



TECHNICAL MEMORANDUM

DATE: April 24, 2024
TO: Don Hardy and Ryan Potter | City of Canby
FROM: Kevin Chewuk | DKS Associates
SUBJECT: Canby South Development
Transportation Analysis Findings

This memorandum summarizes the transportation impacts associated with the proposed Canby South Development located along S. Township Road between Sequoia Parkway and S. Mulino Road in Canby, Oregon. This analysis is provided as a supplement to the original approved application for the site that consisted of an approximately 791,120 square foot building constructed in two phases (DR 21-01, Findings, Conclusions & Final Order dated July 12, 2021). The current proposal is for a speculative building, with proposed building uses in substantial likeness to the High Cube Fulfillment Center Use as was approved in 2021, with approximately 778,720 square feet, that could accommodate up to four tenant spaces.

PROPOSED PROJECT DESCRIPTION

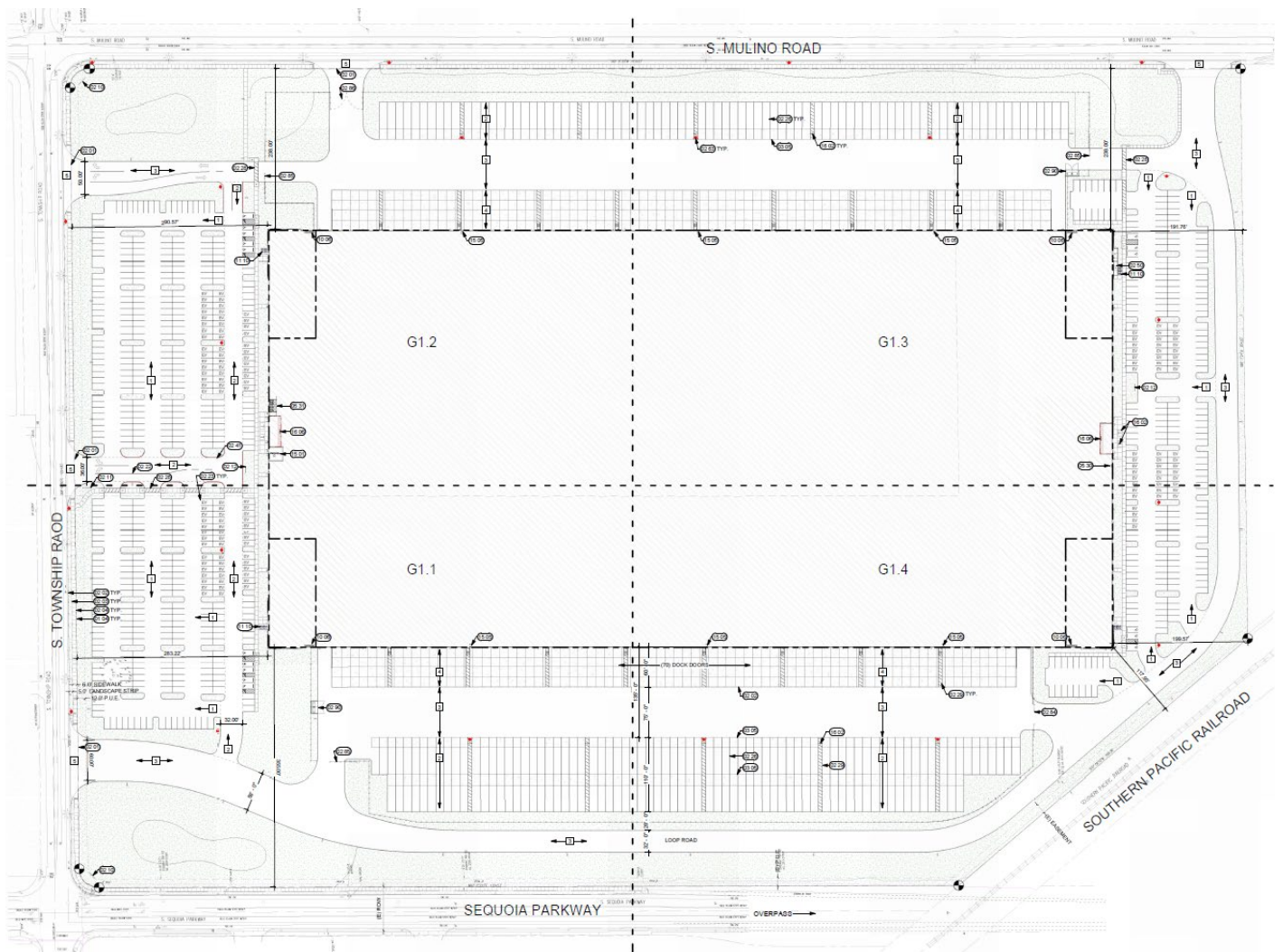
The development is proposing a modification to the currently entitled building for the site with 791,120 square feet (DR 21-01, Findings, Conclusions & Final Order dated July 12, 2021), with the current proposal to include a slightly smaller building with approximately 778,720 square feet accommodating up to four tenant spaces. The approved Transportation Impact Analysis (TIA)¹ for the entitled project analyzed a "High-Cube Fulfillment Center Warehouse" use and the trips associated with it will be considered vested for the site. A summary of the key changes to the entitled building that impact the transportation findings of the approved TIA for the entitled project is provided below.

- Reduction of the entitled building size by 12,400 square feet.
- Relocated some vehicular parking from the north side to the south side of the entitled building.

¹ Canby South Development Transportation Impact Analysis, DKS Associates, March 2021.

- Modified access to the western most proposed driveway along S Township Road and southern most proposed driveway on S Mulino Road, from usage of trucks only, to include usage from trucks and light vehicles.
- Consolidation of proposed driveways along S Township Road from four to three.
- Added a "Loop Road" around the western and southern side of the entitled building to connect the western most proposed driveway along S Township Road and southern most proposed driveway on S Mulino Road and relocated the secured truck entrances to be off it versus at the S Township Road and S Mulino Road driveways.
- Added a pedestrian connection between the relocated vehicular parking on the south side of the entitled building and S Mulino Road.

FIGURE 1: SITE PLAN



SITE TRIP GENERATION

The development is proposing a building with approximately 778,720 square feet, which is about 12,400 square feet smaller than the currently entitled building for the site with 791,120 square feet. The approved TIA² for the entitled project analyzed a "High-Cube Fulfillment Center Warehouse" use and the trips associated with it will be considered vested for the site.

In order to ensure vehicle traffic to and from the site does not exceed the amount permitted, the City of Canby will use the latest edition of ITE Trip Generation Manual (currently the 11th Edition) for estimating the trip generation for all existing and proposed tenant improvements. A similar land use type as reported in the ITE Trip Generation Manual shall be applied. The maximum trip allocation for the site is documented in Table 1 from the approved Canby South TIA and DR 21-01 (Findings, Conclusions & Final Order dated July 12, 2021), and includes a 791,120 square foot building with a "High-Intensity Fulfillment Center" use generating 194 a.m. peak hour trips (includes 17 trucks in the a.m.), 324 p.m. peak hour trips (includes 14 trucks in the p.m.), and 1,600 daily trips (includes 200 trucks).

The estimated trips associated with the currently proposed 778,720 square foot building with a "High-Intensity Fulfillment Center" use are also shown in Table 1 for reference. This includes 191 a.m. peak hour trips, 319 p.m. peak hour trips, and 1,575 daily trips, or about 3 a.m. peak hour, 5 p.m. peak hour, and 25 daily trips fewer than the vested trips.

TABLE 1: CANBY SOUTH ENTITLED AND CURRENTLY PROPOSED SITE GENERATED TRIPS

High Intensity Fulfillment Center	VEHICLE TYPE	DAILY TRIPS	AM PEAK			PM PEAK		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Entitled Building (vested trips) - 791,120 square feet	passenger car	1,400	175	2	177	130	180	310
	truck	200	9	8	17	6	8	14
	Total Approved Trips	1,600	184	10	194	136	188	324
Current Proposed Building - 778,720 square feet	passenger car	1,378	172	2	174	128	177	305
	truck	197	9	8	17	6	8	14
	Total Estimated Trips	1,575	181	10	191	134	185	319

Any change to the proposed use from that of a "High-Cube Fulfillment Center Warehouse" will need to be reassessed against the vested trips for the site and other impacts to City requirements. Should a change in the proposed use increase the number of trips generated beyond those vested for the site or trigger other City code requirements, additional analysis or review will be required.

When tenant improvements are proposed for the approved building, the total trip generation will be compared to Table 1 (or subsequent updates). If the trips are below the total from Table 1 (or its subsequent update), that will be the new trip baseline for the property of which trips from future

² Ibid.

tenant improvements will be added to. This trip vesting process shall continue until completion of all tenant improvements and documented compliance with the approved trips from Table 1 (or its subsequent update).

SITE ACCESS AND CIRCULATION

The proposed driveways for the entitled building have changed with the current proposal along S Township Road, with three driveways now proposed versus four with the entitled building, while two are still proposed on S Mulino Road (one of which will continue to be for emergency access only). In addition, some vehicular parking was relocated from the north side to the south side of the entitled building. As part of this shift, the western most proposed driveway along S Township Road and southern most proposed driveway on S Mulino Road are now proposed to be utilized by both trucks and light vehicles, when previously they were to be used by trucks only. A “Loop Road” around the western and southern side of the entitled building is now proposed to connect these proposed driveways.

ACCESS SPACING

The City of Canby has jurisdiction over S Township Road and applies a functional classification of “Collector” to it. It is also located within the Industrial Overlay Zone area. City standards require driveways to be spaced at least 200 feet apart on the same side of Collectors in the Industrial Overlay Zone³ and spaced at least 100 feet from intersections⁴. The proposed western driveway to S Township Road will be approximately 170 feet east of Sequoia Parkway, while the proposed eastern driveway will be approximately 150 feet west of S Mulino Road, complying with the spacing standard from intersections. The driveways are proposed to be spaced about 380 feet and 390 feet from each other, from west to east respectively, complying with the spacing standard for driveways along the same side of the street.

S Mulino Road is a “Minor Arterial” under County jurisdiction. According to the Clackamas County roadway standards, the minimum spacing between accesses on a collector is 250 feet⁵. The northern driveway proposed on S Mulino Road will be for emergency access only and is located 390 feet south of S Township Road and about 1,200 feet north of the southern driveway proposed on S Mulino Road, complying with spacing standard. The southern driveway proposed on S Mulino will also be located about 270 feet north of the nearest off-site driveway, again complying with spacing standard.

³ Canby Municipal Code 16.35.050.F. Retrieved March 2024.

⁴ Canby Municipal Code 16.46.030. Retrieved March 2024.

⁵ Clackamas County Roadway Standards 220.5. Retrieved March 2024.

SIGHT DISTANCE

The sight triangle at intersections should be clear of objects (large signs, landscaping, parked cars, etc.) that could potentially limit vehicle sight distance. In addition, all proposed accesses should meet AASHTO sight distance requirements as measured from 15 feet back from the edge of pavement⁶.

The proposed driveways to S Township Road would require a minimum of 555 feet of sight distance based on a 50-mph design speed. Preliminary sight distance evaluation from the approximate location of the proposed driveways indicates that they would be expected to provide at least 600-feet of sight distance looking to the west and at least 600-feet of sight distance looking to the east, indicating adequate sight distance. The proposed access on Mulino Road would require a minimum of 610 feet of sight distance based on the assumed speed of 55 mph. Preliminary sight distance evaluation from the access indicated that the proposed driveway would provide adequate sight distance looking to the north and south. However, prior to occupancy, sight distance at all driveways will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon.

INTERNAL SITE CIRCULATION

Access to the proposed site will be via three driveways along S Township Road and one driveway along S Mulino Road (a second driveway to S Mulino Road will be for emergency access only).

Some vehicular parking was relocated from the north side to the south side of the entitled building. As part of this shift, the western most proposed driveway along S Township Road and southern most proposed driveway on S Mulino Road are now proposed to be utilized by both trucks and light vehicles, when previously they were to be used by trucks only. A "Loop Road" around the western and southern side of the entitled building will connect these proposed driveways and the secured truck entrances will be relocated to be off it versus at the S Township Road and S Mulino Road driveways. The vehicular parking areas on the north and south sides of the proposed building will also be connected via this "Loop Road."

The vehicular parking area on the north side of the proposed building will also be served by the two eastern most driveways proposed along S Township Road.

Internal circulation will include one proposed sidewalk/walkway connection from S Township Road and two from S Mulino Road to the building entrances, as well as to on-site parking areas.

⁶ AASHTO – *Geometric Design of Highways and Streets*, 7th edition, 2018.

SITE FRONTAGE

The proposed site has frontage along Sequoia Parkway, S Township Road and S Mulino Road. The City of Canby has jurisdiction over Sequoia Parkway and S Township Road and applies a functional classification of "Industrial Collector" to them, while Clackamas County has jurisdiction over S Mulino Road, which includes a County functional classification of "Minor Arterial".

Sequoia Parkway is improved to meet the City's cross-section standard for collector streets, with one travel lane in each direction, a center turn lane, bike lanes, and a sidewalk on the west side. The east side will be required to be improved along the frontage of the proposed site to include a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip with a 0.5-foot curb). The existing roadway, with the frontage pedestrian improvements, can adequately accommodate the additional vehicle, pedestrian, and bicycle traffic expected.

S Township Road has an estimated 22-foot existing paved width along the frontage of the proposed site, with one travel lane in each direction, and 50-feet of right-of-way. The applicant will be required to design and construct half-street improvements along the entire site frontage to City collector roadway standards. These improvements will consist of 37 feet of right-of-way and a minimum paved width of 25 feet, measured from the centerline of the existing right-of-way. This would consist of one 12-foot travel lane, a 6-foot striped median, a 7-foot bike facility (i.e., 5-foot bike lane with a 2-foot buffer), and a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip and 0.5-foot curb). With the frontage improvements, S Township Road can adequately accommodate the additional truck, light vehicle, pedestrian, and bicycle traffic expected.

S Mulino Road is a County arterial roadway, but the City requires it to be built to City collector roadway standards. It has an estimated 22-foot paved width along the frontage of the proposed site. The applicant will be required to design and construct half-street improvements along the entire site frontage to consist of 37 feet of right-of-way and a minimum paved width of 25 feet, measured from the centerline of the existing right-of-way. This would consist of one 12-foot travel lane, a 6-foot striped median, a 7-foot bike facility (i.e., 5-foot bike lane with a 2-foot buffer), and a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip and 0.5-foot curb). With the frontage improvements, S Mulino Road can adequately accommodate the additional truck, light vehicle, pedestrian, and bicycle traffic expected.

PROPORTIONAL SHARE PROJECT CONTRIBUTION

The City’s TSP includes improvement projects that are needed to accommodate all the growth that was forecasted to occur through 2030. These projects are included on the City’s Transportation System Development Charge improvement list, which is the one of the main funding mechanisms for implementing these TSP projects. Every new development in the City pays its proportional share of these improvements based on the actual development size. Accordingly, this proposed project will contribute its proportional share towards these System Development Charge improvement projects.

The approved TIA⁷ for the entitled project identified that the OR 99E intersection with Haines Road is forecasted to exceed ODOT mobility targets and does not have a planned transportation improvement within the planning horizon of the Canby TSP (through the year 2030). Oregon Highway Plan Action 1F.5 requires that in this case, further degradation of intersection operations must be avoided. Any traffic generated from new developments that are expected to travel through this intersection will cause operations to further degrade. The City has developed an alternate fee-in-lieu approach for this intersection that each project must contribute towards⁸, beyond the System Development Charge fee. This approach means the proposed project would contribute their mitigation fees to advance a beneficial system improvement in lieu of paying for capacity improvements at the impacted intersection. Proportional share of the project is based on the highest project generated peak hour trips at the intersection (i.e., highest of the a.m. peak or p.m. peak) compared to the overall TSP forecasted growth. For this proposed project, the a.m. peak share is the highest, and the share would be 8.3 percent at the OR 99E / Haines Road intersection, for a fee-in-lieu of \$547,500 (see Table 2).

TABLE 2: PROPOSED PROJECT FEE-IN-LIEU SUMMARY AT OR 99E/HAINES RD

	OVERALL INTERSECTION VEHICLE TRIP GROWTH (2030-2009) *	PROPORTIONAL SHARE OF OVERALL GROWTH		ESTIMATED FEE-IN-LIEU ***
		VEHICLE TRIPS	GROWTH SHARE **	
AM PEAK	606	41	6.8%	\$547,500
PM PEAK	880	73	8.3%	

Notes: * Source: Canby Transportation System Plan.

** Bolded value indicates the highest project generated peak hour impact at the intersection, and the share used to develop the estimated fee-in-lieu.

*** Planning level cost estimate for the intersection improvement (i.e., assumed as a dual-lane, rural roundabout) of \$6,000,000 adjusted from the current year (2021) to the expected year of opening (2024) using a 3 percent growth rate derived from the National Highway Construction Cost Index, for a 2024 cost estimate of \$6,600,000.

⁷ Canby South Development Transportation Impact Analysis, DKS Associates, March 2021.

⁸ Canby Fee-In-Lieu Analysis, November 19, 2021.

APPROVAL CRITERIA AND LIVABILITY MEASURES

The following sections summarize how the proposed project adequately addresses the transportation approval criteria and the livability measures for neighborhood traffic and pedestrian and bicycle circulation.

TRANSPORTATION APPROVAL CRITERIA

The Canby Municipal Code 16.08.160 includes transportation approval criteria that each proposed development must satisfy. This includes criteria B, D, E, and F, as summarized below. While Criteria A, C and E.3 are not transportation related criteria, they are still applicable for approval. See the respective documents or plans for more details on how this proposed development meets Criteria A, C and E.3.

A. ADEQUATE STREET DRAINAGE, AS DETERMINED BY THE CITY.

Non-transportation related criteria. See respective project documents/plans for information.

B. SAFE ACCESS AND CLEAR VISION AT INTERSECTIONS, AS DETERMINED BY THE CITY.

The proposed driveways to S Township Road and S Mulino Road will comply with the applicable spacing standard from intersections and between driveways along the same side of the street.

Prior to occupancy, sight distance at all driveways will need to be verified, documented, and stamped by a registered professional Civil or Traffic Engineer licensed in the State of Oregon. Preliminary sight distance evaluation from the approximate location of the proposed driveways indicates that they would be expected to provide adequate sight distance.

C. ADEQUATE PUBLIC UTILITIES, AS DETERMINED BY THE CITY.

Non-transportation related criteria. See respective project documents/plans for information.

D. ACCESS ONTO A PUBLIC STREET WITH THE MINIMUM PAVED WIDTHS AS STATED IN SUBSECTION E BELOW.

Access to the proposed site will be via three driveways along S Township Road and one driveway along S Mulino Road (a second driveway to S Mulino Road will be for emergency access only). A "Loop Road" around the western and southern side of the entitled building will connect the western most proposed driveway along S Township Road and southern most proposed driveway on S Mulino Road and the secured truck entrances will be relocated to be off it. The vehicular parking areas on the north and south sides of the proposed building will also be connected via this "Loop Road." The vehicular parking area on the north side of the proposed building will also be served by the two eastern most driveways along S Township Road.

Internal circulation will include one proposed sidewalk/walkway connection from S Township Road and two from S Mulino Road to the building entrances, as well as to on-site parking areas.

E. ADEQUATE FRONTAGE IMPROVEMENTS AS FOLLOWS:

- 1. For local streets and neighborhood connectors, a minimum paved width of 16 feet along the site's frontage.**

Not applicable- all fronting streets are classified as collector or arterial streets, including Sequoia Parkway, S Township Road and S Mulino Road.

- 2. For collector and arterial streets, a minimum paved width of 20 feet along the site's frontage.**

The proposed site has frontage along Sequoia Parkway, S Township Road and S Mulino Road. Sequoia Parkway is improved to meet the City's cross-section standard for collector streets, with one travel lane in each direction, a center turn lane, bike lanes, and a sidewalk on the west side. The east side will be required to be improved along the frontage of the proposed site to include a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip with a 0.5-foot curb).

S Township Road has an estimated 22-foot existing paved width along the frontage of the proposed site, with one travel lane in each direction, and 50-feet of right-of-way. The applicant will be required to design and construct half-street improvements along the entire site frontage to City collector roadway standards. These improvements will consist of 37 feet of right-of-way and a minimum paved width of 25 feet, measured from the centerline of the existing right-of-way. This would consist of one 12-foot travel lane, a 6-foot striped median, a 7-foot bike facility (i.e., 5-foot bike lane with a 2-foot buffer), and a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip and 0.5-foot curb).

S Mulino Road has an estimated 22-foot paved width along the frontage of the proposed site. The applicant will be required to design and construct half-street improvements along the entire site frontage to City collector roadway standards for a two-lane section, in lieu of County arterial roadway standards. These half-street improvements will consist of 37 feet of right-of-way and a minimum paved width of 25 feet, measured from the centerline of the existing right-of-way. This would consist of one 12-foot travel lane, a 6-foot striped median, a 7-foot bike facility (i.e., 5-foot bike lane with a 2-foot buffer), and a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip and 0.5-foot curb).

- 3. For all streets, a minimum horizontal right-of-way clearance of 20 feet along the site's frontage.**

Non-transportation related criteria. See respective project documents/plans for information.

F. COMPLIANCE WITH MOBILITY STANDARDS IDENTIFIED IN THE TSP. IF A MOBILITY DEFICIENCY ALREADY EXISTS, THE DEVELOPMENT SHALL NOT CREATE FURTHER DEFICIENCIES.

The approved TIA⁹ for the entitled project evaluated peak hour intersection operations. The evaluation found that the OR 99E / Haines Road and OR 99E/Pine Street intersections are not expected to meet their mobility standards under 2020 existing conditions and would experience increased delay with added background and project traffic. Other study intersections are expected to continue to meet mobility targets, although drivers will experience increasing congestion during peak travel times along OR 99E through downtown Canby.

The Canby TSP and City’s Transportation System Development Charge improvement list includes a financially constrained improvement project for the OR 99E/Pine Street intersection that would mitigate the substandard condition, and the intersection would no longer be expected to exceed the adopted v/c standard. This proposed project will contribute its proportional share towards the System Development Charge improvement projects, including the project at the OR 99E/Pine Street intersection.

There are no identified improvements at the OR 99E/Haines Road intersection, but the City has established a fee-in-lieu approach for this intersection that each project must contribute towards to mitigate their impact. This proposed project would be expected to contribute a fee-in-lieu of \$547,500 to mitigate its proportional impact at the intersection.

LIVABILITY CRITERIA

In addition, each project must comply with livability measures for neighborhood traffic and pedestrian and bicycle circulation. A summary is provided below for the proposed project.

NEIGHBORHOOD TRAFFIC

The proposed site will access directly to the adjacent collector street (i.e., S Township Road) and does not have an impact on residential local streets.

PEDESTRIAN AND BICYCLE CIRCULATION

The proposed site has frontage along Sequoia Parkway, S Township Road and S Mulino Road. Sequoia Parkway includes bike lanes, and the east side will be improved along the frontage of the proposed site to include a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip with a 0.5-foot curb).

S Township Road will be improved with half-street improvements that will include a 7-foot bike facility (i.e., 5-foot bike lane with a 2-foot buffer), in addition to half-street pedestrian improvements along the entire site frontage to consist of a 12-foot pedestrian zone (i.e., 6-foot-

⁹ Canby South Development Transportation Impact Analysis, DKS Associates, March 2021.

wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip and 0.5-foot curb).

S Mulino Road will be improved with half-street improvements that will consist of an 8-foot bike facility (i.e., 5-foot bike lane with a 3-foot buffer) and a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip and 0.5-foot curb).

TRANSPORTATION CONDITIONS OF APPROVAL

The following is a summary of the transportation conditions of approval:

1. The development shall pay Transportation System Development Charges to address citywide impacts.
2. The development shall pay a fee-in-lieu based on its proportionate share of the impact at the OR 99E intersection with Haines Road, for a total fee-in-lieu of \$547,500.
3. The development shall design and construct improvements along the Sequoia Parkway frontage of the proposed site to include a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip with a 0.5-foot curb).
4. The development will be required to design and construct half-street improvements along the entire site frontage of S Township Road to consist of 37 feet of right-of-way and a minimum paved width of 25 feet, measured from the centerline of the existing right-of-way. This would consist of one 12-foot travel lane, a 6-foot striped median, a 7-foot bike facility (i.e., 5-foot bike lane with a 2-foot buffer), and a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip and 0.5-foot curb).
5. The development shall design and construct half-street improvements along the entire site frontage of S Mulino Road to consist of 37 feet of right-of-way and a minimum paved width of 25 feet, measured from the centerline of the existing right-of-way. This would consist of one 12-foot travel lane, a 6-foot striped median, a 7-foot bike facility (i.e., 5-foot bike lane with a 2-foot buffer), and a 12-foot pedestrian zone (i.e., 6-foot-wide sidewalk with a 0.5-foot setback from the right-of-way line, behind a 5-foot-wide landscape strip and 0.5-foot curb).
6. The applicant shall install signage at the exiting truck driveways directing truck drivers to use the established Sequoia Parkway route to OR 99E, and restricting trucks from using Haines Road.
7. The applicant must provide bike parking consistent with City standards.
8. Minimum sight distance requirements shall be met at all driveways. Sight distances should be verified in the final engineering/construction stages of development.