

Transportation Review Application

(Bend Development Code Chapter 4.7)



COMMUNITY
DEVELOPMENT

Permit Center
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Review Type

- | | |
|--|---|
| <input checked="" type="checkbox"/> Site Plan | <input type="checkbox"/> Land Division |
| <input type="checkbox"/> Master Plan | <input type="checkbox"/> Plan Amendment |
| <input type="checkbox"/> Seeking exception for submittal | |

Submit completed form to: comdeveng@bendoregon.gov

Applicant Information

Submitter's name Email
Company name Phone
Address
City State Zip Code

Project Information

Project Title Average Daily Traffic (ADT)
Project Address
Project Map and Tax Lot
Seeking TFR exception? Why?

A Transportation Facilities Report (TFR) and/or Transportation Impact Analysis (TIA) must be submitted, reviewed and approved prior to Land Use Completeness Check. The City Engineer will determine the need for a TIA based on the TFR submittal.

Transportation Facilities Report (TFR) Submittal Checklist – Chapter 4.7.400

- Site Plan with Vicinity Map
- TFR Report (Stamped by a Professional Engineer)
 - Development Description
 - Trip Generation
 - Transportation Demand Management
 - Transportation Facilities Evaluation

Transportation Impact Analysis (TIA) Submittal Checklist – Chapter 4.7.500

- Site Plan with Vicinity Map
- TIA Report (Stamped by a Professional Engineer qualified in Traffic Engineering)
 - Study Analysis Years
 - Traffic Counts
 - Future Traffic Forecast
 - Operations Analysis Methodology
 - Arterial & Collector Left Turn, Median Refuge, and Right Turn Assessment
 - Safety Review
 - Walking, Bike & Transit Development
 - Proportionate Share Contribution

Date:	March 26, 2020
To:	Dustin Elmore, Assistant City Engineer
From:	Joe Bessman, PE
Project Reference No.:	1246
Project Name:	Bend's Village Transportation Facilities Report



This memorandum serves as the Transportation Facilities Report (TFR) for the proposed Bend's Village development located south of the OSU Cascades campus in Bend, Oregon. Code criteria for a TFR is located within Bend Development Code (BDC) 4.7.400. This application follows the Discretionary Track.

1. DESCRIPTION OF THE PROPOSED DEVELOPMENT

The site of the proposed mixed-use development is comprised of portions of taxlots 181206D001800, -1801, and -1802, with addresses 1100, 1150, and 1200 SW Mt Bachelor Drive, Bend, OR 97702, which are proposed to be reconfigured to accommodate the project. This 7.61-acre project site has frontage along the south side of Colorado Avenue and the north side of Reed Market Road, but currently has vehicular access via a shared driveway onto SW Mt Bachelor Drive to the west. An additional right-in, right-out access point is proposed onto Colorado Avenue as part of this development. The location of the property is illustrated in Figure 1.

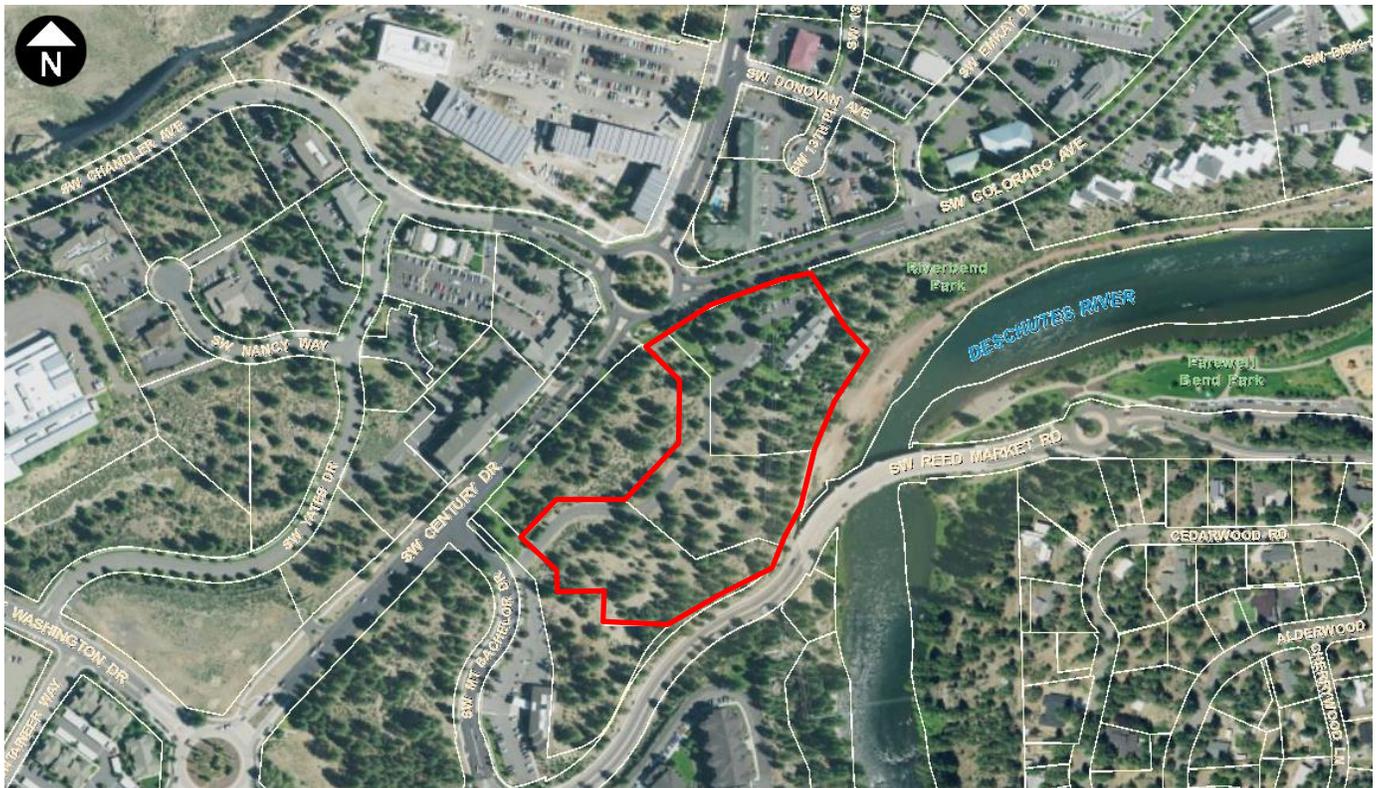


Figure 1. Site Vicinity Map. (Source: Deschutes County Online Mapping DIAL).

The proposed mixed-use development consists of a 5-story hotel on the northeast portion of the property planned for 119 rooms with lounges, meeting space, and related amenities (Building G), a five-story mixed use structure with 115 hotel rooms and 8,220 square feet of commercial uses (Building F), additional mixed use structures (Buildings B, C, D, & E) containing a mix of 22 residential units and approximately 13,150 square-feet of commercial space, and a standalone residential structure with 9 residential units and main level parking (Building A). A two-story structured parking facility is proposed to support the overall mixed-use project. The proposed buildings will replace the existing Pine Ridge Inn. The site layout illustrates building locations, parking areas, and access, and can be found in Figure 2.

The eastern boundary of the property is shared with Bend Parks and Recreation's Riverbend Park, with the upper area separated by a steep embankment down to the Deschutes River Trail and the Deschutes River. South and west of the site are two undeveloped parcels. The Haul Road Trail is located along the northern border of the property, providing linkages between the Forest Service Visitor Center on the Cascade Lakes Highway and the Deschutes River Trail. Uses in the general vicinity of the site include the nearby OSU Cascades campus, hotels, restaurants, coffeehouses and small businesses including medical offices.

The subject parcels were recently re-designated as *Mixed-Use* through the map re-alignment process, which will allow the proposed project as an outright allowable use.



Figure 2. Preliminary Site Layout. Source: HWA Civil Engineering, Surveying Planning

2. TRIP GENERATION

Consistent with City policy, trip generation estimates were prepared for the mixed-use development based on the most current edition of the Institute of Transportation Engineers' (ITE) standard reference *Trip Generation, 10th Edition*. The proposed site contains the existing 20-room Pine Ridge Inn which will be demolished to allow for construction of the mixed-use development, providing trip credits to offset impacts of the project.

Review of the available ITE classifications was performed to identify the most appropriate category for the types of hotels being proposed. The ITE contains three different Hotel Land Use Categories as described below:

Land Use Category 310: *Hotel*, is described in the ITE as follows:

A hotel is a place of lodging that provides sleeping accommodations and supporting facilities such as restaurants, cocktail lounges, meeting and banquet rooms or convention facilities, limited recreational facilities (pool, fitness room), and/or other retail and service shops.

Land Use Category 311: *All Suites Hotel* is described in the ITE as follows:

An all suites hotel is a place of lodging that provides sleeping accommodations, a small restaurant and lounge, and small amounts of meeting space. Each suite includes a sitting room and separate bedroom; limited kitchen facilities are provided within the suite.

Land Use Category 312: *Business Hotel* is described in the ITE as follows:

A business hotel is a place of lodging aimed toward the business traveler but also accommodates a growing number of recreational travelers. These hotels provide sleeping accommodations and other limited facilities, such as a breakfast buffet bar and afternoon beverage bar (no lunch or dinner is served and limited meeting facilities are provided). Each unit is a large single room. Business hotels provide very few or none of the supporting facilities provided at hotels or suite hotels and are usually smaller in size.

To determine which Land Use category best describes the former use of the Pine Ridge Inn, evaluation of hotel amenities was completed. The rooms all contain sitting areas including couches, but not all the rooms have the bedroom in a separate room from the sitting area. All rooms are supplied with refrigerators and microwaves. Pine Ridge Inn offers daily continental breakfast, but lunch and dinner are not available. A meeting room with a 16-person capacity is also available. The *Hotel* is not a good description because of the lack of external facilities. *All Suites Hotel* and *Business Hotel* are similar in that they both contain small dining options and limited external facilities, but *All Suites Hotel* was chosen as a better fit because of the in-room amenities provided.

Building G will best fit the more general *Hotel* category, as none of its rooms contain separate bedrooms or kitchen facilities, it will have two bars/lounges, an outdoor swimming pool, and the main floor will contain meeting space and other hotel amenities. The lodging uses within Building F will tend toward the characteristics of the *All Suites Hotel*, as many of its units will contain kitchens, living-rooms, and separate bedrooms.

The proposed development is located near both the Deschutes River Trail and the Haul Road Trail system, and includes a mix of residential, lodging, office, and retail uses. An internalization rate of 10% was applied to the commercial uses to account for the interaction between residential patrons and the retail portions of the site. With these classifications, preliminary trip generation estimates are shown in Table 1.

Table 1. Trip Generation Estimates (General Urban/Suburban Area Classification)

Land Use	ITE Code	Size	Daily Trips	Weekday PM Peak Hour		
				Total	In	Out
Prior Site Use (Trip Credits)						
All-Suites Hotel - Pine Ridge Inn	311	20 Rooms	89	7	3	4
Proposed Uses						
Hotel	310	115 Rooms	961	69	35	34
All-Suites Hotel	311	119 Rooms	531	43	21	22
3- to 5-story Multi-Family Residential Multifamily Housing (Mid-Rise)	221	31 Units	169	14	8	6
Shopping Center	820	13,152 SF	496	50	24	26
<i>Internalization (10%)</i>			-50	-5	-2	-3
<i>Pass-by Trips (34%)</i>			-169	-15	-7	-8
Total Trips			2,157	176	88	88
Total Internal			-50	-5	-2	-3
Total Pass-by			-169	-15	-7	-8
Net New Trips			1,938	156	79	77
Trip Generation Comparison						
Total Trips (Net New Trips – Pine Ridge Trip Credits)			+1,849	+149	+76	+73

As shown in Table 1, the site is expected to generate more than 700 weekday daily trips, and so per BDC 4.7.400(C)(3)(b) the minimum impact thresholds for a formal Transportation Impact Analysis (TIA) are exceeded. This will be submitted to the City under separate cover.

3. TRANSPORTATION AND PARKING DEMAND MANAGEMENT (TPDM)

As the site is not a master plan a TPDM plan is not required or proposed. The proposed site parking complies with City Code requirements. As shown in the site plan, structured parking is proposed to support the site parking needs.

4. MAJOR INTERSECTIONS

Bend Development Code Chapter 1.2 defines a *Major Intersection* as:

“an intersection where at least one intersecting road is classified as a collector or arterial.”

The City’s *Functional Classification Map* identifies expressways, arterials, collectors and local streets. The map in Figure 3 contains an approximate one-mile radius around the site of the proposed development upon the City’s *Functional Classification Map*. All collector and arterial intersections within this range qualify as major intersections for the purpose of this study.

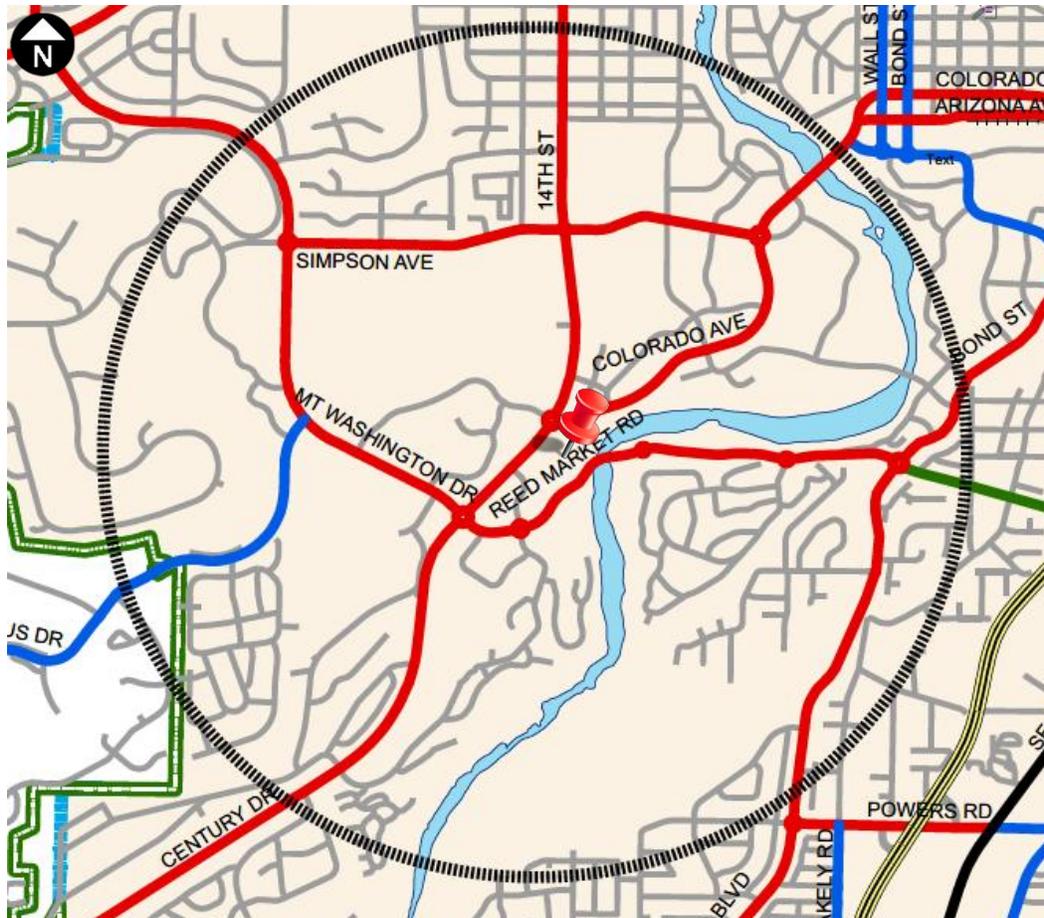


Figure 3. City of Bend Functional Classification Map.
Black: Major/Principal Arterial; Red: Minor Arterial
Blue: Major Collector; Gray: Local Street

5. TRIP DISTRIBUTION AND ASSIGNMENT

Trips to and from the Bend Village mixed-use development are generally expected to travel north and east toward the city center and nearby recreational and retail opportunities. With the location of the site and access configurations use of the roundabouts will be leveraged for U-turns. Pass-by trips were applied from both the SW Century Drive corridor and the SW Mt Washington Drive – SW Reed Market Road corridor. Figure 4 illustrates the proposed trip distribution and assignment of site generated trips, Figure 5 illustrates the pass-by trips, and Figure 6 illustrates the available trip credits, and Figure 7 illustrates the total impact on the transportation system.

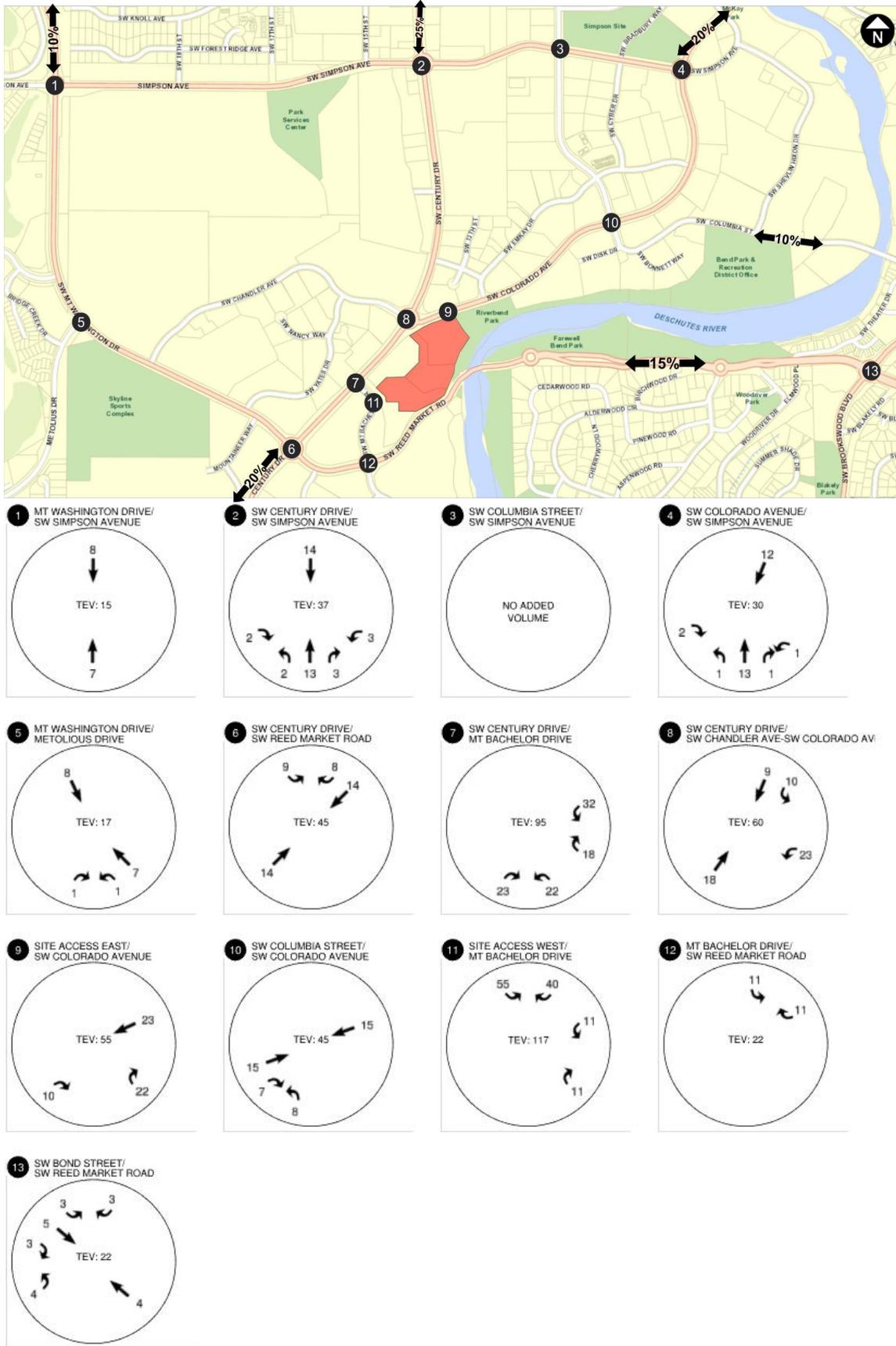


Figure 4. Estimated Trip Distribution and Net New Trip Assignment, Weekday PM Peak Hour. TEV: Total Entering Vehicles.

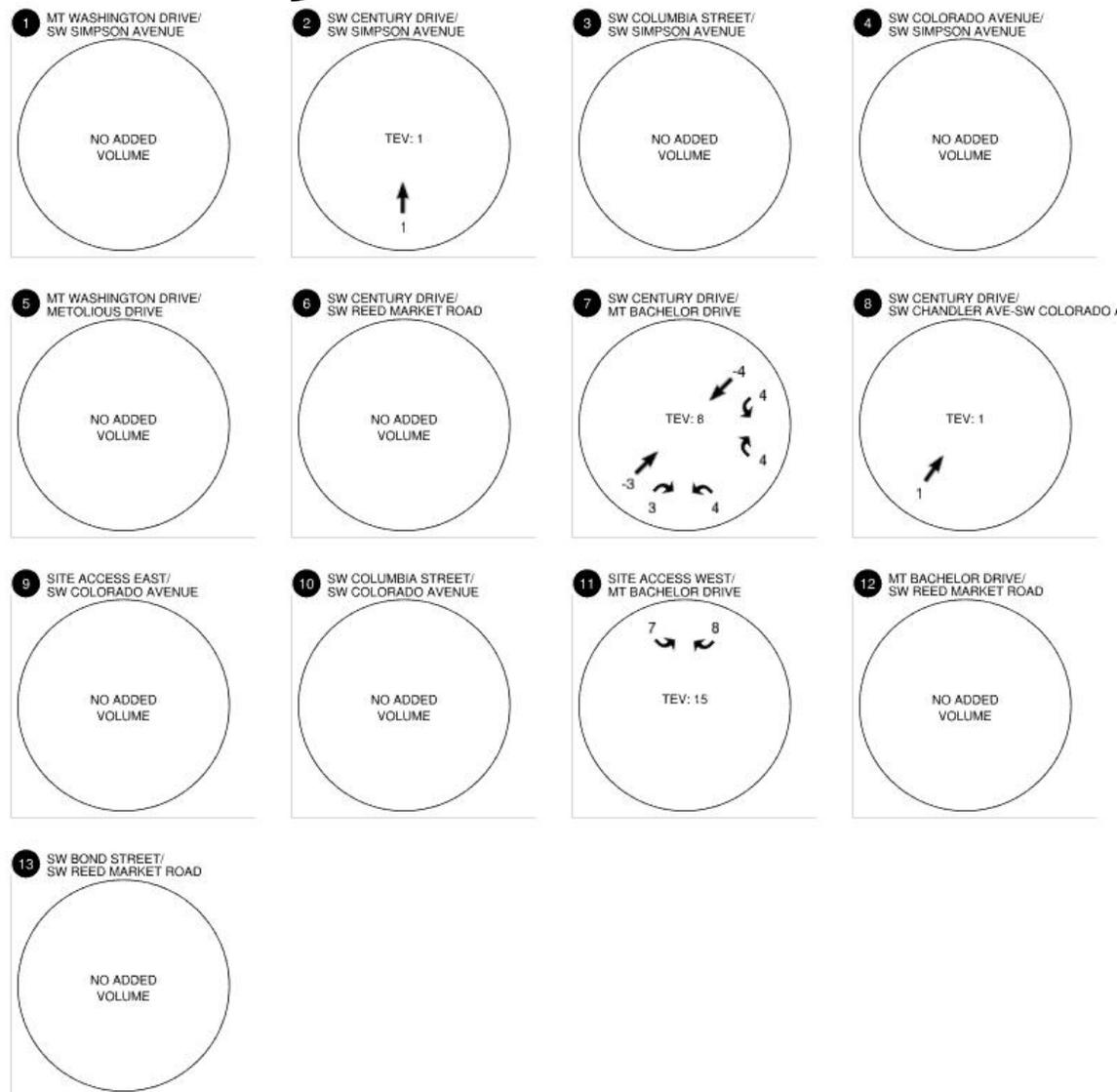
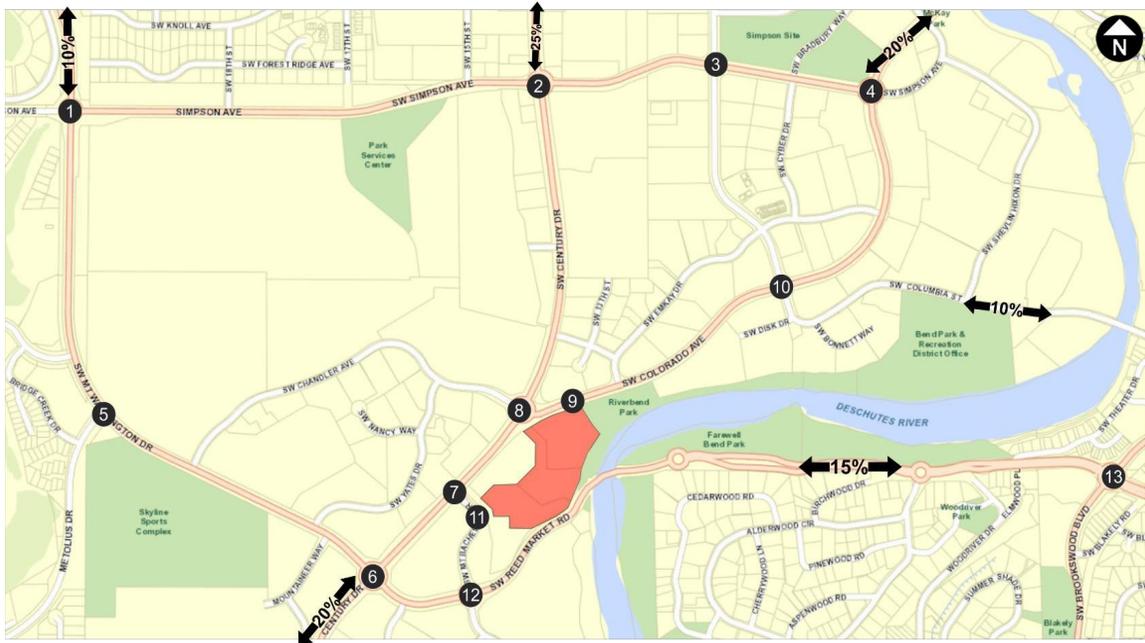


Figure 5. Estimated Pass-by Trip Assignment, Weekday PM Peak Hour

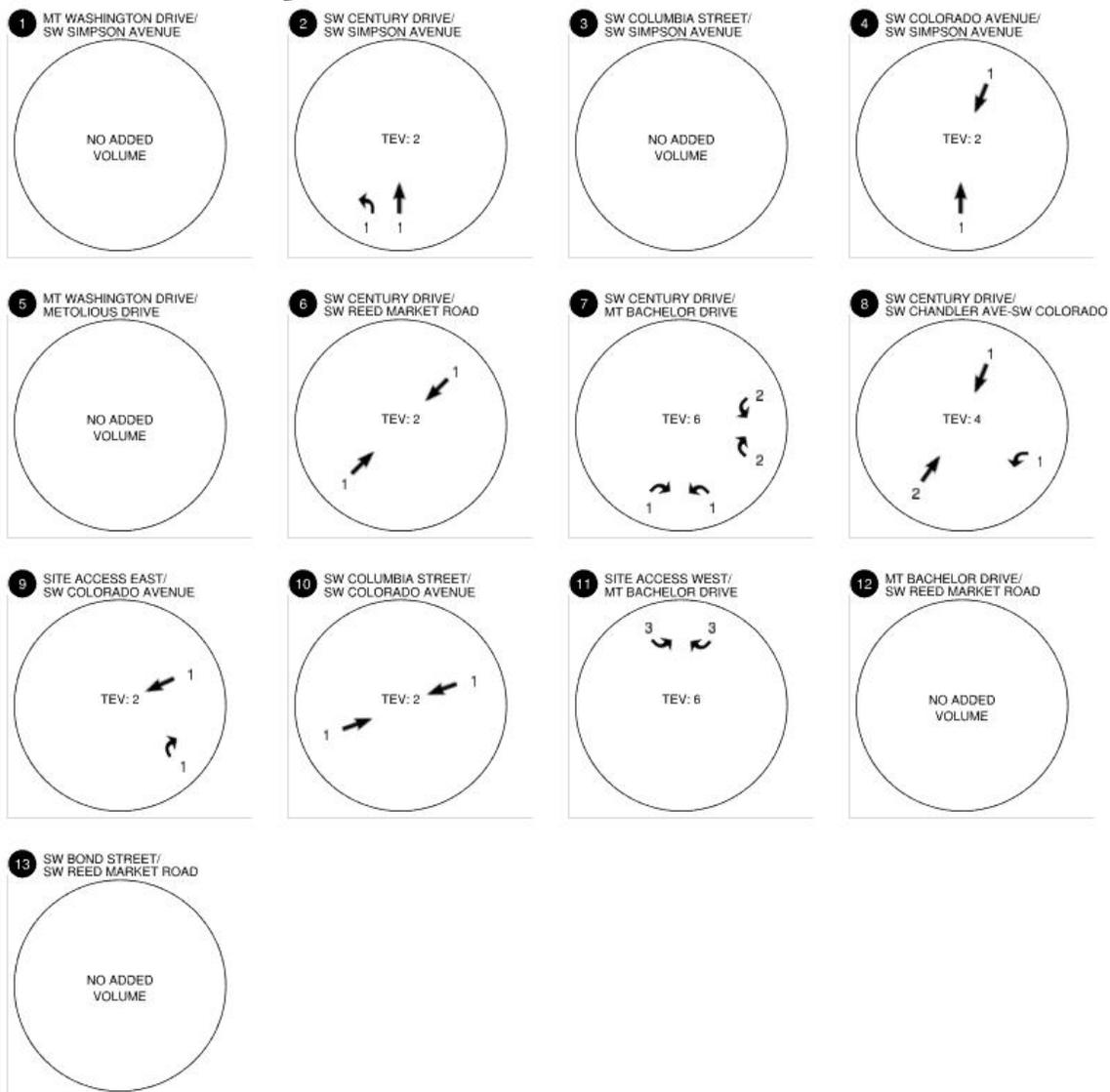
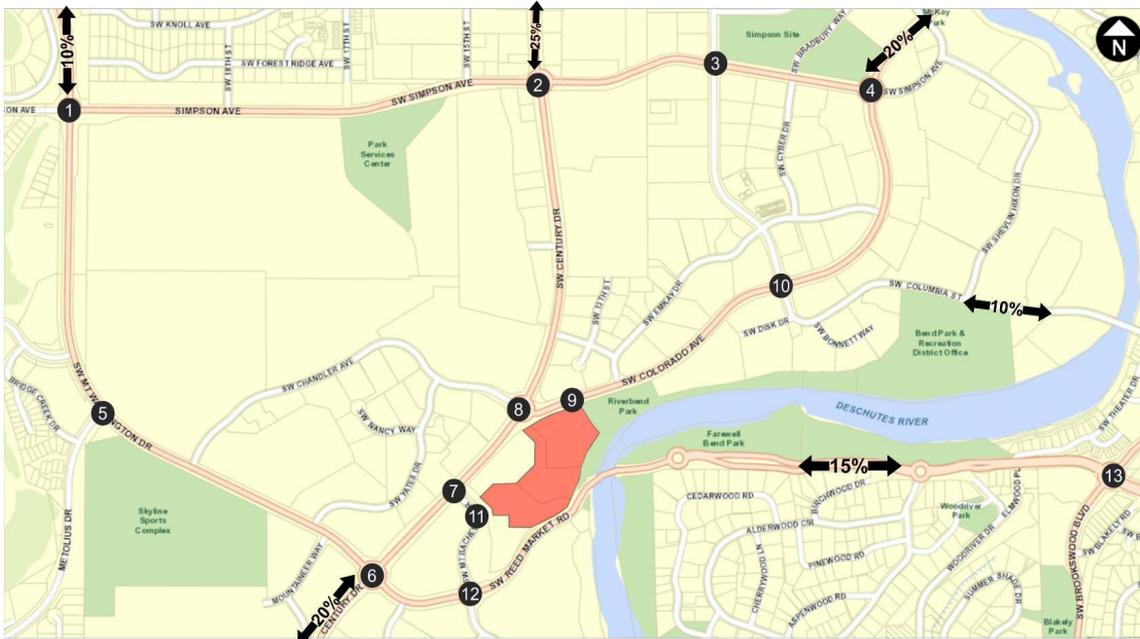


Figure 6. Pine Ridge Trip Credits, Weekday PM Peak Hour

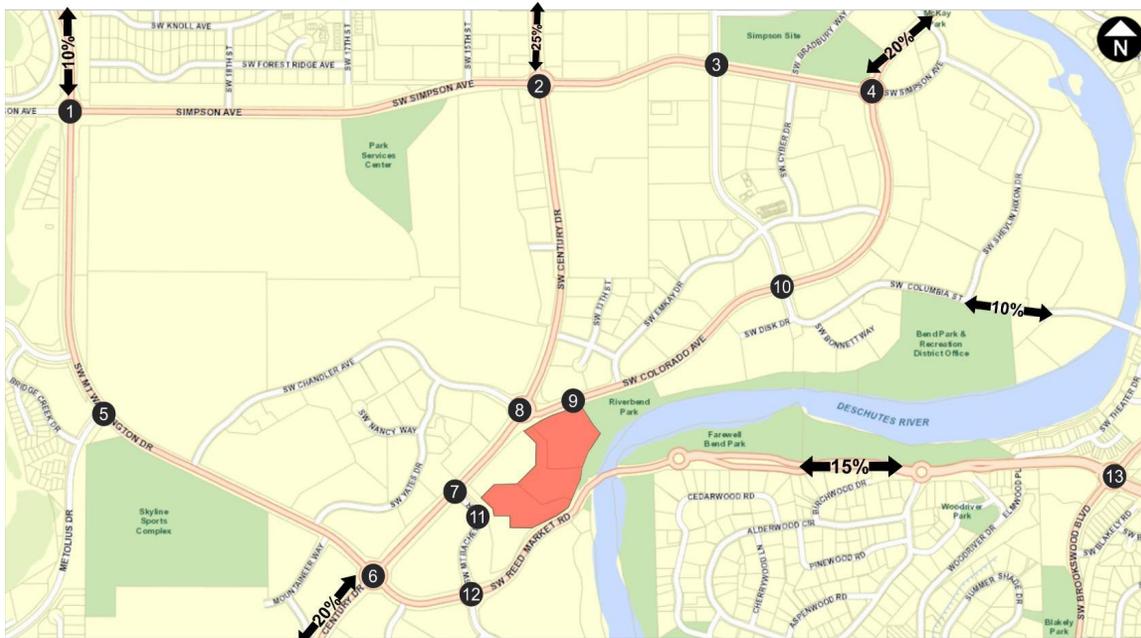


Figure 7. Total Trip Impacts (Net New Trips + Pass-by Trips – Trip Credits), Weekday PM Peak Hour

Truck traffic to the site will consist of smaller single-unit trucks (moving and delivery vehicles), service vehicles, and emergency vehicles. These will have access to the site from the higher-order *Collector* and *Arterial* roadway network, including SW Colorado Avenue and SW Reed Market Road. The site layout includes service vehicle entrances into the hotels for typical services such as trash and linens.

6. TRANSPORTATION FACILITIES EVALUATION

Study Area

Bend development code identifies the study area for the forthcoming formal Transportation Impact Analysis to include all site access and adjacent roadways and intersections, as well as any off-site intersection impacted by 50 or more peak-hour vehicle trips within one mile of the site. Based on the trip assignment shown in Figure 7 this includes the following intersections:

- 7: SW Century Drive / SW Mt Bachelor Drive
- 8: SW Century Drive / SW Chandler Avenue – SW Colorado Avenue
- 9: Site Access East / SW Colorado Avenue
- 11: Site Access West / SW Mt Bachelor Drive

Note that data collection efforts were completed throughout the study area in early March prior to COVID-19 impacts when schools and businesses were open.

Study Area Infrastructure and Right-of-Way

Major roadways within the project area include SW Mt Bachelor Drive, SW Colorado Avenue, SW Century Drive, and SW Reed Market Road. Each of these are described below.

- SW Mt Bachelor Drive is designated as a *local street* within the City's *Functional Classification* map, and it provides primary access to the site. This 700-foot segment of roadway between SW Century Drive and SW Reed Market Road currently meets the City standard with a 60-foot right of way, and the streetscape includes sidewalks, curbs, curb ramps, and street trees. Curb bulb-outs are provided at driveway access points for traffic calming. The speed limit is not posted and is assumed to be 25 mph.
- A secondary right-in, right-out access is proposed onto SW Colorado Avenue, which is classified as a *Minor Arterial*. City standards require a 100-foot right-of-way along its arterials. The right-of-way for much of its length is 80-feet but increases to 90-feet at the site of the proposed development, as the required additional 10' has already been dedicated. SW Colorado Avenue contains two travel lanes (one lane per direction) and a raised and landscaped median with periodic center left-hand turns lanes at intersections and continuous striped bicycle lanes on both sides. The north side contains sidewalks, and a Bend Parks and Recreation multi-use path (Haul Trail) follows along the south side of Colorado Avenue past the site frontage. The posted speed is 35 mph.
- While the proposed development has no frontage along SW Century Drive, its intersection with SW Mt Bachelor Drive provides important site access to the proposed development and is included as a study intersection. SW Century Drive is a *Minor Arterial* that was recently reconstructed north of Simpson Avenue as part of the final phase of the City's GO Bond. Formerly a state highway, this facility is within City jurisdiction south to the urban growth boundary. Remnants of the highway design remain, such as highway attractions and wayfinding signs, larger radius roundabouts and curbs, and deceleration lanes. Bicycle lanes and sidewalks/trail are provided throughout this corridor. The posted speed limit within this section is 35 mph.

- While SW Reed Market Road follows along a portion of the southeast property line, the steep rocky downgrade in this direction eliminates the possibility of any vehicular access. As a *Minor Arterial* the city requires a 100-foot right-of-way along the roadway.

A summary of area roadway characteristics is provided below in Table 2.

Table 2. Area Roadway Characteristics

Roadway	Classification	Existing/ Standard ROW	Posted Speed	Bicycle Lanes	Sidewalks	Median
Mt Bachelor Drive	Local Street	60' / 60'	25 mph	No	Yes	At roundabout approach
Colorado Avenue	Minor Arterial	80' / 100'	35 mph	Yes	Yes	Yes
Century Drive	Minor Arterial	Varies / 100'	35 mph	Yes	Yes	Yes

With the recent completion of the City's streetscape project along Century Drive there are no funded or planned transportation improvement projects within the site vicinity or impacting the study intersections identified within the City's Capital Improvement Program. The City has contemplated several transportation improvements as part of larger properties, and there are approval conditions and a funded plan in place to install a single-lane roundabout at the Colorado Avenue/Columbia Street and Simpson Avenue/Columbia Street intersections.

Pedestrian and Bicycle System

Review of the Transportation System Plan did not identify any pedestrian connections that are identified to bisect the subject property. As most of the surrounding area is developed, area roadways generally include sidewalks and curb ramps. The paved *Haul Trail* multi-use pathway is located along the western and northern property frontage, and the South Canyon Reach of the *Deschutes River Trail* follows the river along the south side of the site. Development plans include a stairway-type connection down the steep cliffs that currently separate the site from the Reed Market Road corridor, providing pedestrian connection to the Deschutes River Trail system and a grade-separated undercrossing of SE Reed Market Road.

Transit System

Transit service is available on Century Drive about 200 feet north of the intersection with Colorado Avenue. The transit stop on the west side of the street contains a covered shelter with bench, posted route makers, and nearby overhead luminaires. This stop has access to Cascades East Transit Route 10 and 11. The transit stop on the east side of the street offers a posted route schedule, concrete pad, and nearby overhead luminaires. It only offers service on Cascades East Transit Route 11. These transit routes are described below:

- *Route 10: Colorado* offers service to and from Hawthorne Station via Colorado street and Franklin Ave, as shown in Figure 8. Service along this route is provided at hourly intervals Monday through Friday from approximately 6:30 a.m. to 6:30 p.m.
- *Route 11: Galveston/14th* provides service to the south and connections to the Galveston Avenue corridor, OSU, and the Hawthorne Station. Service along this route is provided at hourly intervals Monday through Friday from approximately 8:00 a.m. to 7:00 p.m., and on Saturday from approximately 7:30 a.m. to 4:30 p.m. Figure 9 illustrates the route map.

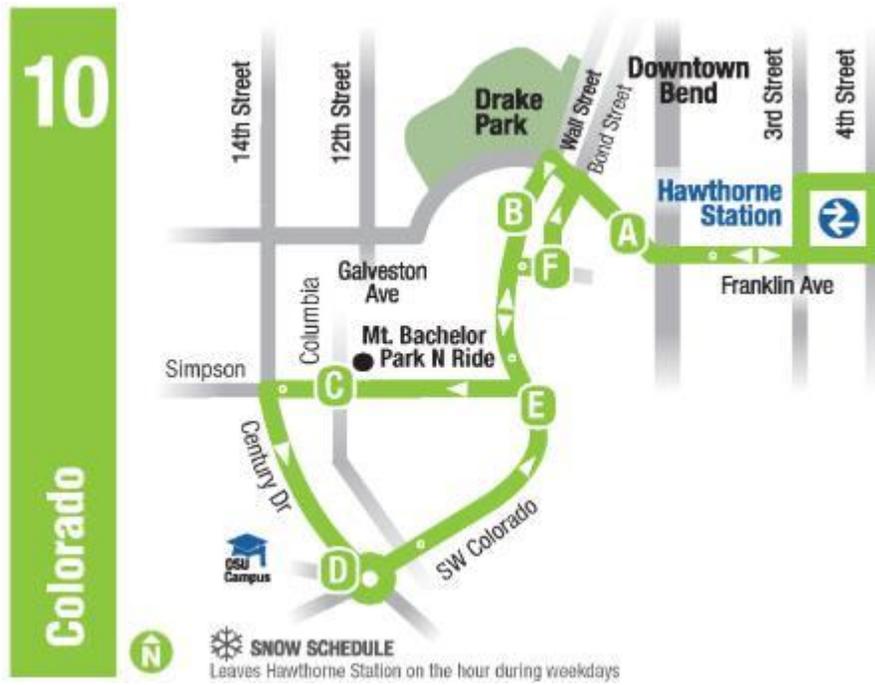


Figure 8. Cascades East Transit Route 10.

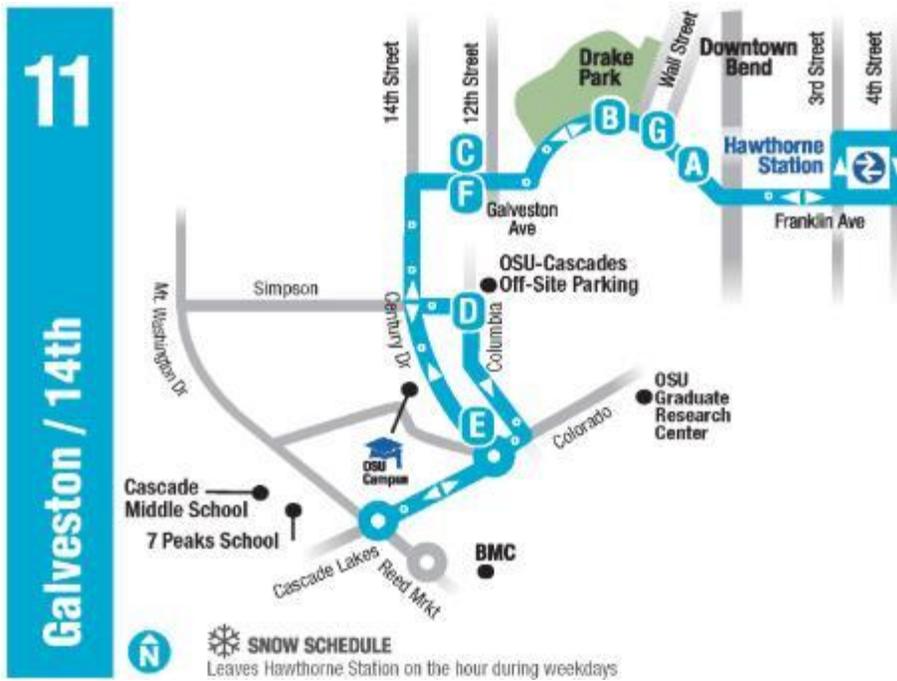


Figure 9. Cascades East Transit Route 11.

On-Site Circulation

On-site access will be provided through creation of a private street with primarily perpendicular surface parking and a two-story parking structure with valet service. There are on-street areas within the site for loading/check-in at both hotel sites. The private street will have right-in, right-out access onto SW Colorado Avenue to provide a secondary access to the overall property. Restricted access will be enforced with the raised and vegetated median.

Pathways are provided along the riverfront area connecting the SE Reed Market Road sidewalk system (and by extension the Deschutes River Trail system) with the development. Connections are also available from the Haul Road Trail system into the site. There is an existing undeveloped mid-block pedestrian easement connecting the site to the Haul Road Trail system, which will be located on the reconfigured tax lot 181206D001801 and not a part of the project site.

ROADWAY SAFETY

Crash records were obtained for all of Deschutes County from the ODOT crash database between January 2013 and December 2017. Crashes required for reporting include those involving any level of personal injury or property damage exceeding \$1,500.

Initial review of the reported collisions show that there have been no historical crashes at the Pine Ridge Inn entrance, the Mt. Bachelor Drive connection with Century Drive, or along the Century Drive frontage. The following reflects the crash experience at nearby intersections:

- SW Century Drive/SW Colorado Avenue roundabout experienced five crashes; four of these were non-injury collisions. One of the crashes involved a head-on collision with a cyclist; the crash records report that the cyclist was traveling the wrong way.
- There were three reported crashes at the SW Reed Market Road/SW Mt Bachelor Drive intersection, all of which were non-injury crashes.
- There were nine reported collisions at the SW Reed Market Road/SW Century Drive roundabout, including two injury crashes.

Additional review of the historical crashes will be provided within the formal Transportation Impact Analysis that will follow.

Intersection Sight Distance

Intersection sight distance was reviewed on-site to ensure an adequate view of conflicting traffic was provided to drivers at the proposed right-in, right-out access point onto Colorado Avenue, and at the existing driveway onto Mt Bachelor Drive. The City of Bend typically applies the minimum recommended sight distance criteria based on the standard reference *A Policy on Geometric Design of Highways and Streets, 6th Edition* published by the American Association of State Highway and Transportation Officials (AASHTO) in 2011 (commonly referred to as the *Green Book*). This reference provides the recommended sight distances as measured from a height of 3.5 feet 14.5 feet from the edge of travel way at the access point serving the proposed development, based on the speed of the roadway. The AASHTO reference is based on conflicts between motorists traveling along the roadway and motorists completing movements at the intersection.

The topography of the area is generally flat, and the speed along Colorado Avenue is 35 miles per hour. Figure 10 illustrates the sight distance measurements and recommended minimum dimensions for this

new public roadway connection. As this connection crosses the Haul Road Trail, sight lines toward the north are also required along the trail system to obtain a clear view of potential two-way cyclists.

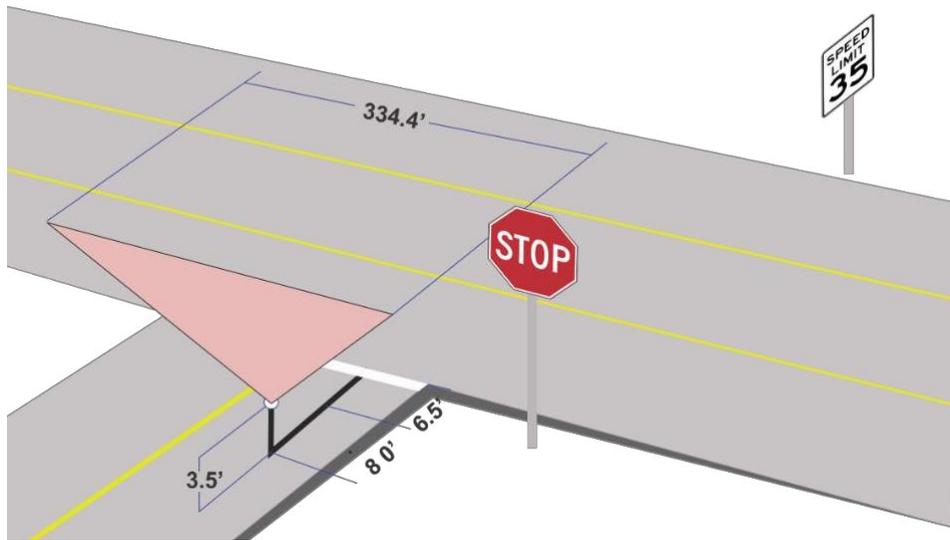


Figure 10. AASHTO minimum recommended intersection sight distance dimensions at the right-in, right-out access point onto Colorado Avenue.

The existing full-access driveway onto Mt Bachelor Drive has shorter sight distance requirements based on the lower posted speed. Recommended sight distances are illustrated in Figure 11.

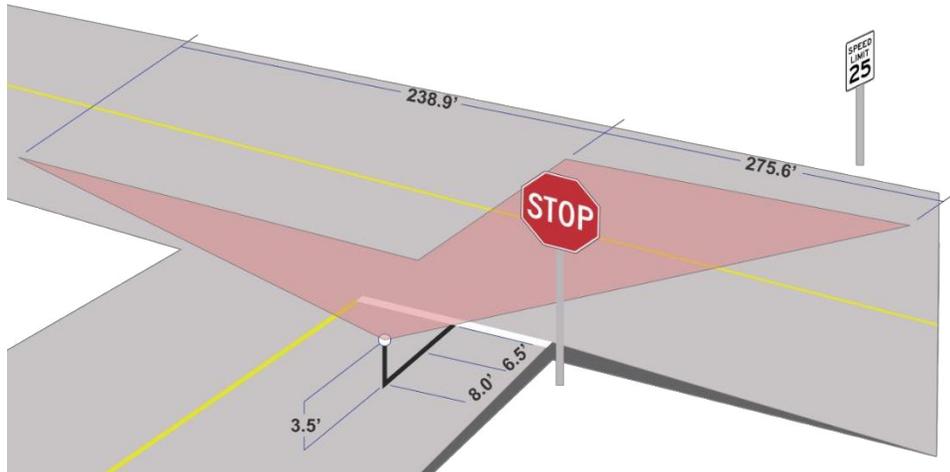


Figure 11. AASHTO minimum recommended intersection sight distance dimensions at the driveway onto Mt. Bachelor Drive.

The site was visited and inventoried to obtain sight distance measurements. Figures 12 through 14 illustrate the clear views available at the two site access points. No intersection sight distance deficiencies were identified based on this field review. It was noted that the right-in, right-out connection onto SW Colorado Avenue will provide substantial grades from the site and will also require a crossing of the Haul Road Trail. Design considerations for this crossing will be reviewed as part of the formal Transportation Impact Analysis section of this report.



Figure 12. Looking north on Mt Bachelor Drive from the existing driveway toward Century Drive.



Figure 13. Looking South on Mt. Bachelor Drive from the existing driveway toward Reed Market Road.



Figure 14. Looking west along Colorado Avenue toward Century Drive.

CITY OF BEND CORNER CLEARANCE REQUIREMENTS

The City of Bend Development Code 3.1.500 requires clear sight triangles at the intersections of streets and alleys for the purposes of maintaining a clear view of motorists, pedestrians, and cyclists. This requires a 15-foot triangle at the intersection of a street and a street, as illustrated in Figure 15. Within this space all trees and vegetation should be limited between two-feet and eight-feet in height to provide a clear view of oncoming motorists, cyclists, and pedestrians. No restrictions were identified that conflict with these corner clearance requirements at either access location.

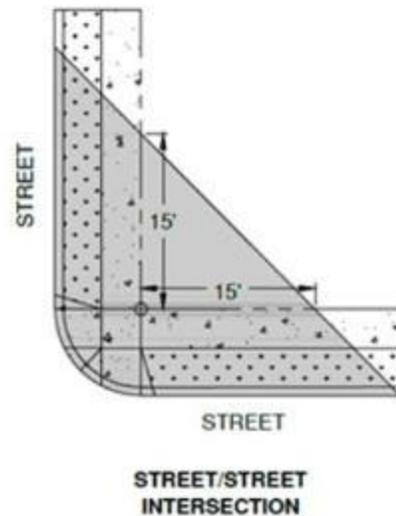


Figure 15. City of Bend corner clearance requirements

NEXT STEPS

Thank you for your time in reviewing this Transportation Facilities Report. We would like to request information from the City on any approved development projects that should be included within the formal Transportation Impact Analysis that will follow, along with confirmation that the study area adequately captures all the locations that exceed the City's newly adopted significance thresholds.

Note that area traffic counts were collected at each of the study area intersections on Thursday, March 12th, which was prior to the COVID closures and reflect conditions while area schools (and Mt Bachelor) were open. Historical traffic counts are also available throughout the area from mid-December 2018 should these be necessary for comparative purposes.