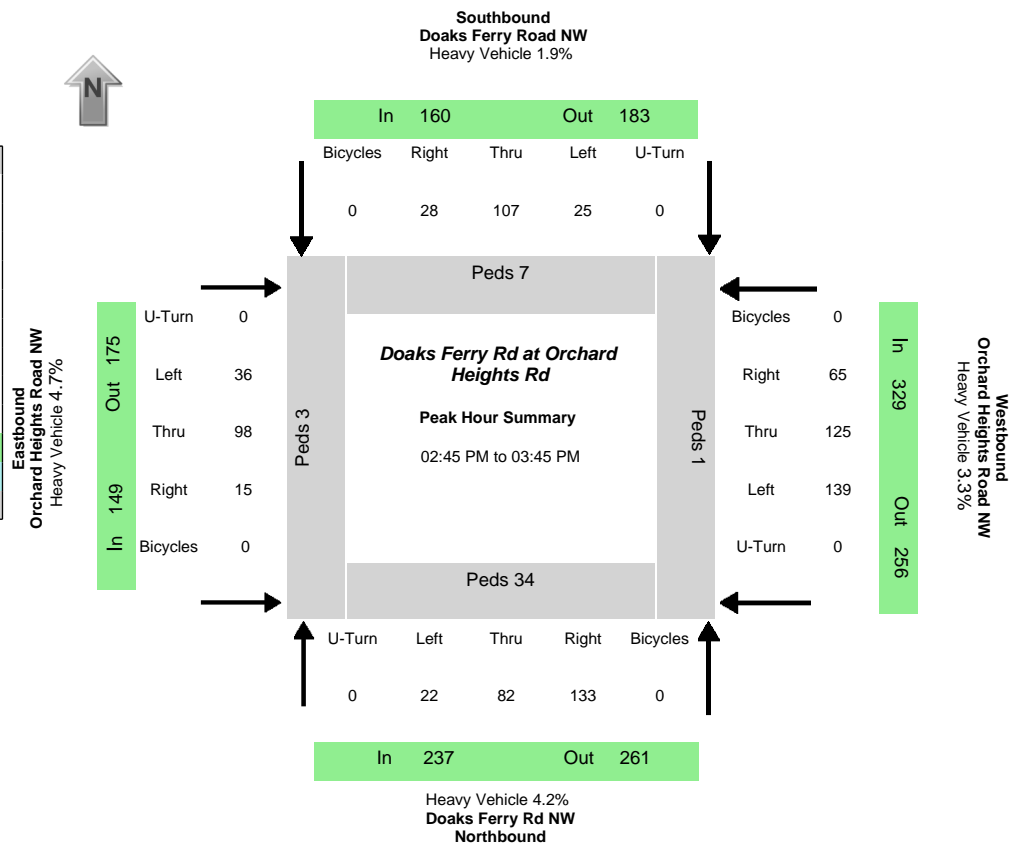
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
239	816	0	0	0	1090	10	0	15	0	397	0	0	0	0	0	1055	1100	412	0	1487	831	249	0
Percent Heavy Vehicles																							
2.9%	4.7%	0.0%	0.0%	0.0%	1.8%	40.0%	0.0%	13.3%	0.0%	1.8%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	2.2%	2.2%	0.0%	1.8%	4.8%	4.4%	0.0%

PHV - Bicycles												PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound				in Crosswalk	
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum
0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2

All Vehicle Volumes																	
Time	Northbound Wallace Road NW				Southbound Wallace Road NW				Eastbound Orchard Heights Rd NW				Westbound				15 Min Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	
06:00:00 AM	6	36	0	0	36	0	0	0	0	12	0	0					
06:05:00 AM	5	26	0	0	39	0	0	0	0	8	0	0					
06:10:00 AM	1	44	0	0	52	0	0	0	0	22	0	0					287
06:15:00 AM	8	45	0	0	57	0	0	1	1	15	0	0					323
06:20:00 AM	5	46	0	0	61	0	0	1	1	27	0	0					385
06:25:00 AM	6	55	0	0	80	0	0	1	1	23	0	0					431
06:30:00 AM	7	49	0	0	67	0	0	1	1	15	0	0					444
06:35:00 AM	10	56	0	0	89	0	0	0	0	28	0	0					487
06:40:00 AM	8	91	0	0	104	0	0	0	0	30	0	0					555
06:45:00 AM	9	66	0	0	80	0	0	2	2	41	0	0					614
06:50:00 AM	11	77	0	0	101	0	0	0	0	33	0	0					653
06:55:00 AM	17	80	0	0	112	1	0	2	2	32	0	0					664
07:00:00 AM	33	64	0	0	69	0	0	0	0	38	0	0					670
07:05:00 AM	28	69	0	0	110	1	0	0	0	38	0	0					694
07:10:00 AM	30	58	0	0	120	2	0	0	0	19	0	0					679
07:15:00 AM	25	63	0	0	84	1	0	1	1	37	0	0					686
07:20:00 AM	20	66	0	0	76	0	0	3	3	37	0	0					642
07:25:00 AM	25	65	0	0	81	3	0	1	1	25	0	0					613
07:30:00 AM	17	56	0	0	76	2	0	4	4	31	0	0					588
07:35:00 AM	16	61	0	0	77	0	0	2	2	36	0	0					578
07:40:00 AM	8	54	0	0	69	2	0	1	1	33	0	0					545
07:45:00 AM	12	63	0	0	53	1	0	1	1	32	0	0					521
07:50:00 AM	22	51	0	0	60	1	0	1	1	24	0	0					488
07:55:00 AM	16	44	0	0	50	3	0	1	1	36	0	0					471

08:00:00 AM	13	48	0	99	3	0	0	22	0		494	2289
08:05:00 AM	10	44	0	107	3	0	1	25	0		525	2233
08:10:00 AM	19	35	0	92	0	0	2	27	0		550	2179
08:15:00 AM	9	48	0	65	0	0	1	26	0		514	2117
08:20:00 AM	17	52	0	72	0	0	0	26	0		491	2082
08:25:00 AM	19	53	0	70	1	0	0	23	0		482	2048
08:30:00 AM	21	48	0	69	0	0	1	27	0		499	2028
08:35:00 AM	9	40	0	70	0	0	2	35	0		488	1992
08:40:00 AM	23	42	0	80	1	0	0	31	0		499	2002
08:45:00 AM	18	58	0	66	1	0	2	45	0		523	2030
08:50:00 AM	15	45	0	91	1	0	1	31	0		551	2055
08:55:00 AM	34	40	0	72	4	0	1	28	0		553	2084

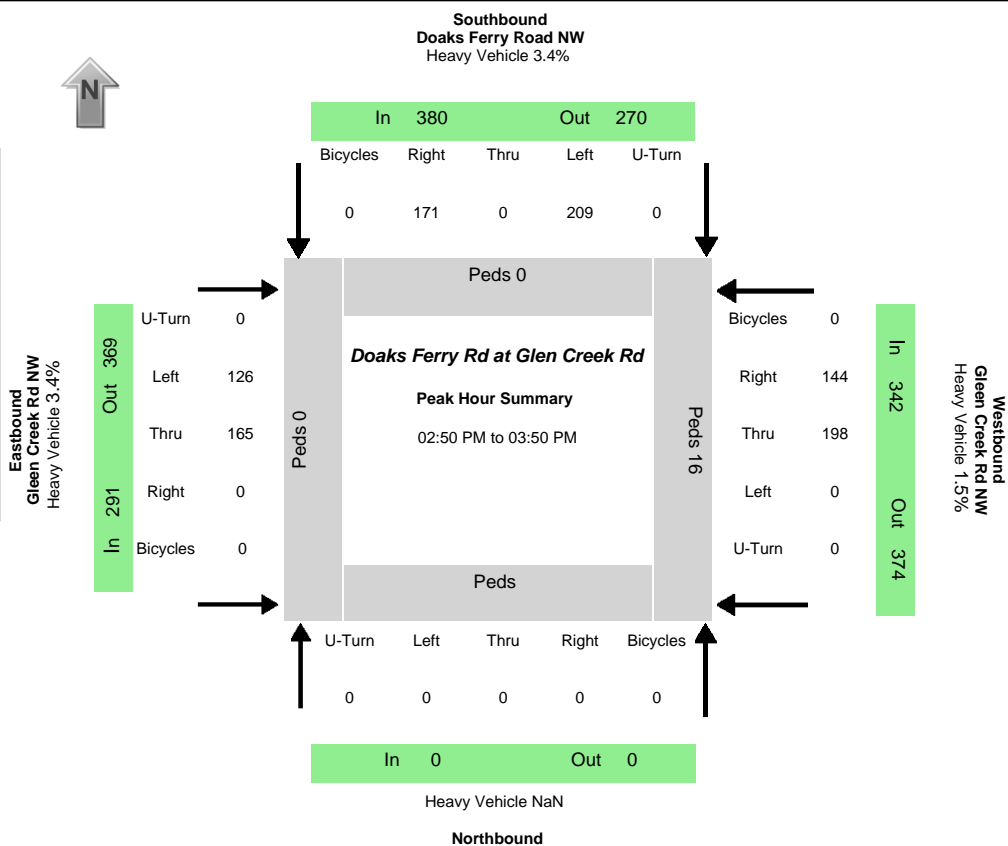
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Orchard Heights Road NW
City, State	Salem OR
Site Notes	
Location	44.960438 - -123.079714
Start Date	Wednesday, January 22, 2020
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	02:45:00 PM
Peak 15 Min Start	02:45:00 PM
PHF (15-Min Int)	0.85



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
22	82	133	0	25	107	28	0	36	98	15	0	139	125	65	0	237	160	149	329	261	183	175	256
Percent Heavy Vehicles																							
4.5%	4.9%	3.8%	0.0%	4.0%	0.9%	3.6%	0.0%	2.8%	5.1%	6.7%	0.0%	2.9%	4.0%	3.1%	0.0%	4.2%	1.9%	4.7%	3.3%	2.3%	3.8%	4.0%	4.3%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	7	3	1	45		
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Road NW				Eastbound Orchard Heights Road NW				Westbound Orchard Heights Road NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
02:00:00 PM	2	3	2	0	0	9	0	0	2	11	2	0	3	8	2	0							
02:05:00 PM	0	9	8	0	0	3	2	0	0	10	0	0	4	4	2	0							
02:10:00 PM	1	6	4	0	2	2	0	0	0	8	0	0	2	11	1	0	123						
02:15:00 PM	1	4	4	0	4	5	0	0	2	3	2	0	3	7	0	0	114						
02:20:00 PM	1	4	6	0	2	6	3	0	0	5	1	0	5	4	0	0	109						
02:25:00 PM	2	4	4	0	0	4	3	0	2	11	1	0	2	13	0	0	118						
02:30:00 PM	0	5	14	0	9	6	0	0	3	11	1	0	2	4	2	0	140						
02:35:00 PM	1	7	11	0	7	2	2	0	3	4	1	0	2	6	2	0	151						
02:40:00 PM	0	3	9	0	7	7	2	0	0	8	0	0	10	9	7	0	167						
02:45:00 PM	1	11	11	0	3	13	2	0	4	7	1	0	22	11	13	0	209						
02:50:00 PM	2	10	11	0	1	8	1	0	2	10	2	0	23	12	14	0	257						
02:55:00 PM	1	6	8	0	2	8	3	0	2	11	0	0	7	9	6	0	258	666					
03:00:00 PM	1	6	9	0	3	5	1	0	2	1	1	0	4	4	7	0	203	666					
03:05:00 PM	3	9	16	0	3	7	0	0	5	8	0	0	4	7	3	0	172	689					
03:10:00 PM	2	7	11	0	3	9	6	0	4	8	1	0	3	12	2	0	177	720					
03:15:00 PM	3	3	10	0	2	8	0	0	3	11	2	0	16	10	6	0	207	759					
03:20:00 PM	3	7	19	0	1	16	11	0	3	10	3	0	6	5	2	0	228	808					
03:25:00 PM	1	8	14	0	2	10	0	0	1	7	1	0	4	14	2	0	224	826					
03:30:00 PM	1	6	9	0	1	4	2	0	5	9	2	0	8	8	3	0	208	827					
03:35:00 PM	2	2	10	0	2	7	1	0	5	10	1	0	13	12	4	0	191	848					
03:40:00 PM	2	7	5	0	2	12	1	0	0	6	1	0	29	21	3	0	216	875					
03:45:00 PM	0	5	7	0	7	8	1	0	1	4	1	0	28	13	5	0	238	856					
03:50:00 PM	1	6	8	0	1	12	5	0	0	9	1	0	7	8	8	0	235	826					
03:55:00 PM	3	5	4	0	2	11	2	0	3	6	1	0	7	7	2	0	199	816					

04:00:00 PM	1	10	3	0	3	10	0	0	0	4	0	0	5	7	4	0	166	819
04:05:00 PM	1	9	4	0	3	14	3	0	3	3	0	0	13	6	4	0	163	817
04:10:00 PM	0	4	4	0	5	13	3	0	2	4	2	0	14	11	3	0	175	814
04:15:00 PM	3	6	6	0	0	9	1	0	1	8	1	0	4	11	4	0	182	794
04:20:00 PM	2	7	10	0	1	12	2	0	2	3	0	0	5	4	5	0	172	761
04:25:00 PM	1	11	10	0	6	13	4	0	5	8	0	0	5	14	3	0	187	777
04:30:00 PM	3	8	5	0	0	4	1	0	1	9	1	0	10	13	4	0	192	778
04:35:00 PM	2	9	15	0	1	15	2	0	4	11	0	0	10	4	3	0	215	785
04:40:00 PM	2	10	7	0	3	11	6	0	1	12	1	0	10	11	5	0	214	775
04:45:00 PM	2	11	8	0	3	10	3	0	1	5	1	0	5	6	0	0	210	750
04:50:00 PM	2	11	9	0	7	17	1	0	4	5	0	0	8	6	5	0	209	759
04:55:00 PM	0	7	10	0	2	15	0	0	0	8	1	0	8	5	2	0	188	764
05:00:00 PM	1	7	6	0	4	19	1	0	3	3	0	0	9	16	5	0	207	791
05:05:00 PM	0	11	8	0	2	4	1	0	3	9	1	0	9	7	6	0	193	789
05:10:00 PM	2	11	7	0	1	10	1	0	2	7	1	0	7	8	2	0	194	783
05:15:00 PM	2	6	6	0	1	13	2	0	3	6	2	0	3	11	2	0	177	786
05:20:00 PM	0	6	7	0	2	13	1	0	2	10	0	0	8	6	5	0	176	793
05:25:00 PM	1	11	14	0	2	7	1	0	1	5	3	0	8	8	0	0	178	774
05:30:00 PM	1	16	8	0	2	6	2	0	2	6	3	0	8	13	5	0	193	787
05:35:00 PM	1	8	6	0	1	9	0	0	1	5	2	0	4	12	1	0	183	761
05:40:00 PM	1	11	6	0	5	5	0	0	0	8	0	0	4	9	0	0	171	731
05:45:00 PM	0	7	10	0	2	9	2	0	3	1	0	0	1	8	2	0	144	721
05:50:00 PM	2	9	5	0	2	6	3	0	3	7	1	0	8	13	3	0	156	708
05:55:00 PM	1	12	1	0	2	10	5	0	0	7	1	0	5	9	0	0	160	703

Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Road NW
E/W street	Gleen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.952083 - -123.084318
Start Date	Wednesday, January 22, 2020
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	02:50:00 PM
Peak 15 Min Start	03:35:00 PM
PHF (15-Min Int)	0.92



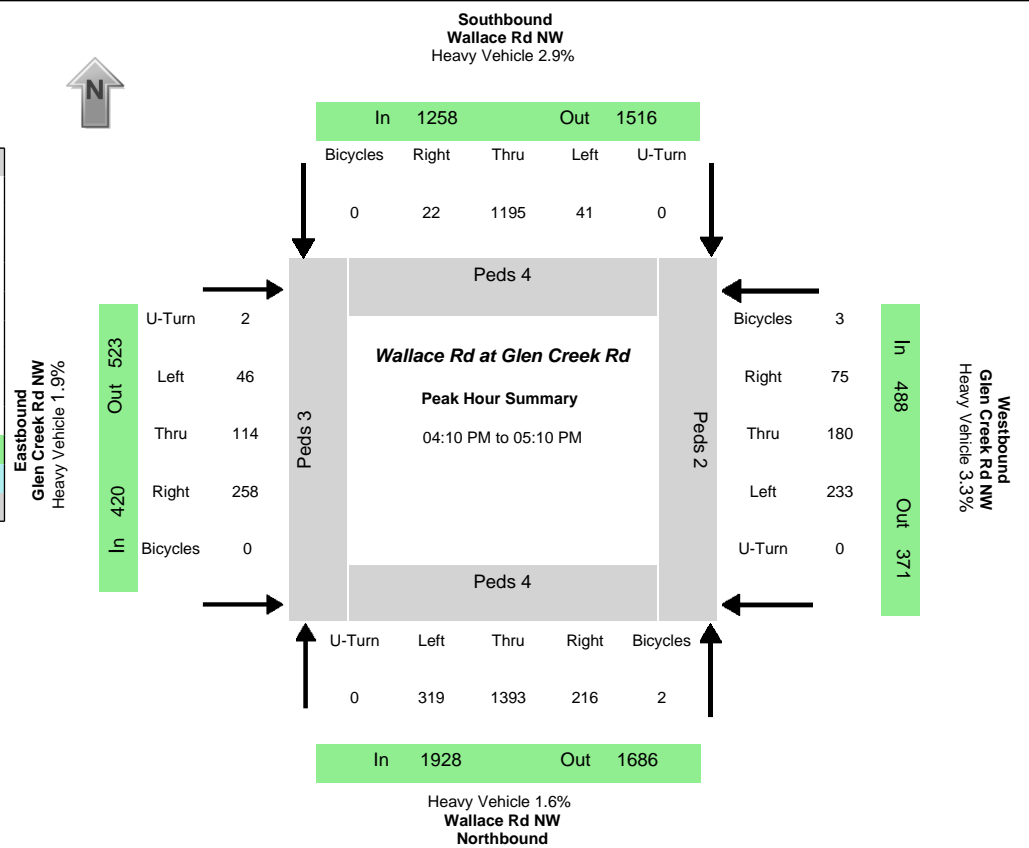
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	209	0	171	0	126	165	0	0	0	198	144	0	0	380	291	342	0	270	369	374
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	2.4%	0.0%	4.7%	0.0%	4.0%	3.0%	0.0%	0.0%	0.0%	0.5%	2.8%	0.0%	NaN	3.4%	3.4%	1.5%	NaN	3.3%	2.4%	2.7%

PHV- Bicycles																PHV - Pedestrians					
Northbound				Southbound				Eastbound				Westbound					in Crosswalk				
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
				0		0	0	0	0		0		0	0	0	0		0	0	16	16

All Vehicle Volumes																		
Time	Northbound				Southbound				Eastbound				Westbound				15 Min	1 HR
	Left	Thru	Right	Uturn	Doaks Ferry Road NW				Gleen Creek Rd NW				Gleen Creek Rd NW				Sum	Sum
					Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
02:00:00 PM					12		6	0	6	19		0	15	8	0			
02:05:00 PM					4		4	0	11	18		0	11	5	0			
02:10:00 PM					6		3	0	6	13		0	15	3	0	165		
02:15:00 PM					6		7	0	3	12		0	11	4	0	142		
02:20:00 PM					11		5	0	9	9		0	17	9	0	149		
02:25:00 PM					5		5	0	9	10		0	16	8	0	156		
02:30:00 PM					7		2	0	13	19		0	7	6	0	167		
02:35:00 PM					6		4	0	8	13		0	9	8	0	155		
02:40:00 PM					11		9	0	14	11		0	10	16	0	173		
02:45:00 PM					21		11	0	14	18		0	10	5	0	198		
02:50:00 PM					16		18	0	15	11		0	17	26	0	253		
02:55:00 PM					14		5	0	10	17		0	21	11	0	260	754	
03:00:00 PM					13		8	0	14	19		0	22	17	0	274	781	
03:05:00 PM					7		11	0	12	10		0	15	13	0	239	796	
03:10:00 PM					17		13	0	9	13		0	13	9	0	235	824	
03:15:00 PM					27		20	0	12	20		0	9	12	0	242	881	
03:20:00 PM					17		13	0	17	11		0	16	3	0	251	898	
03:25:00 PM					12		10	0	6	10		0	13	13	0	241	909	
03:30:00 PM					13		10	0	8	17		0	20	12	0	221	935	
03:35:00 PM					24		13	0	10	7		0	12	10	0	220	963	
03:40:00 PM					24		25	0	7	13		0	23	8	0	256	992	
03:45:00 PM					25		25	0	6	17		0	17	10	0	276	1013	
03:50:00 PM					10		11	0	6	18		0	16	12	0	273	983	
03:55:00 PM					9		10	0	8	16		0	16	9	0	241	973	

04:00:00 PM		7	13	0	4	7	0	23	11	0	206	945
04:05:00 PM		22	14	0	9	18	0	9	5	0	210	954
04:10:00 PM		21	13	0	14	12	0	20	7	0	229	967
04:15:00 PM		11	9	0	8	12	0	18	11	0	233	936
04:20:00 PM		11	11	0	10	15	0	19	22	0	244	947
04:25:00 PM		16	6	0	10	12	0	29	14	0	244	970
04:30:00 PM		14	10	0	13	14	0	19	13	0	258	973
04:35:00 PM		19	9	0	14	9	0	16	14	0	251	978
04:40:00 PM		14	15	0	5	22	0	14	15	0	249	963
04:45:00 PM		9	11	0	22	16	0	21	12	0	257	954
04:50:00 PM		23	12	0	12	10	0	13	9	0	255	960
04:55:00 PM		18	11	0	14	19	0	15	8	0	255	977
05:00:00 PM		16	17	0	12	13	0	25	9	0	256	1004
05:05:00 PM		11	9	0	15	13	0	22	12	0	259	1009
05:10:00 PM		10	7	0	17	21	0	15	8	0	252	1000
05:15:00 PM		13	12	0	9	11	0	14	14	0	233	1004
05:20:00 PM		12	8	0	13	16	0	20	12	0	232	997
05:25:00 PM		14	9	0	18	11	0	15	10	0	231	987
05:30:00 PM		10	4	0	10	10	0	12	9	0	213	959
05:35:00 PM		14	8	0	12	16	0	13	14	0	209	955
05:40:00 PM		9	6	0	15	13	0	12	10	0	197	935
05:45:00 PM		6	9	0	13	12	0	20	17	0	219	921
05:50:00 PM		12	11	0	10	13	0	17	13	0	218	918
05:55:00 PM		13	7	0	13	15	0	18	7	0	226	906

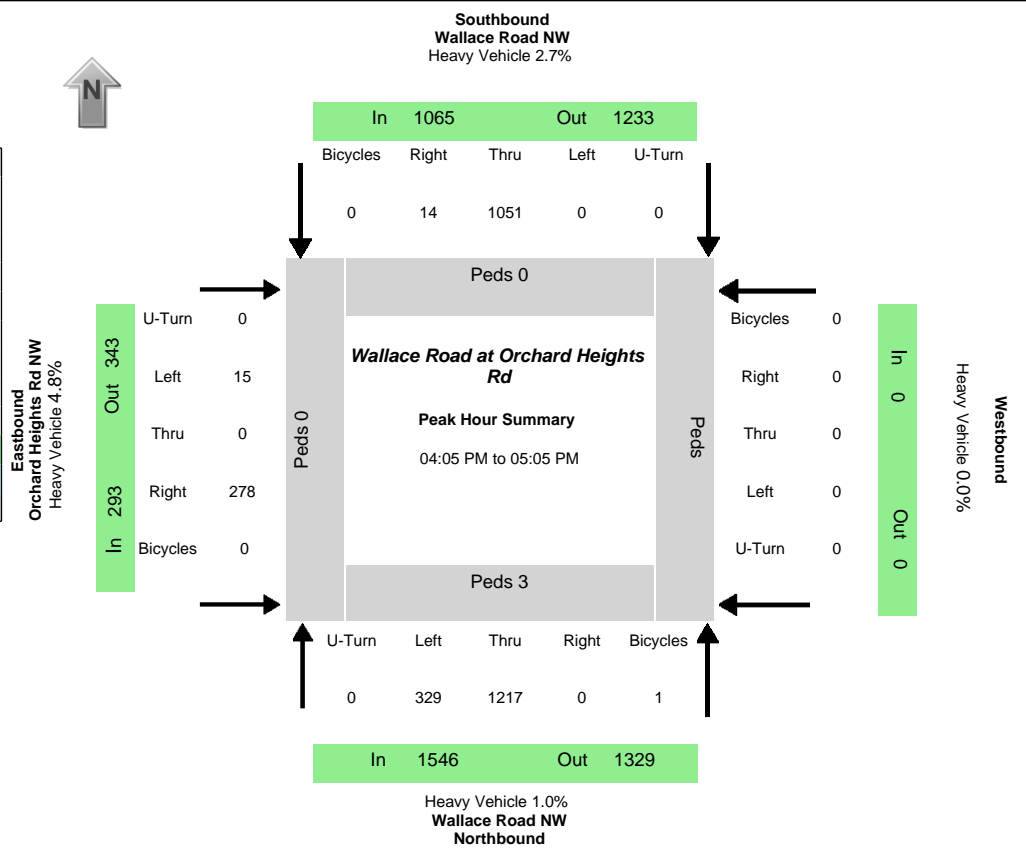
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.950175 - -123.051659
Start Date	Wednesday, January 22, 2020
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:10:00 PM
Peak 15 Min Start	04:40:00 PM
PHF (15-Min Int)	0.97



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
319	1393	216	0	41	1195	22	0	46	114	258	2	233	180	75	0	1928	1258	420	488	1686	1514	523	371
Percent Heavy Vehicles																							
1.6%	1.8%	0.5%	0.0%	4.9%	2.8%	0.0%	0.0%	2.2%	0.0%	2.7%	0.0%	5.6%	1.1%	1.3%	0.0%	1.6%	2.9%	1.9%	3.3%	3.2%	1.8%	1.3%	0.8%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	5	4	4	3	2	13		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
02:00:00 PM	16	79	20	0	4	63	1	0	3	11	19	0	39	10	2	0							
02:05:00 PM	15	72	9	0	9	80	1	0	2	8	25	0	19	9	4	0							
02:10:00 PM	24	90	12	1	2	62	1	0	4	7	29	1	18	7	5	0	783						
02:15:00 PM	27	120	21	0	2	52	2	0	3	14	23	0	19	9	6	0	814						
02:20:00 PM	21	80	9	0	7	72	2	0	3	5	22	0	26	12	8	0	828						
02:25:00 PM	16	79	19	0	0	70	2	0	10	6	17	0	25	11	3	0	823						
02:30:00 PM	25	92	10	1	6	52	3	0	4	10	17	0	16	12	4	0	777						
02:35:00 PM	15	96	14	0	10	94	1	0	0	9	25	0	19	12	5	0	810						
02:40:00 PM	10	80	14	0	3	81	2	0	2	7	15	0	21	9	7	0	803						
02:45:00 PM	29	116	16	0	1	70	0	0	3	7	25	0	25	8	4	0	855						
02:50:00 PM	20	129	12	0	4	57	0	0	6	7	20	2	28	16	7	0	863						
02:55:00 PM	18	106	16	0	8	86	6	0	0	8	22	0	13	7	4	0	906	3315					
03:00:00 PM	34	102	18	0	2	78	4	0	4	5	28	0	16	10	3	0	906	3352					
03:05:00 PM	18	106	18	0	2	60	1	0	6	11	22	0	25	17	5	0	889	3390					
03:10:00 PM	22	106	14	0	9	96	4	0	1	9	16	0	18	8	9	0	907	3439					
03:15:00 PM	22	91	18	0	6	87	1	0	3	7	22	0	7	8	1	0	876	3414					
03:20:00 PM	29	118	10	0	7	73	3	0	9	9	32	0	20	13	2	0	910	3472					
03:25:00 PM	18	110	16	0	7	70	2	0	1	2	28	0	10	21	7	0	890	3506					
03:30:00 PM	17	81	13	0	0	86	7	0	3	5	20	0	18	16	5	0	888	3525					
03:35:00 PM	35	115	13	0	2	79	2	0	7	12	36	0	24	14	6	0	908	3570					
03:40:00 PM	27	105	13	0	12	89	1	0	2	8	29	1	21	23	8	0	955	3658					
03:45:00 PM	18	94	18	0	3	118	3	0	3	11	16	0	16	8	4	0	996	3666					
03:50:00 PM	24	93	14	0	6	82	1	0	8	13	37	0	11	17	5	0	962	3669					
03:55:00 PM	26	143	18	0	2	63	1	0	2	7	20	0	17	16	10	0	948	3700					

04:00:00 PM	25	104	13	0	6	88	3	0	7	8	15	0	23	7	6	0	941	3701
04:05:00 PM	33	87	23	0	2	91	3	0	3	9	21	0	22	11	7	0	942	3722
04:10:00 PM	15	128	15	0	3	77	4	0	2	18	21	0	24	22	8	0	954	3747
04:15:00 PM	29	113	24	0	6	105	1	0	5	6	20	0	25	19	3	0	1005	3830
04:20:00 PM	38	92	22	0	1	88	1	0	7	3	21	0	17	10	7	0	1000	3812
04:25:00 PM	28	135	18	0	0	98	2	0	5	12	24	0	18	13	7	0	1023	3880
04:30:00 PM	25	122	18	0	1	114	3	0	4	8	20	1	16	24	6	0	1029	3971
04:35:00 PM	18	101	18	0	2	114	2	0	1	8	15	0	21	17	6	0	1045	3949
04:40:00 PM	31	121	21	0	4	97	0	0	7	12	39	0	16	12	3	0	1048	3973
04:45:00 PM	18	119	18	0	4	108	1	0	3	10	11	0	19	15	12	0	1024	3999
04:50:00 PM	22	122	11	0	6	133	1	0	3	5	21	1	19	10	2	0	1057	4044
04:55:00 PM	44	99	19	0	7	89	1	0	3	10	24	0	15	10	5	0	1020	4045
05:00:00 PM	23	120	15	0	5	77	3	0	4	10	22	0	30	19	11	0	1021	4079
05:05:00 PM	28	121	17	0	2	95	3	0	2	12	20	0	13	9	5	0	992	4094
05:10:00 PM	28	103	23	0	1	76	3	0	3	7	26	0	21	15	7	0	979	4070
05:15:00 PM	15	134	21	0	4	59	2	0	3	15	16	1	15	13	6	0	944	4018
05:20:00 PM	15	132	24	0	3	64	2	0	5	8	13	0	25	16	1	0	925	4019
05:25:00 PM	34	100	15	0	1	78	4	0	4	11	23	1	9	10	9	0	911	3958
05:30:00 PM	31	126	13	0	5	62	4	0	6	7	16	0	16	15	11	0	919	3908
05:35:00 PM	15	137	15	0	9	99	3	0	6	6	24	0	14	12	5	0	956	3930
05:40:00 PM	22	103	15	0	6	107	1	0	4	9	20	0	8	9	3	0	964	3874
05:45:00 PM	35	121	12	0	6	83	2	0	4	7	32	0	18	11	9	0	992	3876
05:50:00 PM	23	129	17	1	5	75	1	0	6	8	17	0	15	10	3	0	957	3830
05:55:00 PM	24	93	14	0	2	83	6	0	1	6	17	0	7	11	1	0	915	3769

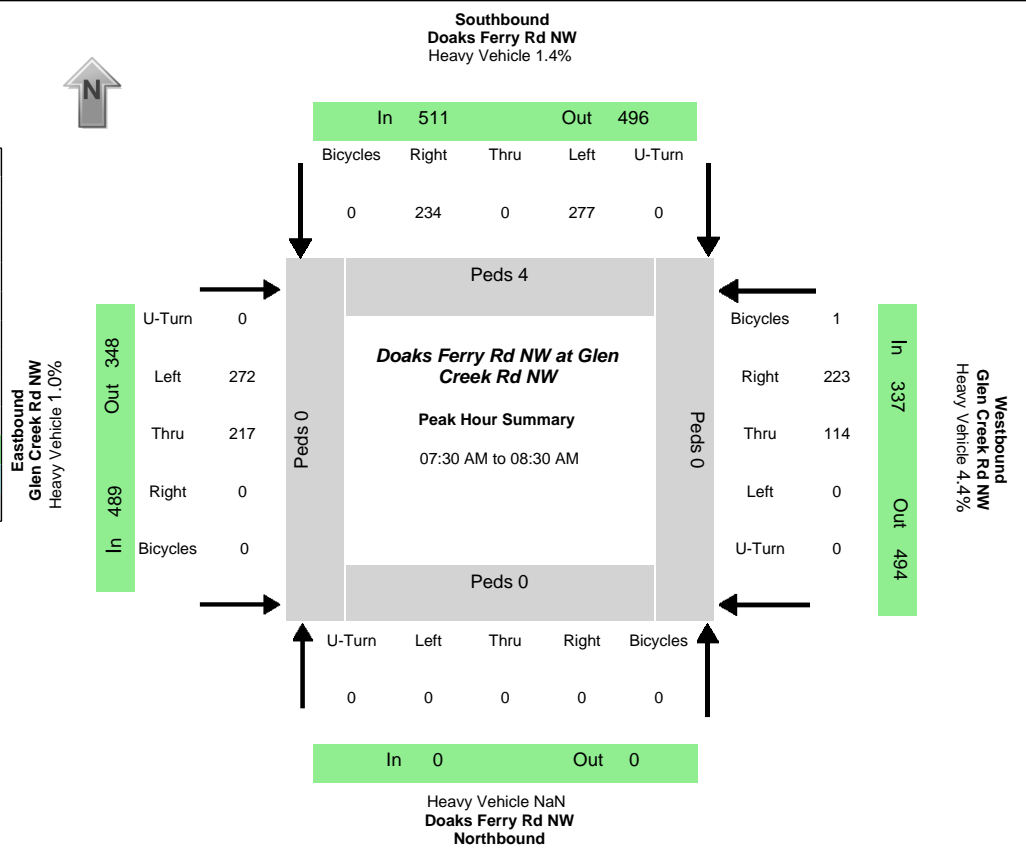
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Road NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.953357 - -123.05262
Start Date	Wednesday, January 22, 2020
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:05:00 PM
Peak 15 Min Start	04:40:00 PM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
329	1217	0	0	0	1051	14	0	15	0	278	0	0	0	0	0	1546	1065	293	0	1329	1232	343	0
Percent Heavy Vehicles																							
0.9%	1.0%	0.0%	0.0%	0.0%	2.7%	7.1%	0.0%	13.3%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	0.0%	1.0%	2.7%	4.8%	0.0%	3.0%	1.1%	1.2%	0.0%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk							
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum		
0	1		0		0	0	0			0	0					1	3	0	0		3		
All Vehicle Volumes																							
Time	Northbound Wallace Road NW				Southbound Wallace Road NW				Eastbound Orchard Heights Rd NW				Westbound				15 Min		1 HR				
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum		Sum				
02:00:00 PM	18	68		0		57	1	0	1		18	0											
02:05:00 PM	23	53		0		55	3	0	0		22	0											
02:10:00 PM	22	89		0		57	0	0	1		19	0					507						
02:15:00 PM	27	87		0		45	3	0	1		23	0					530						
02:20:00 PM	27	60		0		62	2	0	3		12	0					540						
02:25:00 PM	35	84		0		56	1	0	0		16	0					544						
02:30:00 PM	18	70		0		56	1	0	0		18	0					521						
02:35:00 PM	28	56		0		84	1	0	1		20	0					545						
02:40:00 PM	26	66		0		57	1	0	2		22	0					527						
02:45:00 PM	43	94		0		55	2	0	1		24	0					583						
02:50:00 PM	29	83		0		57	2	0	4		28	0					596						
02:55:00 PM	26	89		0		55	3	0	0		30	0					625	2203					
03:00:00 PM	32	103		0		61	0	0	2		27	0					631	2265					
03:05:00 PM	34	79		0		60	0	0	2		20	0					623	2304					
03:10:00 PM	22	90		0		91	3	0	2		23	0					651	2347					
03:15:00 PM	27	83		0		60	0	0	0		37	0					633	2368					
03:20:00 PM	35	85		0		57	3	0	1		29	0					648	2412					
03:25:00 PM	34	81		0		70	0	0	0		19	0					621	2424					
03:30:00 PM	25	79		0		61	0	0	0		22	0					601	2448					
03:35:00 PM	28	112		0		74	3	0	4		40	0					652	2519					
03:40:00 PM	19	94		0		85	1	0	1		27	0					675	2572					
03:45:00 PM	22	74		0		78	2	0	4		35	0					703	2568					
03:50:00 PM	26	105		0		66	1	0	2		30	0					672	2595					
03:55:00 PM	33	110		0		75	3	0	0		18	0					684	2631					

04:00:00 PM	19	87	0	59	1	0	1	20	0		656	2593
04:05:00 PM	26	94	0	80	1	0	2	23	0		652	2624
04:10:00 PM	23	115	0	77	1	0	1	24	0		654	2634
04:15:00 PM	17	87	0	78	1	0	1	20	0		671	2631
04:20:00 PM	32	87	0	92	0	0	0	17	0		673	2649
04:25:00 PM	40	110	0	87	0	0	1	38	0		708	2721
04:30:00 PM	18	94	0	114	0	0	3	13	0		746	2776
04:35:00 PM	33	96	0	73	1	0	1	21	0		743	2740
04:40:00 PM	29	111	0	112	4	0	0	20	0		743	2789
04:45:00 PM	26	96	0	100	2	0	2	36	0		763	2836
04:50:00 PM	22	122	0	81	1	0	1	23	0		788	2856
04:55:00 PM	33	107	0	89	2	0	1	25	0		769	2874
05:00:00 PM	30	98	0	68	1	0	2	18	0		724	2904
05:05:00 PM	37	71	0	63	2	0	2	21	0		670	2874
05:10:00 PM	36	99	0	73	0	0	0	22	0		643	2863
05:15:00 PM	29	106	0	59	2	0	2	11	0		635	2868
05:20:00 PM	34	98	0	56	0	0	1	12	0		640	2841
05:25:00 PM	38	115	0	56	3	0	1	27	0		650	2805
05:30:00 PM	41	109	0	62	1	0	2	20	0		676	2798
05:35:00 PM	27	120	0	99	1	0	1	26	0		749	2847
05:40:00 PM	31	93	0	79	0	0	0	24	0		736	2798
05:45:00 PM	32	107	0	81	5	0	0	24	0		750	2785
05:50:00 PM	31	99	0	70	2	0	2	19	0		699	2758
05:55:00 PM	26	80	0	57	0	0	1	19	0		655	2684

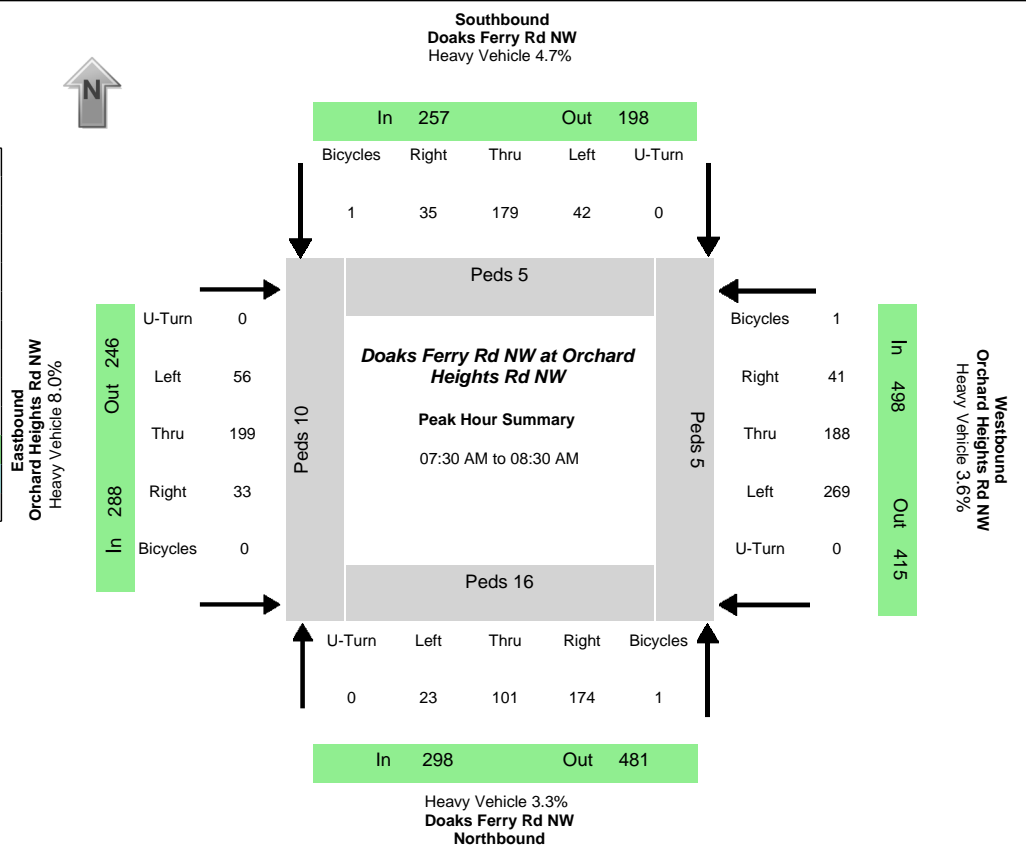
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.95208 - -123.08433
Start Date	Thursday, September 16, 2021
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:30:00 AM
Peak 15 Min Start	08:00:00 AM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	277	0	234	0	272	217	0	0	0	114	223	0	0	511	489	337	0	495	348	494
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	1.3%	0.0%	0.7%	1.4%	0.0%	0.0%	0.0%	7.9%	2.7%	0.0%	NaN	1.4%	1.0%	4.5%	NaN	1.6%	3.4%	1.4%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	4	0	0	0	4	
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	0	0	0	0	2	0	2	0	0	10	0	0	0	3	0	0							
06:05:00 AM	0	0	0	0	1	0	4	0	1	9	0	0	0	3	1	0							
06:10:00 AM	0	0	0	0	3	0	5	0	2	4	0	0	0	3	1	0	54						
06:15:00 AM	0	0	0	0	1	0	4	0	2	12	0	0	0	0	3	0	59						
06:20:00 AM	0	0	0	0	4	0	3	0	3	5	0	0	0	1	3	0	59						
06:25:00 AM	0	0	0	0	1	0	4	0	5	10	0	0	0	0	3	0	64						
06:30:00 AM	0	0	0	0	5	0	5	0	4	12	0	0	0	5	2	0	75						
06:35:00 AM	0	0	0	0	4	0	4	0	3	16	0	0	0	7	1	0	91						
06:40:00 AM	0	0	0	0	5	0	3	0	2	10	0	0	0	6	3	0	97						
06:45:00 AM	0	0	0	0	4	0	7	0	6	11	0	0	0	5	2	0	99						
06:50:00 AM	0	0	0	0	7	0	8	0	6	13	0	0	0	9	1	0	108						
06:55:00 AM	0	0	0	0	3	0	3	0	9	23	0	0	0	8	6	0	131	346					
07:00:00 AM	0	0	0	0	2	0	11	0	14	16	0	0	0	8	3	0	150	383					
07:05:00 AM	0	0	0	0	13	0	14	0	11	11	0	0	0	6	8	0	169	427					
07:10:00 AM	0	0	0	0	11	0	13	0	9	17	0	0	0	5	11	0	183	475					
07:15:00 AM	0	0	0	0	9	0	14	0	12	18	0	0	0	9	8	0	199	523					
07:20:00 AM	0	0	0	0	11	0	10	0	22	15	0	0	0	9	4	0	207	575					
07:25:00 AM	0	0	0	0	8	0	8	0	28	11	0	0	0	6	9	0	211	622					
07:30:00 AM	0	0	0	0	10	0	14	0	41	19	0	0	0	6	18	0	249	697					
07:35:00 AM	0	0	0	0	13	0	14	0	33	21	0	0	0	7	21	0	287	771					
07:40:00 AM	0	0	0	0	20	0	20	0	44	15	0	0	0	6	22	0	344	869					
07:45:00 AM	0	0	0	0	25	0	37	0	14	18	0	0	0	5	9	0	344	942					
07:50:00 AM	0	0	0	0	15	0	32	0	20	17	0	0	0	15	16	0	350	1013					
07:55:00 AM	0	0	0	0	22	0	21	0	18	14	0	0	0	16	17	0	331	1069					

08:00:00 AM	0	0	0	0	22	0	20	0	22	16	0	0	0	13	20	0	336	1128
08:05:00 AM	0	0	0	0	35	0	11	0	30	17	0	0	0	7	24	0	345	1189
08:10:00 AM	0	0	0	0	27	0	20	0	23	13	0	0	0	16	29	0	365	1251
08:15:00 AM	0	0	0	0	32	0	16	0	10	20	0	0	0	8	26	0	364	1293
08:20:00 AM	0	0	0	0	22	0	14	0	9	22	0	0	0	14	13	0	334	1316
08:25:00 AM	0	0	0	0	34	0	15	0	8	25	0	0	0	1	8	0	297	1337
08:30:00 AM	0	0	0	0	27	0	11	0	6	22	0	0	0	11	5	0	267	1311
08:35:00 AM	0	0	0	0	14	0	7	0	11	16	0	0	0	10	7	0	238	1267
08:40:00 AM	0	0	0	0	9	0	5	0	10	15	0	0	0	12	13	0	211	1204
08:45:00 AM	0	0	0	0	11	0	7	0	10	20	0	0	0	15	12	0	204	1171
08:50:00 AM	0	0	0	0	14	0	8	0	9	15	0	0	0	11	5	0	201	1118
08:55:00 AM	0	0	0	0	14	0	6	0	5	16	0	0	0	8	7	0	193	1066

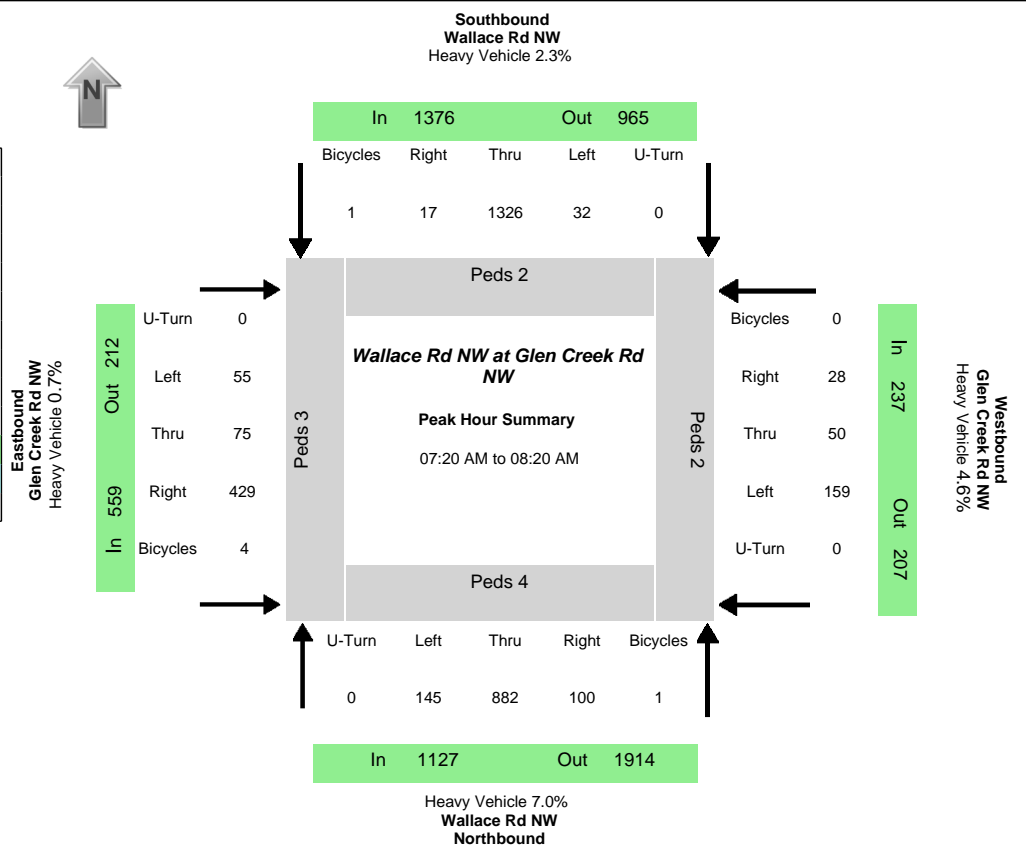
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.96044 - -123.07966
Start Date	Thursday, September 16, 2021
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:30:00 AM
Peak 15 Min Start	08:05:00 AM
PHF (15-Min Int)	0.87



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
23	101	174	0	42	179	35	0	56	199	33	0	269	188	41	0	298	256	288	498	481	198	246	415
Percent Heavy Vehicles																							
8.7%	5.9%	1.1%	0.0%	11.9%	0.6%	17.1%	0.0%	10.7%	6.0%	15.2%	0.0%	3.0%	5.3%	0.0%	0.0%	3.4%	4.7%	8.0%	3.6%	2.9%	6.1%	7.3%	4.6%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	3	16	5	10	5	36		
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Rd NW				Eastbound Orchard Heights Rd NW				Westbound Orchard Heights Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	0	1	0	0	1	1	0	0	1	1	0	0	2	0	0	0							
06:05:00 AM	0	2	0	0	0	0	0	0	1	3	1	0	4	1	1	0							
06:10:00 AM	0	5	0	0	0	4	0	0	0	3	1	0	1	3	0	0	37						
06:15:00 AM	0	2	1	0	2	5	0	0	0	2	0	0	1	2	0	0	45						
06:20:00 AM	0	9	0	0	0	3	0	0	2	1	0	0	2	3	3	0	55						
06:25:00 AM	0	1	1	0	1	2	0	0	0	3	0	0	1	0	1	0	48						
06:30:00 AM	0	4	2	0	1	2	1	0	0	1	2	0	2	2	1	0	51						
06:35:00 AM	0	2	2	0	2	4	1	0	0	3	0	0	1	4	0	0	47						
06:40:00 AM	0	2	1	0	3	4	0	0	0	6	0	0	2	0	0	0	55						
06:45:00 AM	0	4	2	0	1	3	1	0	1	10	1	0	5	4	2	0	71						
06:50:00 AM	0	8	1	0	1	3	0	0	1	4	1	0	7	6	3	0	87						
06:55:00 AM	0	5	3	0	2	3	3	0	1	7	2	0	2	5	1	0	103	243					
07:00:00 AM	0	3	9	0	3	9	0	0	2	13	0	0	5	5	4	0	122	289					
07:05:00 AM	1	6	9	0	1	7	2	0	2	6	1	0	7	3	3	0	135	324					
07:10:00 AM	0	4	13	0	6	8	0	0	2	7	1	0	14	3	3	0	162	368					
07:15:00 AM	0	11	9	0	3	9	0	0	1	15	0	0	11	3	3	0	174	418					
07:20:00 AM	0	4	7	0	3	5	0	0	2	6	3	0	12	8	4	0	180	449					
07:25:00 AM	0	7	16	0	4	6	0	0	0	7	3	0	11	5	4	0	182	502					
07:30:00 AM	0	10	24	0	2	11	0	0	3	20	0	0	11	6	4	0	208	575					
07:35:00 AM	1	17	25	0	3	11	2	0	7	13	4	0	20	18	4	0	279	681					
07:40:00 AM	3	11	27	0	4	6	2	0	2	24	2	0	28	12	6	0	343	790					
07:45:00 AM	1	10	28	0	5	7	2	0	7	12	1	0	35	21	4	0	385	889					
07:50:00 AM	0	9	11	0	3	12	0	0	2	10	0	0	30	18	5	0	360	954					
07:55:00 AM	1	4	11	0	4	11	4	0	2	7	2	0	23	17	2	0	321	1008					

08:00:00 AM	0	9	17	0	10	8	1	0	3	14	2	0	10	9	4	0	275	1042
08:05:00 AM	1	4	6	0	4	19	4	0	4	17	4	0	23	27	4	0	292	1111
08:10:00 AM	2	10	9	0	4	22	7	0	5	18	5	0	33	15	1	0	335	1181
08:15:00 AM	6	5	8	0	1	29	3	0	10	27	6	0	21	20	3	0	387	1255
08:20:00 AM	5	5	6	0	2	32	5	0	4	13	4	0	21	14	1	0	382	1313
08:25:00 AM	3	7	2	0	0	11	5	0	7	24	3	0	14	11	3	0	341	1340
08:30:00 AM	2	8	7	0	1	6	1	0	1	11	2	0	5	4	1	0	251	1298
08:35:00 AM	3	6	5	0	1	4	1	0	3	7	2	0	2	1	3	0	177	1211
08:40:00 AM	2	10	3	0	4	3	0	0	3	11	1	0	7	8	3	0	142	1139
08:45:00 AM	0	16	2	0	4	8	1	0	5	9	1	0	4	2	4	0	149	1062
08:50:00 AM	0	3	5	0	7	5	1	0	3	7	2	0	8	7	5	0	164	1015
08:55:00 AM	0	6	10	0	4	14	0	0	1	9	3	0	4	5	9	0	174	992

Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.95009 - -123.05165
Start Date	Thursday, September 16, 2021
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:20:00 AM
Peak 15 Min Start	07:40:00 AM
PHF (15-Min Int)	0.94



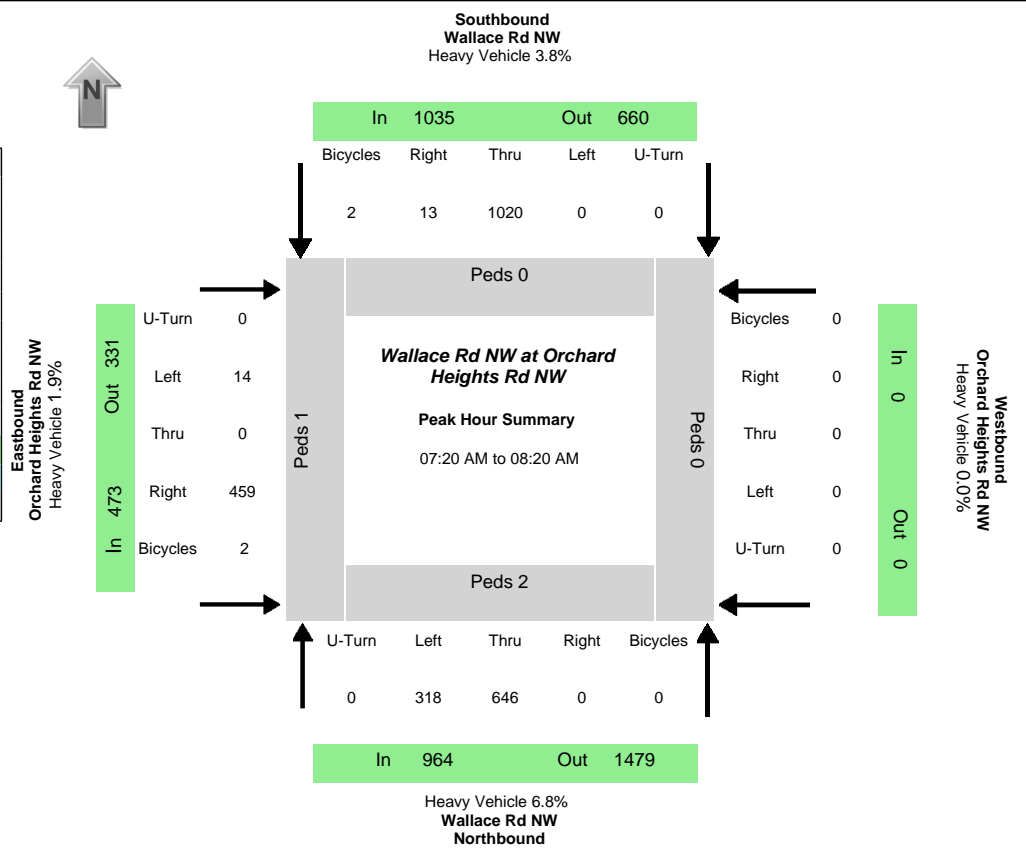
Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
145	882	100	0	32	1326	17	0	55	75	429	0	159	50	28	0	1127	1375	559	237	1914	965	212	207
Percent Heavy Vehicles																							
7.6%	6.9%	7.0%	0.0%	3.1%	2.3%	0.0%	0.0%	0.0%	1.3%	0.7%	0.0%	4.4%	6.0%	3.6%	0.0%	7.0%	2.3%	0.7%	4.6%	2.1%	6.4%	6.6%	4.3%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	1	0	0	0	3	1	0	0	0	0	0	6	4	2	3	2	11		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn			Sum	Sum			
06:00:00 AM	2	54	3	0	3	41	0	0	2	1	19	0	4	1	0	0							
06:05:00 AM	0	51	2	0	1	38	1	0	4	1	17	1	2	1	2	0							
06:10:00 AM	3	48	1	0	0	51	0	0	2	1	18	0	5	2	3	0	385						
06:15:00 AM	2	50	0	0	0	56	0	0	2	2	23	0	6	2	5	0	403						
06:20:00 AM	4	52	3	0	2	58	0	0	1	6	20	0	7	1	1	0	437						
06:25:00 AM	2	50	0	0	0	68	1	0	1	8	17	0	7	5	1	0	463						
06:30:00 AM	4	47	2	0	0	67	0	0	2	3	23	0	5	6	1	0	475						
06:35:00 AM	4	52	3	0	0	101	0	0	3	3	18	0	11	3	2	0	520						
06:40:00 AM	3	50	2	0	2	83	0	0	3	1	34	0	10	3	1	0	552						
06:45:00 AM	6	51	3	0	1	78	1	0	7	5	38	0	9	2	4	0	597						
06:50:00 AM	4	79	9	0	0	97	1	0	2	2	17	0	16	6	1	0	631						
06:55:00 AM	5	47	4	0	1	83	1	0	2	8	27	0	6	5	1	0	629	2029					
07:00:00 AM	5	55	4	0	1	103	0	0	5	4	37	0	8	2	1	0	649	2124					
07:05:00 AM	9	44	3	0	0	115	1	0	4	2	25	0	13	4	0	0	635	2223					
07:10:00 AM	4	54	9	0	0	105	2	0	0	3	27	0	3	7	5	0	664	2308					
07:15:00 AM	11	64	7	0	1	108	2	0	1	4	45	0	18	2	2	0	704	2425					
07:20:00 AM	8	63	10	0	1	99	0	0	2	5	34	0	10	4	1	0	721	2507					
07:25:00 AM	7	90	9	0	1	106	3	0	6	2	32	0	9	5	2	0	774	2619					
07:30:00 AM	10	73	9	0	2	116	1	0	3	6	34	0	10	5	2	0	780	2730					
07:35:00 AM	7	66	5	0	2	116	2	0	5	5	38	0	17	9	3	0	818	2805					
07:40:00 AM	9	89	8	0	2	118	0	0	8	9	26	0	18	0	3	0	836	2903					
07:45:00 AM	14	65	8	0	3	137	1	0	3	7	41	0	12	5	3	0	864	2997					
07:50:00 AM	22	63	3	0	2	107	0	0	7	10	47	0	16	4	3	0	873	3047					
07:55:00 AM	11	68	12	0	5	100	3	0	6	4	34	0	14	2	1	0	843	3117					

08:00:00 AM	15	91	9	0	5	125	3	0	1	4	31	0	15	5	2	0	850	3198
08:05:00 AM	18	60	6	0	4	95	3	0	2	4	32	0	13	5	2	0	810	3222
08:10:00 AM	14	67	14	0	4	96	1	0	9	12	48	0	10	2	2	0	829	3282
08:15:00 AM	10	87	7	0	1	111	0	0	3	7	32	0	15	4	4	0	804	3298
08:20:00 AM	14	64	5	0	1	68	2	0	4	3	48	0	11	4	2	0	786	3287
08:25:00 AM	13	74	6	0	5	77	0	0	4	7	34	0	14	7	4	0	752	3260
08:30:00 AM	5	78	8	0	5	82	1	0	6	12	38	0	9	5	4	0	724	3242
08:35:00 AM	11	71	10	0	2	92	1	0	1	9	42	0	25	8	3	0	773	3242
08:40:00 AM	18	58	13	0	3	79	1	0	2	10	43	0	19	6	1	0	781	3205
08:45:00 AM	17	74	7	0	3	84	0	0	5	9	38	0	22	6	7	0	800	3178
08:50:00 AM	14	78	13	0	5	85	0	0	6	16	31	0	16	2	2	0	793	3162
08:55:00 AM	11	72	7	0	3	111	1	0	4	3	26	0	20	8	3	0	809	3171

K-D-N

KEY DATA NETWORK

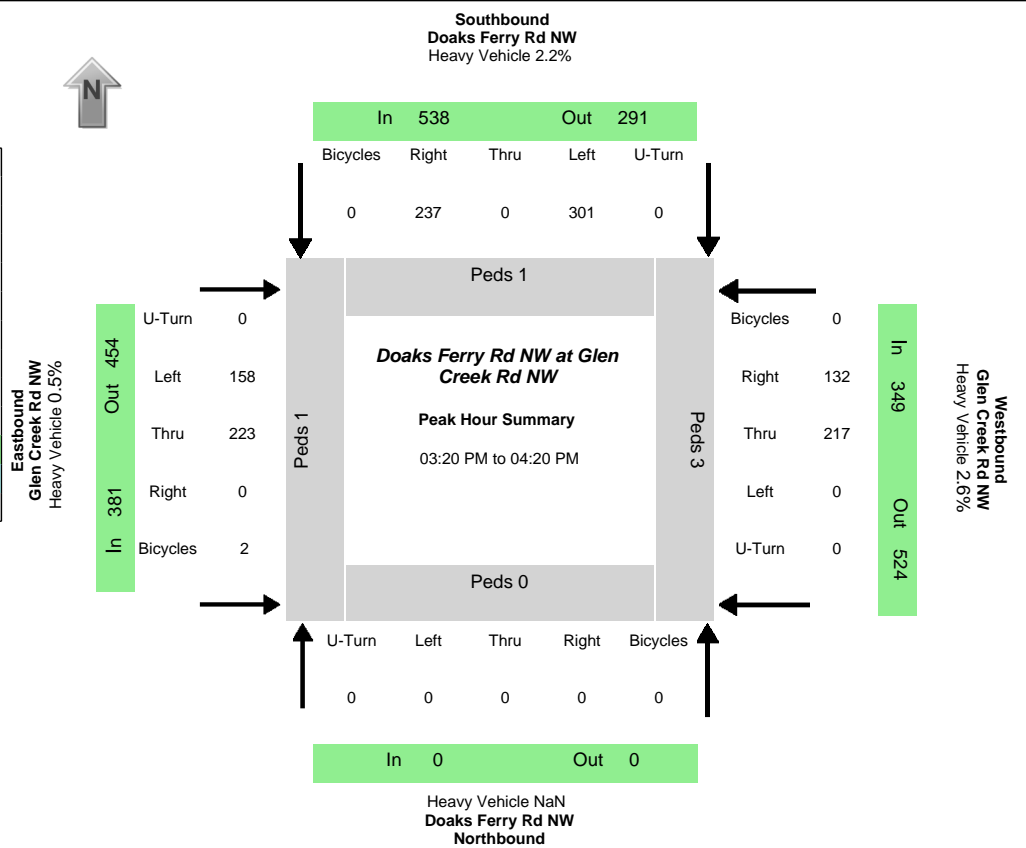
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.95334 - -123.05251
Start Date	Thursday, September 16, 2021
Start Time	06:00:00 AM
Weather	
Study ID #	
Peak Hour Start	07:20:00 AM
Peak 15 Min Start	07:30:00 AM
PHF (15-Min Int)	0.88



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
318	646	0	0	0	1020	13	0	14	0	459	0	0	0	0	0	964	1033	473	0	1479	660	331	0
Percent Heavy Vehicles																							
2.5%	9.0%	0.0%	0.0%	0.0%	3.5%	23.1%	0.0%	7.1%	0.0%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	6.8%	3.8%	1.9%	0.0%	3.0%	8.9%	3.3%	0.0%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	4	2	0	1	0		3	
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Orchard Heights Rd NW				Westbound Orchard Heights Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
06:00:00 AM	2	43	0	0	0	27	0	0	0	0	8	0	0	0	0	0							
06:05:00 AM	7	43	0	0	0	37	0	0	0	0	6	0	0	0	0	0							
06:10:00 AM	5	48	0	0	0	42	0	0	0	0	12	0	0	0	0	0	280						
06:15:00 AM	7	58	0	0	0	61	1	0	1	0	9	0	0	0	0	0	337						
06:20:00 AM	4	35	0	0	0	41	0	0	1	0	14	0	0	0	0	0	339						
06:25:00 AM	3	57	0	0	0	58	1	0	1	0	23	0	0	0	0	0	375						
06:30:00 AM	6	44	0	0	0	63	1	0	3	0	17	0	0	0	0	0	372						
06:35:00 AM	5	48	0	0	0	77	0	0	0	0	18	0	0	0	0	0	425						
06:40:00 AM	6	42	0	0	0	79	1	0	1	0	29	0	0	0	0	0	440						
06:45:00 AM	11	58	0	0	0	68	0	0	1	0	24	0	0	0	0	0	468						
06:50:00 AM	13	53	0	0	0	68	1	0	1	0	24	0	0	0	0	0	480						
06:55:00 AM	12	40	0	0	0	75	0	0	1	0	30	0	0	0	0	0	480	1575					
07:00:00 AM	16	35	0	0	0	85	1	0	0	0	35	0	0	0	0	0	490	1667					
07:05:00 AM	11	46	0	0	0	101	1	0	1	0	25	0	0	0	0	0	515	1759					
07:10:00 AM	14	44	0	0	0	78	1	0	1	0	27	0	0	0	0	0	522	1817					
07:15:00 AM	19	43	0	0	0	81	1	0	0	0	31	0	0	0	0	0	525	1855					
07:20:00 AM	15	63	0	0	0	75	2	0	0	0	34	0	0	0	0	0	529	1949					
07:25:00 AM	29	54	0	0	0	84	0	0	1	0	21	0	0	0	0	0	553	1995					
07:30:00 AM	37	49	0	0	0	88	1	0	0	0	55	0	0	0	0	0	608	2091					
07:35:00 AM	28	63	0	0	0	104	1	0	0	0	41	0	0	0	0	0	656	2180					
07:40:00 AM	26	65	0	0	0	103	2	0	1	0	37	0	0	0	0	0	701	2256					
07:45:00 AM	21	48	0	0	0	93	0	0	2	0	58	0	0	0	0	0	693	2316					
07:50:00 AM	24	48	0	0	0	97	0	0	0	0	32	0	0	0	0	0	657	2357					
07:55:00 AM	21	53	0	0	0	83	3	0	2	0	38	0	0	0	0	0	623	2399					

08:00:00 AM	35	52	0	0	0	86	2	0	2	0	45	0	0	0	0	0	623	2449
08:05:00 AM	21	41	0	0	0	68	0	0	3	0	19	0	0	0	0	0	574	2416
08:10:00 AM	30	58	0	0	0	77	0	0	1	0	40	0	0	0	0	0	580	2457
08:15:00 AM	31	52	0	0	0	62	2	0	2	0	39	0	0	0	0	0	546	2470
08:20:00 AM	20	39	0	0	0	60	3	0	2	0	31	0	0	0	0	0	549	2436
08:25:00 AM	15	78	0	0	0	66	0	0	1	0	35	0	0	0	0	0	538	2442
08:30:00 AM	18	64	0	0	0	52	1	0	5	0	30	0	0	0	0	0	520	2382
08:35:00 AM	13	54	0	0	0	47	1	0	3	0	34	0	0	0	0	0	517	2297
08:40:00 AM	12	59	0	0	0	86	0	0	0	0	31	0	0	0	0	0	510	2251
08:45:00 AM	22	52	0	0	0	78	4	0	1	0	32	0	0	0	0	0	529	2218
08:50:00 AM	22	56	0	0	0	95	2	0	1	0	32	0	0	0	0	0	585	2225
08:55:00 AM	27	62	0	0	0	64	1	0	2	0	25	0	0	0	0	0	578	2206

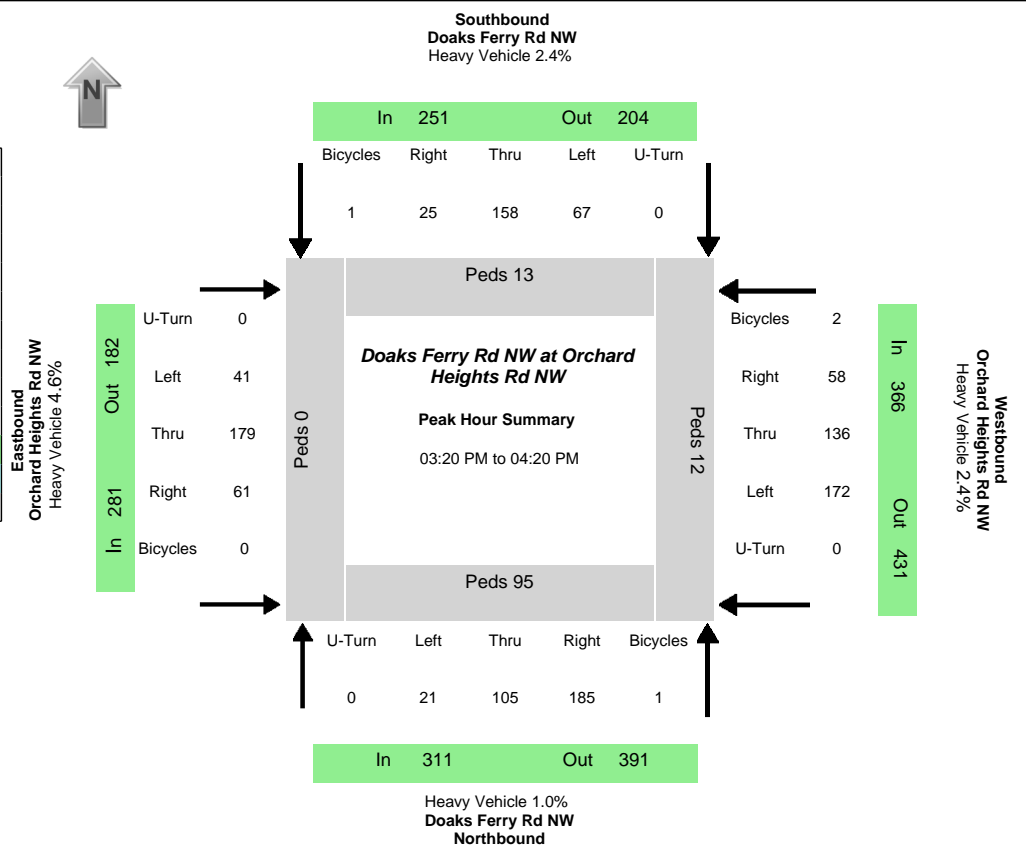
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.95208 - -123.08433
Start Date	Thursday, September 16, 2021
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	03:20:00 PM
Peak 15 Min Start	03:30:00 PM
PHF (15-Min Int)	0.91



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	0	0	301	0	237	0	158	223	0	0	0	217	132	0	0	538	381	349	0	290	454	524
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	2.1%	0.0%	0.0%	0.9%	0.0%	0.0%	0.0%	2.8%	2.3%	0.0%	NaN	2.2%	0.5%	2.6%	NaN	1.0%	2.4%	1.7%
PHV- Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	1	1	3	5		
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
02:00:00 PM	0	0	0	0	6	0	8	0	9	14	0	0	0	10	13	0							
02:05:00 PM	0	0	0	0	5	0	4	0	20	15	0	0	0	15	15	0							
02:10:00 PM	0	0	0	0	9	0	3	0	17	16	0	0	0	16	9	0	204						
02:15:00 PM	0	0	0	0	11	0	6	0	13	9	0	0	0	14	9	0	206						
02:20:00 PM	0	0	0	0	7	0	11	0	14	11	0	0	0	11	6	0	192						
02:25:00 PM	0	0	0	0	19	0	23	0	4	11	0	0	0	9	10	0	198						
02:30:00 PM	0	0	0	0	21	0	30	0	10	12	0	0	0	12	13	0	234						
02:35:00 PM	0	0	0	0	15	0	15	0	5	13	0	0	0	16	10	0	248						
02:40:00 PM	0	0	0	0	11	0	12	0	8	18	0	0	0	11	6	0	238						
02:45:00 PM	0	0	0	0	16	0	8	0	13	10	0	0	0	14	7	0	208						
02:50:00 PM	0	0	0	0	7	0	8	0	16	12	0	0	0	14	15	0	206						
02:55:00 PM	0	0	0	0	4	0	10	0	10	9	0	0	0	9	16	0	198	838					
03:00:00 PM	0	0	0	0	7	0	5	0	9	14	0	0	0	12	13	0	190	838					
03:05:00 PM	0	0	0	0	6	0	13	0	15	13	0	0	0	23	18	0	206	852					
03:10:00 PM	0	0	0	0	10	0	10	0	15	5	0	0	0	18	21	0	227	861					
03:15:00 PM	0	0	0	0	13	0	6	0	14	19	0	0	0	13	13	0	245	877					
03:20:00 PM	0	0	0	0	26	0	10	0	10	22	0	0	0	15	7	0	247	907					
03:25:00 PM	0	0	0	0	24	0	26	0	12	14	0	0	0	22	10	0	276	939					
03:30:00 PM	0	0	0	0	39	0	17	0	17	19	0	0	0	18	8	0	316	959					
03:35:00 PM	0	0	0	0	32	0	16	0	15	19	0	0	0	18	10	0	336	995					
03:40:00 PM	0	0	0	0	33	0	34	0	16	15	0	0	0	16	8	0	350	1051					
03:45:00 PM	0	0	0	0	29	0	20	0	10	25	0	0	0	18	13	0	347	1098					
03:50:00 PM	0	0	0	0	12	0	18	0	16	18	0	0	0	19	21	0	341	1130					
03:55:00 PM	0	0	0	0	15	0	11	0	12	17	0	0	0	11	15	0	300	1153					

04:00:00 PM	0	0	0	0	16	0	11	0	11	23	0	0	0	16	17	0	279	1187
04:05:00 PM	0	0	0	0	23	0	32	0	12	11	0	0	0	28	4	0	285	1209
04:10:00 PM	0	0	0	0	28	0	25	0	11	22	0	0	0	17	8	0	315	1241
04:15:00 PM	0	0	0	0	24	0	17	0	16	18	0	0	0	19	11	0	326	1268
04:20:00 PM	0	0	0	0	16	0	13	0	10	19	0	0	0	21	10	0	305	1267
04:25:00 PM	0	0	0	0	15	0	11	0	11	9	0	0	0	17	14	0	271	1236
04:30:00 PM	0	0	0	0	13	0	5	0	8	20	0	0	0	15	13	0	240	1192
04:35:00 PM	0	0	0	0	16	0	11	0	8	19	0	0	0	20	13	0	238	1169
04:40:00 PM	0	0	0	0	16	0	11	0	10	14	0	0	0	16	13	0	241	1127
04:45:00 PM	0	0	0	0	21	0	17	0	13	21	0	0	0	22	7	0	268	1113
04:50:00 PM	0	0	0	0	11	0	8	0	14	15	0	0	0	19	9	0	257	1085
04:55:00 PM	0	0	0	0	12	0	6	0	15	17	0	0	0	12	6	0	245	1072
05:00:00 PM	0	0	0	0	7	0	11	0	14	18	0	0	0	25	8	0	227	1061
05:05:00 PM	0	0	0	0	14	0	12	0	9	18	0	0	0	17	10	0	231	1031
05:10:00 PM	0	0	0	0	12	0	10	0	11	9	0	0	0	24	9	0	238	995
05:15:00 PM	0	0	0	0	20	0	7	0	14	9	0	0	0	14	8	0	227	962
05:20:00 PM	0	0	0	0	12	0	8	0	19	11	0	0	0	17	22	0	236	962
05:25:00 PM	0	0	0	0	11	0	8	0	16	18	0	0	0	15	13	0	242	966
05:30:00 PM	0	0	0	0	12	0	8	0	14	12	0	0	0	14	18	0	248	970
05:35:00 PM	0	0	0	0	20	0	6	0	10	10	0	0	0	16	21	0	242	966
05:40:00 PM	0	0	0	0	9	0	9	0	19	13	0	0	0	9	23	0	243	968
05:45:00 PM	0	0	0	0	17	0	11	0	20	8	0	0	0	22	13	0	256	958
05:50:00 PM	0	0	0	0	14	0	7	0	25	10	0	0	0	10	11	0	250	959
05:55:00 PM	0	0	0	0	8	0	12	0	15	20	0	0	0	30	21	0	274	997

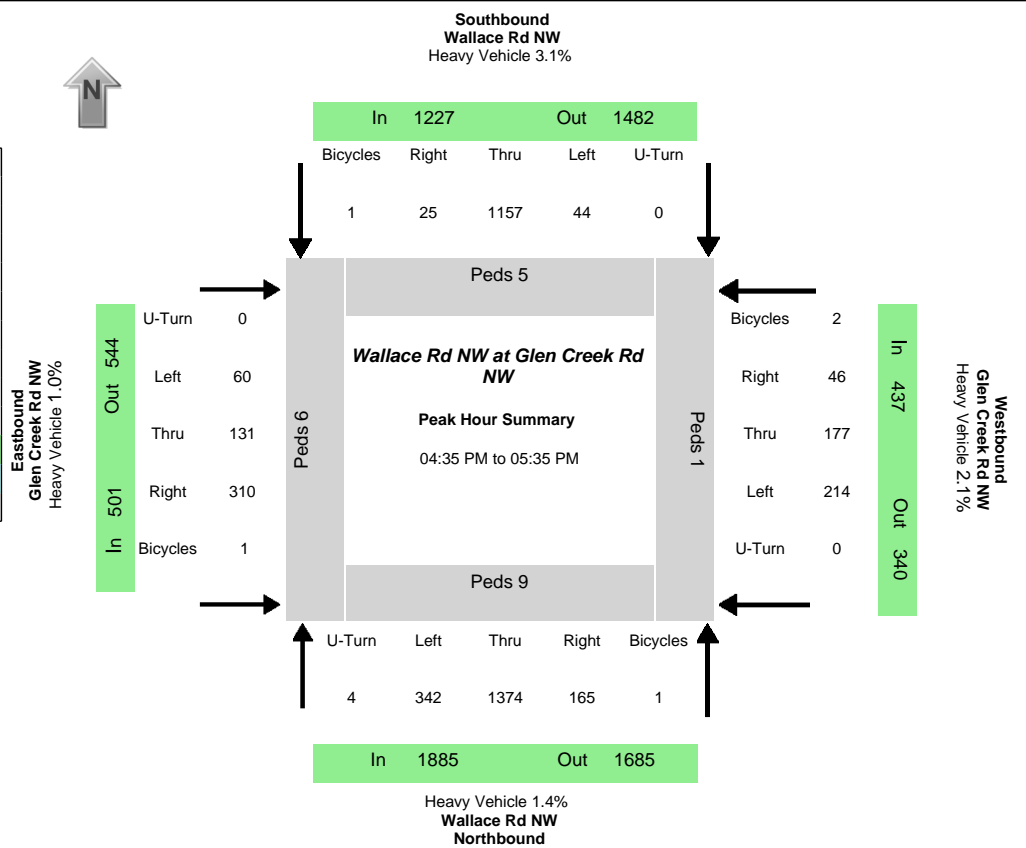
Data Provided by K-D-N.com 503-594-4224	
N/S street	Doaks Ferry Rd NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.96044 - -123.07966
Start Date	Thursday, September 16, 2021
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	03:20:00 PM
Peak 15 Min Start	03:30:00 PM
PHF (15-Min Int)	0.88



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
21	105	185	0	67	158	25	0	41	179	61	0	172	136	58	0	311	250	281	366	391	204	182	431
Percent Heavy Vehicles																							
0.0%	1.0%	1.1%	0.0%	6.0%	0.6%	4.0%	0.0%	7.3%	3.4%	6.6%	0.0%	1.7%	4.4%	0.0%	0.0%	1.0%	2.4%	4.6%	2.5%	2.0%	2.0%	3.8%	2.8%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	1	0	0	1	0	0	0	0	0	0	0	2	0	0	4	95	13	0	12	120		
All Vehicle Volumes																							
Time	Northbound Doaks Ferry Rd NW				Southbound Doaks Ferry Rd NW				Eastbound Orchard Heights Rd NW				Westbound Orchard Heights Rd NW				15 Min Sum	1 HR Sum					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn							
02:00:00 PM	1	6	10	0	1	5	0	0	0	9	2	0	4	4	1	0							
02:05:00 PM	0	6	12	0	1	5	0	0	1	10	1	0	4	5	1	0							
02:10:00 PM	1	5	9	0	2	6	1	0	2	12	0	0	3	10	5	0	145						
02:15:00 PM	1	10	17	0	3	3	2	0	2	11	6	0	3	3	0	0	163						
02:20:00 PM	0	6	6	0	4	8	0	0	3	7	1	0	4	4	4	0	164						
02:25:00 PM	1	7	9	0	1	3	0	0	1	5	1	0	26	13	5	0	180						
02:30:00 PM	0	11	8	0	3	4	1	0	3	3	1	0	32	17	1	0	203						
02:35:00 PM	2	6	6	0	3	4	0	0	0	9	0	0	23	7	6	0	222						
02:40:00 PM	1	8	5	0	4	8	2	0	2	5	3	0	13	7	3	0	211						
02:45:00 PM	1	6	2	0	1	8	1	0	3	10	1	0	12	3	2	0	177						
02:50:00 PM	1	6	13	0	3	7	2	0	1	8	1	0	5	9	4	0	171						
02:55:00 PM	1	8	6	0	2	3	1	0	1	7	2	0	10	10	1	0	162	698					
03:00:00 PM	2	11	3	0	3	5	3	0	2	6	0	0	3	17	3	0	170	713					
03:05:00 PM	4	8	4	0	1	8	0	0	1	10	3	0	15	7	2	0	173	730					
03:10:00 PM	1	10	11	0	0	8	4	0	2	10	2	0	11	22	3	0	205	758					
03:15:00 PM	5	10	6	0	5	19	3	0	1	2	0	0	13	14	0	0	225	775					
03:20:00 PM	3	6	10	0	4	15	1	0	4	12	3	0	8	21	2	0	251	817					
03:25:00 PM	0	5	6	0	3	26	4	0	6	25	11	0	11	12	3	0	279	857					
03:30:00 PM	0	6	12	0	5	14	3	0	8	25	11	0	6	8	3	0	302	874					
03:35:00 PM	6	16	18	0	4	10	1	0	8	19	9	0	9	12	7	0	332	927					
03:40:00 PM	1	17	30	0	4	15	3	0	5	19	10	0	12	6	2	0	344	990					
03:45:00 PM	1	5	23	0	5	10	1	0	1	19	3	0	19	8	1	0	339	1036					
03:50:00 PM	2	9	16	0	10	7	2	0	0	8	4	0	12	6	2	0	298	1054					
03:55:00 PM	3	7	22	0	13	9	5	0	1	14	2	0	9	9	3	0	271	1099					

04:00:00 PM	2	14	10	0	7	10	1	0	4	10	0	0	12	4	5	0	254	1120
04:05:00 PM	2	3	13	0	6	19	1	0	2	13	4	0	22	17	9	0	287	1168
04:10:00 PM	0	9	9	0	2	15	3	0	1	12	1	0	29	23	15	0	309	1203
04:15:00 PM	1	8	16	0	4	8	0	0	1	3	3	0	23	10	6	0	313	1208
04:20:00 PM	2	12	8	0	4	8	3	0	0	5	2	0	13	7	6	0	272	1189
04:25:00 PM	0	13	4	0	5	14	1	0	1	4	0	0	6	7	2	0	210	1134
04:30:00 PM	1	8	3	0	5	7	2	0	5	8	1	0	4	6	3	0	180	1086
04:35:00 PM	4	8	8	0	2	15	2	0	2	4	1	0	8	9	3	0	176	1033
04:40:00 PM	0	8	5	0	3	11	1	0	2	8	2	0	4	9	4	0	176	966
04:45:00 PM	1	9	4	0	6	21	1	0	2	4	0	0	5	9	1	0	186	933
04:50:00 PM	2	10	4	0	1	9	1	0	8	4	3	0	7	9	4	0	182	917
04:55:00 PM	2	13	6	0	4	5	3	0	1	7	3	0	5	10	1	0	185	880
05:00:00 PM	0	8	2	0	3	10	4	0	2	6	0	0	5	13	1	0	176	855
05:05:00 PM	1	12	5	0	1	16	2	0	1	6	2	0	4	5	0	0	169	799
05:10:00 PM	0	8	6	0	0	10	3	0	1	18	0	0	9	9	3	0	176	747
05:15:00 PM	3	9	3	0	3	17	1	0	1	5	1	0	6	10	5	0	186	728
05:20:00 PM	1	17	9	0	6	9	1	0	4	4	2	0	6	14	5	0	209	736
05:25:00 PM	0	14	12	0	2	7	3	0	1	2	2	0	8	10	2	0	205	742
05:30:00 PM	1	13	6	0	4	10	2	0	2	4	0	0	4	10	1	0	198	746
05:35:00 PM	1	12	4	0	3	18	4	0	2	7	1	0	3	13	8	0	196	756
05:40:00 PM	2	9	4	0	5	12	0	0	1	10	1	0	10	12	1	0	200	766
05:45:00 PM	1	8	8	0	5	18	3	0	2	8	1	0	6	15	2	0	220	780
05:50:00 PM	2	17	12	0	5	11	9	0	0	6	2	0	7	22	4	0	241	815
05:55:00 PM	1	9	7	0	3	10	3	0	4	4	2	0	4	15	4	0	240	821

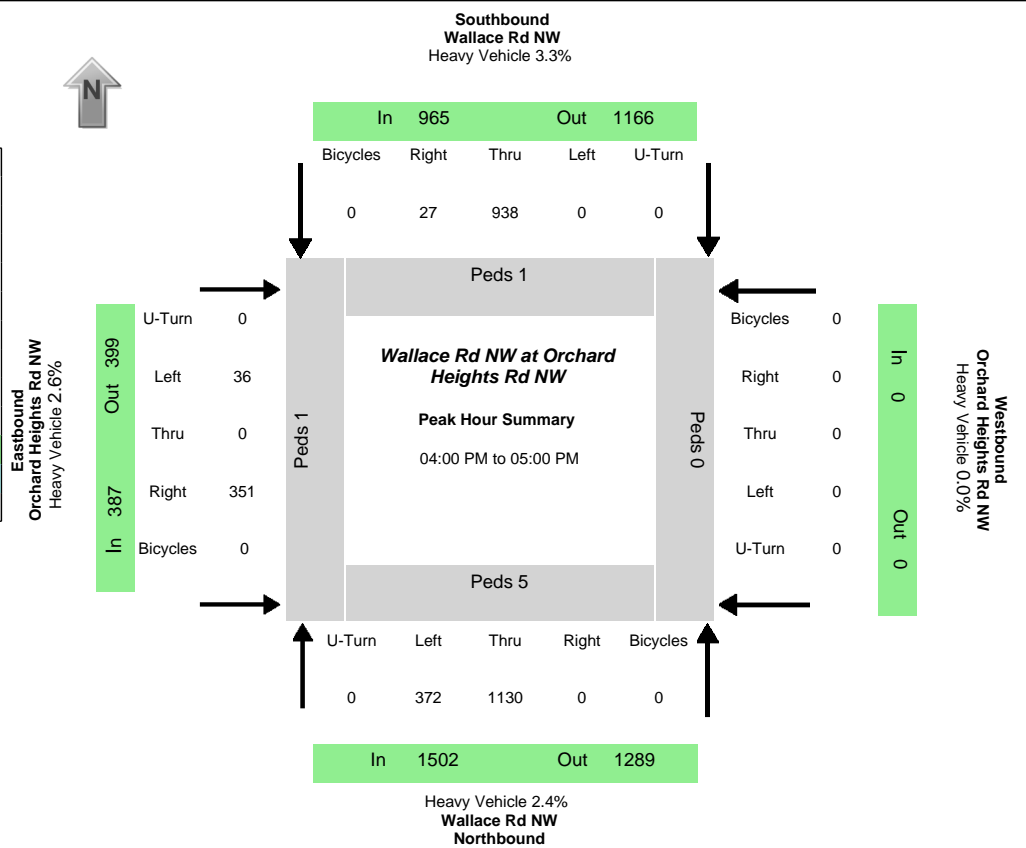
Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Glen Creek Rd NW
City, State	Salem OR
Site Notes	
Location	44.95009 - -123.05165
Start Date	Thursday, September 16, 2021
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:35:00 PM
Peak 15 Min Start	04:35:00 PM
PHF (15-Min Int)	0.98



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
342	1374	165	4	44	1157	25	0	60	131	310	0	214	177	46	0	1885	1226	501	437	1685	1480	544	340
Percent Heavy Vehicles																							
1.2%	1.5%	1.2%	0.0%	0.0%	3.3%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	2.8%	1.1%	2.2%	0.0%	1.4%	3.1%	1.0%	2.1%	2.9%	1.4%	1.1%	0.6%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	1	0	0	0	1	0	0	0	1	0	0	0	1	1	0	5	9	5	6	1	21		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Glen Creek Rd NW				Westbound Glen Creek Rd NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn			Sum	Sum			
02:00:00 PM	21	70	17	0	3	59	2	0	3	16	31	1	32	11	5	0							
02:05:00 PM	15	96	15	0	5	103	3	0	2	12	24	1	26	17	9	0							
02:10:00 PM	24	109	11	0	3	78	1	0	5	7	15	0	23	13	2	0	890						
02:15:00 PM	20	100	15	0	3	69	3	0	3	6	24	0	18	15	7	0	902						
02:20:00 PM	24	84	17	0	7	69	1	0	6	5	17	1	27	8	1	0	841						
02:25:00 PM	14	111	16	0	5	109	1	0	4	15	12	0	11	8	4	0	860						
02:30:00 PM	28	90	15	0	6	87	3	0	4	8	38	1	14	8	4	0	883						
02:35:00 PM	26	78	13	0	1	93	4	0	9	17	24	1	24	18	10	0	934						
02:40:00 PM	19	100	8	0	3	112	1	0	4	5	21	0	20	10	1	0	928						
02:45:00 PM	25	79	12	0	2	94	1	0	5	8	45	1	18	8	1	0	921						
02:50:00 PM	33	84	18	0	3	70	5	0	6	10	25	1	22	16	6	0	902						
02:55:00 PM	18	108	19	0	5	105	3	0	4	6	20	0	22	5	8	0	921	3599					
03:00:00 PM	24	87	17	0	3	77	1	0	4	3	21	0	19	12	2	0	892	3598					
03:05:00 PM	34	98	13	0	2	67	0	0	5	14	17	0	15	11	5	0	874	3551					
03:10:00 PM	30	98	14	0	10	88	1	0	5	4	19	0	23	14	7	0	864	3573					
03:15:00 PM	23	141	11	0	4	113	2	0	3	4	21	0	12	10	2	0	940	3636					
03:20:00 PM	35	115	15	0	2	74	2	0	2	8	30	0	14	10	3	0	969	3679					
03:25:00 PM	24	86	19	1	2	93	5	0	6	4	33	0	15	13	11	0	968	3681					
03:30:00 PM	16	106	11	0	2	115	5	0	8	10	26	0	17	9	3	0	950	3703					
03:35:00 PM	39	110	12	0	7	75	2	0	4	8	30	0	24	15	0	0	966	3711					
03:40:00 PM	24	101	13	0	3	78	1	0	10	5	30	0	23	16	11	0	969	3722					
03:45:00 PM	27	105	16	0	6	111	0	0	8	10	29	0	14	18	2	0	987	3769					
03:50:00 PM	35	141	15	0	4	101	1	0	7	9	25	0	15	9	8	0	1031	3840					
03:55:00 PM	23	99	11	0	2	85	2	0	7	21	16	0	21	19	3	0	1025	3826					

04:00:00 PM	24	103	21	0	4	99	2	0	2	7	28	0	22	14	4	0	1009	3886
04:05:00 PM	31	112	12	0	4	105	1	0	7	11	32	0	10	20	7	0	991	3957
04:10:00 PM	22	103	20	0	4	83	3	0	5	15	34	0	21	11	3	0	1006	3968
04:15:00 PM	28	95	15	0	7	67	1	0	7	8	25	0	26	21	7	0	983	3929
04:20:00 PM	22	124	15	0	1	111	5	0	5	8	27	0	18	10	4	0	981	3969
04:25:00 PM	26	111	16	0	2	79	1	0	4	13	39	0	15	15	5	0	983	3983
04:30:00 PM	20	94	14	0	9	96	5	0	4	8	23	0	21	10	4	0	984	3963
04:35:00 PM	22	124	18	0	6	113	4	0	5	6	25	0	14	16	5	0	992	3995
04:40:00 PM	30	126	18	1	1	88	2	0	7	12	33	0	19	20	4	0	1027	4041
04:45:00 PM	26	91	14	1	2	83	1	0	6	19	20	0	22	21	3	0	1028	4004
04:50:00 PM	14	126	11	0	4	108	4	0	5	12	26	0	15	5	8	0	1008	3972
04:55:00 PM	44	135	12	1	2	95	2	0	5	11	31	0	13	10	2	0	1010	4026
05:00:00 PM	27	99	13	0	5	87	3	0	4	17	23	0	21	23	4	0	1027	4022
05:05:00 PM	28	100	17	0	4	103	0	0	7	9	21	0	23	15	2	0	1018	3999
05:10:00 PM	40	126	13	0	1	93	3	0	1	5	30	0	21	14	3	0	1005	4025
05:15:00 PM	28	113	18	0	2	81	2	0	6	12	32	0	15	14	2	0	1004	4043
05:20:00 PM	17	98	7	1	6	93	1	0	2	9	25	0	29	19	7	0	989	4007
05:25:00 PM	29	121	11	0	6	115	0	0	3	8	16	0	9	9	3	0	969	4011
05:30:00 PM	37	115	13	0	5	98	3	0	9	11	28	0	13	11	3	0	990	4049
05:35:00 PM	25	95	17	0	6	96	1	0	6	14	25	0	27	18	3	0	1009	4024
05:40:00 PM	29	111	11	0	3	85	1	0	6	7	16	0	16	15	3	0	982	3966
05:45:00 PM	34	119	19	0	2	89	3	0	5	11	21	1	18	6	4	0	968	3989
05:50:00 PM	26	112	18	0	5	82	1	0	5	10	33	1	9	22	1	0	960	3976
05:55:00 PM	23	110	18	0	2	92	5	0	2	16	13	0	13	16	1	0	968	3924

Data Provided by K-D-N.com 503-594-4224	
N/S street	Wallace Rd NW
E/W street	Orchard Heights Rd NW
City, State	Salem OR
Site Notes	
Location	44.95334 - -123.05251
Start Date	Thursday, September 16, 2021
Start Time	02:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:00:00 PM
Peak 15 Min Start	04:45:00 PM
PHF (15-Min Int)	0.97



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
372	1130	0	0	0	938	27	0	36	0	351	0	0	0	0	0	1502	965	387	0	1289	1166	399	0
Percent Heavy Vehicles																							
1.6%	2.7%	0.0%	0.0%	0.0%	3.3%	3.7%	0.0%	2.8%	0.0%	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	2.4%	3.3%	2.6%	0.0%	3.1%	2.7%	1.8%	0.0%
PHV - Bicycles																PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum		
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB			
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	1	1	0	7		
All Vehicle Volumes																							
Time	Northbound Wallace Rd NW				Southbound Wallace Rd NW				Eastbound Orchard Heights Rd NW				Westbound Orchard Heights Rd NW				15 Min	1 HR					
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	Sum					
02:00:00 PM	23	50	0	0	0	65	4	0	2	0	21	0	0	0	0	0							
02:05:00 PM	47	77	0	0	0	55	2	0	1	0	28	0	0	0	0	0							
02:10:00 PM	35	65	0	0	0	65	0	0	2	0	24	0	0	0	0	0	566						
02:15:00 PM	33	71	0	0	0	61	1	0	3	0	25	0	0	0	0	0	595						
02:20:00 PM	21	74	0	0	0	60	3	0	0	0	29	0	0	0	0	0	572						
02:25:00 PM	25	79	0	0	0	86	1	0	0	0	23	0	0	0	0	0	595						
02:30:00 PM	24	73	0	0	0	86	0	0	2	0	39	0	0	0	0	0	625						
02:35:00 PM	28	84	0	0	0	80	0	0	0	0	36	0	0	0	0	0	666						
02:40:00 PM	21	86	0	0	0	74	2	0	0	0	43	0	0	0	0	0	678						
02:45:00 PM	21	70	0	0	0	74	1	0	1	0	26	0	0	0	0	0	647						
02:50:00 PM	29	68	0	0	0	60	2	0	4	0	35	0	0	0	0	0	617						
02:55:00 PM	30	88	0	0	0	43	1	1	1	0	24	0	0	0	0	0	579	2418					
03:00:00 PM	27	74	0	0	0	69	1	0	1	0	28	0	0	0	0	0	586	2453					
03:05:00 PM	23	69	0	0	0	82	2	0	0	0	26	0	0	0	0	0	590	2445					
03:10:00 PM	40	96	0	0	0	74	3	0	1	0	24	0	0	0	0	0	640	2492					
03:15:00 PM	36	86	0	0	0	65	1	0	2	0	25	0	0	0	0	0	655	2513					
03:20:00 PM	28	90	0	0	0	110	1	0	0	0	11	0	0	0	0	0	693	2566					
03:25:00 PM	22	82	0	0	0	83	1	0	3	0	31	0	0	0	0	0	677	2574					
03:30:00 PM	44	77	0	0	0	67	5	0	3	0	31	0	0	0	0	0	689	2577					
03:35:00 PM	26	82	0	0	0	75	1	0	3	0	39	0	0	0	0	0	675	2575					
03:40:00 PM	27	105	0	0	0	87	2	0	3	0	30	0	0	0	0	0	707	2603					
03:45:00 PM	41	86	0	0	0	61	3	0	3	0	43	0	0	0	0	0	717	2647					
03:50:00 PM	28	93	0	0	0	73	0	0	3	0	27	0	0	0	0	0	715	2673					
03:55:00 PM	24	82	0	0	0	103	3	0	0	0	19	0	0	0	0	0	692	2716					

04:00:00 PM	35	90	0	0	0	75	9	0	0	0	30	0	0	0	0	0	694	2755
04:05:00 PM	31	82	0	0	0	86	2	0	5	0	30	0	0	0	0	0	706	2789
04:10:00 PM	33	83	0	0	0	74	1	0	4	0	31	0	0	0	0	0	701	2777
04:15:00 PM	26	99	0	0	0	58	1	0	9	0	39	0	0	0	0	0	694	2794
04:20:00 PM	32	100	0	0	0	59	2	0	3	0	36	0	0	0	0	0	690	2786
04:25:00 PM	34	76	0	0	0	92	2	0	0	0	22	0	0	0	0	0	690	2790
04:30:00 PM	28	91	0	0	0	94	6	0	0	0	17	0	0	0	0	0	694	2799
04:35:00 PM	30	108	0	0	0	78	1	0	1	0	29	0	0	0	0	0	709	2820
04:40:00 PM	26	95	0	0	0	76	0	0	6	0	43	0	0	0	0	0	729	2812
04:45:00 PM	29	83	0	0	0	72	1	0	5	0	25	0	0	0	0	0	708	2790
04:50:00 PM	45	118	0	0	0	75	0	0	0	0	31	0	0	0	0	0	730	2835
04:55:00 PM	23	105	0	0	0	99	2	0	3	0	18	0	0	0	0	0	734	2854
05:00:00 PM	43	79	0	0	0	88	2	0	0	0	20	0	0	0	0	0	751	2847
05:05:00 PM	26	95	0	0	0	77	2	0	2	0	24	0	0	0	0	0	708	2837
05:10:00 PM	31	91	0	0	0	69	1	0	2	0	35	0	0	0	0	0	687	2840
05:15:00 PM	37	83	0	0	0	70	0	0	0	0	22	0	0	0	0	0	667	2820
05:20:00 PM	23	104	0	0	0	91	2	0	2	0	25	0	0	0	0	0	688	2835
05:25:00 PM	27	87	0	0	0	89	1	0	0	0	16	0	0	0	0	0	679	2829
05:30:00 PM	33	90	0	0	0	96	5	0	2	0	15	0	0	0	0	0	708	2834
05:35:00 PM	41	93	0	0	0	86	2	0	2	0	23	0	0	0	0	0	708	2834
05:40:00 PM	41	84	0	0	0	72	2	0	0	0	32	0	0	0	0	0	719	2819
05:45:00 PM	29	77	0	0	0	67	2	0	3	0	38	0	0	0	0	0	694	2820
05:50:00 PM	44	89	0	0	0	73	1	0	1	0	24	0	0	0	0	0	679	2783
05:55:00 PM	38	90	0	0	0	74	2	0	5	0	24	0	0	0	0	0	681	2766

Middle Housing: HB 2001 Frequently Asked Questions

The State Legislature passed House Bill 2001

(<https://olis.leg.state.or.us/liz/2019R1/Downloads/MeasureDocument/HB2001/Enrolled>) in 2019 to help increase housing choices and housing supply in Oregon. Below are answers to some frequently asked questions about the new law and its impact on Salem. You can also learn more by visiting the State's webpage (<https://www.oregon.gov/lcd/UP/Pages/Housing-Choices.aspx>) on HB 2001.

The Planning Commission will hold a work session on proposed code changes to implement HB 2001 on Tuesday, June 1.

1. How does HB 2001 affect the types of housing allowed in Salem?

HB 2001 requires large cities like Salem to allow a duplex on each lot that is zoned for residential use that allows development of a detached single-family dwelling. Salem must also allow other types of middle housing – triplexes, quadplexes, townhouses, and cottage clusters – in *areas* zoned for residential use that allow detached single-family dwellings.

2. What areas of Salem will be impacted?

HB 2001 will impact all areas in Salem that are zoned residential *and* allow detached single-family dwellings. That includes the Single-Family Residential (RS) zone, Residential Agriculture (RA) zone, Duplex Residential (RD) zone, and Multiple Family Residential I (RM-I) zone. You can find the zoning of your property online (</Pages/find-your-property-zone.aspx>).

3. Will all middle housing types be allowed on lots in those residential zones

No. Duplexes will be allowed on all lots in the RS, RA, RD, and RM-I zone that allow detached single-family dwellings. That means duplexes, like a single-family dwellings, will be allowed on lots that are at least 4,000 square feet in size. However, the State has recently adopted new administrative rules that include a provision that requires triplexes, quadplexes, and cottage clusters to be allowed in residential areas based on lot size. In Salem, the requirement is:

- A triplex is allowed on a lot that is at least 5,000 square feet in size

- A quadplex is allowed on a lot that is at least 7,000 square feet in size
- A cottage cluster is allowed on a lot that is at least 7,000 square feet in size

4. What is a cottage cluster?

The State has generally defined a cottage cluster as a grouping of at least four detached dwelling units per acre that are clustered around a common courtyard. Each building must have a footprint of less than 900 square feet.

5. Will single-family homes be banned?

No. Detached single-family dwellings will still be allowed. HB 2001 allows a broader mix of housing types but does not prohibit detached single-family homes.

6. Will accessory dwelling units still be allowed?

Yes. Accessory dwelling units (ADUs) will continue to be allowed with a single-family detached dwelling. They will continue to be limited in size to 900 square feet or 75 percent of the main building gross area, whichever is less. HB 2001 prohibits cities from requiring owner occupancy or parking for ADUs; Salem's zoning code already complies with these parts of the law.

7. How much parking will be required?

Under the State's rules, the City can generally require up to two parking spaces for a duplex, three spaces for a triplex, four spaces for a quadplex, one space for each townhouse, and one space for each dwelling unit in a cottage cluster. If a detached single-family dwelling is converted to a triplex or quadplex, the City cannot require any additional parking spaces.

8. When must Salem comply with HB 2001?

The City must comply with the new law and its associated administrative rules by June 30, 2022.

9. When does Salem expect to implement HB 2001?

The City is reviewing the State's recently-adopted rules and will propose changes to Salem's zoning code to comply. This work was initially going to be incorporated into the [Our Salem project \(/our-salem\)](#), but might be done in advance of that larger project this spring or summer, given the State-mandated deadline for adoption.

10. How do I stay informed?

You can [sign up to receive updates \(https://cityofsalem.us1.list-manage.com/subscribe?u=9c537ef0aeb7914e4fe4f6d5c&id=21d07b5555\)](https://cityofsalem.us1.list-manage.com/subscribe?u=9c537ef0aeb7914e4fe4f6d5c&id=21d07b5555) on this and other Planning projects. If you have more questions, you can also contact Eunice Kim, Long Range Planning Manager.



Oregon

Kate Brown, Governor

Department of Transportation

Region 2 Tech Center

455 Airport Road SE, Building A

Salem, Oregon 97301-5397

Telephone (503) 986-2990

Fax (503) 986-2839

DATE: February 3, 2022

TO: Dan Fricke
Senior Transportation Planner

FROM: Arielle Ferber, PE
Traffic Analysis Engineer

SUBJECT: Doaks Ferry (Titan Hill) Rezone (Salem, OR) – Transportation Planning Rule (TPR)
TIA Review Comments

ODOT Region 2 Traffic has completed our review of the submitted memorandum (dated January 31, 2022) and TPR analysis (dated January 3, 2022) to address traffic impacts due to development northeast of the Doaks Ferry Road at Orchard Heights Road intersection in the city of Salem, with respect to consistency and compliance with ODOT's Analysis Procedures Manual, Version 2 (APM). The APM was most recently updated in October 2020. The current version is published online at: <http://www.oregon.gov/ODOT/TD/TP/Pages/APM.aspx>. As a result, we submit the following comments for the City's consideration:

Analysis items to note:

- Region Traffic assumes all land uses and densities offered under both the current and proposed zones are consistent with the City's code as cited in the report.
- The 2036 forecast traffic volumes for the existing zoning scenario were developed by applying a linear growth rate to the 2021 existing traffic volumes. It should be noted that the linear growth does not provide enough growth to be consistent with the projected trip potential of the existing zoning at the Doaks Ferry Road at Orchard Heights Road intersection for the SBL, WBR, and NBT movements (i.e. the SBL movement increases by 13 vehicles between 2021 and 2036 while the existing zoning (Figure 3) shows an increase of 43 vehicles in the AM peak period). While this may have an effect on the operational results of the analysis, it is not expected to have an impact on the conclusions of the study as the study is reviewing for the difference between existing and proposed zoning.

Proposed mitigation comments:

1. ODOT maintains jurisdiction of the Salem-Dayton Highway No. 150 (OR 221) and ODOT approval shall be required for all proposed mitigation measures to this facility.

2. No mitigation measures to a state highway have been proposed. This conclusion appears reasonable for this proposed development given the submitted analysis.

Thank you for the opportunity to review this traffic impact analysis. As the analysis software files were not provided, Region 2 Traffic has only reviewed the submitted report.

This traffic impact study has been prepared in accordance with ODOT analysis procedures and methodologies. No further analysis work should be required.

If there are any questions regarding these comments, please contact me at (971) 208-1290 or Arielle.Ferber@ODOT.state.or.us