

## **Chapter 23.64. TRANSPORTATION SYSTEM PLAN**

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### **23.64.010. Transportation System Plan.**

In late 1994, the County initiated work on a long-range transportation system plan (TSP), which was a requirement of OAR 660-12, the Transportation Planning Rule (TPR). The State of Oregon approved the Rule in 1991. The purpose of the Transportation System Plan is to guide the development of a safe, convenient and efficient transportation system that promotes economic prosperity and livability for all County residents.

- A. As required by the TPR, Deschutes County developed the standards and policies in the Transportation System Plan (TSP) that comply with the requirements to provide a multi-modal approach to solving transportation issues. The Rule identifies the specific actions required of jurisdictions based on their population. For most urban areas, the Rule requires an alternatives analysis to compare various new project options versus an alternative that proposes to build only existing funded and committed projects. Many of the alternatives have goals such as an increase in mode split share and reduced vehicle miles traveled (VMT). These goals are measurable in many urban areas or areas with a Metropolitan Planning Organization (MPO), but not in rural Deschutes County. The logical alternative choices in the County were to:
  - 1. Pursue an alternative that programs only the identified projects in the current County Major Roads Capital Improvement Plan (MRCIP) and gradually shifts funding from new capital projects to more preservation and maintenance. Over time, capital improvements to address traffic and safety problem areas will proceed on a prioritized basis. The long-term effect is that preservation and

maintenance of the existing system becomes a higher priority than relieving congestion and solving safety issues. This is often referred to as the “no build” alternative.

2. Adopt a “build” alternative, which tries to keep pace with anticipated growth by focusing funding on building capacity-enhancing and safety oriented projects, while also attempting to maintain the existing road network.
3. Adopt a combination alternative, as recommended in the Deschutes County Transportation System Plan (TSP, located in the transportation chapter of the Resource Element), which includes a mixture of new projects to enhance roadway capacity, improve safety while also maximizing preservation and maintenance. The alternative also shifts emphasis to non-auto modes as much, as is practical to meet the intent of the Transportation Planning Rule (TPR).

This Plan balances the need to reduce the reliance on single occupant vehicles given the County’s needs, geography and demographics, with the need to solve safety and operational problems. At the same time, the system needs a significant effort in maintenance over the next twenty years to preserve the investment already made by the community. Additionally, the Plan encourages ridesharing, telecommuting and eventually fixed-route transit.

- B. The TSP makes recommendations regarding short-term and long-term transportation projects on state and County facilities that will be needed over the next 20 years.
  1. The project list was based on:
    - a. Evaluating the capacity of the County road system and the state highway network within Deschutes County.
    - b. The results of state accident database analysis.
    - c. Input from the County Road Department.
    - d. Efforts to enhance alternative modes of transportation through compliance with the Transportation Planning Rule.
    - e. The input received from the citizen review committee (County Planning Commission) and the public outreach process in general.
  2. The identified projects were prioritized based on the following criteria:
    - a. Most Important: Solving safety problems
    - b. Important:
      1. Maximizing the use of pedestrian and bicycle facilities.
      2. Location of schools and fire stations.
      3. Project cost, cost per average daily trip.
      4. Anticipated traffic volumes (2016).

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

#### **23.64.020. Coordination and implementation of the Transportation System Plan.**

Based on the requirements of the Transportation Planning Rule (TPR), Deschutes County has established an ongoing procedure to periodically analyze, prepare and plan for the transportation needs of Deschutes County residents and visitors. The following goals and policies are intended to implement the Deschutes County Transportation System Plan, and thereby meet the requirements of the TPR.

1. Goals.
  - a. Achieve an efficient, safe, convenient and economically viable transportation and communication system. This system includes roads, rail lines, public transit, air, pipeline, pedestrian and bicycle facilities. The Deschutes County transportation system shall be designed to serve the existing and projected needs of the unincorporated communities and rural areas within the County. The system shall provide connections between different modes of transportation to reduce reliance on the single-occupancy vehicle.
  - b. Have an ongoing transportation planning process and maintain a transportation plan that meets the needs of the County and its residents. The transportation plan and facilities of Deschutes

County shall be coordinated with the plans and facilities of incorporated cities within Deschutes County, adjacent counties and the State of Oregon.

2. Policies. Deschutes County shall:
  - a. Identify local, regional and state transportation needs;
  - b. Develop a transportation plan that shall address those needs;
  - c. Review and update the plan every three to five years;
  - d. Continue to coordinate transportation planning with local, regional and state plans by reviewing any changes to Deschutes County local transportation plans, regional transportation plans, the Oregon Transportation Plan and ODOT's State Transportation Improvement Plan (STIP); and
  - e. Continue public and interagency involvement in the transportation planning process.
  - f. Deschutes County shall notify ODOT concerning:
    1. All land use proposals or actions that would create access onto a state highway or add >100 ADT to any County road intersection with a state highway;
    2. Any proposed land use or development within 500 feet of a state highway or public use airport within the County; and
    3. Required ODOT road approach permits.
  - g. Deschutes County shall protect approved or proposed transportation project sites through:
    1. Access control measures;
    2. Review of future large development and transportation projects that significantly affect the County's transportation system; and
    3. The imposition of conditions of approval on developments and transportation projects that have a significant effect on the County's transportation system.
  - h. Deschutes County shall coordinate local plans and land use decisions with state transportation plans, including the Oregon Transportation Plan, modal plans and corridor plans. These plans provide ODOT policies and performance standards for statewide highways within Deschutes County. The statewide plans also provide the framework for access management on state facilities to protect the capacity and function of the highways.
  - i. The lead agency for transportation project review in Deschutes County shall be:
    1. Deschutes County for projects outside UGBs;
    2. The affected city for projects within the UGBs; and
    3. The State of Oregon, Deschutes County and affected cities on projects involving state-owned facilities.
  - j. Transportation Projects.

The County shall have a list of transportation projects, adopted by the Board of County Commissioners in accordance with the policies set forth below.

    1. The initial Transportation Project List shall be set forth in Table 5.11.T1 of the Transportation System Plan adopted as part of the Resource Element of the Comprehensive Plan. The Board shall update the Transportation Project List periodically by resolution adopted by the Board, without need of a formal amendment to the TSP.
    2. New transportation projects shall be included on the County's Transportation Project List. A transportation project proposed for addition to the list shall be subject to an individual land use review only if applicable administrative rules or land use regulations require such review.
    3. Transportation or development projects that require a plan text amendment or a conditional use permit may be required to fulfill conditions or implement mitigation measures before approval is granted. Mitigation and conditions may include, but are not limited to:
      - i. Improvement of surrounding roads;
      - ii. Limits on level of development;
      - iii. Revision of development placement;
      - iv. Addition or redesign of access;

- v. Addition of traffic management devices such as traffic signals, medians, turn lanes or signage; and/or
  - vi. Improvements that reduce transportation impacts.
  - k. Deschutes County acknowledges that land use designations have a significant impact on the overall transportation system and any alterations shall be completed with consideration to traffic impacts on the County road system.
  - l. The findings of compliance with applicable statewide planning goals, acknowledged comprehensive plan policies and land use regulations, shall be coordinated with the preparation of any Environmental Impact Statement (EIS) required for a proposed transportation facility that is identified on the Deschutes County Transportation System Plan.
- (Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.030. Arterial and collector roads.**

- 1. County road Network.. The findings in the TSP conclude that the County road network currently in place, except for several specific road segments, should be adequate to serve the County needs over the next twenty years. Given the rural nature of Deschutes County and the fact that the majority of new development will take place on existing lots with existing access, few additional roads are anticipated. New road corridors to isolated subdivisions and new roads linking urban and rural areas are the main exceptions. Any new roads that will be created most likely will be the result of new developments and would therefore be part of land use development review or would be for secondary access or emergency ingress/egress to isolated subdivisions. Unforeseen large developments such as destination resorts normally have a private road system but their impacts to the County road network would be assessed at the time of land use approval.

The majority of road-related projects will consist of safety-related or other upgrades, maintenance and repair. Upgrades, maintenance and repair should be actively pursued to maintain the integrity of the system and not jeopardize the current conditions. Pedestrian, bicycle and transit modes of transportation require wider, smoother roadways. These improvements also benefit automobile and truck traffic by making the roads safer and more efficient. The main purpose of the County-owned road network is to move people and goods as efficiently as possible between and to the incorporated cities in the County, not as a means of increasing urban scale developments in the unincorporated communities of the County. The County recognizes the importance of having a natural and seamless transition of jurisdiction for County roads within urban growth boundaries to their respective city jurisdictions as the cities continue to grow.

- a. Goal. Establish a transportation system, supportive of a geographically distributed and diversified industrial base, while also providing a safe, efficient network for residential mobility and tourism.
- b. Policies.
  - 1. Deschutes County shall:
    - a. Consider the road network to be the most important and valuable component of the transportation system; and
    - b. Consider the preservation and maintenance and repair of the County road network to be vital to the continued and future utility of the County's transportation system.
  - 2. Deschutes County shall not add any miles of new road to the system unless the following issues are satisfied:
    - a. The need for the road can be clearly demonstrated;
    - b. The County can financially absorb the additional maintenance requirements;
    - c. The condition of the road proposed for acceptance into the County system must meet County road standards;
    - d. An accrued benefit can be shown to the County's economic growth; and
    - e. An overall increase in efficiency in the County road network can be demonstrated.

3. Deschutes County shall make transportation decisions with consideration of land use impacts, including but not limited to, adjacent land use patterns, both existing and planned, and their designated uses and densities.
  4. Deschutes County shall consider roadway function, classification and capacity as criteria for plan map amendments and zone changes to assure that proposed land uses do not exceed the planned capacity of the transportation system.
  5. Roads in Deschutes County shall be located, designed and constructed to meet their planned function and provide space for motor vehicle travel and bike and pedestrian facilities where required.
  6. Deschutes County shall manage the development process to obtain adequate street right-of-way and improvements commensurate with the level and impact of development. New development shall provide traffic impact analysis to assess these impacts and to help determine transportation system needs. The guidelines for traffic impact analysis shall be located within the Deschutes County Road Standards and Specifications document upon its adoption.
  7. Transportation system improvements in Deschutes County shall comply with the Americans with Disabilities Act.
  8. Transportation safety in Deschutes County shall improve for all modes through approved design practice and sound engineering principles.
  9. Deschutes County shall acquire the necessary right-of-way through the development process to correct street intersections, substandard road geometry or other problems in order to improve the safety of a road alignment, consistent with constitutional limitations.
  10. Deschutes County shall support efforts to educate the public regarding hazards related to travel on the transportation system.
  11. Deschutes County shall support public and private efforts to acquire right-of-way for new secondary access roads to isolated subdivisions.
2. Arterial and collector roads - State Highways.

Each of the Access Oregon Highways (AOH) in Deschutes County has a specific role in the statewide transportation network, as well as the County system. The 1991 Oregon Highway Plan specifies the design, access management and level of service requirements that need to be applied to these highways. Deschutes County supports ODOT policy to develop highways through a “four-phased” approach. The four phases of development take place incrementally as the traffic volumes increase and the level of service decreases. Beginning with a standard two-lane rural highway, the improvement phases are as follows:

- a. Addition of passing or climbing lanes.
- b. Widening to a four-lane section.
- c. Adding grade-separated interchanges and raised medians.
- d. Develop full grade-separated interchanges and frontage roads.

Through a coordinated analysis effort between ODOT and County staff, the probable locations of future passing and climbing lanes on the state highways in Deschutes County were identified. Also identified were the four-lane extension to Highway 97 from La Pine south to Highway 31, along with the probable locations of future grade-separated interchanges. The projected conceptual highway lane additions and interchanges are shown on Figures 5.2.F1 and 5.2.F2 in the Transportation chapter of the Resource Element. Actual locations and design would be the result of detailed engineering work occurring during project development. No signals are appropriate on state highways outside of UGBs, Terrebonne or La Pine. Instead, as intersections develop safety or operational problems, they shall be grade-separated, restricted or closed (where there is alternative access).

The following descriptions identify the roles the state highways are expected to play in Deschutes County over the next twenty years.

3. Arterial and collector roads - US Highway 97.

Congestion on Highway 97 has been mostly a problem within the communities of Bend and Redmond, due to the increasing volumes of truck traffic combined with local traffic generated by the rapid growth experienced in recent years. The Highway 97 Strategy (Appendix D of the Transportation chapter of the Resource Element) contains the goals and policies that govern the future development of the Highway 97 corridor. Outside of urban areas, the highway is characterized by two, three, and four-lane sections. The ultimate plan is for a continuous four-lane section to be built throughout the corridor, except for the sections through unincorporated communities such as Terrebonne. In those communities, traffic calming and pedestrian safety are more important than through traffic movement. In most cases, the time delay to drivers passing through the small rural communities is insignificant compared to the overall travel time along the corridor.

Highway 97 is considered a Category 2 access management facility outside of urban areas, except for the specific sections through the communities of Terrebonne, Wickiup Junction and La Pine which are Category 4 (definitions can be found on page 17). The Category 4 section in Terrebonne extends from Lower Bridge Way south to 11th Street. The section in Wickiup Junction extends from Drafter Road south to Burgess Road. The La Pine section extends south from 1st Street to 6th Street. The Terrebonne section has already been redesigned to be pedestrian-friendly by the eventual inclusion of sidewalks, landscaped strips, bulbed intersection corners and a center median. The La Pine section will be studied in 1998 as part of an approved state Transportation and Growth Management (TGM) grant. The La Pine section will be challenging due to the existing four-lane section through the community. Issues regarding Highway 97 in Deschutes County include:

- a. The increasing traffic volumes north of Terrebonne, especially at Lower Bridge Way;
- b. Traffic calming through Terrebonne, Wickiup Junction and La Pine;
- c. Local road and direct driveway access onto the highway;
- d. North and south connections to the Redmond "bypass";
- e. The needed grade-separated interchange at South Century Drive (Sunriver);
- f. The excessive speeds through the rural communities; and
- g. The possible grade separation between Yew Avenue and Deschutes Junction.
- h. The opportunity to enhance the parallel local road network to redistribute local trips that would otherwise need to use the highway (such as paving FS Rd. #41 between Sunriver and Bend).

4. Arterial and collector roads - US Highway 20.

The ODOT Highway 20 corridor planning process is currently underway, and not expected to be completed before this TSP is adopted. However, policy direction and identified projects resulting from the corridor work can be added to the County's adopted TSP when completed.

The Tumalo section was studied (with Terrebonne) in 1997 as part of an approved state Transportation and Growth Management (TGM) grant. The community focused on the need to reduce accidents and ease the burden of crossing three lanes of high-speed traffic on Highway 20. The high volume of truck trips in the Tumalo area is seen as a contributor to the overall problem, and is not anticipated to diminish during the next twenty years.

Highway 20 is considered a Category 3 access management facility west of the Sister's UGB, Category 4 within Sisters (similar to Terrebonne), Category 2 between Sisters and the Bend UGB, and Category 4 east of the Bend UGB.

The critical areas of the corridor are:

- a. The increasing traffic volumes west of Sisters that may necessitate additional passing lanes;
- b. The intersection of Cook Avenue in Tumalo which will require an eventual grade separation;

- c. Safety problems at the intersection of the Old Redmond-Bend Highway, which will also require an eventual grade separation;
  - d. Local road and direct driveway access onto the highway between Sisters and Bend; and
  - e. Improvements to the Powell Butte Highway intersection if land uses intensify at the Bend Airport and/or accelerated growth occurs in Crook County.
5. Arterial and collector roads - Oregon Highway 126 (OR 126).

With the completion of the Cline Falls interchange in 1997, there are few transportation issues remaining or anticipated on this facility. No new interchanges or medians are proposed. The primary issues are related to the highway as it passes through the City of Redmond. Areas outside of the Redmond UGB that could develop problems include:

- a. The intersection of Helmholtz Way if rapid development in and around Redmond continues;
  - b. Access to a possible new state park expansion at Cline Falls;
  - c. Local road and direct driveway access onto the highway between Sisters and Redmond; and
  - d. The substandard section east of Redmond.
  - e. The connection of 74<sup>th</sup> Street to the Cline Falls interchange.
6. Arterial and collector roads - other Oregon Highways (OR 27, OR 31, OR 370 & OR 372).

The remaining highways in the County are not considered AOH facilities, and as such, do not warrant the same priority for projects nor are they anticipated to carry significant traffic volumes. Each of these highways, except for OR 27, is currently considered a Category 4 facility. None has identified high accident rates or safety problems. With the exception of OR 370 (O'Neil Highway), none has much direct private access or potential for intensified land use. There are no plans to pave OR 27 which is considered a Category 6 facility.

Deschutes County recognizes that Crook County is incrementally paving a new road extending south from their industrial area towards Deschutes County. Ultimately this new road may connect to Highway 20 west of OR 27 near Millican. When and if this new road connects to Highway 20, ODOT may choose to designate this new route as OR 27.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.040. Access Management.**

Roads accommodate two types of travel: local travel and through traffic. Arterial streets are intended for through movement of traffic while local roads are designed to give direct access to the abutting properties. Collector roads provide a link between the local and arterial roads, balancing accessibility and function. Historically, the state and local governments corrected many congestion problems by constructing new bypasses, grade separations or major street improvements. However, such solutions are expensive and are fast becoming infeasible under current funding levels.

Arterial roads without access management can over time become overused for short distance trips and local access to property. Land use changes along these overburdened arterials results in increased trip generation and traffic conflicts, as businesses normally desire to locate on high traffic arterials. The lack of adequate access management and insufficient coordination of land use development, property division and access review can contribute to the deterioration of both the arterial and collector road network. Traffic signals, new road approaches and driveways can decrease speed and capacity, and increase both congestion and hazards. Access management includes the control of vehicular access to major roadways. Partial access control, which is often found on major arterials and highways, is provided by limiting or prohibiting driveway access, left turn movements and cross traffic at intersections. These limitations increase the capacity of an arterial to carry through traffic at the desired speeds without requiring the addition of more travel lanes. Coordination, planning and proper policies can help avoid these problems and costly solutions.

- 1. Goal.

- a. Establish an access management system adequate to protect the quality and function of the arterial and collector street system.
2. Policies.
  - a. Deschutes County shall designate access and land uses appropriate to the function of a given road.
  - b. Deschutes County shall require new development to minimize direct access points onto arterials and collectors by encouraging the utilization of common driveways.
  - c. Wherever practical, access to state highways shall be provided via frontage roads, alternative local roads or other means, rather than direct access to the highway.
  - d. A non-traversable median on state highways shall be installed by ODOT when operational or safety issues warrant installation. Directional breaks in the median shall be provided as needed to allow safe traffic operation.
  - e. Access requests onto Deschutes County arterials and collectors for new partitions, subdivisions and commercial and industrial development shall be processed with the following access management classification system in mind:
    1. Public road access spaced at no less than every 500 feet on arterials and 300 feet on collectors.
    2. If either safety or environmental factors, or the unavailability of adequate distance between access points requires placing access points at lesser intervals, then access will be denied or the best alternative placement will be chosen. On road segments that are already severely impacted by numerous access points or on road segments which abut exception areas, adherence to the above standards may be either unreasonable or counterproductive to infill of exception areas. In such cases, these standards may be relaxed by the County Road Department Director to accommodate the aforementioned special conditions.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.050. Functional classification.**

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. Further coordination is needed between the County and cities in Deschutes County regarding the functional classification of County roads within city limits and urban growth boundaries. Currently, the County maintains approximately 123 miles of roadway within city limits and urban growth boundaries. The County lacks funds to upgrade these roads to city urban standards. Strengthening and revising Urban Growth Management agreements with cities may be an effective way to pursue tight coordination on this important issue and reduce the long-term financial burden to the County. As an example, the County and the City of Bend have agreed that as of July 1, 1998, all roads within the Bend UGB will become the responsibility of the City of Bend. This shift reduces the County’s urban road mileage by approximately 70%.

The following changes to functional classification are identified on the Deschutes County Transportation Plan Map, designated as Exhibit “A” to Ordinance No. 98-044, and also identified on the more detailed maps located in the Transportation System Plan which is part of the Resource Element of the Comprehensive Plan.

1. Bend TSP.
 

The draft Bend Transportation System Plan is proposing only one change in functional classification to a County road within the UGB. However, with the recent management agreement, this road will become the jurisdiction of the City of Bend. The functional classification of all other roads that cross the Bend UGB between the City and the County have been coordinated.

  - a. Yeoman Road from 18th street east to the outer (ultimate) urban growth boundary is currently classified as either a future or current arterial depending on segment. It is proposed to change to a corresponding future and current collector.

2. Redmond TSP.

The draft Redmond Transportation System Plan proposes several classification changes to County roads within and around the UGB. The Redmond TSP also splits the existing arterial classification into two new categories, “major arterial” replaces “principal arterial” and “minor arterial” replaces “arterial”. The collector category is also changed by creating a “Major” and “Minor” classification. The difference is that bike lanes are not required on “Minor” collectors. The designation of County roads outside of UGBs shall remain consistent with the County functional classes of Rural Arterial and Rural Collector. The County shall require at least a four-foot shoulder bikeway along those sections of road within the County that are extensions of designated Minor Arterials and Major Collectors on the Redmond Plan.

a. Rural Arterial to Rural Collector:

1. Hemholtz Way (43rd) between Maple Avenue and Obsidian Avenue.
2. Northwest Way north of Maple Avenue.
3. Maple Avenue between Hemholtz Way (43rd) and Northwest Way (27th).

b. Rural Collector to Rural Arterial:

1. 27th Street between Maple Avenue and Hemlock Avenue.

c. Other Changes:

1. 9th Street classification as future arterial north of Maple Avenue / Negus Way is eliminated.

3. County roads.

Several roads within the rural areas of the County road network are in need of reclassification. The reclassification of these roads is warranted based on either their current and projected average daily traffic (ADT), or planned functional role in the transportation network. In most cases, a projected level of service “D” or worse triggered the change from collector to arterial. One exception to this is the reclassification of Forest Service Road #45. This road is expected to have high peak seasonal use between Sunriver and Mt. Bachelor, and should therefore be reconstructed to a rural arterial standard.

Several roads currently classified as arterial are recommended to revert to collector status because they don’t have a projected level of service of “D” or worse, and serve as a parallel route to a state highway. The original Transportation Element of the County Comprehensive Plan made several recommendations as to reclassifications at that time. As time has passed, some of these roads have not experienced the anticipated traffic while others are playing larger roles than originally planned due to accelerated development pressure. The County emphasis is for County roads to remain rural, have lower traffic speeds, and reduced cost to upgrade, repair and maintain.

New local roads for secondary access to rural isolated subdivisions have been identified as part of the Regional Problem Solving Project. In some cases, there is an existing dirt road across private or government land, but no dedicated right-of-way. Figures 5.2.F3a and 5.2.F3b of the Transportation chapter of the Resource Element identify proposed new roads as “corridors”, subject to future engineering and design, rather than specific alignments. The Sunriver Business Park is also in need of a future secondary access or intersection treatment such as a roundabout. With increasing development of commercial uses in the Park along with the increasing traffic volumes on South Century Drive, the single entrance/exit onto South Century Drive will become inadequate. Any solution may be problematic due to the established development pattern, the electric substation location, the forest-zoned land, and the Harper town site to the south. Figure 5.2.F3c in the Transportation chapter of the Resource Element identifies possible solutions to the problem by establishing a new access to Huntington Road. In the interim, an upgrade project to South Century Drive is identified in the Project List in the Transportation chapter of the Resource Element. The project would add a continuous two-way center turn lane from the entrance at Sunriver to the intersection at Spring River Road.

Roads classified as "future" in Figures 5.2.F4a-5.2.F4e of the Transportation chapter of the Resource Element are currently in need of either dedicated right-of-way, paving to County standard or both. The County makes the following changes in functional classification based on the current and projected traffic volumes, as well as the need for coordination between jurisdictions:

- a. Upgrade Functional Class - Rural Collector to Rural Arterial.
    1. Baker Road from US 97 to Brookswood Blvd.
    2. Burgess Road from US 97 to Day Road.
    3. South Century Drive from US 97 to Spring River Road.
    4. Cline Falls Highway from OR 126 to Second St. (Tumalo).
    5. Spring River Road from South Century Drive to FS Road #45.
    6. Forest Service Road #45 from Spring River Road to Century Drive.
  - b. Upgrade Functional Class - Rural Local to Rural Collector.
    1. Stevens Road from Bend UGB to Ward Road.
    2. Nelson Road from Waugh Rd. to Powell Butte Highway.
    3. Billadeau Road from Ward Rd. to Arnold Market Rd.
    4. Reed Road from US 97 to Darlene Way (edge of La Pine Community).
    5. Hunnell Rd. from Tumalo Rd. to Bend UGB.
    6. Rogers Rd. from Old Redmond-Bend Hwy. to Hunnell Rd.
  - c. Upgrade Functional Class - Rural Local to Future Rural Collector.
    1. Lazy River Drive to Tamarack Dr.
    2. Tamarack Drive from Lazy River Dr. to 4th Street.
    3. 4th Street to Whittier Drive.
    4. Whittier Drive to La Pine State Recreation Road.
    5. Solar Drive to Milky Way.
    6. Upland Road from Milky Way to Savage Drive.
    7. Savage Drive from Upland Road to Winchester Drive.
    8. Winchester Drive From Savage Drive to Browning Drive.
    9. Browning Drive from Winchester Drive to Stagestop Drive.
    10. Stagestop Drive from Browning Drive to Bonanza Lane.
    11. Bonanza Lane from Stagestop Drive to South Century Drive.
    12. Sunrise Blvd. from Day Rd. to Burgess Rd.
  - d. Downgrade Functional Class - Rural Arterial to Rural Collector.
    1. Holmes Road from OR126 to Lower Bridge Way .
    2. OB Riley Road from Bend UGB to Johnson Market Road.
    3. Lower Bridge Way from Holmes Road to 43rd Street.
    4. Deschutes Market Road from US 97 to Bend UGB.
  - e. Downgrade Functional Class - Rural Collector to Rural Local.
    1. Horse Butte Road from Knott Road to end.
    2. Arnold Market Road from Rickard Rd. to Billadeau Rd.
4. Goal. Deschutes County functional classification goals and policies are as follows: Designate access and land uses appropriate to the function of a given road.
  5. Policies.
    - a. Deschutes County shall:
      1. Coordinate the County Transportation System Plan with the transportation system plans of the cities of Bend, Redmond and Sisters. The County shall emphasize continuity in the classification of roads and appropriate design standards for roads that link urban areas with rural areas outside the urban growth boundaries. Prior to the finalization of any UGB amendment, the County and affected city shall agree on the functional classification and design standards of County roads within the proposed UGB area.

2. Request the transfer, or an agreement to transfer with specific timelines and milestones, jurisdiction of County roadways within the urban growth boundaries to their respective cities at the time of annexation. County policy also directs that any developer of property who proposes annexation and who has frontage on a road that does not meet city standards shall have the primary responsibility for upgrading the road to applicable city specifications. Roads shall be upgraded prior to or at the time of annexation, or the developer shall sign an agreement with the city to upgrade the road, at the time of development. Transfer of road jurisdiction shall require the approval of both the County and affected city in accordance with the provisions in ORS 373.270.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

#### **23.64.060. Road and street standards.**

Historically, County road and street standards and specifications have been located in various places throughout the County Zoning and Subdivision Ordinances, making it a difficult task to implement standards uniformly and update them as needed. The County pledges to create a separate standards and specifications document, which will enable the County to periodically update or change specifications or road project procedures without a Comprehensive Plan amendment. The likely location for the new document or chapter will be in Title 12 (Road Department) of the Deschutes County Code. The new document will reflect the County's desire to no longer have urban road standards, only rural road standards, including specific standards for the unincorporated communities of La Pine, Terrebonne and Tumalo.

1. Goals.
  - a. Develop and adopt a document or chapter of Road Standards and Specifications that shall control all aspects of construction related to roads, pedestrian walkways and bicycle facilities occurring outside designated urban growth boundaries in Deschutes County.
  - b. Develop and adopt criteria for the requirement of various levels of traffic analysis for each new rural development. The traffic analysis requirements shall be located in the Road Standards document.
2. Policies.
  - a. After County adoption of the Deschutes County Road Standards and Specifications document, all new Deschutes County rural roads and reconstructed rural roads shall be built to those identified standards. In the interim, rural road dimensions outside of the unincorporated communities of Terrebonne and Tumalo shall match the requirements set forth in Table 5.2.T1, which replaces current Table "A" located in Title 17 of the Deschutes County Code. The City of Sisters Road Development Standards shall apply within the Sisters Urban Area. The Road requirements for the unincorporated communities of Tumalo and Terrebonne are governed by the previously adopted tables included in Appendix G of the Transportation System Plan located in the Resource Element.
  - b. Road, pedestrian and bicycle projects occurring in unincorporated areas within urban growth boundaries shall be governed by the respective city's road and street standards. Those requirements shall be coordinated between the city, the County and the applicant during the land use process according to procedures to be identified in the Deschutes County Road Standards and Specifications document.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

#### **23.64.070. Road management system.**

Road management is an orderly scheduling of pavement preservation, maintenance, repairs and improvements to meet serviceability goals and provide safe, comfortable and economical transportation while striving to achieve the best possible value from available funds. Routine maintenance activities are carried out on a daily basis. Road sections requiring more extensive work are prioritized and then selected for improvements based on an evaluation of pavement condition.

Local road standards need to evolve over time as a given road experiences more traffic. A dirt or aggregate surfaced road may be adequate for access to individual properties. However, as additional properties begin to use that road for access, it may no longer be adequate. At a certain point, the owners of property using the road for access will need to join together and participate in the improvement of the road through the formation of a special road district or local improvement district.

1. Goal. Maintain the County road network pavement in good to excellent condition.
2. Policies.
  - a. Deschutes County shall continue to maintain and preserve the County road network through its pavement management system which guides a program of paving, repairing, reconstruction, drainage clearance and vegetation control.
  - b. After safety-related issues, the highest volume road segments shall be the next priority for County road maintenance and repair.
  - c. If and when gravel or dirt roads are paved by the County, the main controlling criteria shall be: density of surrounding development, traffic volumes, road classification, gap filling, potential school bus routing efficiency and emergency evacuation potential.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.080. Level of service.**

Levels of service (LOS) describe the service quality on two lane roads or highways as determined by average travel speed, percent of time delay due to the inability to pass, roadway capacity utilization, or intersection delay. LOS ratings generally apply to collector and arterial streets only.

LOS is defined by a range of designations from “A” to “F”. LOS “A” is completely unimpeded traffic flow while “F” is highly congested. Table 5.2.T2 in the Transportation chapter of the Resource Element identifies the relationship between two-way average daily traffic (ADT) volumes, level of service and the percentage of daily traffic that occurs during the peak travel hours of the day (K factor) on two-lane highways. While several road segments are expected to reach LOS “E” over the next 20 years, most County roads will be at LOS “D” or better as long as population growth does not exceed the projections. ODOT highway policies dictate that anything over LOS “C” outside of urban areas is unacceptable. For rural highway segments in Deschutes County, ODOT projects several to exceed LOS “D” over the next 20 years.

Table 5.2.T2  
Maximum Average Daily Traffic Allowed for Various Levels of Service

K Factor	Level of Service				
	A	B	C	D	E
	Average Daily Traffic Volume (ideal conditions, i.e., level terrain, etc.)				
10%	2,400	4,800	7,900	13,500	22,900

1. Goal. Maintain a level of service of “D” or better during the peak hour throughout the County arterial and collector road system over the next 20 years.
2. Policy. Deschutes County shall continue to monitor road volumes on the County arterial and collector network. The County Road Department shall continue to be the department responsible for monitoring volumes and shall strive to count each arterial and collector at least once every four years. The Road Department shall periodically examine the traffic volumes to identify level of service deterioration.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

### **23.64.090. County Roads.**

Traffic volumes on County roads were estimated using a combination of trending analyses and the Potential Development Impact Analysis work done by ODOT for Deschutes County. It was assumed that any road segment with fewer than 9,600-projected ADT in 2016 would operate at an LOS of “D” or better, and that LOS “D” is acceptable for County arterial and collector roads. Of all the County roads, only Baker Road (LOS “E”) leading into Deschutes River Woods is projected to operate at worse than LOS “D” in 2016. Additional roads *approaching* LOS “E” are located in the South County and include:

- a. Burgess Road west of Huntington Road in La Pine.
- b. South Century Drive near Sunriver.

These two road segments shall be monitored by the County Road Department and counted at least every two years instead of the usual 4-year cycle.

### **23.64.100. ODOT State Highways.**

ODOT provides yearly traffic counts on all the state highways running through Deschutes County. ODOT used historical growth rates based on the last twenty years of traffic volume data. The yearly growth ranged from 0.0 to 11.4 percent.

1. It was also assumed that the number of access points remained constant. Whereas the County road analysis related LOS directly to ADT levels, several highway segments may have high ADT levels but a correspondingly low LOS because of the presence of multilane and passing lane sections. Therefore, the most important analysis tool for highway sections becomes the LOS value rather than ADT. For multilane sections in the County, the forecasted traffic volumes are well within the capacity limits through the year 2016. However, several sections of the state highways will be reaching capacity thresholds for two-lane sections. The sections projected to approach capacity and operate at level of service (LOS) “D” or worse are:
  - a. Highway 126 through downtown Sisters and on either side of the City of Redmond.
  - b. Most of Highway 20/126 between the Jefferson County line, through Sisters and Bend to Powell Butte Highway.
  - c. Highway 97 from the Jefferson County line through Terrebonne and Cottonwood Drive south to La Pine.
  - d. Highway 372 from Bend to Dillon Falls Road on the way to Mt Bachelor.
2. Goal. Maintain the current arterial and collector system in the County and prevent degradation of the capacity of the system.
3. Policies.
  - a. Deschutes County shall monitor County arterials and collectors to help in the determination of when road improvement projects are necessary.
  - b. Deschutes County shall continue to work with the ODOT and the Cities of Bend, Redmond and Sisters to coordinate solutions to highway and non-highway road issues that cross over jurisdictional boundaries.
  - c. The County shall establish requirements and adopt standards for secondary access roads to isolated rural subdivisions.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

### **23.64.110. Bridges.**

Deschutes County owns and manages approximately 120 bridges throughout the County. The County Road Department performs routine maintenance and repairs as necessary. Several of the bridges are signed for weight limitations in the five to fifteen-ton range because they are structurally deficient. Five bridges on higher volume roads are signed with 25-ton weight limits. Since the recent replacement of the Fall River Bridge in 1995, no significant bridge problems have been identified for correction or reconstruction.

1. Goal. Maintain a safe and efficient network of bridges on County roadways.

2. Policy. Deschutes County shall monitor the condition of County bridges on a regular basis, and perform routine maintenance and repair when necessary. The County shall also explore additional funding sources when major reconstruction or replacement of bridges is necessary. (Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.120. Truck routes.**

Currently Deschutes County has no designated truck routes or hazardous materials routes on County roads. However, several roads are signed to *not* allow trucks over a certain weight due to bridge limitations. Oregon is one of the few states that currently allow oversized tractor-trailer vehicles referred to as Longer Combination Vehicles (LCV's) on certain highways. Two types of Luvs, triple trailers and heavier double trailers (105,000-lb weight limit) are allowed to operate in Oregon without a special permit. Truck traffic is generally confined to industrial, commercial and surface mining areas. State highways serve the majority of truck traffic and are most suitable for truck use. The County shall continue to designate state highways as the desired through truck routes in the County. The draft 1998 Oregon Highway Plan proposes to designate U.S. 97 as a State Trucking Route. This designation could mean that additional funds would be available for improvements to U.S. 97. Outside of the state highway system, trucks should be limited to travel only on arterial roads.

1. Goal. Develop a plan of designated truck routes.
2. Policy. Deschutes County shall require that long-haul, through trucks be limited to operating on Principal Arterial and Rural Minor Arterial roads as designated in the County transportation network, except in emergency situations and when no reasonable alternative arterial road is available for access to commercial or industrial uses.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.130. Hazardous material routes.**

The transport of non-radioactive hazardous materials (NRHM) is guided by Part 397 of the Federal Motor Carrier Safety Regulations. The Federal Department of Transportation defines hazardous materials (HAZMAT) and regulates their packaging and shipping. ODOT designates the NRHM routes in Oregon. Currently, there are no designated NRHM routes in Central Oregon, which means HAZMAT can be transported through Deschutes County without any restrictions. In order to establish a new NRHM route, the County would need to work with ODOT to make findings on various federal criteria such as population density and proximity to hospitals and schools. The creation of NRHM routes requires a deeper understanding of the movement of these shipments than is currently available, therefore no routes shall be designated in this Plan. However, the County shall work with ODOT to determine if any Deschutes County highways should be candidates for designation as NRHM routes.

1. Goal. Develop a plan of designated hazardous materials (NRHM) routes.
2. Policy. Deschutes County shall work with ODOT to determine the feasibility of designating NHRM route(s) through Deschutes County.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.140. Facility/safety improvements.**

In 1996, the grant-funded Deschutes County Safe Communities program was initiated in an effort to reduce transportation-related injuries of all types. Program staff used the state accident database, from the Accident Data Unit at ODOT, to evaluate accident data for the period 1991- April 1995. During this time period there were a total of 2,518 crashes reported on County roads and highways outside of urban areas. Of the total number of accidents, 70 were fatal, 1,073 involved injury (170 serious), and 1,375 were property damage only accidents. Safe Communities staff has also identified the difference in accident rates between the County in general and the rural areas.

Countywide, fatal accidents accounted for 1.2 percent of the total number of accidents, while fatal accidents just in the rural area accounted for 2.8 percent of the total. Injury accidents made up 4.4 percent of the

County total, while in just the rural areas; they accounted for 6.8 percent of the total. The Safe Communities Group identified the process of reengineering high incident areas, where the greatest number of accidents occur, as the most important issue that should be addressed within the first year of the program. However, it could also be argued that the number of accidents alone is not the only indicator of need for corrective measures. A location with very high traffic volumes and a high accident rate may be safer than a location with low volumes but a high accident per average daily trip (ADT) rate. The “high priority” projects in the Project List section of the Transportation chapter of the Resource Element include improvement projects recommended to improve safety.

1. Goal. Maintain a safe and efficient network of roadways.
2. Policy. Deschutes County shall maintain a prioritized inventory of safety-deficient facilities on the County road network and give highest priority to correcting safety issues.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

### **23.64.150. Public transportation – Special transit services.**

1. 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. The County shall continue to work with service providers such as Mt. Bachelor to secure additional funding as well as increase promotion of their services.
2. Future fixed-route transportation options. In 1997, ODOT funded a study to address the issue of a fixed-route, commuter shuttle transit system between Bend and Redmond. The Study includes a commuter survey, information regarding potential ridership and costs. The results indicated that the most feasible operation would be a 3-van system with reasonably direct routing and few stops. The travel time between Bend and Redmond would average 30 minutes. The capital costs would be approximately \$150,000, with annual operating costs of \$200,000. Average daily ridership could average 100 if fares were \$3.00 or less. Further study would be required prior to implementation.

If the County were to establish a rural transit “district” to include a Bend-Redmond shuttle, another potential transit route could be from La Pine to Bend. Although no formal study has been done on this, similar results as the Bend-Redmond Study would be expected. A major difference in a La Pine-Bend shuttle would be the limited number of stops in La Pine and Wickiup Junction, and a probable diversion to serve Deschutes River Woods.

To achieve its potential, a commuter shuttle service needs good connections to sidewalks, bikeways, fixed-route transit and rideshare lots. Currently, there is no fixed-route transit in Bend or Redmond. The sidewalk and bicycle networks are generally fragmented and there are few rideshare lots. Because of these limitations, a shuttle service should attempt point-to-point travel as much as possible, which means working with larger employers to encourage the service. Figure 5.3.F1 in the Transportation chapter of the Resource Element identifies the potential routes and stops for a County rural transit system.

The need for a public transit center has been identified and shall be supported by Deschutes County. The center would include adequate parking and restroom facilities, and provide the opportunity to transfer between multiple intercity and local service providers. The most likely transit center location is in Bend, but additional locations in Redmond and possibly La Pine/Wickiup Junction may also be established. The County shall cooperate with ODOT and local jurisdictions in establishing future transit facilities as needed.

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. The following are the existing service providers in the County:

- a. City of Bend Dial-A-Ride.
- b. Central Oregon Council On Aging (COCOA) Dial-A-Ride.
- 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.
- h. Access Express.

With limited funding options, no significant expansions in these demand responsive programs are planned. Short-term capital needs have been identified for several dial-a-ride service providers and are included in the Project List.

- 4. Intercity bus and passenger rail.
  - The following intercity bus services are planned to continue as the primary (and only) public transit options in the County.
    - a. Greyhound.
    - b. CAC Transportation.
    - c. The People Mover.
    - d. Porter Stage Lines.
    - e. Valley Retriever.

The focus is to maximize the efficiency of these services as land use changes occur. The County realizes it has no control over the market driven forces that allow private transit providers to thrive or just survive. Increased emphasis shall be placed on the transit/rideshare connections possible in the South County as the population increases. The County will continue to work with the cities of Bend and Redmond as they investigate the possibility of fixed-route local transit systems. Without a local transit system to distribute trips, a commuter system linking the rural and urban areas of the County is less likely to succeed.

The Oregon Transportation Commission in November 1992 adopted the Oregon Rail Passenger Policy and Plan. It provides a comprehensive long-range plan for railroad passenger service in Oregon in coordination with the Oregon Transportation Plan. Unfortunately, passenger rail service for Central Oregon was ruled out as not being cost-effective. However, as conditions change and the population of Deschutes County continues to increase, the County will monitor the feasibility for future passenger rail service and work with ODOT and the community on future transit/rail options.

- 5. Goal.
  - a. Enhance the opportunity for intermodal connections throughout the County transportation system.
  - b. Increase the existing level of special services provided.
  - c. Establish rural transit service for Deschutes County residents.
  - d. Decrease barriers to the use of existing services.
- 6. Policies.
  - a. Deschutes County shall work with ODOT, the cities of Bend, Redmond and Sisters, and transit service providers to study countywide rideshare facility needs, and investigate public transit possibilities including potential transit stops for a regional or commuter-based transit system. Those possibilities shall include bus and rail, and if economically feasible, the County shall seek such services as are found to be safe, efficient, and convenient in serving the transportation needs of the residents of Deschutes County.
  - b. Deschutes County shall continue to work with special service providers, ODOT, and the cities of Bend, Redmond and Sisters to secure additional funding as well as increase promotion of those special transit services that may be underutilized.

- c. Deschutes County shall monitor the needs of the transportation disadvantaged and attempt to fill those needs.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

### **23.64.160. Bikeways and pedestrians.**

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. Many of the goals and objectives of that Plan have been implemented and/or are still valid. With the adoption of the latest version of the Oregon Bicycle and Pedestrian Plan by the Oregon Transportation Commission on June 14, 1995, portions of the 1992 County Bicycle Master Plan are no longer relevant. The new state Plan contains several changes from earlier versions, which will have an effect on the Deschutes County Bicycle Master Plan. The most significant change is the new emphasis on pedestrian facilities, which were not addressed in the previous Plan.

Based on need and road characteristics, all roads open for public use should be considered for the potential to improve bicycling and walking. Facilities should safely accommodate the majority of users. Roads designed to accommodate cyclists with moderate skills will meet the needs of most riders; special consideration should be given close to school areas, where facilities designed specifically for children should be provided. Roads designed to accommodate young, elderly and disabled pedestrians serve all users well.

1. Rural bikeways.

On most rural roadways, shoulder bikeways are appropriate, accommodating cyclists with few conflicts with motor vehicles. In general, the minimum shoulder widths recommended by Oregon Bicycle and Pedestrian Plan for rural highways are adequate for bicycle travel. These standards take into account traffic volumes and other considerations.

Shared roadways are adequate on low-volume rural roads, where motor vehicle drivers can safely pass bicyclists due to the low likelihood of encountering on-coming traffic. Shoulder bikeways can be added to roads with high bicycle use, such as in semi-rural residential areas or close to urban areas. It may be appropriate to stripe and mark shoulders as bike lanes near schools or other areas of high use. Even adding minimal-width shoulders can improve conditions for bicyclists on roads with moderate traffic volumes. On roads with high use, it may be necessary to add full-width shoulders in areas of poor visibility due to topography.

2. Rural walkways.

In sparsely populated areas, the shoulders of rural roads usually accommodate pedestrians. There are, however, roadways outside urban areas where the developing urban character creates a need for sidewalks, such as on highly developed commercial strips or in residential clusters along county roads or state highways.

How and where pedestrians cross arterial roads is potentially more important than pedestrian travel along roads. Road volumes will dictate at what locations special pedestrian treatments may be warranted. It is anticipated that much of the focus will be on the state highways as they travel through rural communities. These locations have the highest concentrations of pedestrians and activity centers. Pedestrian treatments will be analyzed in concert with traffic calming strategies on the highways. Where sidewalks are not provided, paved shoulders should be wide enough to accommodate both pedestrians and bicyclists. Paved multi-use paths provided on one or both sides of a roadway in a rural community may be appropriate for providing access to schools. These paths will also serve the needs of young bicycle riders.

Through the site plan review process, the County will continue to monitor pedestrian facility design, and require appropriate facility designs to comply with provisions of the Americans with Disabilities Act (ADA).

The TSP identifies policies, bike and pedestrian facility classifications, design standards and construction and maintenance guidelines. Many of the design standards apply to urban rather than rural areas. However, they are in this plan because they may apply to specific projects, new neighborhoods, or urban unincorporated communities. This TSP contains a list of suggested improvements on the Deschutes County Road System to accommodate bike and pedestrian facilities. Completion of these projects will considerably enhance the network of bike and pedestrian facilities throughout the County.

The TSP recommends standards and design guidelines for bicycle and pedestrian facilities set by the 1995 Oregon Bicycle and Pedestrian Plan. All traffic devices used in conjunction with bikeways are required to meet the standards set forth in the national Manual on Uniform Traffic Control Devices (MUTCD).

3. Goals.

- a. Adopt a Countywide system plan for bike and pedestrian facilities which provide access to various destinations within unincorporated communities and between urban areas and unincorporated communities.
- b. Provide and maintain a safe, convenient and pleasing countywide bicycle and pedestrian system that is integrated with other transportation systems.
- c. Establish bicycle safety, education and enforcement programs for all ages, improve riding skills, achieve observances of traffic laws, increased awareness of cyclist's and pedestrian rights, and monitor and analyze bicycle accident data to determine safety problem areas.

4. Policies.

- a. Deschutes County shall coordinate local plans for pedestrian and bicycle facilities with the 1995 Oregon Bicycle and Pedestrian Plan. The statewide plan provides a framework for a local bicycle and pedestrian system and design standards.
- b. Deschutes County shall require bike facilities at locations that provide access within and between residential subdivisions, schools, shopping centers, industrial parks, and other activity centers when financially feasible.
- c. Deschutes County shall:
  1. Balance the plan with a variety of facilities to meet the needs of different cyclists;
  2. Plan for bicycle access between the County's urban and rural areas;
  3. Develop a bikeway system, to be updated yearly and including a map for the public that describes the opportunities for bicycling in Deschutes County;
  4. Establish priorities for facility construction and maintenance based on need and resource availability;
  5. Evaluate the plan regularly to monitor how well the facilities meet the goals of the Plan;
  6. Upgrade rural road shoulder widths to County standards during road modernization or maintenance projects involving overlays as funding allows;
  7. Require bicycle and pedestrian facilities to satisfy the recreational and utilitarian needs of the citizens of Deschutes County;
  8. Make potential use, safety and the cost of bikeway construction, the primary considerations when designing specific bikeways;
  9. Emphasize the designation of on-road bikeways, where conditions warrant due to safety reasons and the cost of construction and maintenance of separate bike paths;
  10. Expend resources for the maintenance of existing bikeways and to keep pace with the development of new bikeways;

11. Designate that the Deschutes County Bicycle and Pedestrian Advisory Committee facilitate the coordination of all bicycle and pedestrian planning in the County to assure compatibility;
12. Designate that the Deschutes County Bicycle and Pedestrian Advisory Committee assure that the Plan remains up-to-date and that implementation proceeds according to the Plan;
13. Work with affected jurisdictions to acquire, develop and maintain a series of trails along the Deschutes River, Tumalo Creek, and the major irrigation canals so that these features can be retained as a community asset; and
14. Adopt standards for trail system right-of-ways and trail improvements that are based on the type of planned trail use and reflect the standards of the 1995 Oregon Bicycle and Pedestrian Plan.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.170. On-road route selection.**

The integrity and usefulness of the bicycle system mandates that future development is designed with bicycling in mind.

1. Goal. Coordinate on-road County bikeways with known existing and proposed state and city bikeways.
2. Policies.
  - a. New public and private land developments in Deschutes County shall accommodate and tie into the bicycle system, and shall provide their residents and employees with appropriate bicycle facilities.
  - b. County arterials and collectors may use shoulder bikeways or shared roadways. These bikeways shall be upgraded to bike lanes when highway reconstruction occurs and the traffic volumes warrant lanes.
  - c. Deschutes County shall facilitate safe and direct bicycle and pedestrian crossings of arterial roads.
  - d. On-road bikeways shall be constructed in accordance with the specifications set forth in the 1995 Oregon Bicycle and Pedestrian Plan.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.180. Off-road route selection.**

1. On-road bike facilities are generally preferred due to their lower cost and easier maintenance. However, paved and unpaved off-road bike paths could cater more to the recreational and fitness riders, and also offer an automobile-free route for inexperienced and younger cyclists. Well-placed paths could also serve commuting traffic. A paved multi-use path should be of sufficient width to accommodate multiple user groups such as jogging strollers and rollerbladers. The opportunity exists in Deschutes County to create off-road, separate multiple-use paths in some circumstances:
  - a. Along maintenance “ditchrider” roads adjacent to main irrigation canals.
  - b. Major utility easements.
  - c. Short connector routes between adjoining subdivisions, and between subdivisions and adjoining schools and parks.
  - d. Abandoned roadways.
  - e. Additional bicycle paths within destination resorts and new recreational communities now in the planning stage.
  - f. Heavily impacted forest trails.
2. Goal. Identify a system of off-road paved multiple use paths to be included in the County transportation system.
3. Policies.
  - a. Developers in Deschutes County are encouraged to design paths that connect to the countywide bikeway system and that provide a direct route for commuters. In some cases, it may be

appropriate to relax a requirement, such as for a sidewalk on one side of a residential street, in favor of a comparable bike path in the development. However, the use of a bike path shall not change the on-road bikeway requirement for arterials and collectors.

- b. Deschutes County shall facilitate mountain bike routes and the creation of paved off-road multiple-use paths. The County shall identify routes and incorporate them into its transportation system where appropriate. Particular attention shall be given to obtaining and keeping rights-of-way for uninterrupted routes linking areas within the County. Natural corridors such as rivers, irrigation canals, ridges and abandoned roadway and rail lines shall receive special attention. Proposed developments may be required to provide such identified rights-of-way as part of their transportation scheme in order to maintain the integrity and continuity of the countywide system.
- c. The County shall work with local agencies and jurisdictions to acquire, develop and maintain those sections of trail that are located outside of UGBs, but are part of a trail plan or map that has been adopted by the local jurisdiction and the County.
- d. Off-road paved multiple use paths shall be constructed in accordance with the specifications set forth in the 1995 Oregon Bicycle and Pedestrian Plan.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

#### **23.64.190. Facility requirements.**

The TPR has various requirements relating to bicycle facilities such as bike parking amounts and areas, and employee considerations such as shower and changing facilities. Most of these requirements have already been implemented through Deschutes County ordinances, but are reinforced here with goals and policies.

1. Goal. Maintain the existing development requirements for bicycle facilities in Deschutes County.
2. Policy. Deschutes County shall maintain and update as necessary the existing ordinance requirements for bicycle facilities found in Title 18.116.031, or such other location that it may be moved to within the Deschutes County Development Code.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

#### **23.64.200. Airports.**

The continued operation and vitality of airports registered, licensed or otherwise recognized by the Department of Transportation is a matter of State and County concern. There are currently 18 registered airports in Deschutes County. Four of these are public use airports; two of which, Bend Municipal and Redmond Municipal-Roberts Field are publicly owned while Sisters Eagle Air and Sunriver airports are privately owned. These airports have improved (paved) runways, and offer a range of services, from the availability of commercial passenger flights arriving and departing daily at Redmond Municipal Airport, to the Sisters (Eagle Air) Airport which offers no services or runway navigational aids.

The Redmond Airport, which is located completely within the City limits of Redmond, is owned and controlled by the City of Redmond. It has a master plan, which was updated in 1998 and adopted by the City. The Plan guides the future land use(s) at the airport. The Master Plan includes an inventory of existing facilities, land uses, aviation forecasts, a demand/capacity analysis, airport layout plan and a development program.

Unlike the Redmond Airport, the Bend Municipal Airport is located outside the Bend City limits and UGB, therefore the County has land use jurisdiction over it. In order to guide airport land uses, the County adopted and utilizes the 1994 Bend Municipal Airport Master Plan, as amended in 2002 the "Supplement to 1994 Airport Master Plan" incorporated by reference herein. This is the guiding document for airport planning and development. This document incorporates a range of facility improvements for the Bend

Municipal Airport over the 20-year planning horizon (2021), including short, intermediate, and long-term projects to improve safety and function at the airport.

Currently, LCDC has administrative regulations (OAR 660-13) which were adopted in 1996. These regulations apply to airports that, in 1994, were the base for three or more aircraft. However, with the passage of HB 2605, the regulations were revised by the 1997 Oregon Legislature, which will require DLCD to update the rules to incorporate the changes made by the Legislature. For purposes of this TSP, the County will not alter current land use regulations in response to the current regulations (OAR 660-13) which have been revised by the Oregon Legislature. While the content of the new regulations is not yet known, the County policy shall be to develop ordinances to comply with the new regulations once they are adopted by DLCD.

1. Goal. Protect the function and economic viability of the existing public-use airports, while ensuring public safety and compatibility between the airport uses and surrounding land uses for public use airports and for private airports with three or more based aircraft.
2. Policies.
  - a. Deschutes County shall protect public-use airports through the development of airport land use regulations. Efforts shall be made to regulate the land uses in designated areas surrounding the Redmond, Bend, Sunriver and Sisters (Eagle Air) airports based upon adopted airport master plans or evidence of each airports specific level of risk and usage. The purpose of these regulations shall be to prevent the installation of airspace obstructions, additional airport hazards, and ensure the safety of the public and guide compatible land use. For the safety of those on the ground, only limited uses shall be allowed in specific noise impacted and crash hazard areas that have been identified for each specific airport.

Protecting the privately owned, private-use airports, with three or more based aircraft, will be accomplished by development of specific land use regulations for these types of airports. The function and economic vitality of privately owned, private-use airports with two or fewer based aircraft will also be accomplished through land use planning. Each airport's specific level of risk and usage shall be used to guide the continued safe aeronautical access to and from these airports considering the type of aircraft approved to use the airfield.
  - b. Deschutes County shall:
    1. Continue to recognize the Redmond (Roberts Field) Airport as the major commercial/passenger aviation facility in Deschutes County and an airport of regional significance. Its operation, free from conflicting land uses, is in the best interests of the citizens of Deschutes County. Incompatible land uses shall be prohibited on the County lands adjacent to the airport;
    2. Cooperate with the cities of Bend, Redmond and Sisters in establishing uniform zoning standards, which will prevent the development of hazardous structures and incompatible land uses around airports;
    3. Through adoption of appropriate zoning restrictions, take steps to ensure that any proposed uses shall not impact airborne aircraft because of height of structures, smoke, glare, lights which shine upward, radio interference from transmissions or any water impoundment's or sanitary landfills which would create potential hazards from waterfowl to airborne aircraft;
    4. Through adoption of appropriate zoning restrictions, allow land uses around public-use airports that will not be adversely affected by noise and safety problems and will be compatible with the airports and their operations;
    5. Work with, and encourage airport sponsors to work with the Federal Aviation Administration (FAA) to enforce FAA-registered flight patterns and FAA flight behavior regulations to protect the interests of County residents living near airports.
    6. Adopt zoning restrictions to ensure that developments in the airport approach areas will not be visually distracting, create electrical interference or cause other safety problems for aircraft or

- persons on the ground. In addition, efforts shall be made to minimize population densities and prohibit places of public assembly in the approach areas;
7. Continue efforts to prevent additional residential encroachment within critical noise contours or safety areas without informed consent;
  8. Specifically designate any proposed airport facility relocations or expansions within County jurisdiction on an airport master plan or airport layout plan map, as amended, and establish the appropriate airport zoning designation to assure a compatible association of airport growth with surrounding urban or rural development;
  9. Maintain geographic information system (GIS) mapping of the Airport Safety Combining Zones and provide timely updates;
  10. For those airports in Deschutes County without adopted master plans, the County shall, as a minimum, base any land use decisions involving airports on LCDC airport regulations, upon adoption of those regulations by LCDC, which implement HB 2605;
  11. Participate in and encourage the County-adoption of airport master plans for all public use airports and at least an airport layout plan for the remaining ODOT-recognized airfields in Deschutes County;
  12. Encourage appropriate federal, state and local funding for airport improvements at public-owned airports; and
  13. Discourage future development of private landing fields when they are in proximity to one another, near other public airports and potential airspace conflicts have been determined to exist by the Federal Aviation administration (FAA) or ODOT Aeronautics.
- (Ord. 2003-035 § 1, 2003; Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.210. Railroads.**

1. Goals.
    - a. Maintain the existing levels of freight rail activity throughout the County while also encouraging expanded usage by commercial and industrial companies.
    - b. Increase the safety of existing at-grade crossings and work towards the eventual replacement of all at-grade crossings with gate-protected or grade-separated crossings.
  2. Policies. Deschutes County shall:
    - a. Work cooperatively with affected local jurisdictions and railroad operators to reduce land use conflicts and increase safety at all at-grade crossings;
    - b. Encourage efforts to improve the condition of rail lines throughout the County in order to retain the effectiveness and competitiveness of freight rail;
    - c. Not endorse the abandonment of any rail lines unless they are to be converted to trail use through the federal “Rails to Trails” program. Once converted, the trails will be incorporated into the County Bikeway/Trail System;
    - d. Not endorse any activities that would diminish existing rail service; and
    - e. Work cooperatively with affected local jurisdictions, businesses and railroad operators to protect all rail spurs that currently serve businesses or have the potential to serve freight rail uses from abandonment or incompatible zoning.
- (Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.220. Waterways.**

A water-borne transportation plan is not applicable in Deschutes County.  
 (Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.230. Pipelines.**

Many miles of pipeline in Deschutes County currently carry power transmission lines, cable television, telephone, natural gas, water and sewage. The County encourages the continued use of pipelines to carry goods across County boundaries and for distribution within the County.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

### **23.64.240. Transportation System Management (TSM) and Transportation Demand Management (TDM).**

Although not urban, Deschutes County still has the potential to use several TSM and TDM strategies in order to help preserve the function of major County roads and state highways.

1. Transportation System Management (TSM).
  - a. TSM improvements focus on optimizing the carrying capacity of roads by alleviating congestion and reducing accidents. Examples of TSM strategies include:
    1. Minimizing the number of access points.
    2. Channelization of turning movements.
    3. Creation of continuous turning and merging lanes.
    4. Raised medians.
    5. Signalization.

An important aspect of TSM is that public agencies work closely with affected businesses to fully evaluate impacts from changes to access. In addition, TSM must account equally for the needs of all modes of travel, particularly that bike, pedestrian and transit movements and safety are not compromised in exchange for improving roadway capacity.
  - b. Goal. In order to optimize the carrying capacity of the County road system, provide cost effective transportation improvements and implement strategies that shall improve the efficiency and function of existing roads.
  - c. Policies.
    1. Deschutes County shall adopt land use regulations to limit the location and number of driveways and access points on all collector and arterial roads.
    2. Deschutes County shall ensure that land use actions support the access management policies of the Oregon Department of Transportation (ODOT) along state highways.
    3. Deschutes County shall implement transportation system management measures to increase safety and reduce traffic congestion on arterial and collector streets, and protect the function of all travel modes.
    4. Deschutes County shall promote safety and uninterrupted traffic flow along arterials via the following planning considerations:
      - a. Clustering of all types of development and provisions for an internal traffic circulation pattern with limited arterial access shall be encouraged;
      - b. A minimum setback of 50 feet from arterial rights-of-way shall be required;
      - c. Recommendations on speed limits shall be forwarded to the State Speed Control Board.
2. Transportation Demand Management (TDM).
  - a. Unlike TSM strategies, which focus on physical changes, TDM targets driver behavior, mode choice and employers to lower the traffic demands on the roads, especially during the peak travel times of the day. Examples of TDM strategies include:
    1. Alternative or flexible work schedules.
    2. Ridesharing/carpooling.
    3. Transit use.
    4. Bicycling/walking.
    5. Parking management.
    6. Working at home/telecommuting (teleworking).

TDM strategies often involve and education and promotion effort to encourage changes in single occupant driving behavior. Therefore, TDM strategies require a concerted community and/or employer effort and commitment to realize the greatest results. A “tool box” of TDM strategies suitable for Central Oregon is included in Appendix M of the Transportation chapter of the Resource Element. Also significant is that, of all the different strategies used to relieve

- congestion, TDM efforts in Bend, Redmond, Sisters, Prineville, and Madras can all affect the County and each city because of the employee commute patterns throughout the tri-county area.
- b. Goal. Reduce peak hour traffic volumes on County roads and diminish the exclusive use of single-occupant vehicles.
  - c. Policies. Deschutes County shall:
    1. Encourage businesses to participate in transportation demand management efforts through the development of incentives and/or disincentives. These programs shall be designed to reduce peak hour traffic volumes by encouraging ridesharing, cycling, walking, telecommuting, alternative/flexible work schedules and transit use when it becomes available;
    2. Work with business groups, large employers and school districts to develop and implement transportation demand management programs;
    3. Continue to support the work of non-profit agencies working towards the same TDM goals as Deschutes County;
    4. Encourage programs such as van or carpooling (rideshare) to increase vehicle occupancy and reduce unnecessary single-occupant vehicle travel;
    5. Continue to pursue the development of park and ride facilities and consider the siting of a rideshare facility, based on identified needs, when realigning County roadways, considering the sale of surplus property, or reviewing land use applications for developments that could benefit from such a facility;
    6. Pursue the development and utilization of telecommunication technologies that facilitate the movement of information and data;
    7. Support efforts to educate the public regarding the actual costs related to travel on the transportation system and encourage transportation demand management alternatives; and
    8. Establish and make available a transportation demand management program to County employees, to serve as a role model for the community.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)

**23.64.250. Deschutes County Transportation Project List.**

1. The list of expected transportation projects needed over the next twenty years is provided in the Transportation chapter of the Resource Element. The projects chosen were a result of:
  - a. Analysis of County roadway accident data provided by the state.
  - b. Using capacity analysis on County roads based on the forecasted growth.
  - c. Knowledge and experience of the County Road Department.
  - d. Public input.
  - e. Efforts to enhance non-auto modes of transportation to conform to requirements of the State Transportation Planning Rule (OAR 660-12).
2. The project list is broken down into two categories:
  - a. A list of previously-committed projects, which in most cases, the County has an obligation to fund and/or construct; and
  - b. A prioritized detailed project list of the remaining needs in Table 5.11.T1 of the Transportation chapter of the Resource Element.
  - c. The method used to prioritize the projects involved a criteria-ranking system. The complete ranking matrix is located in Appendix J of the Transportation chapter of the Resource Element. Categories were created then divided up by level of importance as follows:
    1. Most Important: Solving safety problems.
    2. Other Important Criteria Included: Maximizing the use of pedestrian and bicycle facilities; Location of schools, parks and fire stations; Project cost, cost per average daily trip (ADT); Pavement condition index; Anticipated traffic volumes (2016).
  - d. Safety related issues were automatically placed at the top of the list, then were ranked by cost and future traffic volumes within their category. Projects that add or enhance bicycle and

pedestrian facilities and/or have access to schools, parks or fire stations, received extra credit. The rankings for each category were added together to result in a numerical score or “rank total”. The lower the “rank total” number was, the higher the project was rated. The rankings for bike and pedestrian projects within the communities of Terrebonne and Tumalo were defined by a community planning process that took place in 1996-'97, and were to be used as general guidelines.

3. Goal. Have an annual review of the Transportation Project List for the purposes of prioritizing, adding or deleting projects.
4. Policies.
  - a. The Deschutes County Board of Commissioners shall review the Transportation Project List annually to add, delete, and/or reprioritize projects, and may do so by adoption of a resolution.
  - b. The County Board of Commissioners has the authority to add projects to the list at any time if whole or partial private sector (developer) funding becomes available through the land use process, and the potential financial benefit to the County can be demonstrated to the satisfaction of the Board.

(Ord. 2002-005 § 1, 2002; Ord. 2000-017 § 1, 2000; Ord. 98-044, 1998)