

## **Chapter 23.60. TRANSPORTATION**

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##### **A. Introduction.**

The Deschutes County Comprehensive Plan Transportation Chapter addresses both short and long-term transportation needs. This Chapter looks at the next 20 years in Deschutes County, and identifies through goals and policies, how best to efficiently move people and goods throughout the County. Planning for the transportation needs within the Bend, Redmond and Sisters urban growth boundaries is covered by those cities' respective comprehensive plan transportation elements.

The purpose of DCC 23.60 is to develop a transportation system that meets the needs of Deschutes County residents, while also considering regional and state needs at the same time. This plan addresses a balanced transportation system that includes automobile, bicycle, rail, transit, air, pedestrian and pipelines. It reflects existing land use plans, policies and regulations that affect the transportation system.

Much of the background documentation, facility inventory and forecast data referenced in this chapter are located in the Transportation System Plan (TSP), which is located in the Resource Element of the Comprehensive Plan. The TSP also contains a list of prioritized short and long-term projects.

##### **B. Existing road system.**

Deschutes County is responsible for maintaining approximately 943 total miles within the County system. Out of the total miles maintained by the County, approximately 750 miles are paved and 193 are unpaved. An additional 1,200 miles of unpaved roads are dedicated to the public but not in the County system. Most of the rural roads are located in the western part of the County along the major state highway corridors. In the other, mostly unpopulated areas, roads totaling approximately 410 miles are under the jurisdiction of the U.S. Forest Service, U.S. Bureau of Land Management, the Oregon State Forestry Division, or the Oregon State Parks Division. Of the 750 paved miles of public roads located in the County, many are controlled by the local jurisdictions within the three incorporated cities (Bend, Redmond and Sisters). However, the County maintains approximately 120 miles of urban roadways within UGBs. Of the 120 urban road miles the County maintains, approximately 27 miles are within city limits. An additional 200 miles of roadways (state highway system) are controlled by ODOT.

##### **C. Types of roads in Deschutes County.**

There are many types of roads in Deschutes County. The following are some definitions and examples of the types of roads commonly found in the County.

1. Road - means the entire right of way of any public or private way that provides ingress to or egress from property by means of vehicles or other means or that provides travel between places by means of vehicles. "Road" includes, but is not limited to: (1) "Ways" described as streets, highways, throughways or alleys; (2) Road related structures that are in the right of way such as; (3) Tunnels, culverts or similar structures; and (4) Structures, such as bridges, which provide for continuity of the right-of-way.
2. Public Road. A road over which the public has a right of use that is a matter of public record. Maintenance of public roads, including plowing and repair, is the responsibility of the adjoining property owners. There are far more miles of public roads in rural Deschutes County than there are miles of County roads or state highways.
3. County Road. A public road under the jurisdiction of a county that has been designated as a county road under ORS 368.016. County roads are maintained (paved, repaired, plowed, bladed) by the

County. A public road becomes established as a County Road by order of the County Commissioners. Huntington and Burgess Roads are examples of County Roads.

4. Local Access Road. A public road that is not a county road, state highway or federal road.
5. Private Road. Private roads that have not been dedicated to the public. These roads do not come under County, City or State jurisdiction. Examples of private roads include those in Sunriver, Eagle Crest and Black Butte Ranch. Roads created by easements between two parties can also be considered private roads.
6. Easement. An access or road easement occurs when one person allows another person to drive (cross) their property. The property owner granting the easement still owns the land under the easement, but the other party has a legal right to use the easement. The public, except for invited visitors, does not have a right to use the easement.
7. State Highway. A State Highway is a public road, maintained by the Oregon Department of Transportation.
8. In addition, the US Forest Service and the Bureau of Land Management have roads on their lands in Deschutes County that they maintain and have jurisdiction over.

Many improved, gravel surfaced or paved roads were constructed as a condition of approval of a subdivision of land. Other public roads have been improved through the formation of a Special Road District. People living within an area, such as a subdivision, may form a special road district to improve and maintain the roads within a specially designated geographical area. The residents forming the district agree to pay property taxes to support the special district. Road District Commissioners are appointed by the Deschutes County Board of Commissioners to operate the special road district. The special road district improves and maintains the roads within the district to the level agreed to by the residents of the district.

County residents may also petition the Deschutes County Board of Commissioners to form a Local Improvement District (LID) to get their road improved, usually involving the paving of a gravel or dirt road. Public roads improved under the LID process may be accepted by the Deschutes County Commissioners as a County-maintained road. Under the LID, property owners agree to pay for road improvements.

D. Road system configuration.

Functional classification describes how the public road system should operate. Roads are grouped by their similar characteristics in providing mobility and/or land access. Within the County, there are six rural road classifications and nine urban classifications. An explanation of the various road classifications used in Deschutes County is found in Table 1. There are three designated urban areas within the County where the urban standards generally apply, with the rest of the County using the rural standards. Table 2.2.T1 in the Transportation chapter of the Resource Element, provides a mileage and maintenance responsibility breakdown of the various County road classifications.

The following represents a general overview of state highways, street functional classifications and a listing of County roads falling under each category. Complete data lists for County highways, arterials, collectors, and local roads can be found in Appendix F of the Transportation chapter of the Resource Element.

Table 1  
Road Functional Classifications

Rural	
Principal Arterial	Trip length and travel density characteristics representative of substantial statewide or interstate travel; and
	Penetrates urban boundaries, or comes within 10 miles of the center of an urban area of 25,000 population or greater, and are within 20 minutes travel time (off-peak) of the center of the area via a minor arterial road.
	Movement of interstate goods and services.

Arterial:	Links cities, larger towns, and other major traffic generators, providing interregional and inter-county service; and
	Spaced at distances so that all developed areas are within reasonable distance of an arterial highway; and
	Provides service to corridors with trip length and travel density greater than that predominately served by rural collector or local systems.
	Serves the more important intra-county travel corridors.
	Movement of goods and services.
	Includes Federal Forest Highways
Collector:	Spaced at intervals to collect traffic from local roads and provide all developed areas a reasonable distance from a collector road; and
	Provides service to the remaining smaller communities; and
	Links locally important traffic generators with rural destinations.
Local:	Primarily provides access to adjacent land/properties; and
	Accommodates travel over short distances as compared to arterials and collectors.
Urban	
Principal Arterial:	Serves the major activity centers in a metropolitan area, and also serves the highest traffic corridors and satisfies the longest trip desires; and
	Carries the major portion of trips entering and leaving the urban area, as well as the majority of the through traffic desiring to bypass the city
Arterial:	Provides service to trips of moderate length at a somewhat lower level of travel mobility than principal arterials; and
	Distributes travel to geographic areas smaller than those served by principal arterials, while not penetrating specific neighborhoods; and
	Spacing varies from 1/2 to 1 mile in downtown areas, to 2 to 3 miles in areas outside downtown.
Collector:	Provides both land access and traffic circulation within residential neighborhoods, commercial, and industrial areas; and
	Distributes trips from arterials through these areas to their final destination, and conversely, collects traffic from local streets and channels it onto arterials
Local:	Provides access to adjacent land and access to higher classified roads; and
	Provides lowest level of travel mobility including no bus routes; and
	Normally carries less than 1,700 vehicles per day.

1. Highways / Principal arterials.

- a. Highways have the responsibility of facilitating traffic movement through and between urban areas, regions and between states. The 1991 Oregon State Highway Plan identifies four levels of functional importance (LOI) assigned to highways, and these can either be U.S., Oregon State, or local highways; Interstate, Statewide, Regional, and District.

All state highways in Deschutes County are classified as “principal arterial” roads. The principal arterial system consists of a connected network of continuous routes having the following characteristics:

1. Serve corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel.

2. Serve all, or virtually all, urban areas of 50,000 population and over and a large majority of those with population of 25,000 and over.
3. Provide an integrated network without stub connections except where unusual geographic or traffic flow conditions dictate otherwise.

With the exception of interstates, Deschutes County has representative examples of every highway road classification.

- b. The U.S. highways in the County consist of:
    1. US Highway 97 - The Dalles-California Highway.
    2. US Highway 20 - Various segments are commonly known as the Santiam Highway, the Sisters-Bend Highway, or the Millican-Burns Highway.
  - c. The Oregon State highways consist of:
    1. OR Highway 126 - The McKenzie Highway.
    2. OR Highway 31 - The Fremont Highway.
    3. OR Highway 242 - The Old McKenzie Highway.
    4. OR Highway 27 - The Crooked River Highway.
    5. OR Highway 372 - The Cascade Lakes Highway (and Century Drive in Bend).
    6. OR Highway 370 - The O'Neil Highway.
    7. Powell Butte Highway - A former state highway that is now a rural arterial within Deschutes County. In Crook County, this highway is still a state facility.
2. Urban and rural minor arterials/rural collectors.

Lower down in the functional classification hierarchy are the minor arterial (including federal forest highways) and collector streets and roads that enable people to move between the neighborhoods where they live, to the places they work, shop, and go to school. Streets are generally classified in the following order according to the amount of traffic they are designed to handle, and their allowable design speeds.

The County has jurisdiction over several segments of urban minor arterial road segments located within or adjacent to UGB areas. These roads generally play a larger role in their relationship to the adjacent city's transportation network, than the County network.

- a. Characteristics. The rural minor arterial road system should, in conjunction with the principal arterial system, form a rural network having the following characteristics:
  1. Link cities and larger towns (and other traffic generators, such as major resort areas, that are capable of attracting travel over similarly long distances) and form an integrated network providing interstate and inter-county travel.
  2. Be spaced at such intervals, consistent with population density, so that all developed areas of the State are within a reasonable distance of an arterial highway.
  3. Provide (because of the previous two characteristics) service to corridors with trip lengths and travel density greater than those predominantly served by rural collector or local systems. Minor arterials constitute routes whose design should be expected to provide for relatively high overall travel speeds, with minimum interference to through movement.

The complete listing of all County arterial and collector roads, as well as local roads, can be found in the TSP, located in the Resource Element of the Comprehensive Plan.

E. Traffic control devices.

1. Traffic Signals: There are no traffic signals in the rural areas of the County.
2. Flashing Warning Lights: Red and/or yellow flashing warning lights generally are located at intersections where a full stop light control is not yet warranted and four-way stop signs would not meet the need to balance safety concerns and through traffic movement. Locations are identified in the TSP.

F. Traffic volumes.

The Deschutes County Road Department conducts average daily traffic (ADT) and peak hour traffic volume counts on a rotating basis for most arterials and collector roads in the County. Each road is counted on average, once every two to four years. The traffic count information was assembled in

spreadsheets. For road segments not counted in 1996, a trend analysis was used to establish a 1996 estimated traffic volume. The ADT information for County roads and state highways within Deschutes County can be found in the TSP.

G. Level of service.

In order to effectively communicate about traffic flow and traffic capacity conditions, the engineering and planning professions have adopted a concept of level of service to describe traffic conditions and associated traffic flow rates. Six levels of service designations ranging from A to F are typically recognized by the transportation professions.

For rural, two-lane roads in the County, the peak hour traffic volumes were assumed to be ten percent (10%) of the average daily traffic amount, then further adjusted to reflect a desirable flow rate. For a ten-percent (10%) peak hour flow (“K” factor), the corresponding ADT and LOS are identified in Table 2.

Table 2  
Maximum Average Daily Traffic Allowed for Various Levels of Service

K Factor	Level of Service					
	A	B	C	D	E	F
	Average Daily Traffic (ADT) (ideal conditions, i.e., level terrain, etc.)					
10%	1,700	3,400	5,700	9,600	16,300	16,300

H. Accident statistics.

In 1996, the grant-funded Deschutes County Safe Communities program was initiated in an effort to reduce transportation-related injuries of all types. The program links accident data with medical information to identify the most significant problems and then develop solutions. Focus areas include safety equipment for bicyclists and safe cycling education programs for school children. Program Staff used the state accident database, from the Accident Data Unit at ODOT, to evaluate accident data for the period 1991 - 1996. Crash data and a summary of accident issues can be found in the TSP.

I. Pavement type / condition.

Out of the 943 roadway miles that the County maintains, 625 miles (66%) are paved while the other 318 miles (34%) are either dirt or aggregate.

Bridge Condition: The County Road Department maintains a list (see the TSP) of the 120 various bridges throughout Deschutes County and their weight limits. Many of the bridges are relatively new, constructed of reinforced concrete, and are able to withstand many years of use before repairs or replacement is necessary. However, some others are old flatbed railroad cars that were converted to bridges.

J. Bike facilities.

The Deschutes County Bicycle Advisory Committee was formed in 1988 (pedestrian component added in 1996). In March 1992, the County adopted a Bicycle Master Plan as a resource element of the Deschutes County Year 2000 Comprehensive Plan. The Bicycle Master Plan provides recommendations for policies, classifications of bike facilities, location of bike facilities, bicycle parking and other transportation issues related to bike facilities. Bicycle facilities include bikeways, both paved and unpaved, and parking.

1. Currently, bikeway design falls under the general design criteria section of the County's Title 17 (Subdivision Ordinance). It states that:

- a. Bikeways shall be designed in accordance with the current standards and guidelines of the State of Oregon Bicycle Master Plan, American Association of State Highway and transportation Officials (AASHTO) Guide for the Development of New Bicycle Facilities, and the Deschutes County Bicycle Master Plan.
- b. All collectors and arterials shown on the County Transportation Plan map shall be constructed to include bikeways as defined by the Deschutes County Bicycle Master Plan.

- c. If interim road standards are used, interim bikeways and/or walkways shall be provided. These interim facilities shall be adequate to serve bicyclists and pedestrians until the time of the road upgrade.
  - 2. Paved bikeways.
 

Bicycles are legally classified as vehicles, which may be ridden on most public roadways in Oregon. There are four basic types of paved bicycle facilities in Deschutes County:

    - a. Shared Roadway: On a shared roadway facility, cyclists share the normal vehicle lanes with motorists.
    - b. Shoulder Bikeway: Smooth, paved, rural roadway shoulders provide a good area where cyclists can ride with faster moving motor vehicle traffic with few conflicts. The majority of bicycle travel on the state highway system is accommodated on shoulder bikeways.
    - c. Bike Lane: Where bicycle travel is substantial and where adequate width is available, a portion of the roadway may be designated for preferential use by cyclists. Bike lanes are more common in urban rather than rural areas.
    - d. Bike / Multi-use Path: A bike path is a bikeway that is physically separated from motorized traffic by open space or a barrier. They generally serve corridors not served by other bikeways or pedestrian facilities and where there are few crossing roadways.
  - 3. Unpaved bikeways.
 

With the advent of mountain bikes, previously unused trails and poor roads are opened up to potential use as inexpensive bike routes that require little more than right-of-way and signage. Deschutes County has many primitive roads and trails, most of which are on National Forest or Bureau of Land Management land, some of which are located close to urban areas.

    - a. Mountain bike trail/route: This category is designed to accommodate bicycle travel on unpaved roads and trails. Mountain bike trails are primarily recreational, although in some cases they may provide an interim or commuter transportation facility.
  - 4. Alternative routes.
 

Alternative routes are usually the most cost effective or immediate way to provide for bicycle movement through a difficult section. Several high traffic sections with bike facilities in the County have alternative routes identified in Table 2.2.T11 of the Transportation chapter of the Resource Element.
  - 5. Other facilities - Resort communities.
 

In Deschutes County, there are four resort communities that have developed independent bicycle networks. These networks, being privately owned, funded and maintained, are available to owners and guests of the individual communities and are not open to the general public. However, these bike facilities shall meet County construction standards and shall not impede movement within the countywide system.
- K. Pedestrian sidewalks/walkways.
 

Sidewalks are currently required along some street frontages for new developments only in the Unincorporated Communities of La Pine, Terrebonne and Tumalo. The County standard for sidewalk width is five feet. Although most of the County's improved sidewalks occur in La Pine, there are also short sections along the south sides of B Avenue and Smith Rock Way in Terrebonne.
- L. Public transportation.
  - 1. Intercity.
    - a. Greyhound.
    - b. CAC Transportation.
    - c. The People Mover.
    - d. Porter Stage Lines.
    - e. Valley Retriever Bus Lines.

2. Fixed route transit.

There is currently no traditional fixed-route local transit service in Deschutes County. However, the Mt. Bachelor Ski Resort Super Shuttle does operate during the winter months on a fixed-route and schedule.

a. Mt. Bachelor Super Shuttle and Employee Shuttle.

3. Local demand responsive transportation.

Deschutes County has a network of special transportation providers who serve the elderly and disabled population. In most cases, the general public does not have access to these special transportation services. There are several providers of special transportation services in the County, ranging from public to private, both profit and non-profit.

a. City of Bend Dial-A-Ride.

b. Central Oregon Council on Aging (COCOA) Dial-A-Ride (La Pine, Redmond and Sisters).

c. Opportunity Foundation of Central Oregon.

d. Residential Assistance Program (RAP).

e. Disabled American Veterans.

f. Volunteer Services.

g. Central Oregon Resources for Independent Living (CORIL).

h. Access Express.

M. Transportation Demand Management (TDM)

Currently, the County, ODOT and the City of Bend jointly fund Commute Options for Central Oregon. This organization began in 1990 as a volunteer citizen's group working towards solutions to traffic congestion and pollution. They are responsible for maintaining the Central Oregon Rideshare list, promoting Commute Options Week each Spring, and acting as transportation consultants to businesses, cities, counties and other agencies interested in alternative commuting methods such as carpooling and teleworking.

1. Rideshare (Park and Ride) facilities.

This plan makes reference to rideshare lots, which are more appropriate for the carpooling emphasis in Deschutes County, rather than park & ride lots which usually involve a fixed route transit stop (such as the Mt. Bachelor Super Shuttle).

2. Central Oregon Rideshare.

Central Oregon Rideshare is a carpool matching service available to Deschutes, Crook and Jefferson County residents free of charge. The matching service is essentially a database of interested individuals, which is maintained by Commute Options for Central Oregon.

N. Railroad.

1. Passenger rail. Other than the occasional (annual) excursion train from Portland to Bend, no regular passenger rail service is currently available in Deschutes County.

2. Freight rail. The recent merger between the Burlington Northern and Santa Fe railroads provides freight operations on a trunk line running through Deschutes County. This line connects with the Union Pacific main line at Biggs in the north and with the Southern Pacific mainline at Chemult to the south.

O. Motor freight/trucking.

U.S. Highways 97, 20 and OR 126 all carry intercity and interstate freight trucking. Approximately 14 trucking companies currently operate in Deschutes County. No state highways within Deschutes County are currently designated as State Trucking Routes.

P. Air transportation.

With the passage of SB 1113 in 1995, ODOT is proposing that the County establish an "airport zone" for each of the public use airports in the County to assure the continuation of airport and airport-related uses there. State Rule OAR 660-13, was adopted in December 1996 by the Land Conservation and Development Commission. In July 1997, the state passed HB 2605 which modified Oregon Statutes regarding airport planning and will have an as yet undetermined effect on OAR 660-13.

1. Public-Use Airports - Publicly-Owned (Municipal).

- a. Redmond Municipal Airport.
- b. Bend Municipal Airport.
- 2. Public Use Airports - Privately-Owned.
  - a. Sunriver .
  - b. Sisters Airport.
- 3. Privately-owned, private-use airports and heliports: Recognized by ODOT as having three or more based aircraft in 1994:
  - a. Cline Falls Airpark (6 mi. W of Redmond at Cline Falls).
  - b. Juniper Airpark (10 mi. SE of Bend).
  - c. Pilot Butte Airport (S. of Pilot Butte in City of Bend)
  - d. Less than three based aircraft in 1994:
    - 1. Don Stevenson Ranch Airport (4 mi. S of Bend).
    - 2. Fall River Fish Hatchery Airport (31 mi. SSW of Bend at Fall River).
    - 3. Gopher Gulch Airport (3 mi. NW of Bend).
    - 4. Pine Ridge Ranch Airport (5 mi. NE of Sisters).
    - 5. The Citadel Airport (9 mi. NE of Sisters).
    - 6. St. Charles Heliport (2 mi. E of Bend at the Medical Center).
    - 7. Whippet Field Airport (6 mi. NE of Sisters).
    - 8. La Pine Heliport (S edge of La Pine).
    - 9. Freight Wagon Field Airport (5 mi. S. of Redmond).
    - 10. Sage Ranch Airport (9 mi. SE of Sisters).
    - 11. Cinder Butte Heliport (3.4 mi. N of Redmond).
- 4. Airfreight service. Airfreight is available at the Redmond Airport through United Express and Horizon Air. Express package services are provided by Federal Express (FedEx), Airborne, United Parcel Service (UPS), and the U.S. Postal Service Express Mail.
- Q. Water-borne transportation.  
No commercial river transport services or port districts are located in Deschutes County.
- R. Pipeline transportation.  
The Pacific Gas Transmission Company operates two natural gas transmission lines from Canada to California that generally follow the Highway 97 corridor through Deschutes County.  
(Ord. 2002-005 §1, 2002; Ord. 2000-017 §1, 2000; Ord. 93-033, 1993; Ord. 80-203, 1980; PL-20, 1979)