



21370 SW Langer Farms Pkwy  
Suite 142, Sherwood, OR 97140

## Technical Memorandum

**To:** Mark Dane

**From:** Michael Ard, PE

**Date:** October 10, 2019

**Re:** 13735 S Lazy Creek Lane – Transportation Analysis Letter

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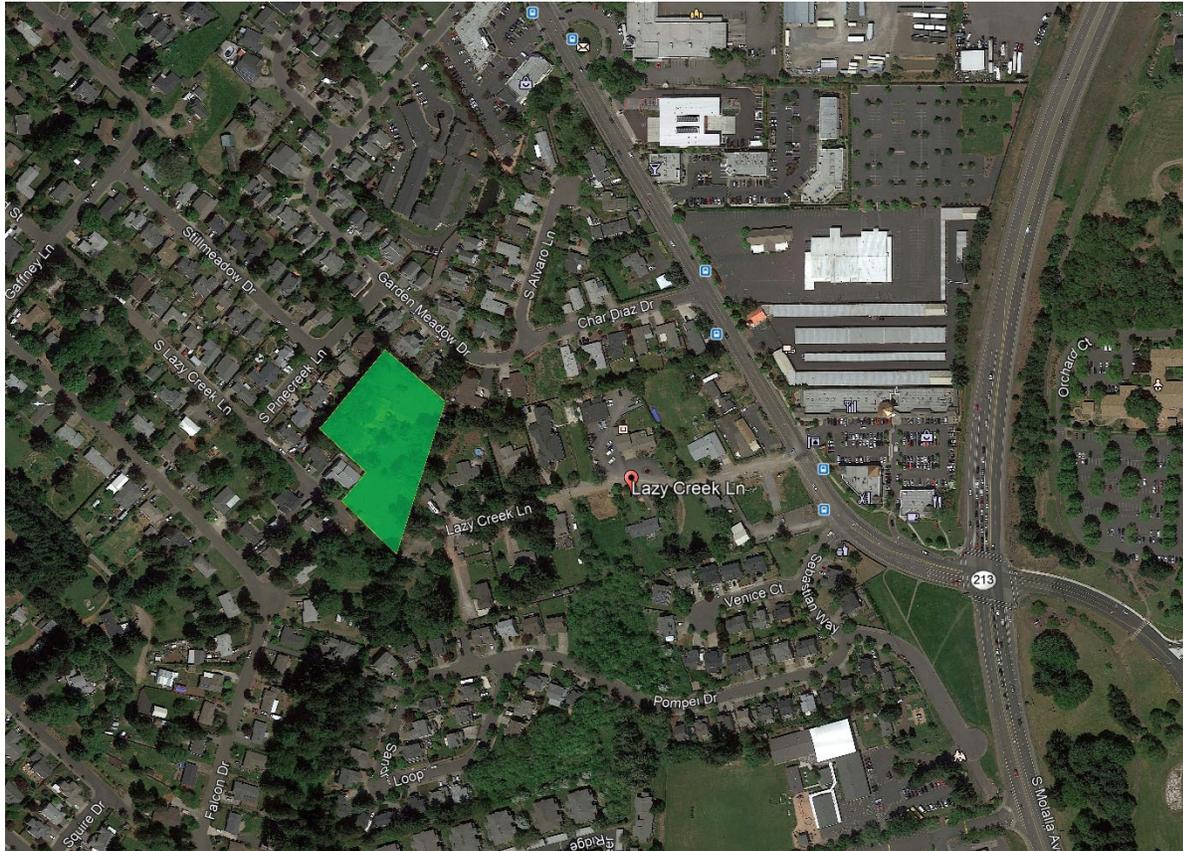
This memorandum is written to provide information related to a proposed new residential development proposed for 13735 S Lazy Creek Lane in Oregon City, Oregon. The subject property has an area of 2.01 acres, is zoned R3.5 (Residential, 3,500sf lot size). The site is proposed to be developed with a total of 20 dwelling units, including the existing home that will remain in place on the property. Based on the nature and scale of the development the city requires a Transportation Analysis Letter (TAL). The required contents of the letter are described in the city's *Guidelines for Transportation Impact Analyses*, Section 5.0. Each of the required elements is addressed herein. Since the proposed project includes an annexation and zone change, the requirements of Oregon's Transportation Planning Rule are also addressed.

### ***SITE LOCATION AND PROJECT DESCRIPTION***

The subject property is on the north side of S Lazy Creek Lane east of S Pinecreek Lane and west of S Molalla Avenue in Oregon City. The site is currently developed with one single-family home and is surrounded by other existing single-family homes.

S Lazy Creek Lane is classified by Oregon City as a Local Street. West of the subject property it has a two-lane cross-section with no centerline striping and a statutory residential speed limit of 25 mph. Existing curb-tight sidewalks are in place along the northeast side of the roadway; however none are provided on the southwest side. East of the subject property it currently has a single-lane cross-section serving 12 homes on a dead-end street segment which extends approximately 900 feet to the west from S Molalla Avenue.

Under the proposed development plan, the site will be divided into 20 lots which will accommodate 18 duplex dwelling units, the existing single-family home on the property, and one new single-family home. The development will also include completion of a new street connection between the existing disconnected segments of S Lazy Creek Lane west and east of the subject property. The development will take access primarily via a new roadway intersecting S Lazy Creek Lane. One duplex will have driveway access directly to S Lazy Creek Lane. An aerial image showing the site location is provided on the following page. A site plan showing the proposed development is also included in the attached technical appendix.



**Aerial view of project site (image from Google Earth)**

### ***TRIP GENERATION – PROPOSED DEVELOPMENT***

The trip generation estimate for the proposed use was prepared using data from the *Trip Generation Manual, 10<sup>th</sup> Edition*, published by the Institute of Transportation Engineers. Trip generation was conservatively calculated using the published trip rates for ITE land use code 210, *Single-Family Detached Housing*. The calculations are based on the number of dwelling units.

Based on the analysis, the proposed residential development is projected to generate 14 new trips during the morning peak hour, 19 new trips during the evening peak hour, and 178 new daily trips. A summary of the trip generation calculations is provided in the table below. Detailed trip generation calculation worksheets are also included in the attached technical appendix.



**13735 S Lazy Creek Lane: Proposed Development Trip Generation Calculation Summary**

	Morning Peak Hour			Evening Peak Hour			Daily
	In	Out	Total	In	Out	Total	Total
20 Single-Family Homes	4	11	15	13	7	20	188
-1 Existing Home	0	-1	-1	-1	0	-1	-10
Net New Trips	<b>4</b>	<b>10</b>	<b>14</b>	<b>12</b>	<b>7</b>	<b>19</b>	<b>178</b>

***DRIVEWAY WIDTH STANDARDS***

Oregon City Municipal Code Section 12.04.025 requires that driveways serving single or two-family residential homes have a width of 10-12 feet for a one-car garage or parking space, 12-24 feet for a two-car garage or parking space, and 18-30 feet for a three-car garage or parking space. The driveways for the proposed homes will be designed to meet these width standards.

***SPACING STANDARDS***

For local streets such as Clearwater Place and Oregon Iris Way, Oregon City Municipal Code Section 12.04.195 requires a minimum distance of 25 feet between any driveway and any public intersection. Additionally, a minimum spacing of 25 feet is required between driveways for uses other than single and two-family dwellings. In this instance, all of the proposed new driveways will serve single-family and two-family homes so there is no applicable inter-driveway spacing standard. However, all proposed new driveways must be spaced at least 25 feet from the nearest intersecting street as measured from the near side of the driveway to the near side of the intersecting street's right-of-way edge. Based on a review of the site plan the two driveways closest to public intersections will be lots 1 and 18. The driveways serving these lots are spaced 33 feet and 34 feet, respectively from the near side of the driveway to the near side of the intersecting street's right-of-way edge. Accordingly, Oregon City's spacing standards are met.

***INTERSECTION SIGHT DISTANCE***

Intersection sight distance was evaluated for the proposed intersection of S Lazy Creek Lane at the proposed site access street as well as for the proposed driveways on S Lazy Creek Lane. Lazy Creek Lane has a statutory residential speed limit of 25 mph, requiring a minimum of 280 feet of intersection sight distance in each direction.



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Intersection sight distance is an operational standard based on allowing drivers on side-street approaches sufficient sight distance to allow them to yield to through traffic. The intent of intersection sight distance is to ensure that drivers on the major-street approaches need not slow significantly from their free-flow speeds. However, for local streets interruptions to the flow of through traffic and the need to slow or stop to avoid conflicts is common, since drivers frequently back out of driveways into the roadway, requiring through traffic to stop and wait. Such interruptions to the flow of through traffic are considered normal and acceptable within the context of a residential local street.

In contrast to intersection sight distance, stopping sight distance is a safety standard intended to ensure that through drivers have sufficient sight distance to stop to avoid collisions. According to “A Policy on Geometric Design of Highways and Streets, 6<sup>th</sup> Edition, published by the American Association of State Highway and Transportation Officials (AASHTO), “If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, a major-road vehicle may need to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance operations, intersection sight distances that exceed stopping sight distance are desirable along the major road.”

In order to ensure that the roadway can operate safely, the minimum required stopping sight distance was also evaluated for Lazy Creek Lane. For a design speed of 25 mph, the minimum required stopping sight distance was calculated to be 155 feet. Accordingly, if the available intersection sight distance is at least 155 feet the intersection can operate safely.

In accordance with the methods described in *A Policy on Geometric Design of Highways and Streets, 6<sup>th</sup> Edition*, published by the American Association of State Highway and Transportation Officials (AASHTO), intersection sight distance is measured from a position 14.5 feet behind the edge of the roadway at an elevation 3.5 feet above the proposed driveway surface to an oncoming driver’s eye position 3.5 feet above the surface of the oncoming driver’s lane. Although direct measurement of the available intersection sight distance is not possible since the roadways do not yet exist, intersection sight distance was measured using the proposed development plan. The available intersection sight distance for the intersection of Lazy Creek Lane at the proposed primary site access roadway is projected to be in excess of 280 feet to the northwest and 165 feet to the east. Accordingly, adequate intersection sight distance can be provided for the proposed new public street intersection.

Intersection sight distance was also evaluated for the proposed driveways serving lots 18 and 19 on Lazy Creek Lane. It is projected that these driveways will have in excess of 280 feet of intersection sight distance to the northwest and 198 feet of intersection sight distance to the east. Accordingly, these driveways can also operate safely.



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Based on the detailed sight distance analysis, adequate sight lines can be provided for safe operation of the proposed new accesses on Lazy Creek Lane, albeit with some occasional interruptions to the flow of through traffic along the local residential through street. No sight distance mitigations are necessary or recommended in conjunction with the proposed development.

### ***SAFETY***

The proposed development will take access via a local street which carries very low traffic volumes and has a statutory residential speed limit of 25 mph. The proposed development will include new sidewalks along the site frontage on S Lazy Creek Lane which will provide a safer and more comfortable pedestrian environment within the site vicinity. The proposed new street that will provide serve as the primary access to homes within the proposed subdivision will also have curb-tight sidewalks on both sides of the street.

No apparent safety issues were identified in association with the proposed site layout, and no additional safety mitigations are recommended.

### ***TRANSPORTATION SYSTEM PLAN COMPLIANCE***

The city's Transportation System Plan includes references to four planned projects in the site vicinity. None of the projects are currently included in the "likely to be funded" project list. The projects are as follows:

- D24 – Gaffney Lane School Zone Flashers
- S25 – Falcon-Pompei Shared-Use Path
- FF7 – Falcon Drive Family Friendly Route
- FF8 – Pompei Drive-Naples Street Family Friendly Route

The proposed project does not directly front on any of the nearby TSP project sites and will therefore have no direct impact on these projects.

Oregon City requires regular street connections using block length standards in order to ensure adequate connectivity for local streets. Where the required spacing standards cannot be met for motor vehicles, pedestrian path connections should still be provided to ensure a walkable community. For the proposed site access roadway it is not feasible to connect the new roadway to other public roadways. However, a pedestrian connection is provided via 'Tract B' which extends east from the proposed internal street to the east property line of the subdivision. This tract will allow future connectivity when the property to the east redevelops. A shadow plat showing how this connection will function in the future is provided as part of the application submittal package.



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The city's standard cross-section for Local streets includes a 32-foot paved roadway within a 54-foot right-of-way width. On each side of the roadway, it requires 16 feet of pavement, 5.5 feet of curb and tree well, a 5-foot sidewalk, and a 6-inch wide public access strip. Notably, the existing cross-section of Lazy Creek Lane does not match this minimum cross-section. The existing segment of Lazy Creek Lane that extends northwest of the subject property has a paved width of 28 feet with curb-tight sidewalks only on the northeast side of the roadway. East of the subject property where Lazy Creek Lane intersects Molalla Avenue it has a paved width of 20 feet. This paved width extends approximately 200 feet from Molalla Avenue, after which the paved width narrows to just 14.5 feet and accommodates only one travel lane.

In keeping with the wider segment of Lazy Creek Lane, the proposed development includes a 50-foot right-of-way with a 28-foot paved roadway for S Lazy Creek Lane. Although this width is less than the desired cross-section of 32 feet for residential local streets, the proposed cross-section matches both the existing street width and a preferred cross-section for local residential streets from "*Neighborhood Street Design Guidelines, An Oregon Guide for Reducing Street Widths*". Narrow street widths reduce vehicle speeds, minimize cut-through traffic and reduce crossing distances for pedestrians. For these reasons, a narrower street width is often preferred for safety and livability where traffic volumes are less than 1,000 vehicles per day. Narrow streets typically function as "queueing streets" in which vehicles traveling in opposite directions may need to pull to one side to accommodate passing. A diagram showing the preferred "Scenario 1" cross-section with a 28-foot paved width is included in the attached technical appendix. Also included is a summary diagram showing the other two residential street cross-sections recommended in the Neighborhood Street Design Guidelines for low-volume local streets.

Since Lazy Creek Lane is not intended to accommodate more than 1,000 vehicles per day, the proposed 28-foot paved width is appropriate for both operations and safety. Approval of the reduced street cross-section requires a modification pursuant to the requirements of Oregon City Municipal Code Section 16.12.013. In order to approve the modification, the following criteria apply:

- A. The modification meets the intent of the standard;
- B. The modification provides safe and efficient movement of pedestrians, motor vehicles, bicyclists and freight;
- C. The modification is consistent with an adopted transportation or utility plan; and
- D. The modification is complementary with a surrounding street design; or, in the alternative;
- E. If a modification is requested for constitutional reasons, the applicant shall demonstrate the constitutional provision or provisions to be avoided by the modification and propose a modification that complies with the state or federal constitution. The City shall be under no obligation to grant a modification in excess of that which is necessary to meet its constitutional obligations.



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In this instance, criteria A and B are satisfied since the proposed Lazy Creek Lane cross-section will provide connectivity between two existing street segments while maintaining safe and efficient access for all roadway users. Further, the proposed cross-section complies with the cross-section requirements for a preferred narrow street design specifically recommended for residential local streets in Oregon that carry traffic volumes within the range of what Lazy Creek Lane will carry.

Criterion C is met since the modification will allow the connection of two existing sub-standard street cross-sections which currently form dead-end roads but are intended to be connected for neighborhood circulation and fire and life safety.

The requirement of criterion D is met since the existing street cross-sections to the northwest and east of the project site have a maximum width of 28 feet with curb-tight sidewalks, which matches the proposed cross-section. As such, the proposed design is complementary with a surrounding street design.

The proposed internal dead-end site access street has a 28-foot paved width within a 40-foot right-of-way with curb-tight sidewalks on each side of the roadway. Again, this cross-section matches the adjacent street and again this roadway is intended to carry low volume of traffic at low speeds. The proposed cross-section is again appropriate for both safety and operations and is recommended by the *Neighborhood Street Design Guidelines*.

Based on the evaluation of the approval criteria for modifications, a modification may be granted for the proposed cross-section.

It should be noted that in addition to providing the proposed cross-section along Lazy Creek Lane within the subject property, the proposed development will include additional roadway construction to the east of the subject property in order to complete the connection between the two existing street segments. The total area of on- and off-site roadway construction is in excess of that which would be required to provide a full paved width of 32 feet within the subject property.

Based on the analysis, the proposed site plan is in conformance with the applicable standards of Oregon City's Transportation System Plan.



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## *CONCLUSIONS*

The proposed development will generate traffic volumes that are below the threshold at which a full traffic impact study is required by Oregon City. Since the added traffic volumes are minimal, no significant operational impacts are anticipated in conjunction with the proposed development.

The proposed site plan will comply with Oregon City's standards for driveway width and access spacing.

Based on the detailed sight distance analysis, adequate sight distance can be achieved for safe operation of the area roadways and intersections. No specific sight distance mitigations are necessary or recommended in conjunction with the proposed development.

Based on the review of the driveway locations, designs, and adjacent roadway speeds and cross-sections, there are no inherent safety issues which would require further safety mitigation.

Having reviewed the City's Transportation System Plan standards, the proposed development plan meets the approval criteria for a modification to the street cross-section standards, meets all other requirements of the TSP standards, will not interfere with future planned improvement projects, and will assist in providing improved connectivity for motor vehicles as well as people walking and riding bicycles in the site vicinity.